



Rasha Istaiteyh

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Economic Development and Highly Skilled Returnees: The impact of human capital circular migration on the economy of origin countries:

The case of Jordan

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The impact of human capital circular migration
on the economy of origin countries:
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Preface

The impact of human capital migration from poorer to richer countries on the migrants' countries of origin is a highly debated issue among development specialists in the academic as well as in the political sphere. It has reassumed importance since the early 1990s as global demand for the so-called "high-potentials" has significantly expanded, and industrialized countries compete with each other to attract the most skilled and highest educated. For many years, analysts have argued that international migration of highly qualified primarily benefits high-income countries while holding back economic development in poorer countries by causing a "brain drain" of desperately-needed human resources. Yet, this point of view neglects the increasingly important (temporary or definite) return of migrants to their home countries, in many cases after a period of significant up-grading of their skills and capacities. The return of highly qualified migrants to their countries of origin provides dynamic chances for broad levels of economy and society, and may turn into an asset for their countries of origin. The research presented in this volume identifies conditions under which returnees from industrialized developed countries enhanced human capital formation lead to positive returns, linking in an initial "brain drain" to the capacities of "brain gain" within the sending country. By considering the example of Jordan's higher education sector, Rasha Istaiteyeh examines the role of highly skilled returnees as a bridgehead in transforming foreign human capital gained abroad as a mechanism towards augmenting higher education exports in their home countries.

Education, training, and experiences are keys to investment in human capital formation (Becker, 1962, 1993; Mincer, 1974), which has been also identified as crucial for economic development since the work of human capital theory by the "Chicago School" (Shultz, Becker, Mincer and Rosen). According to Sjaastad (1962), migration is an investment in human capital involving costs and returns and has to be viewed in the context of complementary investments like occupational upgrading, on the job training and experiences.

The human capital gains associated with migration accrue from returnees who bring back skills acquired abroad (Stark *et al.*, 1998). Two conclusions are drawn from investment in human capital theories: *First*, out-migration can have a brain drain effect on the sending country, but this drain can be turned into net gain via the return of migrants who have accumulated new skills and knowledge while abroad. *Second*, investment in human capital can result in positive returns for the migrants' countries of origin through the expansion of earnings, jobs, income; improvements of social status and as an input to the local higher education sector.

In the early stages of the brain drain research, many authors raised the question about the causes of out-migration of highly skilled, and they mostly arrive at the conclusion of a loss to the sending countries and a gain to the receiving ones. Later literature, however, brought forward three major issues implying gains to the sending countries. The first is that increasing numbers of individuals are migrating abroad mainly for economic reasons. Second, while migrants are abroad, the transfer of knowledge and the diaspora networks result in a backflow of information and in levering human capital levels in the countries of origin. The third issue involves benefits to the sending country through migrants' return after acquiring skills abroad which are useful for their home countries, including corporations with persons and institutions abroad. The argument of this study is that an initial "brain drain" is followed by "brain returns" or "brain circulation" in which highly skilled migrants move in several directions within international labour markets. Under these conditions, different policies are implemented by migrants' home countries governments to attract their highly skilled nationals back.

Against that background the author questions the consequences out-migration of human capital may have for the country of origin. Her research is built upon an assessment of the drivers of higher education export in Jordan, addressing consecutively three areas of related research questions. First, the reasons for Jordanian PhD students returning back home; second, the determinants for

international students' choice of Jordan to pursue their undergraduate higher education studies and third the effect of investment in human capital formation on international students' enrollment.

The results show that the main reason for academic staffs returning home were family considerations, governmental policies complemented by job opportunities, and the major determinants for international students to move to Jordan were family influence, cultural affinity, and political stability. Furthermore, the results indicate that PhD degrees achieved from a foreign university affect international students' enrollment in scientific faculties, whereas other kinds of human capital formation proved to have almost no effect on international students' enrolments, independently of whether it was acquired from a foreign or a domestic source.

The evidences collected in this study demonstrate that returns on out-migration of graduate students to achieve their PhDs is increasingly expected to complement the inward monetary remittances Jordan has used to depend on since the 1970s until the present times, especially in situations of uncertainty and political volatility. It is expected that the impact of out-migration of highly-skilled labour force will continue in the future, and that remittances of human capital will result in a “win-win” situation for the returnees as well as for their home country in terms of sustainable economic growth. Jordan's exports of highly skilled human capital, consisting of teachers, engineers, physicians and others will continue in the future, through the export of more highly skilled human capital, like PhD holders, whom upon their return would enhance the reputation of Jordanian universities and contribute to attract international students, eventually generating service export revenues as a new source of income and of a foreign currency in a poor- resource country such as Jordan. Still, evidence about the relationship between brain circulation and returns on investment in human capital in the higher education sector is rare. The present analysis provides valuable insights into this important area, and deduces different policy advices.

The main purpose of “International Labor Migration” series is to disseminate the results of research on relevant and topical issues among scholars, policy makers, social partners and the research community. The present volume addresses the crucial role returnees can play in driving economic development in their home countries. In the process shown, migration ceases to be a simple one way movement, but takes on a circular character integrated into the progression of economic and cultural globalization. The experiences gained by focusing on the case of Jordan could provide a policy input to the country itself, and at the same time serves as an asset of experience from which other countries and follow-up research can benefit.

This volume provides a valuable input contributing to the constituents’ efforts to better analyze the implications of the process of highly skilled migration for development, and supports countries seeking to formulate effective migration policies and programmes that serve to maximize the benefits of international migration.

Prof. Dr. Béatrice Knerr

University of Kassel

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Dedication

This work is dedicated to my father “Mohd Said” Amin Istaiteyeh, who passed away while I was conducting my survey in Jordan. I can’t express my sorrow and grief that he could not see his human capital investment ...

I owe this work to his soulGod Bless You habbeeee

Abstract

Jordan is poorly endowed with natural resources, has no oil, its natural resources are limited to phosphates and potash and have been assessed by international standards as a lower-middle-income country. Jordan has a narrow base of industrialization and the service sector outweighs other productive sectors. In addition, with the evolved regional and international political instability in the Middle East region, Jordan has to contend with such challenges where the reflections on economic development are substantial. The Jordanian government's emphasis on the higher education sector derives from its policy that investment in human capital is essential to achieve economic development and can be part in solving Jordan's modest endowment with both natural and financial resources. The Jordanian government has encouraged the improvement of its higher education sector by moving to exporting higher education services that constituted a new source of income and a new source of foreign currency earnings.

Students' mobility is a particular type of migration and graduate students' decision concerning either returning back home or remaining in the host country or relocating to a third country are related to the arguments of brain drain, drain gain and brain circulation. Jordan's support to its human capital circular migration have been achieved at households' level and through government policies in sending and encouraging Jordanian graduate students to achieve their PhDs from abroad, where eventually many of them, will return to Jordan to serve into different Jordanian universities. Hence, Jordan has managed to build a strong reputation of Jordanian universities among Arab countries in the Middle East region. Consequently, a regional demand on Jordanian higher education services started to appear in the 1990s and afterwards, especially from Arabic neighbouring countries such as Kuwait, Saudi Arabia, Iraq, West Bank and others. In addition, the political unrest situations in some countries worldwide have lead to an uncertain environment in top destination countries for some Arabic international students,

and accordingly have increased the demand on Jordanian higher education services.

Against this background, the study will assess the role of returnee migrants (PhD holders) in driving the higher education sector in Jordan. For that purpose a survey among academic staff at Jordanian universities was performed to assist the following: first, the reasons for academic staff returning back to Jordan, second, to analyze academic staff's human capital formation variables in terms of their PhD source countries, teaching and professional experience sources, training courses acquired and experiences in international organizations. Another survey was performed among international students at Jordanian universities to stand on the reasons for choosing Jordan as their destination country. Finally, a regression analysis was computed to test the relationship between academic staff's human capital attributes on international students' enrollment in different scientific and humanities' faculties.

The results indicate that familial, social and governmental policies were responsible for Jordanian students returning home. In addition, family influence, Jordan being an Arabic and Islamic country and relatively politically stable country were the main pulling factors for international students to choose Jordan. Finally, in evaluating the effect of academic staff's human capital variables on international students' enrollment, it was revealed that staff's PhD sources, labour market conditions, faculties' reputation and tuition fees were the response variables in driving the higher education sector in Jordan. Altogether, Jordan has managed to turn the brain circulation and the human capital gains associated with its graduate students while abroad into benefits to their home countries through attracting international students, whom in the end will upgrade their skills and either stay in Jordan, or migrate again to log into other labour markets, depending on economic opportunities in occupations which they majored in.

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Abbreviations

AABU	Al al-Bayt University
ASU	Applied Science University
BA	Faculty of Business Administration
CBJ	Central Bank of Jordan
DOS	Department of Statistics
Eng.	Faculty of Engineering
FL	Faculty of Foreign Languages
FV	Future Value
GCC	Gulf Corporation Council (GCC)
<i>Tawjihi</i>	General Certificate of Secondary Education
GDP	Gross Domestic Product
HCST	Higher Council for Science and Technology
HEC	Higher Education Council
HEIs	Higher Education Institutions
IAU	International Association of Universities
ICT	Information and Communication Technologies
IIE	Institute of International Education
IMF	International Monetary Fund
<i>Intifada</i>	uprising, revolt, upheaval
IOM	International Organization for Migration
IPU	Isra Private University
IT	Faculty of Information Technology
JD	Jordanian Dinar
JV 2020	Jordan Vision 2020
LW	Faculty of Law
MENA	Middle East and North Africa
MoHESR	Ministry of Higher Education and Scientific Research
MoICT	Ministry of Information and Communications Technology
MoPIC	Ministry of Planning and International Cooperation
MU	Mu'tah University
Nr.	Number
Nurs.	Faculty of Nursing
OECD	Organization for Economic and Cultural Development
PhD	Doctorate Degree
PV	Present Value
R&D	Research and Development
S&E	Science and Engineering
S&T	Science and Technology
<i>Shariah</i>	Islamic Law
SRS	Simple Random Sampling
TV	Television
TVM	Time Value of Money

UNDP	United Nation Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UoJ	University of Jordan
USAID	United States Agency for International Development
WB	The World Bank
WP	Working Paper
YEA	Young Entrepreneurs Association
ZPU	Zarqa Private University

1. Introduction

1.1 Research statement

Education, training and experiences are keys to investment in human capital formation (Becker, 1962, 1993; Mincer, 1974). Investment in human skills for economic performance has been identified in the economic analysis since the work of human capital theory by the so-called “Chicago School” (Shultz, Becker, Mincer and Rosen). Human capital accumulation continues to be acquired lifelong (OECD, 2002), where in the future it is expected to result in private returns, in terms of better employment, higher income for the individuals concerned and positive external effects for the society. According to Sjaastad (1962), migration is a form of investment in human capital involving costs and rendering returns in terms of improving expected future real income and employment opportunities and in the end increasing the productivity of human resources. Migration according to Sjaastad can't be viewed in isolation; rather complementary investments like occupational upgrading, on the job training, and experience in the human agent are as important as or more important than the migration itself.

Migrants in a host country may complement their initial human capital by varying degrees, and the exposure to a new technological environment could mean that human capital is accumulated more rapidly in the host country than in the home country. Therefore, migration and employment in a foreign country raise the higher prospective returns to human capital in terms of learning, acquiring skills on the job, and in the level of human capital formed. Emigration of skilled individuals to larger economies can be beneficial to the sending country by producing “better” knowledge than they could at home, accumulating human capital faster, improving their productivity and, hence, increasing the potential return flows of knowledge, networks and skills (OECD,2008:11; IOM, 2008:65). Migration for acquiring higher levels of education is an investment that is likely to increase an individual's lifetime earnings net of the costs of that education (Levy and Faria, 2002). Training and experience on the job are also important contributors to human capital building

with subsequent employment in industrialized countries, which enables students studying abroad to broaden their horizons as they absorb more advanced and sophisticated work experience and enhance their human capital (Zhang, 2003). For graduate students, a post-graduate training or work experience is a critical part of the overall learning process (OECD, 2007:125).

The corollary benefits for countries of origin from students migration is apparently the risk that some of them will be captured by the labour market in the host country leading to a brain drain. The rate of non-return or the stay rates for students acquiring their doctorate degrees in western countries are high. In the U.S., for example, the stay rates' estimates range from one fifth (Rosenzweig, 2006) and one third (Lowell *et al.*, 2007) or even around two thirds of foreign citizens who achieved their science or engineering doctorate degrees in the U.S. (Finn, 2005). While this risk is certainly present, its degree depends on the family status of the migrating student, the existence of institutional safeguards and the comparative employment opportunities in the two countries. The research has identified conditions under which migration of human capital from a developing (sending) country to a developed (destination) country enhances human capital formation and increases the expected returns to skills, linking the possibility of a "brain drain" with a "brain gain" within the sending country (Mountford, 1997; Stark *et al.*, 1997; 1998; Stark and Wang, 2002; Fan and Stark, 2006). The human capital gains associated with migration accrue from the returnees bringing home new skills acquired abroad that enhance the average human capital in the sending country (Stark *et al.*, 1998).

The concept of 'brain circulation' came to prominence in the 1990s as an alternative to the notions of 'brain drain' and 'brain gain', as it accounts for the fact that emigration of students, academics and other highly skilled professionals increasingly turned out to be temporary instead of permanent (Gaillard and Gaillard 1997; Teferra, 2005). Brain circulation emphasizes the dynamic mobility of skilled individuals who return home to their countries while maintaining social

and professional relationships with the host country, which in turn enhances their productivity in the home country (Saxenian, 2005). Return migration is often referred to as capable of generating significant benefits for the country of origin (Ellerman, 2003) and returnees may have acquired academic knowledge in the form of general education, science and technical training, and may also have acquired practical business skills from either working in a commercial environment or through having started a business (Dai and Liu, 2009).

There have been several shifts in the tone of debate on migration and economic development. Through the years, there have been optimistic and pessimistic proponents, where pessimistic views on the outcome of migration on development in the origin countries have been dominant in the debate. It was only in Papademetriou and Martin (1991) who asserted that migration on balance rarely makes a significant contribution to the economic take-off in migrants' sending areas (Naerssen *et al.*, 2008). The literature puts forward positive feedback effects of the brain drain on sending countries in terms of remittances, return migration, diaspora externalities, quality of governance, and increasing returns to education. In particular, several contributions demonstrated that skilled migration can create more human capital *ex ante* than the *ex post* loss in developing countries, turning the brain drain into a brain gain (Yifu and Pleskovic, 2008).

Returning home from studying abroad would help in profiting to transfer technology and know-how in the sending countries and the further economic gains from returnees are still underestimated in which direction. Some studies have examined the returns to returning migrants, and moreover, these studies have focused on return migration to developed and transitional economies, not on return migration to developing countries, where the consequences may be different. In addition, their findings are mixed (Özden and Schiff, 2007). Sending countries may encourage students to return home upon their graduation. In this regard, different approaches like "Individual-Based Approach", "The Environment for Research Approach" and "Researchers and Scientists Overseas as a Resource"

(Solimano, 2008) promote strong research and development sector conditions that would entice the return of researchers from abroad. The literature on whether successful policies or labour market incentives would be able to bring back students from abroad is limited at best (Szelényi, 2006).

The migration of international students' at tertiary level from developing to developed countries is by no means a new phenomenon. The cumulative scholarly exertion behind the main reasons for international students' choice of a country for their higher education studies has been recognized in the "push and pull" model developed by Mazzarol and Soutar (2002) and McMahon (1992). Moreover, international students differ from the domestic students in terms of their choice of fields of study. The concentration of international students in various disciplines in countries of destination highlights magnet programmes that attract students from abroad in large numbers. This attraction results from many factors on both the supply and the demand side (OECD, 2007a). The international students in the contemporary university era are inclined to study towards new host destination countries like Singapore, China and Japan for development and progressing in degrees, diplomas, or professional certification. The Philippines, India, Egypt, Turkey and Lebanon are some examples of developing countries hosting international students from other developing countries. The number of students travelling to study in developing countries is on a rise too (Cantwell *et al.*, 2009). Examining the causes behind studying abroad is difficult and demanding.

Assuming that the cost of education and the forgone production to the sending country during migration of its human capital is regarded as an investment yielding future returns, then to answer the study question of "what is the return from investing into human capital at higher education level for the sending country" requires a quantification of three components: graduate students returning back home, international students' enrollment and sources of human capital formation variables.

1.2 Objectives of the study

The main objective of the study is to investigate the role of “returnees”; the human capital of PhD holders who returned home - in driving the higher education sector.

The objectives of this research are:

1. To investigate the reasons behind the Jordanian graduate students reasoning for returning to Jordan after completion of their PhD abroad.
2. To determine the factors for international students’ choice of Jordan as a destination country for their higher education studies.
3. To analyze the relationship between different human capital formation variables in their effect on international students’ enrollment in specific faculties.

1.3 Study design

Jordan has long realized that human capital is its major potential asset which has traditionally received a high priority among the goals of successive Jordanian governments. That means relying on the growth of its human capital in the course of achieving an independent and sustainable development of its economy. The case study of Jordan was utilized and the necessary empirical data was collected via two surveys. The first survey was directed towards academic staff who were typically involved in migration at higher education institutions. They were doctorate holders in six faculties. These are the Faculty of Engineering (Eng.), Information Technology (IT), Nursing (Nurs.), Foreign Languages (FL), Business Administration (BA) and Law (LW). The second survey was directed towards international students at the same faculties. Then a relationship between academic staff’s human capital formation attributes and international students’ enrollment at the specified faculties was detected.

1.4 Research questions

The advancements of Sjaastad (1962) and Harris and Todaro’s (1970) economic models in analyzing the motivations for migration decisions were inadequate to clarify returned migrants to developing countries from OECD countries, which are

indicated by negative diversity in expected income (OECD, 2008a :178). Hence, gaining a proper understanding of the motivations that influence graduate students' decision to return to their home countries through the "brain circulation" process is an important issue for producing migration policies. This leads to the first research question on investigating the causes for Jordanian graduate students returning back home.

Like most international students' research in general, studies on international student experiences have tended to take place in a handful of developed, often Anglophonic, countries (Cantwell *et al.*, 2009). The case of international students' experiences in developing countries challenges the dominant discourse of student flows, and that inquiry into contra or reverse flows warrants further attention. Therefore, the impetus for those students who choose to attend universities in developing countries is often overlooked and as a result, is less understood. In this regard, the second question is what attracts international students to choose Jordan as a destination country to pursue their higher education studies.

1.5 Hypotheses

The study hypotheses that reflect the objectives of the study are:

Hypothesis 1: PhD foreign

Academic faculty staff with a doctorate degree from a foreign source does not affect international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 2: PhD Arabic

Academic faculty staff with a doctorate degree from an Arabic source does not affect international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 3: Teaching experience outside Jordan

Academic faculty staff with academic experiences gained from outside Jordan has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 4: Teaching experience inside Jordan

Academic faculty staff with academic experiences gained from inside Jordan has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 5: Professional experience outside Jordan

Academic faculty staff with professional experiences gained from outside Jordan has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 6: Professional experience inside Jordan

Academic faculty staff with professional experiences gained from inside Jordan has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 7: Training courses

Academic faculty staff with related training courses has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

Hypothesis 8: Working experiences in international organizations

Academic faculty staff with working experiences in international organization has no effect on international students' enrollment in Eng., IT, Nurs., FL, BA and LW faculties (see section 6.2).

1.6 Organization of the study

The study is organized into eight chapters. The first chapter (introductory chapter) highlights the research problem, the study objectives and the study design. It also presents a brief introduction of the research questions and hypotheses. In chapter 2,

a definition of the terminologies used in the study is described. Different definitions regarding human capital, higher education and international students' enrollment are explained.

Chapter 3 presents different theoretical aspects and issues on human capital formation and migration as an investment. Then the chapter continues with the concept of brain circulation of students and researchers and outlines policies implemented to retain researchers and scientists. In the end, the chapter highlights theories of international students' choice of a destination country and their fields of study choices.

In chapter 4, a literature review of previous studies is described. In more focus, three main states of research were introduced: first: the return to investment in human capital formation and migration, second: the determinant for graduate students' brain circulation and third: the reasons behind international students' choice of a destination country and a field of study at higher education level.

A background of Jordanian economy is reviewed in chapter 5. Evidence of Jordan investment into human capital is presented. Then the chapter goes on with a description of higher education in Jordan in terms of universities' governance and financing. Academic staff at Jordanian universities by faculties and employment conditions are presented-which are essential in the course of explaining investing in human capital and its return. Then, international students at Jordanian universities are discussed in terms of their enrollments, admissions and tuition fees. In the end, the economic contribution of higher education export is calculated based on Time Value of Money (TVM) theory.

Chapter 6 sets out the methodology of the study, by first outlining the research problem, identifying variables, building up the hypotheses and explaining the instruments used for primary data collection. Then steps for selecting the sample, determining the sample size are explained together alongside the sources for collecting data from secondary sources. The rationale for the selection of the

universities and faculties used in the study is illustrated. Processing and analyzing the data using regression analysis are also stated in this chapter.

The results of academic staff and international students' survey are discussed in chapter 7. It analyzes academic staff's different human capital attributes (PhD source, teaching experiences, professional experiences, training courses and experiences in international organizations). The chapter then discusses the reasons behind Jordanian graduate students retuning home after completing their PhD abroad. Afterwards international students' choice of Jordan is presented by explaining the reasons for such a choice. In the last section of the chapter, the relationship between human capital formation variables and international students' enrollment is analyzed using simple linear regression, and a comprehensive discussion of the overall findings of the study results is defended.

Chapter 8 includes the summary of the major findings and future prospects for migration from Jordan. Recommendations for upgrading human capital, increasing international students' numbers and augmenting their choices of specialities/fields of study are introduced. Future research is addressed to give the issue of higher education export attention as a source of foreign currency to Jordan.

2 Definitions

This chapter covers the conceptual definitions used in this study to provide clarity of meaning in their application. It is acknowledged that certain terms are interpreted differently depending on the discipline and the context in which they are used.

2.1 Human capital

The notion of skills, competencies people possess as a form of capital have already been recognized as “human capital” by economists like Adam Smith, David Ricardo, and Irving Fisher (Schultz, 1971). Sherwin Rosen defined human capital as the stock of skills and productive knowledge embodied in people (Ginsburgh and Throsby, 2006). According to Schultz (1961) the acquired skills, abilities, knowledge and qualifications possessed by individuals are a form of a capital called “human capital” (Zhao, 2008). Like other forms of capital, human capabilities provide economic services (Baptiste, 2001), and facilitate the creation of personal, social and economic well-being which determines people's productivity (OECD, 2002; Heijke and Koeslag, 1999).

According to Becker (1962;1993) human capital accumulates through two channels, experience and education. In addition, Becker distinguished between “firm specific” and “general” training, where the former is training, useful only in the firm in which it was acquired, the latter training is as useful in that firm as in other firms (Chiswick, 2003). Mincer (1974) also introduced a model of human capital with two inputs, education and experience, where the latter is expressed by the number of years working in a certain job. Human capital continues in accumulating as knowledge and skills continue to be acquired lifelong (OECD, 2002). The human capital the individuals maintain or develop typically through education or training offer in return earnings in the labour market (OECD, 1999). That is, it is developed through formal education, training, post-compulsory vocational or general education tertiary education and through labour market

training (OECD, 2001:18). Human capital is heterogeneous and no single type of attribute can adequately represent the many human characteristics that bear on the economy and society (OECD, 2001a:46).

According to UNESCO (2006), a person with post-secondary education which extends over more than two years is referred to as tertiary or higher education (UNESCO, 2006). The term “higher education” represents a “continual progression” in education that individuals can acquire after secondary education (OECD, 1998). That is, it is including but not limited to universities (The World Bank, 2009; Gürüz, 2008). The World Bank (2002) defines individuals with tertiary education as an advanced human capital. The contribution of higher education to the economy is measured by the human capital contribution to the labour market by graduates of institutions of higher education (OECD, 2008b). For Becker (1993), migration is to be greater among college graduates than among high school graduates, and the issues of brain drain, brain gain and brain circulation is attached to the international mobility of students, professors and scholars (Vincent-Lancrin *et al.*, 2007; OECD, 2004). In this study, human capital includes persons with tertiary education, higher education, experiences and training.

2.2 Migration

According to the International Organization for Migration IOM (2004), migration is a process of moving, either across international borders, or within a state. It is a population movement, encompassing any kind of movement whatever its length, composition and causes. The focus in the present research is on the country of origin or the home country that is described as the “sending country”, a country from which people leave to settle abroad permanently or temporarily and the region of destination is described as the “receiving” or the “host country” (IOM, 2004).

2.3 Migrant

At the international level and according to the International Organization for Migration –IOM (2004), the term migrant is usually understood to cover all cases where the decision to migrate is taken by the individual concerned for reasons of “personal convenience” and without intervention of an external compelling factor. This term therefore applies to persons and family members, moving to another country or region to better their material or social conditions and to improve the prospect for themselves or their families. The UN (2009) distinguishes between long term and short term migrants. A long term migrant is a person who moves to a country other than that of his or her usual residence for a period of at least twelve months, so that the country of destination effectively becomes his or her new country of usual residence. From the perspective of the sending country, the person will be a long term *emigrant* and for the receiving country the person will be a long term *immigrant*. The movement of people away from the sending country is referred to as *out-migration*. In this study the focus is on long term migration of students.

2.4 Highly skilled migrants

The most basic definition of highly skilled migrants tends to be restricted to persons with tertiary education, typically adults who have completed a form of at least two years’ college education or more (IOM, 2008; Gürüz, 2008). According to Mahroum (2000) there are five types of highly skilled migrants: i) Managers and executives, ii) Engineers and technicians, iii) Academics and scientists, iv) Entrepreneurs and v) Students. In this study, the highly skilled migrants are students at graduate level of studies (doctorate studies).

2.5 Brain circulation

Brain circulation attributes to the course of moving abroad to study, then taking a job abroad, and later returning back home (Salt, 1997; Johnson and Regets, 1998; Xiaonan 1996; Gaillard and Gaillard, 1997). It is a two-way flow of highly skilled

professionals, students and scholars (OECD, 2004; Gaillard and Gaillard, 1997) between two economies or regions (OECD, 2008; Saxenian *et al.*, 2002). In this multi-way flow of skilled labour among countries (Gürüz, 2008), migrants return to their home country on a regular or occasional basis, sharing the benefits of the skills and resources they have acquired while living and working abroad (Spring, 2009).

The European Commission (EC) issued a Communication in May, 2007, which defined circular migration as “a form of migration that is managed in a way allowing some degree of legal mobility back and forth between two countries” (Newland, 2007).

According to Iredale (2005) brain circulation is the third and last phase of the migration transition for countries. For Phase 1 it includes brain drain (occurs mainly in developing and newly industrialized countries); Phase 2 is brain drain and beginning remigration; Phase 3 brain circulation; emigration, immigration and brain circulation as the highest form of integration in the globalized world. To such a degree, brain circulation can be considered as a solution and remedy to the massive flow of talents through brain drain (Teferra, 2005). Philippe Fargues, from the European University Institute, defines circular migration as a component having six criteria. These are temporary, renewable, circular (offering full freedom of movement between host and source country during the specified stay), has a legal notion, respectful of migrants rights and finally managed in a way as to match the labour demand in one participating country with the labour supply in another country (Newland, 2009:8). In this study brain circulation refers to students from developing countries often staying in OECD countries or other destination countries to pursue their doctoral studies and/or employment and then return to their home countries to take the advantages of job opportunities.

2.6 Return migration

According to the Migration Policy Institute-MPI (2010) and OECD(2008a) returning migrants are persons returning to their country of citizenship after having been international migrants in another country and intending to stay in their own country for at least a year. This definition embraces four dimensions: i) country of origin, ii) place of residence abroad, iii) length of stay in the host country, and iv) length of stay in the home country after return (OECD, 2008a:164; IOM, 2004). According to King (1986), the return migration concept is used when people return to their country or region of origin after a significant period abroad or in another region. Return migrants or “returnees” in this study refer to graduate students returning back to their countries of origin.

2.7 Remittances

In the International Monetary Fund (IMF) Balance of Payment Statistics Yearbook (BOPSY) remittances are defined as the sum of three items: Workers remittances, compensation of employees (pensions received by currently retired expatriate workers and earnings of locals working for foreign embassies and international institutions in the home country) and migrant transfers. These earnings are sent from the country of employment (where they are considered residents) to the country of origin (Jones, 2006:47). This is the standard definition in the World Development Indicators and the Global Development Finance databases of the World Bank (Giuliano and Ruiz-Arranz, 2006:7). Because of the importance of these flows to many developing countries that send and receive remittances, they have expressed increasing interest in understanding immigrants’ remittances’ practices (Tavidze, 2006:141).

Remittances are relatively a stable source of external finance, not exhibiting the fluctuations often associated with private capital inflows. Therefore, in extreme cases, remittances might reduce the probability of financial crises, as remittances, unlike capital inflows are unrequited transfers, which do not create future debt-servicing or other obligations (IMF, 2005:72-73). Remittances can be used for

basic consumption, housing, education and small business formation and to promote financial development in cash-based economies. It can also allow for increased human capital accumulation (through both education and health care) and for increases in physical and financial investments, and eventually a long-run output growth can be accelerated as a result of the additional investments in physical and human capital (IMF, 2005:72). To a certain extent, however remittances could weaken recipients' incentive to work or might lead to real exchange rate appreciation and a concomitants' contraction of tradable sectors, the so called Dutch disease (IMF, 2005:73).

2.8 Poverty incidence

Incidence of poverty is the income required to purchase the food (primarily food grains) which will ensure a minimum level of calorie intake per capita (Nath and Aggarwal, 2007:198). It is the percentage, in a given population, of persons or households with income (or expenditure) below the poverty line or standard (Shaban *et al.*, 2001: 55; Tabatabai and Fouad, 1993: 5).

2.9 Economic development

There is no single definition that encompasses all the aspects of economic development and its definition is another source of debate. Unlike economic growth, which is measured as changes in some economic magnitudes, the definition of economic development takes various forms often depending on the purpose for which the concept is being used (Ahiakpor, 1990:69).The most comprehensive definition perhaps of economic development is the one given by the World bank and Todaro and Smith (2009).The first defines economic development as the main indicator of economic development increasing the Gross National Product (GNP) per capita or the Gross Domestic Product (GDP) per capita, reflecting an increase in the economic productivity and average material wellbeing of a country's population. Economic development is closely linked with economic growth (which is a steady process by which the productive capacity of

the economy is increased over time to bring about rising levels of national output and income (Todaro and Smith, 2009). According to Todaro and Smith (2009), development meant the capacity of a national economy, whose initial economic condition has been more or less static for a long time, to generate and sustain an annual increase in its gross national income (GNI) at rates of 5% to 7% or more. A common alternative economic index of development is the rate of growth of income per capita to take into account the ability of a nation to expand its output at a rate faster than the growth rate of its population. Levels and rates of growth of “real” per capita GNI (monetary growth of GNI per capita minus the rate of inflation) are normally used to measure the overall economic well-being of a population – how much of real goods and services is available to the average citizen for consumption and investment (Todaro and Smith, 2009:14).

2.10 Developing and developed countries

The most common way to define the developing world is by per capital income. Several international agencies, including the Organization for Economic Cooperation and Development (OECD) and the United Nations, offer classifications of countries by their economic status, but the best known system is that of the International Bank for Reconstruction and Development (IBRD), commonly known as the World Bank, which uses the Gross National Income (GNI) per capita. These economies are then classified as low-income countries (LICs), lower-middle-income countries (LMCs), upper-middle-income countries (UMCs), high-income OECD countries, and other high-income countries. Developing countries are those with low-, lower-middle, or upper-middle incomes (Soubbotina, 2004; Todaro and Smith, 2009). The characterization of the developing world as sub-Saharan Africa and the Middle East, Asia, except for Japan and perhaps three or four other high-income economies, Latin America and the Carribean, and the “transition” countries of eastern Europe and Central Asia including the former Soviet Union, remains a useful generalization. In contrast, the developed world constituting the core of the OECD is comprised of the countries

of Western Europe, North America, Japan, Australia and New Zealand (Todaro and Smith, 2009).

2.11 International and foreign students

According to UNESCO (2004:144), international students are those who have crossed a national or territorial border for the purpose of education and are now enrolled outside their country of origin. Foreign students in higher education are defined as non-citizens or non-residents of the country in which they study (OECD, 2006a:285) or alternatively, those who received their prior education in another country (OECD, 2008b:351). The terms ‘international’, ‘overseas’ and ‘foreign’ are used interchangeably in the literature to refer to students studying in another country (Andrade, 2006). In the American literature, the term ‘international’ is often used, while in the British literature ‘overseas’ is more common, and ‘foreign’ appears mainly in the literature from Australia (Huang, 2008). In the present study, all terms for international, overseas and foreign are used for students who migrated to pursue their university level studies in another country, and international students and foreign students in this study are defined as non-Jordanian students enrolled at a Jordanian higher education institution and who are on a temporary student visas.

2.12 International students’ enrollment

Enrollment is the “number of pupils or students (head count) officially enrolled in a given grade or level of education within the reference period” (UNESCO, 2004:143; (OECD, 2004a:37). In Tucciarone (2007), college enrollment is most saliently determined by school images and students’ perceptions, which are critical factors that influence a student’s final choice of a destination country for higher education studies (Park, 2009:746). Chadee and Naidoo (2009:180) and Naidoo (2007:220) measured enrollment as the number of international students (the headcount) from country *i* studying in the destination country *j* at a particular point of time *t*. In Chen (2007, 2007a: 772; 275) enrollment was used as a measure of

student decision enrollment choice. In this study, enrollment is used to indicate the number of international students registered at faculty (i) in the destination country at a specific period of time, which is 2008/2009.

2.13 Higher education export

The higher educational services measured by the number of students enrolled in educational institutions outside their country of origin is called higher educational export (Larsen and Vincent-Lancrin, 2002; Mazzarol and Hosie, 1996). It is a type of student mobility through consumption abroad (Czinkota, 2006). It is the demand on higher education quality services by international students. It represents the fees and charges paid by international students that correspond to export revenues in higher educational services for the host country which generates export revenues. For a country's economy, the enrollment of foreign students represents an "invisible export" in the form of the associated income flow (OECD, 2004).

Higher education export is becoming a thriving economic sector that reflects a new source of income, i.e. a billion dollar industry (Knight, 2002), a source of foreign currency earnings (Carrington *et al.*, 2007) and playing an increasingly important role for the economic growth of a country (Van der Wende, 2003). The promotion of higher education as an export industry is, however, a relatively recent phenomenon (OECD, 2006a:26).

2.14 Undergraduates

UNESCO's International Standard Classification of Education ISCED (1997) classifies educational attainment into six categories of educational programmes, two of which categories 5A and 6 are for a university degree. ISCED 5A are programmes largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills' requirements. ISCED 5B programmes are generally more practical/technical/occupationally specific than ISCED 5A.

According to UNESCO-ISCED (1997) “undergraduate” is the first stage of tertiary level education level 5A (UNESCO, 2006:34). These undergraduate programmes typically require a high school diploma or equivalent for entry and lead to a Bachelor’s degree which qualifies the recipients to enter the labour market force or continue their education at the graduate level (either Master or PhD). In this study, undergraduates are students who are enrolled to achieve their undergraduate degree or bachelor degree.

2.15 Doctoral graduates

According to the International Classification of Education ISCED (1997) developed by UNESCO, the ISCED level 6 corresponds to programmes that lead to an advanced research qualification, equivalent to a doctorate. It includes not only a course work, but an advanced original research (UNESCO, 2006). OCED (2009) emphasizes UNESCO’s definition in that doctoral graduates are those who gained an advanced research qualification, like a PhD that requires the completion of an advanced research programme and requires the submission of a thesis or a dissertation of publishable quality which is the product of an original research and represents a significant contribution to knowledge. In this study, “doctoral graduates” or “graduates” will be used interchangeably meaning students gaining a PhD degree.

2.16 Accreditation

According to OCED and WB (2007), accreditation is the process by which an accreditation body (institution) evaluates the quality of a higher education institution as a whole (institutional accreditation) or a specific higher education programme (programme accreditation) in order to formally recognize it as having met certain predetermined minimum criteria or standards. The result of this process is usually the awarding of a status (a yes/no decision) of recognition, and sometimes of a license to operate for a specific period of time. The process can imply initial and periodic self-study and evaluation by external peers.

2.17 Academic staff

Hugo (2005) defines academic staff as members of universities who undertake teaching, research and a combination of both functions, or who are responsible for staff undertaking such functions. In this study academic staff is member of universities who is a PhD degree holder.

3 Theoretical backgrounds

Human capital which is embodied in the skills and competencies individuals possess or develop, through education and training, can offer a return in terms of earnings in the labour market. Investment in human capital is required to form this capital and the rate of return on investment in education and training is related to the increase in future income generation. The higher the earnings in the future mean, the higher the market returns on that investment. The concept of human capital can be improved through the acquisition of capacities through education (formal and informal), training, experience and mobility in the labour market. Human capital accumulation stimulated in part by remittance flows and the improved incentives for emigration possibilities, has in the meantime contributed to skill formation in the sending countries.

Migration is treated as an investment and the individual costs and returns within the theory of human migration have managed in addressing more important factors affecting individuals' decision to move. Students' migration decision is viewed as an investment yielding a return. This crossing-border mobility might have contributed to the brain drain symptoms through the non-return of students, on the contrary, in late 1990s and beginning of the 21st century the impact of international mobility has been shifted to a more optimistic evaluation, in terms of 'brain circulation'. Accompanied with encouraging policies from the sending countries, the associated capital gain with returnee students, bringing back new skills and knowledge acquired while abroad, contribute in the development of sending countries. In the same vein, as universities are connected to education, teaching and afterwards the accumulation of human capital, mobilizing a broadly diverse national and international academic staff is likely to augment these institutions' knowledge-networking capacity and build the country's effectiveness and competitiveness on the international level. Certainly the appreciation of universities international recognition and reputation is deemed by international students and their families. In addition, this reputation -which is partially built

upon academic staff criterion, does not neglect other factors taking place. In this stand, international students' choice of a destination country to pursue their higher education studies are related to a combination of pushing and pulling factors.

Three research questions are addressed in this regard: First, what are the reasons prioritized by international students in choosing a destination country to pursue their undergraduate studies abroad. Second, what are the determinants for the brain circularity of students at higher education level, to out-migrate and return home after achieving their graduate degrees. And third, what is the role of human capital formation variables associated with "Returnee" academic staff, in terms of education, experiences and training in their relation to the attraction of international students at different faculties.

The purpose of this chapter is to review the literature on subject areas relevant to the research questions mentioned above. This review is directed towards identifying important concepts, variables to facilitate the development of a theoretical framework. The following section situates our analysis on the literature on human capital formation theory, followed by graduate students' brain circulation, and in the subsequent section the determinants for international students' choice of a destination country is introduced.

3.1 Human capital formation

The notion of skills and competencies which people possess as a form of capital has already been recognized by economists, like Adam Smith, David Ricardo and Irving Fisher, who were among the first to recognize the existence of such "human capital" (Schultz, 1971). Sherwin Rosen defined human capital as the stock of skills and productive knowledge embodied in people (Ginsburgh and Throsby, 2006). According to Schultz (1961), the acquired skills, abilities, knowledge and qualifications possessed by individuals are a form of capital called "human capital" (Zhao, 2008). Like other forms of capital too, human capabilities provide economic services (Baptiste, 2001). These skills, competencies and attributes

facilitate the creation of personal, social and economic well-being which determines people's productivity (OECD, 2002; Heijke and Koeslag, 1999). The UNESCO refers to human capital as people with post-secondary education, which extends over more than two years and entitled “tertiary” or “higher education” (UNESCO, 2006).

For Becker (1962; 1993) human capital is accumulated through two main channels, experience and education. Mincer (1974) has also introduced a model of human capital with two inputs education and experience, where the latter is expressed by the number of years working in a certain job. Educational attainment is only one component of human capital accumulation since knowledge and skills continue to be acquired lifelong, not only in an education setting, but also from family life, through experience with communities and in business (OECD, 2002). Schultz (1971) in his book “Investment in Human Capital” is concerned with the role human capital plays in economic growth as well as the role of education and organized research in the formation of human capital. In addition to Schultz, Sakamoto and Powers (1995), Psacharopoulos and Woodhall (1997) emphasized on the role of formal education to improve the production capacity of a nation (Olaniyan and Okemakinde, 2008).

As such, general human capital refers to the acquisition of a comprehensive formal education and training, like a university degree that is relatively transferable across firms and industries (Carrera *et al.*, 2008). The standard human capital theory does not distinguish between foreign and domestic education (Wiers-Jenssen, 2008). The explicit focus of human capital theory is on educational level, but according to a common notion, human capital also includes educational fields, different types of skills and other individual attributes (Støren and Wiers-Jenssen, 2009). Apart from education and schooling, workers experiences have been considered a major determinant of human capital formation since the work of Becker (1962) and Mincer (1974). Hence, a comprehensive measure of human capital should also include the experience gained by leaning on-the-job (Chew and Tan, 1999). Becker

also made a distinction between “firm specific” and “general” training, where the former is training, useful only in the firm in which it was acquired, the latter training is as useful in that firm as in other firms (Chiswick, 2003).

3.2 Investment in human capital

The significance of investment in human skills for economic performance has been identified in the economic analysis since the work of human capital theory by the Chicago School (Shultz, Becker, Mincer and Rosen). Becker (1962) in developing a theory of investment in human capital has defined investments in human capital as activities that increase the resources in people for the purpose of future monetary and psychic income. This investment in human capital is the activities that affect future real income streams through the inclusion of resources in people. It is the stock of human capital or the value of one’s existing stock that can grow over the life-cycle by means of investment like schooling, on-the-job training (OJT), migration and job search (Regan *et al.*, 2007; Becker, 1962). According to Schultz (1963), schooling increases the capability of people to adjust to changes in job opportunities associated with economic growth, and ‘investment in schooling’ is a major component of human capital. The classical economist Alfred Marshall (1890) emphasized that education is the most valuable of all capital. Moreover, Smith (1776) expressed the importance of education as a “fixed capital” which helps to augment the productivity of workers in the same manner physical capital increases the productive capacity of a factory or other enterprise. Education and training are a key investment in human capital formation as in the future they will result in private returns, in terms of better employment and higher income for the individuals concerned (Wächter, 2006).

Investment in human capital implies a range of implications for earnings in the context of on-the-job training and job turnover in the labour market. This on-job training illustrates the effect of human capital on earnings, employment and other economic variables. Becker (1993) points to the idiosyncratic nature of specific

human capital which make its transfer across organizations difficult (Carrera *et al.*, 2008). For Becker, the elaboration of the concept of on-job training does not mean its importance over other kinds of investment in human capital, instead the differentiation between specificity types of on-the-job training or labour market experiences proposed many insights for the labour market activities and for investment in human capital (Chiswick, 2003; 2006). In the end, the lengthened discussion of on the-job training paves the way for briefer discussions of other kinds of investments in human capital (Becker, 1993). Mincer's (1962) development of the expanded earnings' function to include on-the-job training, which has become known as the human capital earnings function, influences the differences in earnings across individuals. Mincer conceptualized specific training as an investment that increases the marginal product of those who invest in it by improving an individual's knowledge of workplace routines and procedures. A worker's experience or tenure reflects human capital accumulated on-the-job (Serneels, 2008), and the positive effects of experience and tenure on earnings reflect the returns to human capital accumulated on the job, i.e., more experienced and more educated workers are expected to earn more.

The human capital analysis is devoted to the acquisition of capacities which are developed through formal and informal education and through training, experience and mobility in the labour market. The costs of acquiring human capacities stand to be an investment involving costs and benefits and are analyzed within a frame of economic decisions, private or public. Such costs include direct expenses and earnings foregone by students, trainees and workers engaged in labour mobility (Mincer, 1984). For identifying the rate of return for human capital investment, we have to look at it as an investment in physical capital and to establish some form of "Mincerian earnings function" (Buxton *et al.*, 1998). The return to human capital investment is linked to enhancing person skills and earning powers, and in increasing the efficiency of economic decision-making both within and without the market economy (Ginsburgh and Throsby, 2006). Following the work of Schultz

(1961) and Becker (1962), Sjaastad (1962) was the pioneer to apply the concept of human capital investment to migration decisions and the key for economic-migration theory development was the human capital theory (Fischer *et al.*, 1997).

3.3 Migration as an investment decision

Migration is treated as an investment having costs and rendering returns and in the end increases the productivity of human resources (Sjaastad, 1962). The individual costs and returns within the theory of human migration have managed in addressing more important factors affecting the decision to move. Sjaastad's work was to understand the migration decisions of individuals, where they weigh the present discounted value of the expected returns in each alternative destination and compare it to that in their present location. Taking into account the costs of moving, they decide on the location that yields the highest present value and in such a case the individual's human capital value will increase (Hunt and Mueller, 2004). According to the literature, there are two broad reasons for human migration. Human capital theory views migration as an investment to improve the expected future real income and employment opportunities. A second reason for migration is associated with the provision and financing of public output such as state and local taxation, the quality of education, state and local amenities (Mixon and Hsing, 1994). Sjaastad (1962) identifies human migration in an investment frame in order to formulate testable hypotheses related to observed migration behaviour. The main conclusion remains that migration cannot be viewed in isolation; rather complementary investments like occupational upgrading, on the job training and experience in the human agent are as important as or more important than the migration itself. If the return to migration can be increased by occupational upgrading, the problem in estimating the return becomes far more complex. In his endeavour to estimate the money return to migration, Sjaastad attributed these returns to the migration investment itself and the complementary investment like on-the-job training as well as costs of pre-employment training. Hence, migrants acquire human capital in the host country, which may

complement their initial human capital to varying degrees. In this context, the existence of externalities in the learning function while abroad and /or the exposure to a new technological environment could mean that human capital is accumulated more rapidly in the host country than in the home country.

Employment in a foreign country and the higher prospective returns to human capital in terms of learning and acquiring skills on the job in the host country raises the level of human capital formed. That is, the average level of human capital in the home country may well be higher under migration than in the absence of migration through the increase of source countries stock of human capital (Fan and Stark, 2007; Di Maria and Stryszowski, 2009). In the end, this may induce individuals' decisions positively in the home country to migrate, contributing eventually to economic development (Stark *et al.*, 1998; Fan and Stark, 2007). Borjas and Bratsberg (1996) pointed out to the effect of complementarity between initial human capital and that acquired abroad, allowing migrants to increase the return on their human capital in the home country through skill formations while abroad.

Mobility of workers is stimulated not only because of the return to skills, but also to the opportunity and efficiency of acquiring skills. Efficiency suggests that skills should be acquired where the cost is low and applied where the reward is high. This last aspect has been largely disregarded in the literature that analyzes the causes and forms of migration (Dustmann *et al.*, 2009). Acquiring higher levels of education as the stock of human capital of individuals whom maintain or develop, through education or training, render them in return earnings in the labour market, as the markets provide incentives to individuals to develop and maintain appropriate level of skills through wage differentials, especially through higher earnings for those completing additional education (OECD, 2002). Hence, the higher the earnings from increased human capital, the higher the returns and premium paid on investment and the enhanced skills. Migrant student who return home after studying abroad, choose to acquire abroad skills that are highly

rewarded in their home country and produced cheaply elsewhere is within this framework (Dustmann *et al.*, 2009). The student decides whether or not to study in alternative foreign countries based on the expected future benefits earned vis-a-vis costs. After all, given the benefits of education outlined by human capital theory, students might decide that the costs of overseas study are worth it (Naidoo, 2007a) and the acquisition of tertiary education in the foreign country may yield a higher return in the home country's labour market (Dustmann and Kirchkamp, 2002).

Student mobility is constantly increasing and that constitutes a potential flow of highly skilled to host countries. From the point of view of the sending countries, the potential gains relating to this mobility through the development of human capital, strengthening of cultural and commercial ties and transfer of technology, may be limited as a result of the brain drain consequences. This brain drain from developing countries encouraged by cross-border higher education is becoming a major concern and a topic of extensive discussion. From one side, it may assist developing countries in their endeavours to strengthen their own human resource capacities; indeed cross-border education can favour a brain drain than the circulation of skills between the host and the home country (Vincent-Lancrin, 2005). As Lowell and Findlay (2001) explain a "brain drain" can occur if emigration of tertiary educated persons for permanent or long stays abroad reaches a significant level and is not offset by the "feedback" effects of remittances, technology transfers, investments, or trade. Accordingly, "brain drain" reduces economic growth through the loss of return on investment in education and through the depletion of the source countries human capital assets. Although the new growth literature has stressed the role of human capital for economic development and blamed for the emigration of skilled workers for depriving developing countries of their most talented works and contributing to a brain drain (Di Maria and Stryszowski, 2009; Schiff, 2005), the pessimistic accounts towards brain drain has instead been challenged by a new literature putting forward multiple positive feedback effects of the brain drain on sending countries, in the form of remittances, return migration, diaspora externalities, quality of governance

and increasing returns to education. Literature of this beneficial brain drain or brain gain is in Stark *et al.* (1997); Mountford (1997); Vidal (1998); Stark *et al.* (1998); Beine *et al.* (2001); Lowell and Findlay (2001); Haas (2007) and others.

3.4 Brain circulation

The combination of international migration and education is a natural extension of the human capital approach to investment. It was not until the 1960s when the theory of human capital was fully developed and dominated economics of education. Student mobility is a particular type of migration (Murphy-Lejeune, 2003; King and Ruiz-Gelices, 2003), and foreign students' flows tend to pursue the same channels as other migrants from their country of origin, and can be considered a filling part in the migration systems (Szelényi, 2008). The likelihood for migration to study abroad is concerned when taking into account foreign study and in selecting a country and an institution (Altbach, 1991). Key texts on the history and the theory of migration say absolutely nothing about student migration, or only mention it in a couple of lines (King and Ruiz-Gelices, 2003). Moreover, although the scope of this trend of migration is substantial it is however considerably based on the East-West or the South-North divide (Baruch *et al.*, 2007).

The economic development became a top priority for the international society by the early 1960s, the view of foreign study and the recognition of the importance of human resources in economic growth, especially the importance of highly skilled manpower, obtained global attention and emphasis (Kim, 1998). In order to better understand the migratory patterns of the highly skilled, involving foreign graduate students, two frameworks can be brought in. The first one is *World Systems' Theory* where it describes international migration in terms of an amplifying global marketplace and continuing penetration of developing countries by industrialized economies (Szelényi, 2003). Another theory elaborated from world systems' theory is *Global Integration Theory*, which affirms on the global economic inequality and the global connection of higher education in explaining the

migration of the highly skilled. That is, in a global process an unequal economic and educational development takes place. The second theory is *Cumulative Causation* which stress on the importance of social capital in facilitating further migration flows. Another contribution from the “global integration” theory is the *Global Articulation of Higher Education Systems* that facilitates the migration of students. The matter behind the global educational integration is attributed to brain circulation, as students educated and skilled in western countries return to their home countries and influence the educational tactics and practices in their home countries. Scholars of migration have again recognized the importance of studying the migratory patterns of students in the specific context of brain migration and a plentiful of this research is based on students' intentions to return to their home countries after graduation. Therefore, various efforts have been made to approximate the extent to which students participate in the course of “brain drain”, “brain gain” or “brain circulation”(Szelényi, 2008).

Ladame was the first to have thoughts on the emigration of experts being permanent, who formed the term *Circulation des élites* in order to demonstrate without deep empirical evidence – that many highly qualified return to their home countries.¹ Johnson and Regets (1998) added the respective evidence in the empirical research on the returning of Taiwanese and South Korean researchers from the U.S., and introduced the term “Brain Circulation”. Hence, “brain circulation” attributes to the course of moving abroad to study, then taking a job abroad, and later returning back home (Salt, 1997; Johnson and Regets, 1998; Xiaonan, 1996; Gaillard and Gaillard, 1997). In Saxenian’s brain circulation paragon, she suggests that highly skilled migrants from developing countries who have emigrated to an industrialized country represent a potential resource for the socioeconomic development for their home countries (Saxenian, 2005).

¹According to Logan (1999) the retrieval of scientists back to their home country was first noted in Asia in 1992/1993 under the term Reverse Brain Drain. Later the term Brain Re-Gain was used (Gaillard and Gaillard, 1998). Between 1978 and 2003 about 700,000 Chinese students did their entire studies abroad, of which about 170,000 have returned (Saxenian,2002), especially to Shanghai (Müller, 2005) (Breinbauer, 2007).

Accordingly, migration is considered a temporary stage for some migrants, who by return to their countries of origin will bring back the skills and knowledge learned abroad (Hunger, 2002). Hence, graduate students' decisions concerning either to return to their home countries-or remain in the host country or relocate to a third country, are closely related to the arguments of brain migration or more precisely brain drain; drain gain, and/or brain circulation (Szelenyi, 2006).

3.4.1 Determinants for circularity

The direction of student flows is not determined merely by individual choice, instead, it can be affected by the international particularly diplomatic relations between host and source countries, by the nation state's higher education policy, and by the social changes in both domestic and global contexts (Pan, 2008). The prevalent trend during 1960s was that international students from developing countries went to developed countries with the support of their governments or through "foreign aid" of advanced countries (Cantwell *et al.*, 2009; Chadee and Naidoo, 2009; Barber, 1984). In addition, a growing regionalization prevails in students' migration patterns (OECD, 2002), i.e., foreign students in France usually come from former French colonies, forty percent from Africa and nine in ten foreign students in Australia came from the Asia-Pacific region.

The opportunity for some countries is concerned to educate their graduate students in specialities for which the domestic supply and demand of education provision are not enough to reach the critical mass needed to achieve a satisfactory quality of education, is one of the economic arguments aimed at encouraging sending students abroad to pursue their education (Altbach and Knight, 2007). A possible alternative of education abroad is to profit from centres of excellence, giving the country highly qualified labour more cheaply. These transfers of technology may be particularly important in the case of doctorate students, whose research although conducted abroad can meet the needs of their country of origin (OECD, 2001b). In addition, most of students' mobility is to English-speaking countries and such a student choice to countries with a language other than their mother tongue is

driven by motives of an economic nature and linked to exploiting language skills on the labour market (Varghese, 2008; OECD, 2001b). The attraction of the Anglo-Saxon countries validates this hypothesis and emphasizes the typical nature of migration of students for whom the language barrier can be turned into a professional advantage. Moreover, the existence of bilateral agreements between countries or national policies is to foster students exchange mobility or to fund specific international projects involving educational institutions. The European Union's Socrates programme is perhaps the most ambitious example aiming to strengthen European citizenship and to promote mobility in employment as well as education (OECD, 2002).²

The long run returns of an international educational experience depend also on how international degrees are valued and by local labour markets. The empirical evidence on the actual impact of studying abroad on labour market performance is incomplete and depends on whether students return to their home country upon graduation (Santiago *et al.*, 2008). The international mobility of students augmented significantly over the 1990s from developing countries who often stay on in OECD countries for further research or employment and participate into the innovation in these countries. Usually studies of student return are based on aggregated data on visa status adjustment to estimate non-returnees (Bratsberg, 1995). In these studies, the economic and political stands in both home and host countries have an effect on student return (Hein and Plesch, 2008). Although international students are a potential source of highly skilled labour migrants for OECD countries, rather there is no systematic data as yet on their stay rates (OECD, 2009a:53).

Various studies have observed the phenomenon of students staying on in the host countries contributing to a brain drain to their origin countries. Johnson and Regets (1998) revealed that nearly two-thirds of all foreigner doctoral students in science and engineering in the U.S. do not have intentions to return to their countries of origin. A home office study in the UK (2002) indicated that approximately half of

² Since 1987, Erasmus, the main post-secondary element of Socrates, has enabled approximately one million tertiary students to spend a study period abroad in another European Union or affiliated country (OECD, 2002).

the foreign students in the UK intended to stay on, rather still there are sharp national and spatial differences in staying-on versus returning-home practices (Baláz and Williams, 2004). In the course of migration for graduate education, some indications of brain drain may be seen, for example, by the higher number of Chinese and Indian students choosing to take an employment opportunity in the United States. For other countries, however, like South Korea and Taiwan, the situation may be apt cited as “brain circulation”, where the majority of students return to their home countries after achieving their degrees (Szelényi, 2003).

Considerable differences can be found in the stay rates of graduate students from different countries. For example, in the period from (1990-1991), 88% of Chinese and 79% of Indian doctoral specialists in science and engineering were working in the U.S. in 1995, while only 48% of Taiwanese students, 11% of South Koreans and 13% of Japanese students did so. For European countries, 59% of English, 35% of German, and 41% of Greek students stayed in the United States. Moreover, for students acquiring their PhDs in 1991, almost 58% were in the U.S. in 2001 (Szelényi, 2003, 2008; NSF, 1998). Hence, data on the number of foreign students returning from the USA to their home countries are limited. Estimates of the stay rates in the U.S. range from one fifth (Rosenzweig, 2006) and one third (Lowell *et al.*, 2007) or even around two thirds of foreign citizens who achieved their science or engineering doctorate degrees in the U.S. (Finn, 2005). Considering Germany, the stay rate was 35% for foreign students who took part in a special scholarship programmes (Hein and Plesch, 2008). For U.S., UK, Germany and France, they altogether host about 50% of all international students worldwide. Moreover, the number of graduates who maybe stay in a number of countries ranges from 15-20%, taking into account discrepancies by countries of origin (OECD, 2007a). In the end, despite the no cited evidence, still a number of students enrolled in foreign study have the desire not to return home. A number of variables affect graduate students emigration in terms of economic costs and benefits, non-return issues, political loyalty of graduates, availability of specialists, opportunities for educated unemployment and the pressure from the middle classes all played a role in

forming policies of sending countries (Altbach, 1991). Therefore, where the macro-scale economic analysis presents much insight into the determinants of brain migration by foreign students, undoubtedly, too, there are innumerable micro-level factors included in students' decision to stay in the host country or return to their home countries. The literature on these aspects of decision making is limited at best, and much remains to be learned about students' foremost motivations, intentions to migrate and impact of the "study abroad" experiences (Smith and Favell, 2008).

For some students, the mobility to go abroad for studies spurs from personal choices, such as the wish to improve foreign language skills, career prospects, cultural experience and personal development (West *et al.*, 2001). And for others, this mobility is influenced by background forces, such as the socio-economic environment of the student (Schnitzer and Zempel-Gino, 2002) or previous mobility experiences (Murphy-Lejeune, 2003; Teichler and Jahr, 2001). Political uncertainty play a role in attaining students away from returning back home. The downfall of the Shah in Iran implied that thousands of Iranian students could not return home, and the drop in oil prices in Nigeria resulted into severe economic problems and a dramatic decline in the numbers of Nigerians who were able to support their studies overseas (Altbach, 1991). The foreign students arriving in the U.S. from twenty five countries in the 1960s and 1970s implied that income differentials did not act as a leading role in determining students' "brain drain", rather professional opportunities also act as important as solely monetary comparisons in their emigration decisions. Not only this, rather different surveys showed that individual factors have a determinant effect on returning home intentions (Güngör and Tansel, 2005, 2007; Zweig, 2006; Baruch *et al.*, 2007; Tansel and Güngör, 2002). Return intentions, are confirmed to be related with initial return plans, and this relationship decreases with stay duration. However, return intentions are an imprecise measure of actual return behaviour, as Spilimbergo (2007) outlined that more people in reality return than intended to return. In summary, it was hard to define the determinants for student migration

(Commission of the European Communities 2000; Teichler and Maiworm, 1997) and the need for attesting more research in order to achieve a better understanding of the factors underpinning student mobility is required (Findlay *et al.*, 2005).

3.4.2 Policies to retain students and researchers

Developing countries are indeed benefiting from the knowledge transfers while their graduate students are abroad (Doquier, 2006; Beine *et al.*, 2003) and a massive consensus in the literature asserts that the return of foreign graduates is important for development (Spilimbergo, 2007; Kapur and McHale, 2005; OECD, 2002; OECD, 2001b). Sending countries may encourage students to return home upon their graduation, through promoting a strong research and development sector and affording conditions and incentives that will encourage both transnational investment and entrepreneurship (Gribble, 2008). Many efforts and different policies were implemented to attract highly skilled back to their home countries started in the 1970s but again little success was achieved within these schemes (Marks, 2004; Mutume, 2003). In the following three approaches, in which a successful and efficient policy response is likely to use several mechanisms to bring back their researchers and students studying abroad are presented:

1-Individual-Based Approach: which is considered a short-run policy response that attempt to structure the decisions of researchers and scientists, individual-by-individual.

2- The Environment for Research Approach: is a medium to long-term approach that aims to encourage return by improving conditions and opportunities.

3- Researchers and Scientists Overseas as a Resource: through benefiting from Diaspora networking.

In the Individual-Based Approach five mechanisms are in place. The first one is *returning by force or bonding arrangements and stipulations* (Gribble, 2008). In order to compensate for the loss of human capital, restricting the outflows or

evaluating its monetary cost and getting financial reward are needed. This mechanism is used in government and aid agency funded assistances and scholarships. An example can be seen in Colombian programme “COLFUTURO” towards graduate students who achieve their higher degrees from abroad. It is mandated that students have to return in three months after completing their studies abroad. Rather such obligatory agreements are often difficult to enforce. The second mechanism for returning students and researchers is through *economic support*, i.e., through reducing the loss of salaries for the graduate students while abroad. The Malaysian time limited tax allowance offer is an example. The Mexican Presidential Fund for Retention is an interesting model where it tries to induce both repatriates Mexican-born researchers and those who achieved their PhD in a foreign country, through reimbursing first year salary expenses for the researcher and his combining family. During the period from 1991–2000, more than 2,000 Mexican researchers were repatriated with a total cost of 56 million US dollars (NSF, 2000). The third mechanism is through *following the root cause of skilled migration, though expensive*. The risk that sector issues that caused talented individuals to leave in the first place can push them again to migrate and that would expose the expenditure spent with little impact. Examples in this direction started in 1970s with little success (Marks, 2004; Mutume, 2003). The fourth mechanism is through *repatriation programmes*: some of these programmes are governmentally funded, whereas others are a mix of government and private sector funding. These programmes may include additional funding, as well as assistance in establishing links with institutions. Through the so called “quarantine” (OECD, 2007b:54) which many countries have been applying on students from developing countries and requires them to return to their countries of origin before they can carry on to the hosting country migration processes. In the past, these numbers were limited and notably restricted to situations in which the student married a citizen of the host country. In other cases when individual personal reasons (marriage, patriotic feelings) have an effect on the decision to return or not. Hence scholarship organizations would have to select their students according to their

individual characteristics and to apply terms that are conditional on their return (Hein and Plesch, 2008). Therefore, bringing into practice measurements to downsize the brain drain risk and maintaining a considerable rate of return of foreign students, would help in easing the worries of origin countries who might be engaged in imposing a brake on international mobility of their students (OECD, 2001). Several countries are providing economic support and inducements to lure researchers and scientists home. For example, after the post-crisis economic recovery in Argentina, many programmes were introduced to bring back scientific and technical resources. One of these was a postdoctoral fellowship programme directed at PhD holders who had completed their studies abroad and were seeking a research position in Argentina (OECD, 2009a:202). These programmes' focus is on individuals who would return subject to an attractive offer, but the governments could not select such individuals or evaluate the required size of the inducement. Mexico's National Council of Science and Technology has an initiative that repatriates recent PhD graduates and increases the salaries of productive academics (Gribble, 2008). The fifth mechanism is through *selection bias and adverse incentive*. Governments endeavour to repatriate each researcher, and scientists may be faced with a selection bias. That means, the repatriated may be the less qualified. In addition, if the government would supply top positions or salaries in the home country conditional on returning, this might again encourage migration which they are trying to solve (Dillon, 2001).

In the Environment for Research Approach the following incentives can be implemented:

The first one is through *building national innovation systems*. To build an innovative national system, a robust research and development sector through providing conditions and incentives that will encourage both transnational investment and entrepreneurship either in private enterprises, public research institutions and universities are connected in having opportunities for research, innovation and entrepreneurship for highly skilled (Mahroum, 2000; Lundvall,

1992). Rather this does not only rely on spending heavily beyond the developing countries capacities, but through a partnership of public-private research linkages can be one solution. The second mechanism is *funding research*. Research funds in developing countries are managed in a top-down fashion in their allocations to universities and public research institutes. That means such allocations are based on a historical precedence and negotiation basis (Solimano, 2008). Again we are faced here with two problems. The first one is that the system is not based on research output and therefore does not encourage quality research. Secondly, the system tends to be bureaucratic and inflexible. Hence, a competitive-led approach for the best distinguished research and productive researchers is proposed. China presents a model where the government has implemented a large number of measures to improve the efficiency of its research system. Among these initiatives is the establishment of a number of competitive funds that support research on the basis of transparently selected and peer-reviewed proposals (Jonkers, 2004). Other models are in Chile, Brazil, Mexico, Venezuela and Vietnam through the “Millennium Science Initiative” (Solimano, 2008) where it supports the set up requirements to competitively select high quality research teams working in science nuclei and centres of excellence. The purpose is to show how to improve the quality of research and provide opportunities for post-graduates. The third mechanism is *mega multi-purpose grants*. Researchers need the opportunity and security to engage in large-scale ambitious research projects. Rather the funding system in developing countries is shaped by a high degree of fragmentation, i.e., scientists have to apply for several relatively small grants to cover costs categories, but in the end this would weaken the concentration on research, hence a proposal of multipurpose grants is to be given for quality research. The fourth mechanism is *promotion structures*. In many developing countries rewards in universities are based on seniority (Hansen *et al.*, 2002) which does not take into account performance and undervalues young researchers. On the other side, the successful tough, transparent and fair U.S. tenure track system for advancement is especially attractive for talented young researchers and scientists (Bosch, 2003). The fifth

mechanism is *job opportunities*. Providing attractive opportunities for young researchers upon their graduation and afterwards with better financial rewards and good working conditions and facilities to lure back researchers in their most productive years. Taiwan is an example in building the island's infrastructure for S&T together with the creation of science-based industrial parks has opened the way for many new young researchers returning from overseas. Most employees hired to work in the science-based industrial parks are junior professionals returning back from the United States. In addition, the Taiwanese private sector plays an active role in recruiting young researchers working overseas. The sixth mechanism is *university-industry corporation*. Linkages between academia and industry are essential for developing an entrepreneurial sphere in education and research and for strengthening the private sector's capacity to absorb knowledge (Cohen and Levinthal, 1989). Although in some countries the industry does not have a significant support for graduate education expansion in science and engineering (NSF, 2000) and in many developing countries have little tradition of cross-sectoral research collaboration and private sector involvement in R&D. The example of São Paulo region in Brazil depicts a mature science cluster, which has sparked the emergence of one of the largest and most diverse production centres in Latin America (Solimano, 2008). The seventh mechanism is *quality and prestige of higher education institutions*. Institutions with a strong prestigious background and reputation of scientific openness can depend on its prestige to attract the best scientists from around the world (Mahroum, 2000). The Chinese government has strengthened twelve graduate education institutions and encouraged people trained overseas to return. Between 1995 and 1999, the number of graduate students returning from overseas increased at an annual average rate of more than 10% and Zweig *et al.* (2004) indicated that the number of Chinese returnees almost doubled between 2001 and 2002, reaching 18,000 in 2002. Although the economic boom in China may be a driving force, rather the well-coordinated educational environment plays an important role, as in the establishment of a special professorship system aimed at attracting outstanding young scientists (NSF, 2000).

In the Researchers and Scientists Overseas as a Resource Approach, it relies on the following channels. The first channel is *technology transfer and investments in R&D* which can have greater effect on increasing productivity for countries far from the technology frontier. Therefore, encouraging the formation of networks with expatriates may be an important component in boosting the transfer of technology and knowledge from high- to low-income countries. The second channel is *benefiting returned researchers as a powerful asset*. Highly skilled migrants are believed to play an increasingly important role in establishing and maintaining long distance interactions between research and innovation systems. The third channel is through *diaspora policies* which differs from the return policies in that they do not target repatriating nationals physically, rather at mobilizing the talent resource of nationals living and working in another country, wherever they are located, by building formal and institutionally organized networks. The Internet played an important role in giving a driving force for the diaspora initiatives, as it provides a forum for the exchange of information irrespective of geography and time. Around 41 e-based diasporas networks during the 1990s were established. Examples of the diaspora networking are The South African Network of Skills Abroad (SANSA), CALDAS, network of Colombian scientists and engineers abroad, the Chinese Scholars Abroad (CHISA), the Colombian network of scientists and research professionals (Red Caldas), the Arab Scientists and Technologists Abroad (ASTA), and the Silicon Valley Indian Professionals Association (SIPA) (Solimano, 2008; Gribble, 2008; Lowell and Findlay, 2001).

3.5 International students

Universities are intimately associated with education, teaching and afterwards the accumulation of human capital (Arbo and Benneworth, 2007). The mediaval origin of the idea of a university was as a monastery where junior scholars could study under the tutoring of experienced staff. In this respect, the fact that world-class universities succeed in mobilizing broadly varied national and international

academic staff is likely to boost these institutions' knowledge-networking capacity (Salmi, 2009). Hence, the international component of teaching and research contributed in building a country's effectiveness and competitiveness on the international level (Knight, 2004). Moreover, there has always been an attraction of cosmopolitan values in universities and the international recognition and reputation was driving the pride of universities (Teichler *et al.*, 2002).

Students and their families are demanding information to help them to make informed choices in selecting a university and/or an academic programme (Dill and Soo, 2005). One of the important factors guiding the destinations of foreign students relates to the academic reputation of tertiary institutions or programmes (Westerheijden *et al.*, 2007; OECD, 2006c). This reputation is based on several factors like ranking stability of tertiary education institutions over time (Antunes and Thomas, 2007), the perceived quality of the teaching staff as evidenced by surrogate measures, like publications in mainstream academic journals (Cornelissen and Thorpe, 2002), authoring of textbooks, word of mouth from former and current students (Mavondo *et al.*, 2000) and well motivated academic staff (Rowley, 1996). On the contrary, the human capital models confirm that main factors influencing individual decisions to achieve a university education are economic in terms of education cost, rate of return to university education and family financial background (Ono, 2008; Jiménez and Salas-Velasco, 2000; Sakellaris and Spilimbergo, 2000).

3.5.1 Trends in international students mobility

The migration of international students is by no means a new phenomenon (Pereda *et al.*, 2007). It dates back to around 300 B.C. when Greek scholars travelled to Alexandria to advance their academic training (Cantwell *et al.*, 2009). Other sources denote its history to the 4th Century B.C. when people moved from one region to another in attaining knowledge and wisdom from eminent masters located in the so-called centres of learning (Chadee and Naidoo, 2009). In the medieaval European universities, such as Bologna, Cordova, Florence, Louvain,

Paris and Salerno, faculty tendency was international and “foreign students were the general pattern not the exception” (Altbach *et al.*, 1985; Chen, 2007; Roberts *et al.*, 2009).

Before the Second World War, Western Europe was the predominant destination for students from both colonized countries and industrial countries in the new world. By the mid-1940s, the United States of America had displaced European countries as the top destination for international students (Cantwell *et al.*, 2009). Since the Second World War (1939-1945), systems of higher education have enlarged rapidly, even in their organization transformation. This enlargement included the increase in the number of students and the diversification of higher education institutions, i.e., from first and second tier institutions that differ in selectivity, curriculum, administration, cost, academic versus practical orientation, and in prestige (Ayalon and Yogev, 2006). Crossing border education has seen a significant transformation in its objectives and organization. In the colonial period, it served the purpose of developing reliable and competent administrative support for the administration and as means of social control. And during the Cold War era, it became one of the elements in the strategy to restrain the influence of the rival powers. In the period of globalization, it became a commercial activity traded under GATS (General Agreement on Trade and Services) attracting capital investment and producing good profit (Varghese, 2008).

In 1950 approximately 50,000 students at tertiary level were studying in countries other than their own, mainly Europeans or North Americans studying in Europe or North America (Cummings and So, 1985). Between 1960 and 1970, international student flows grew by 9% and persist at 6% in the time period from 1970 to 1980 (Mazzarol and Soutar, 2002). The number of internationally mobile students was predicted at 0.6 million in 1975, doubled in 1990 to 1.2 million and 1.8 international students in 2000 then 2.3 million in year 2003 and doubled again in 2005 to more than 2.7 million (UNESCO, 2006; Kemp *et al.*, 1998; Huang, 2008). The growth continued to escalate, which is forecasted to reach an excess of 7.2

million in 2025 (OECD, 2010; Cantwell *et al.*, 2009; Park, 2009; Huang, 2008), and this expansion will likely continue. In 2006, five out of ten foreign students choose four host countries to enroll. These are the United States with 20% of all foreign students worldwide (although the share of United States from international students has dropped from 25.3% in 2000 to 21.6% in 2004 (Rhee and Sagaria, 2004), followed by the United Kingdom (11%), Germany (9%) and France (8%) (OECD, 2009b:34). These destination countries mentioned earlier share around 50% of all tertiary students continuing their studies abroad. In addition, in the year 2006, a significant number of overseas students was enrolled in other destination countries like Australia (6%), Canada (5%), Japan (4%) and New Zealand (2%). Moreover, around 57% of foreign students in OECD countries come from countries outside the OECD area. Therefore, OECD hosts almost 85% of all foreign students worldwide (OECD, 2002), and by this it is considered a net “exporter” of educational services to developing countries.

The demand for higher education by foreign students particularly from the Third World have increased during the 1990s from no more than 150,000 foreign students to around 2.12 million students in 2003 (Naidoo, 2007a). While the proportion of foreign to domestic students has remained regularly at around 2%, the foreign - domestic student ratio in many host countries has increased. This growing in international student mobility has little to do with education policies (OECD, 2006c). The fall in the cost of transport and communications, the globalization of economies and of labour markets, and the unmet demand for higher education in some emerging countries, particularly in Asia, all go some way in explaining this growth. When Adam Smith suggested over 200 years ago in “the Wealth of Nations” that professors have to be paid upon the number of students enrolled in their class, it paved the way for the Economics of Higher Education (Ehrenberg, 2004) and supplying higher education to international students has become an important source of income for universities and at the same time those students have attracted research attention.

Higher education is increasingly international and the most visible aspect of the internationalisation of higher education is foreign students (Bourke, 2000; Altbach, 1991). Not only this, rather international education is one of the most important elements in institutions of higher education in all countries and at all times (Hess,1982), maintaining that internationalisation of higher education is not a recent phenomenon (Chen, 2007). As today international students flows from developing to developed countries is the general pattern, hence it is connected with revenue production by host universities from student fees, more than students supported by development aid (Cantwell *et al.*, 2009). Consequently, higher education industry has started to develop and the most prominent internationalization of higher education is the development of higher education export services (Kemp *et al.*, 1998). A consensus among scholars reveals that the processes of globalization are unchangeable while those representing internationalization are still adjustable and changeable (Roberts *et al.*, 2009). Hence, higher education is changing completely, especially with international students seeking higher education abroad due to limited domestic supply, is now broadening its volume and scope (Huang, 2008). Moreover, the intensive interest has waved international student argument from an elitist recipient's experience benefiting from scholarships or fellowships to a mass movement of individuals and groups (Teichler and Jahr, 2001).

The changing and enlarging landscape of international students' signals emerging institutional policies and decisions aligned with internationalization (Roberts *et al.*, 2009). That is, a considerable prospect of the internationalization of higher education can be observed in the control and leadership of the world's research enterprises by a small number of main industrialized nations, the centralization of publication and data transmission networks, the widespread use of English as the world's major scientific language, and others have implications for foreign study as well (Altbach, 1991). In this regard, four approaches for internationalization were identified by De Wit (2002). These are, activity, rationale, competency, and process (Chen, 2007). Rather the most used approaches to defining

internationalization and have a direct effect on international students are the activity approach which is defined as activities, programmes, and services (Knowles, 1977, 1989; Klasek *et al.*, 1992), research, scholarly, international organization collaboration (Beerens and Derwende, 2007), export of knowledge and education (Ninnes and Hellstén, 2005; Mazzarol and Soutar, 2002). In the process approach, it includes policies (Scott, 1998; Enders, 2004) that push the higher educational institutions in an international trajectory (Schoorman, 1999; Ninnes and Hellstén, 2005). Within the international education industry, three defined waves of globalization can be recognized. The first one includes students travelling to a host nation to study at a chosen institution. The second include forward integration, i.e., institutions moving towards the export channel usually through an alliance or coalition and establishing a presence in international markets like “twinning programmes” (Smart, 1988). The third wave includes the creation of branch campuses in foreign markets and the development of “on-line” delivery of courses through information and communications technologies (ICT) (Mazzarol, 1998; Mazzarol *et al.*, 2003).

In the beginning of the twenty first century, academia is confronted with an uncertain future with the increased competition from non-traditional competitors being one of the forces urging a response (Turner and Stylianou, 2004). The extensive economic liberalization has the consequences of the emergence of competitive national higher education markets with universities and other institutions competing with each other for attracting students and research grants. As yet, the majority of international students pursuing their higher education abroad are privately funded or self financed (Bourke, 1997; Davis, 2002). Hence, the overall shortages in public funding are giving the signals for having new ways to be developed to compensate for serious financial deficiency. The enlargement of access to higher education has been associated with falling per capita funding of higher education. The cost-effective solutions and joint public-private funding encounter higher education institutions with more responding to further demands and increases in competition and market opportunities (Van der Wende, 2002).

Therefore, at the institutional level, a determinant for international education originates from the additional revenues that foreign students may generate, either through differentiated tuition fees or public subsidies (Marginson, 1997). On the other hand, tertiary education institutions also have academic purposes to engage in international activities in order to build or maintain their reputation in the increasing global academic competition (OECD, 2007a:303).

In the 1980s “full fee” policies were introduced in several countries, where the government has the right on higher education institutions to impose “full economic fees” to foreign students as in the United Kingdom, Ireland and Australia (Altbach, 1991; Bourke, 2000). The example of Britain which distinguishes between students from the European Community (EC) who are not under the high fees rates as this would breach EC policy with those of the rest of the world involving the Commonwealth countries, who pay the full fee except for scholarships (Altbach, 1991). France and Belgium are with a considerable size of international students and do not discriminate in students fees in spite of nationality origin. It is only Great Britain and all the countries in the European Community who have not much high fees for international students. The Soviet Union and other Eastern European countries did not impose any tuition fees for international students, whereas the United States has different approaches to foreign students fees (Altbach, 1991). Some OCED countries have implemented an actual cost of fees in order to obtain a new source of income for its highly internationalized universities, at the same time, it has become a motivating incentive to attract more international students like in the case of Australia since 1988, United Kingdom since 1980 and the Netherlands since 1993 for non-European Union students (OECD, 2001b). Some argue that such additional fees toward international students are trivial, as the academic infrastructure does already exist in such host countries. Rather, the model of U.S. international students where they can work as teacher assistants, contribute by this to the in-expensive labour for American universities (Altbach, 1991). This U.S. strategy within higher education financial constraints has enhanced the recruitment of foreign students as a revenue source (Russell, 2005).

For many countries, studying abroad is considered a substitute source of revenue and has more over been regarded as cash cows (Naidoo, 2007). Endeavours to privatize funding have resulted in an increased cost recovery from home country students, through imposing tuition fees and marketing of educational services to new customers in domestic and overseas markets (Bennell and Pearce, 2003). The tuition fees mechanisms in host countries in accepting international students are related to either fees' policies, quotas or post arrival controls (Bourke, 2000). Such policies and practices may push students to choose other cheaper destinations for their higher education studies, therefore, the purpose of fee-imposing plans may be reversed. On the other side, pricing at actual cost is not the only remedy for attracting international students. In this sense, economies of scale can contribute at macro-economic level (where small sized universities and small regional population) validate hosting foreign students (OECD, 2001b). In addition, by how much tuition fees may affect student flows is connected to the exchange rates between the sending and receiving country, which may bring about the cost of overseas study to change regardless of the study nominal costs in the host/receiving county (Naidoo, 2007a). Therefore, in the full payment of the educational cost, it constitutes new financial resources for universities.

The economics of student migration is a substantial issue among university administration and government, as each additional in-migrating student represents an additional source of revenue and each out-migrating student represents a potential loss of revenue to some state colleges and universities (Mixon and Hsing, 1994). In addition, the existence of out-of-state students symbolizes different social and cultural environments and may enrich resident students with an opportunity to exchange views and enhance investment in human capital through the migration process. Moreover, international student supports the host countries through their expenditures during their stay for rent, housing, food and accommodation and indirectly through continuous economic relations after they return home (Altbach, 1991). Accordingly, in the last 20 years the availability of education for foreign

students has been a leading growth to the service sector (Russell, 2005). Therefore, understanding how international students choose their host country to pursue their higher education studies is of a value added for universities in developing their economic and marketing strategies to attract more students. In the following section the theories will be outlined that play a role in international students' choice of a destination country to pursue their higher education studies.

3.5.2 Theories of international students' choice of a destination country

The phenomena of international students in higher education have witnessed a surge in the past decades of 1980s and 1990s and have attracted the interest for this subject. Most of the research already done in this field was built up on aggregate flows by the data provided by the Institute of International Education IIE (2006) and OECD (2007a) compiling dataset or research on students' individual experience adapted to new educational contexts. The research on this subject has diverse backgrounds. Some researchers examined international students' choice of destination country to study abroad and their experiences. Although, the majority of such studies handled students studying abroad in developed countries, rather a significant number of students have now started to study in developing countries. Smart (2006) stated that such studies barely consider the political aspects of international students' choice. The growing numbers in international students' research and the assortment of destination countries have added on the prominence of higher education within economic and social framework.

In considering where to study, mobile students' key choice factors are, in order, the country (54%), course (18%), institution (17%) and the city (10%) (EduWorld, 2001). While awareness of quality (or even reputation of institutions is mostly local and difficult to compare across countries) international students clearly tend to assimilate institutions with their country and to build their perceptions on the assumption that quality depends on the perceived quality of post-secondary education in a given country rather than in a specific institution. There is a noticeable shortage of the work on factors shaping individual decisions to the

country or the university to pursue higher education abroad. In addition, undergraduate education has attracted attention traditionally and prevails numerically as it comes in the forefront priorities of budgeting and public attention for governments and universities (Taylor, 2002).

This section will elaborate the theoretical framework and summarizes the contributions of economic theory to our sole inquiry, which is towards the main reasons behind international students' choice of a country for their undergraduate studies. The cumulative scholarly exertion has categorized both individual and environmental factors that shape international students' choice of a destination country at higher education level. As foreign students are financing their studies either by government sponsorship or privately funded (Bourke, 2000), hence their choices of the destination country are of great importance, especially for students from the Third World (Altbach, 1991). In their analysis of foreign-student enrollment data, Cummings (1984), Davis (1995) and UNESCO (1995) recognized that overabundance demand for domestic higher education and indulging in global economy are influencing the choice of study location (Kemp *et al.*, 1998). Moreover, international exchange and modernization of Third World countries are two arguments behind the flow of students from one country to another (Bourke, 1997; Fenwick, 1987). Despite the fact of the existence of such variables nowadays, rather still other factors take part like personal conditions, such as career path, professional experience and the brain drain concept has come up with "post study job opportunities" as a determinant for individual decision choice (Cummings and So, 1985).

International students during their decision making process are involved into two steps. The first one is "predisposition" or "motivation stage" to study abroad. The second one is the "search" or "information gathering stage" for the choice of a country (Chen, 2007). In addition, the selection of a county and institution can be separate and not connected to each other. In other words, the selection of the institution will come after the choice of country as a study destination (Lawley and

Blight, 1997). In other studies, a sequential order of choice is to follow the international student decision, which is the choice of the country, city, academic programme, and then university (Pimpa, 2003).

The choice of students' destination country is attributed to what is called "factors at the country level" or "macro-environment variables" (Duan, 1997). Examples of macro factors are the level of country economic development, historical ties, foreign aid, higher education system and economic policies. The other approach is "individual factors", where the individual behaviour of students during the decision making process is considered and not the external factors. Such factors are job opportunities after graduation (Glasser, 1978) and relative costs (Williams, 1981). Other theories trying to explain the international student mobility is "Economic Approach" (Duan, 1997; Lawley, 1998), where it explains the costs and benefits for studying abroad, as for sending countries studying abroad is inadequate and on the contrary for receiving countries it is of much concern.

Then the "Marketing Approach" (Kinnell, 1989) which emerged in relation to international students, depicts the factors in their influence on attracting more students and recruiting them. Although the market for international students is becoming a vital growth industry supported by universities, government agencies, private corporations, and entrepreneurs motivated by financial profit and institutional recognition for world class status (Altbach, 2003), then the way in which the clients' needs are assessed is considered, the development of an appropriate marketing mix, and the management of marketing operations are appraised. Rather the role of marketing efforts on international students' choice of a host country and a host institution is still underestimated (Chen, 2007). In the "Development Approach" (Cummings and So, 1985; Wobbekind and Graves, 1989) the importance of educated human capital for the development of the sending countries through the acquisition of know-how knowledge and other technical skills is emphasized through studying abroad (Power, 2000). The "Interdependence Approach" main idea that due to globalization, reciprocal

dependency is created in the political, social, economic and technological environments (Altbach, 1989; Knight, 1994). Supporters of this approach believe in its advantages, rather their oppositions support its negative economic and social consequences if the environmental effects are not suitable with a country's economic and social needs and goals (Salmi, 2001). The other approach for explaining international students' choice of a country is the "Synthesis model" which is based on Hossler and Gallagher's model (1987), Neice and Braun's (1977) three-phase model, and Mazzarol and Soutar's (2002) "push-pull" model (Chen, 2007). The synthesis model idea is embedded in econometric models, marketing models, and information-processing models. It adapts the fundamentals from the sociological models and social capital theory at an early stage, and then moves on to Florida's "creative capital" theory (2002), of students who travel from afar to pursue advanced education both for the love of knowledge and for personal and professional advancements (Chen, 2007).

Examining the causes behind studying overseas is difficult and demanding. Nevertheless, in an attempt to bring some structure to the discussion of studying abroad determinants, a skeletal categorizing of various rationales into economic and non-economic factors or according to their origin (i.e. a home versus host country) factors are followed. The "push and pull" model developed by Mazzarol and Soutar, (2002) and McMahon (1992) captured the reasons behind the flow of students internationally and in making their student choice (Cantwell *et al.*, 2009). This model is responsible for the worldwide trend of international students flows (Roberts *et al.*, 2009) and within this framework it engenders that international student mobility tends to escalate through the decision making process from starting to study abroad ending up with choosing the host institution. In fact, the push-pull model was basically used in the theory of migration to explain the factors affecting the movement of people. The model has been used to understand international student flows (Neice and Braun, 1977; Cummings, 1984; Lee and Tan, 1984; Barber, 1984; Agarwal and Winkler, 1985; Cummings and So, 1985), motivation to study abroad (Glaser, 1978; Rao, 1979; Altbach *et al.*, 1985), and

international students' choice of a country (Mazzarol and Soutar, 2002). The push-pull model hypothesizes that students' choice to study internationally occurs when they are "pushed" from their home countries by factors like insufficient educational and employment opportunities and political instability, and are "pulled" toward destinations by specific educational opportunities and other economic and social dynamisms (Altbach, 2004). In the same manner, as the greatest number of foreign students are self funded and their decisions to study abroad is upon both individual and family considerations (Altbach,1991), Third World students are hence also motivated through the push and pull factors that are influenced by governmental and institutional policies.

Where pushing factors are linked with home/sending country to encourage student decision to undertake international study (Mazzarol and Soutar, 2002), the pulling factors are associated with the host country to make it more alluring to international students (Pimpa, 2003). The predominant pushing factors are i) capacity and competency of the higher education systems in the source country in absorbing the local demand, ii) employment opportunities for graduates, which depends on the size of home market, iii) economic development level in the sending country, iv) per capita income (Mazzarol *et al.*, 2001). Regarding pulling variables, six key pulling factors influence students' selection of a host country (Mazzarol and Soutar, 2002). The first factor is the overall level of knowledge and awareness of the host country in the student's home country, which is affected with the availability of information about the potential destination country and the ease with which students could obtain the information. That is the destination's reputation for its quality and the recognition of their degrees in students' home country represented a critical pull factor. A second significant variable is the level of referrals or personal recommendations from parents, relatives, friends and what is called "gatekeepers" about the destination country before taking the last decision. The third factor is about cost issues, consisting of tuition fees, living expenses, travelling costs and social costs such as crime, safety and racial discrimination. The presence of social costs such as the existence of other students

from the international students' home countries and the possibility of part-time jobs (financial costs) represent important variables in this category. The fourth factor is environment, which is connected to the expectations about the study "climate" along its physical climate and lifestyle in the destination country. Geographic proximity is the fifth factor, where the geographic and the time of the destination country to the student country play a great role. The sixth factor is social links, i.e., either the student has family or friends in the destination country or family or friends have studied there. Where some push factors are positive, others are negative in nature. Related literature addressing the same factors can be found in Duan (1997); Harris and Rhall (1993); Smart and Ang (1993); Steadman and Dagwell (1990); Molla and Sedlacek (1989). These six pulling factors are essential in understanding the motivations for a student's selection of a host country. They are collaborated with the pushing factors described earlier for developing the demand for international education. In the end, the drivers and the flows of international students are a function of a combination of pulling and pushing factors. Neice and Braun (1977) demonstrated that pushing factors have their strength in the initial reasons for studying abroad, while pulling factors dominated the choices of programme availability (Chen, 2007).

The final decision for international students' choice of a destination country involves three stages of processing. In the first stage, the students have to decide whether to study abroad or not. This decision is influenced by various pushing factors in the home country. The next step is selecting the destination or the host country. The pulling factors become important in comparing one country to another. Finally, in the third stage the student selects an institution, and again, a bunch of pulling factors make some institutions more attractive than others. Such factors include institution reputation which is attributed to many aspects like: its quality, range of courses, staff experiences, market profiles, alliance and coalitions, offshore teaching programmes, degree of innovation, use of information technology, size of the alumni base promotion and marketing efforts and resources (Mazzarol and Soutar, 2002; Mazzarol, 1998). In other situations, students avoid

the process of choosing a host country and choose a host institution directly. In such a case, the decisions are influenced by three domains of factors in each stage: “student characteristics”, “significant others”, and “external push - pull factors” (Chen, 2007). For the “student characteristics” it includes socio-economic background and personal characteristics. The “significant others” are the support from family, relatives, professors and others. For “external push and pull factors” it includes both positive and negative forces originating from the home and host countries, personal driving forces due to external influences, and institutional characteristics.

4. State of research

This chapter reviews the state of research which is related to our research questions and hypotheses presented in chapter 3.

4.1 Return to investment in human capital formation and migration

Human capital formation and its depletion in a country open up to out migration versus closed economy, discussed by Stark *et al.* (1997). The authors compare an open economy to migration that differs from an isolated one in terms of the opportunities and the incentive structures the workers face. Higher prospective returns to skills in a foreign country have an impact on the skill acquisition decision at home. Hence, a rise in a brain gain in conjunction to a brain drain can be achieved. The authors concluded that despite migration of highly-skilled members of home country workforce, it can end up with a higher average level of human capital per worker in the source country.

Vidal (1998) focused on the possible effect of emigration on human capital formation. The study provides an example borrowed from Galor and Stark (1994) in which emigration can lead the sending country out of the underdevelopment trap.³ The author used small open overlapping-generations' (OLG) economy that operates in a perfectly competitive world. The author discussed that emigration to a high return to skills in a country provides an incentive to investment in human capital. The level of human capital formation in the sending country can therefore be positively correlated with the probability of emigration to high wage and technologically-superior neighbouring destination countries.

Stark and Chau (1998) considered the case in which the opening up of an economy to migration results in the departure of skilled workers. The possibility of migration changes the set of employment opportunities and affects the structure of incentives, i.e., higher returns to skills in the foreign country influence decisions about skill acquisition at home. Stark and Chau used a welfare analysis and

³ A low level of human capital.

national output production function. The results showed first that while migration is pursued by the relatively high-skilled, subsequent return migrants are drawn from both tails of the migrant skill distribution. Second, the fraction of the home-country workforce acquiring education in the presence of migration opportunities is higher than the fraction of the home-country workforce acquiring education in the absence of migration opportunities. Third, the inter-temporal increase in the probability of discovering individual skill levels prompts a sequence of migratory moves characterized by rising average skill level, until the probability of discovery arising from the accumulation of migrant employment experience reaches its steady state equilibrium. Finally, under well-specified conditions, per capita output (population can enjoy higher welfare) in a country vulnerable to migration of skilled members of its workforce is higher than per capita output in a country that is not open to migration.

Beine *et al.* (2001) focused on the impact of migration prospects on human capital formation and growth in a small, developing economy open to migration. The study assumes that agents are heterogeneous in skills and take their educational decisions in a context of uncertainty regarding future migrations opportunities. Using cross-section data for 37 developing countries, the model used in the study depicts a small open economy with overlapping generations of two period-lived individuals. The authors distinguish between two growth effects, an ex ante “brain effect” (migration prospects foster investments in education because of higher returns abroad) and an ex post “drain effect” (some – if not all agents migrate). The case for a beneficial brain drain (BBD) emerges when the first effect dominates, i.e. when the average level of human capital is higher in the economy opened to migrations than in the closed economy.

Stark and Wang (2001) using a model with cost and benefit functions revealed that the provision of subsidies for the formation of human capital, conditional on the subsidy being self-financed by tax revenues, can bring the economy to its socially optimal level of human capital. Yet, a strictly positive probability of migration to a

richer country, by raising both the level of human capital formed by optimizing individuals in the home country and the average level of human capital of non-migrants in the country, can enhance welfare and push the economy toward the social optimum. Indeed, under a well-controlled, restrictive migration policy, the welfare of all workers is higher than in the absence of this policy.

Baláz and Williams (2004) analyzed the case of Slovakian students attending a degree course and a language/vocational courses in the UK who returned to their home countries. The study- based on a survey emphasized the importance of the specific competences acquired by the students. The authors highlighted the value attached to language competence, in particular, but also to learning, attitudinal and interpersonal competences, as well as networking. In addition, living abroad has enhanced other competences, including self-confidence, openness to learning, and flexibility. These have led to significant returns for many individual migrants who have entered the labour market in their home countries where such competences are highly, if selectively, valued in the workplace. The study confirms that student migration is significant in the acquisition and in the circulation of human capital, but arguably this may be undermined by future developments in information and communication technologies, such as the cross-border provision of education by the Internet and surface mail which is already twice as large as the number of international student migrants.

Zweig *et al.* (2004a) discussed that the demand for and the value of various goods and services increase with internationalization, hence, individuals who posse's new ideas, technologies and information that support globalization become imbued with "transnational human capital" making them more valuable to internationalized societies from five perspectives. First the study shows that China's education and employment system is highly internationalized. Second, since China's scholars sent by the government rely heavily on foreign funds to complete their studies, hence China is benefiting from foreign capital invested in the cohort of returnees. Third, foreign PhDs are worth more than domestic PhDs in terms of people's

perceptions, technology transfer and in their ability to bring benefits to their universities. The returnees in high technical zones in comparison to people who had not been overseas were more likely to be importing technology and capital to feel that their skills were in great demand within the society and to be using that technology to target the domestic market.

Kar and Guha-Khasnobis (2006) studied the interaction between foreign capital inflow and international migration of skilled labour when a small open economy is subject to exogenous shocks. The authors used a simple general equilibrium production model for a small open economy. The article argues that once the skill formation sector in developing countries is taken into consideration, the positive correlation between increased capital inflow and increased emigration no longer appears to be irregular and unexpected. The authors showed that import liberalization and increased foreign capital inflow may lead to increased skill emigration both in absolute terms and as percentage of gross skill formation. Furthermore, a positive product price shock for the sector that uses foreign capital may turn out to be immiserizing, hence, the growth in the agricultural sector can lower the rate of skill formation as well as skill emigration. Therefore, the results depend critically on the pattern of reallocation of resources between various productive sectors of the economy, which includes a skilled formation sector.

Christiansen *et al.*(2006) in analyzing investments in human capital assets using the same ideas from financial economics analysis of equity markets showed a clear risk-return trade-off that is related to the length of education and its type. The authors used mean-variance plots of human capital assets and compare the properties of human capital returns using a performance measure and tests for mean-variance spanning, and the data set was the Danish labour survey. The results of the empirical analysis are a classification of education into efficient in terms of investment goods, and a range of education that is inefficient which may be chosen for consumption purposes. Among the high-performing efficient education were an M.Sc. in Medicine, an M.Sc. in Economics, and medium-cycle

higher education in Engineering and short-cycle higher education in armed forces were identified. Inefficient education was found in education related to health and education and M.A. education related to humanities specialities. The picture is refined when the authors divide the education into those requiring manual (apprenticeship) vs. academic abilities, and also further divided the academic education into fields of studies and when looking only at people with revealed elitist academic abilities.⁴

Faggian and McCann (2007) studied the relationship between human capital acquisition and labour migration. The authors reported the sequential migration behaviour of some 76,000 Scottish and Welsh students from their domicile location to the location of their higher education and on to their employment location. They used a logit model methodology to analyze the choice of the location of the university attended. Then, within a GIS (MapInfo) framework, migration-on-migration correlations (between graduation and first employment) and elasticities are estimated in order to identify the mobility effects of human capital acquisition. In the first stage of the model, the authors construct a general migration probability model in which the student applicant decides whether to study in the home region or to migrate to another region. In the second stage, a regression of the linear distance moved by students from education to employment after graduation was calculated using MAPINFO. They concluded that the on-migration behaviour of an individual is generally associated with both the individual's previous migration history and the level of human capital acquired. The results suggested that on graduation from higher education, the dominant effect of human capital acquisition among the Welsh and Scottish students is that it improves their ability to gain higher-quality employment in a broader set of locations.

⁴ Some of the academic education requires a high Grade Point Average (GPA) to enter, e.g. medicine, dentistry, and political science. Therefore, individuals who complete this form of education are revealed to have elitist academic abilities.

Beine *et al.* (2008) investigated empirically how the positive migration prospects can raise the expected return to human capital and foster investment in education at home and how the negative migration (brain drain) constraints poor countries' development) effects of the brain drain balance out. The study estimated the effect of skilled migration prospects on gross human capital levels. The authors found that doubling the emigration rate of the highly skilled induces a 5% increase in human capital formation among the native population (residents and emigrants together) and the coefficient is stable across specifications and estimation methods. For each country of the sample, the study used counterfactual simulations to estimate the net effect of the brain drain. In contrast, the brain drain appears to have negative effects in countries where the migration rate of the highly educated is above 20% and/or the proportion of people with higher education is above 5%. Therefore, it appears to be more losers than winners (countries experiencing a beneficial brain drain, whereas the losers are characterized by high skilled migration rates (above 20%) and/or high proportions of highly educated in the adult population (above 5%). Hence, where the former incur relatively high losses, the gains of the latter dominate in absolute terms, resulting in an overall gain for developing countries.

Farchy (2009) tried to quantify human capital formation benefits resulted from accession to a regional trade block as in the example of the European Union accession. The motivation is to provide an empirical test of the arguments of Mountford (1997); Stark, Helmenstein and Prskawetz (1998) and Beine *et al.* (2001) that posed the existence of a brain gain in terms of increase in stocks of human capital following labour market deregulation. In order to assess the impact of EU accession negotiations on gross enrollment ratio, a simple difference-in-difference approach was used to compare between the examples of Czech Republic and Slovakia. In a second step the impact of EU accession on tertiary enrollment across a panel of 13 countries that have joined the EU was tested using Cross-Country Panel Regression (OLS). The study highlighted the impact of EU

accession on human capital formation in terms that the prospect of migration can indeed fuel skill formation to invest in higher education, and hence the skill level of the country. The study concluded that having policies to promote return migration, as well as a functioning credit markets to enable private investment and international labour mobility could represent a powerful mechanism for growth.

Boudarbat *et al.* (2010) provide a comprehensive and up-to-date examination of the evolution of the returns to education and experience in Canada over the past 25 years. The authors used Canadian Census (1981-2006) and analyzed adults aged 16 to 65 at the time of the Census. Unadjusted and adjusted regression mean of the returns to education were applied. The study main finding was that returns to education increased substantially for Canadian men, contrary to conclusions reached in previous studies of the returns to post-secondary education in Canada. The returns to human capital and in particular to education are essential for assessing the benefits of the large investments in human capital made by local, provincial and federal governments in Canada.

4.2 Brain circulation of graduate students: determinants

Das (1974) examined African students' attitudes toward returning to their home countries upon completion of their studies in the U.S. The results showed no significant variation between the rates of returning from developing and less developed African countries included in the study and no real brain drain situation for African countries. Rather in many occasions African students face ethnic discrimination and this would result in non-stay for African students in the U.S. permanently. However, as discrimination is dismissed from public places in the U.S. and the black population gain more civil rights, African students may be induced to stay in the U.S. if they find circumstances in their home countries less attractive.

Selvaratnam (1985) analyzed the mutual educational, political and economic advantages and disadvantages to both sending and receiving countries and the global development through educational exchange. The educational, cultural and

economic advantages and disadvantages that sending and host countries have derived and continue to derive of the international flow of scholars and students in a global context are beneficial in the light of the growing new international economic order, accompanied by an interdependent world economic system. Rather a number of the developed host countries, mainly for parochial economic and political reasons, has introduced a series of protectionist measures to curtail the number of overseas students coming into their institutions of higher education. This has adversely affected the poorer developing countries and their students. The article also pointed out that exchange of scholars and students is a useful marketing mechanism for the developed countries, as students returning home take back with them a considerable amount of knowledge of their host country which is helpful in a highly competitive world market system.

Lee and Ray (1987) examined international students from Iran, Nigeria, Taiwan, and Venezuela studying at 30 U.S. universities in 1979 in regard to their possibility of remaining in the U.S. permanently and their expected satisfaction with their home countries conditions upon returning home. The study revealed that studying abroad should be understood in terms of the politico-economic situations of students' home countries. The best effective way for the students' home country to ensure their return home, is to create a stable political environment. By these means, returning students were granted access to rewarding positions in order to be capable of using their U.S. training. The study concludes that students' intentions of returning to their country depend on their perceptions of the politico-economic situations of their countries than the selected personal characteristics.

Huang (1988) explored the important determinants of the non-return of foreign students who completed their training in the U.S. The author used data for 25 Eastern Hemisphere countries from 1962 till 1976. A model was formulated which includes typical economic explanatory coefficients' such as income differentials, several socio-political, as well as behavioural constraints imposed by U.S. immigration policies. The results showed that non-return varies by countries of

origin and over time and that income differentials do not play the most dominant role in determining students' brain drain. Professional opportunities are at least as important as purely monetary comparisons in emigration decisions. Moreover, political and social considerations play no less important roles than economic variables in stimulating the stay of foreign students. The poor standard of living, low incomes, surplus labour (even among highly-skilled labour), the lack of political stability and freedom, and high fertility rates are all statistically significant "push" factors for students brain drain. The author concluded that as long as the U.S. remains attractive, still increasing non-return by foreign students is expected in continuing. In addition, the study findings can improve the understanding of the brain drain issue, clarifying the responsibility of the nations involved and can be useful in formulating effective policies to reduce the non-return of students from certain countries of origin.

Chang (1992) quoted the causes for Taiwanese emigration to pursue their graduate degree studies were a combination of academic, social, economic, and personal factors. In order to convert Taiwan's brain drain into a return, the government of the Republic of China (ROC) has implemented a challenging programme to recruit Taiwan's highly trained talents from overseas. The study concluded that Taiwanese brain drain into the U.S. is an example of "education and migration", i.e., an outflow and not an exodus.

Bratsberg (1995) explained the differences in non-return rates within foreign students in the United States. Students tend to return to rich and close countries and to countries that value their investments in education highly. His model predicts that the skill composition of the pool of stayers is determined by the valuation of skills in the source country relative to that in the U.S. If the source country values skills more than the U.S., the most skilled students will return and vice versa. The empirical analysis finds that the variation in non-return rates across source countries is explained by differences in economic and political conditions

and provides indirect evidence on the skill sorting among students who stay in the U.S.

Song (1997) survey results among Korean scientists and engineers who obtained their doctorates in the U.S. between 1960 and 1987 revealed that staying in the U.S. or returning to Korea was due to the differences in the economic conditions between the two countries at the time of making the decision. The improvement in Korea's economic conditions and cultural differences start to be more influential in their return. Especially, family-related responsibilities like children's education in the U.S. or Korea and / or taking care of parents as the eldest sons were among the factors of whether to return to Korea or remain in the U.S.

Gaillard and Gaillard (1997) discussed two possibilities of the "return option" and the "diaspora options" for the international migration of cohort students from developing countries who went abroad for studies and did not return home after graduation. The diaspora is vital to the success of the 'return' strategies, on the other hand, to strengthen and redynamise its links with the national scientific community. A genuine 'logic of circulation' will only be possible if the countries of origin offer conditions which make the "return option" attractive. Such conditions are political stability, a minimum of economic development, and a scientific policy that favours the exercise of scientific and technical professions.

Aslanbeigui and Montecinos (1998) explored the factors behind the growing internationalization of U.S. in graduate economic education among foreign students' doctoral programmes in U.S. The authors observed that the attractiveness of U.S. PhD programmes to foreign students is the U.S. school's international reputation, and in trying to pattern their economic programmes according to the U.S. model. Finally, the study revealed factors for students returning home were related to problems with funding which pushed them to either finish quickly or return to their countries without the PhD.

Kim (1998) models foreign education as an import process which contributes to the role of knowledge accumulation in economic growth in developing countries. The policy implication of the study is that developing countries should subsidize students for foreign study in developed countries, especially those who study technology-oriented fields, if they want to import faster economic development. Another possible way for developing countries to import advanced knowledge is to invite foreign researchers or scholars.

Mahroum (1998) pointed out to the flows of highly skilled European scholars and their qualitative aspects which are more critical than their quantitative aspects. Europe might be losing many of its brightest and best as around 50% of all Europeans who finish their PhD training in the U.S. stay there for some years. Hence, Europe might be losing young scientific, technological and managerial personnel, probably those with the most up-to-date training. The study shows that the negative net flows of highly skilled migration from Europe to U.S. made Europe miss the attractiveness and competence of U.S. in appealing to foreign scientists. Therefore, higher education, scientific excellence and business expansion were identified as three main drivers of international mobility that are affecting Europe.

Johnson and Regets (1998) discussed streams of students into U.S. higher education, the stay rates of foreign-born science and engineering students achieving their doctoral degrees from (1988-1996) and their short and long-term employment in U.S. industry, universities, and government. About 47% of the foreign students on temporary student visas who earned their doctorates in 1990 and 1991 were working in the U.S. in 1995. The majority of the 1990-91 foreign doctoral recipients from India 79% and 88% from China were still working in the U.S. in 1995. In contrast, only 11% of South Koreans who completed S&E doctorates from U.S. universities in 1990-91 were working in the U.S. in 1995. The authors concluded that 63% of all students had plans to remain in the U.S., while an additional 39% had firm plans to stay, indicating they had received firm

offers to engage in postdoctoral research, gain employment, or pursue R&D teaching or other activities in the U.S. besides networking with their home-country scientists. The study recommends further studies on the activities and contributions of foreign doctoral recipients who return to their home countries.

Gu (2000) discussed the Chinese national policy to bring back Chinese scholars who studied abroad. The author disclosed that patriotism draws many of them to return home.

OECD (2001c) mentioned that in 1999 7% of the 1996 French PhD cohort was abroad for postdoctoral work in other European countries, and nearly 60% wanted to return as soon as possible or in a years time, with 21% wishing to stay abroad. The study stated that the circumstances of PhD graduates living abroad explained their desire to return home. In addition, the expectations regarding labour market/employment condition in France play a role in the decision for French PhD holders to return, as many were on postdoctoral training courses that were satisfactorily remunerated once they had completed their training.

Zhang (2003) noticed difficulty in the in access of Chinese students' access to the U.S. universities as the cost has increased. The study emphasized that the number of students returning is raising the uncomfortable situation for the Chinese, which made them look toward European countries instead. Against the background of China's ratification to the WTO, economic globalization and international migration of talent, hence, the essential alternative for China is to continue supporting the international migration of its highly skilled manpower. And in order to face up to the international competition for talent, the government actively improved the domestic environment for innovation and scientific research to encourage students to return home.

Pang and Appleton (2004) investigated the factors that have affected mainland Chinese students and scholars to immigrate to U.S. which were according to the following reasons: i) desire for more education, ii) educational preparation, iii)

financial support, and iv) escape from unpleasant situations in China. On the other side, three influential factors have persuaded them to remain in the United States. These are: i) desire for pursuing a better life, dissatisfaction with the Chinese political system, family and future of children ii) educational achievements recognized, and iii) overcoming different social, academic, financial, emotional obstacles. The study concludes that higher education paved the way for Chinese students, first in leaving China, and then in enrolling into U.S. universities and helping them to adjust to a position that would prepare them for the job market in the U.S.

Zweig and Fung (2004) discussed that many people who have not returned home still play an important role in China's economic and technological development through the "diaspora option" such as running businesses in their home country, returning to lecture or teach, transferring technology back to their homeland, helping to train graduate students overseas, or investing capital through remittances and are seen as an important strategy for lessening the impact of the brain drain and as a strategy for turning a potential loss into a significant gain for China.

Alberts and Hazen (2005) investigated which criteria international students take into consideration to continue their studies in the U.S. A group of students from China, Greece, India, Japan, the Netherlands and Tanzania were asked whether or not they intend to return home after completion of their degrees. A number of factors were taking place, such as "professional factors" which include any reasons concerned with wages, work conditions and facilities, and opportunities for professional advancement. The study also defines "societal factors" as those connected to how comfortable the student feels in a particular social, political, and cultural environment. This includes how the student feels living in a society with different patterns of acceptable behaviour, gender relations and expectations of young people. Finally, the last group of factors is "personal factors" as anything related to the personal circumstances of an individual, such as family status and

friendship networks. Across the board, all individuals react to a similar set of stimuli in trying to decide whether to stay in the U.S. or return home on completion of a degree. The findings suggest that return migration intentions were determined by a wide variety of factors, but personal preferences are being taken on account by a wider context. The authors concluded that any discussion of return migration intentions also has to examine the macro-level constraints imposed by political and economic characteristics of both countries and how they interact in shaping migrants' decisions.

Tung and Lazarova (2006) highlighted the motivations of what is called “ex-host country nationals (EHCNs)” who are the local workers living and working in their motherland after having stayed abroad for an extensive period of time, depending on the field of study. Those workers are highly skilled nationals of Central and East European Countries and recipients of scholarships administered by the Open Society Institute (OSI) to study abroad for a period of ranging from one semester to several years depending upon the length of the programme (i.e. law, economics, business administration and public health). Under the terms of the OSI scholarship, upon completion of their education abroad, the recipients have to return to their home countries to implement their newly acquired skills to facilitate the transition processes there, after which they are free to live and work anywhere in the world. The study tried to identify challenges/frustrations, examine what they encountered in the modes of acculturation, motives and experiences in living and in working at home, which might be a determinant for their return. Most of respondents readjusted very quickly after return due to the fact that the respondents are young, and hence more adaptable. The authors concluded that EHCNs from medium Human Development Index- HDI countries appeared to experience more challenges and frustrations in their present positions at home. This could further exacerbate the economic, technological and managerial know-how gap between the high versus medium HDI countries. The authors concluded that while high HDI countries might experience a ‘brain gain’ in the future by EHCNs returning home, medium HDI countries might continue to suffer more ‘brain drain’. If the

findings of this study were to hold across a larger sample, it has tremendous implications for governmental policies to stem, or at least slow down, this condition.

UNDP (2006) analyzed the Albanian PhD holders in industrialized countries where the non-return of the successful university and post-university students will be in the longer-run the major tunnel of the brain drain from Albania. Rather there is a considerable range of possible policy provisions that might provide incentives to skilled Albanians living abroad to either return, or to reengage with professional life in Albania in a way that would be positive for the development of the country. That depends on the economic and social development of the country, on the higher remuneration, on the economic and political stability, the reduced level of corruption and the sustainable progress of an efficacious national research system. Furthermore, the process of brain or competences' gain is closely linked with the density and quality of exchanges taking place between the country of origin and the scientific diasporas. The more linked are the potential candidates with the national research community and the more information they receive on the employment opportunities in their field of expertise, the more feasible will be for them to take the decision of return. For that purpose, semi-structured interviews with leaders of academic institutions, Albanian researchers working in scientific/academic institutions abroad and a survey of more than 40 research institutions and 10 public universities across the country were performed.

Hazen and Alberts (2006) surveyed international students pursuing their PhDs in the U.S. The variables that play a role in staying or leaving vary by nationality, gender and field of study. Very few of the students have the intention to stay permanently, rather in the process of decision making, factors of professional, societal and personal factors influence their decision. As economic and professional variables motivate students staying in the U.S. (such factors are concerned with wages, work conditions and facilities and opportunities for professional advancement) rather personal factors such as interactions with friends

and family, personal circumstances and even personalities, personal background, homesickness and societal factors, i.e., how comfortable the student feels in a particular social, political or cultural environment tend to draw students back to their home countries.

Zweig (2006) viewed China supporting schemes since 2002 to lure the return of its young graduates. The author describes that central government policies and inter-city competition for foreign-trained scientists and academics have created a positive atmosphere that encourages returnees. This set of policies include mobilizing official embassies to organize overseas scholars, providing financial support to those who want to return, improving the flow of information about opportunities in China, easing the process of returning, bringing people back for short term visits, and improving the quality of Chinese universities and research centres.

Antunes and Thomas (2007) discussed that European business schools have managed in developing strength mainly over the last 20 or 30 years, with the fast development of business schools in higher education worldwide. The initial shortage of key faculties to staff in these schools was solved by sending promising young faculty members from European countries to leading U.S. schools to complete their postgraduate study. There were clear initiatives in the UK (via the Foundation for Management Development) and in France and other countries, through government sponsored initiatives to provide doctoral fellowships/scholarships for study in the U.S. These newly minted U.S. trained, but European PhD students then returned to join home faculties and developed curricula defined and derived, initially from their U.S. experience.

Fontes (2007) survey of the return decision of Portuguese scientists' post-doctoral and some PhD students asserts the importance of suitable employment opportunities at home. For them the decision for staying was based to a lesser extent on unwillingness to return than on understanding the difficulties to be expected at home. Almost 38% of the surveyed scientists were willing to return

and regret the lack of employment compatible with their qualifications, where only 34.5% would return if a good opportunity exists.

Baruch *et al.* (2007) discussed to students from developing countries studying in the developed countries who decided not to return home after their studies. The study examined the reasons for international students' inclination to stay in their host countries in a sample of 949 management students who came to study in the United Kingdom and the United States. 30% of those students were willing to return home after their studies, whereas 27% were willing to return rather after a year of practical training and 2% wanted to stay in the host country. Among different groups of international students, Indians tended not to return home. On the opposite side, students from China, Thailand, countries in Africa, the Arabian Peninsula and Latin America, tended more to return home. Most effective determinant for students to return back home or remain was the awareness of the labour market in the host country, the student adaptation to the host country and the power of family ties. The results of the study support a three-fold model of factors that influenced this inclination. These are students' perceptions of ethnic differences and labour markets, their adjustment process to the host country, and their family ties in host and home countries all affect their intentions to stay.

Solimano (2008) argued that the high demand for researchers and scientists has led to an increase in skilled migration in recent years. The study focuses was on improving the understanding of push and pull factors affecting the migration decisions of researchers and scientists from developing countries and discusses policy options for maximizing the potential gains associated with international mobility of advanced human capital. Evidence suggested that a reasonable salary level should be guaranteed, but that return decisions of researchers and scientists are primarily shaped by factors such as the quality of the research environment, professional reward structures and access to state-of-the-art equipment. The author proposed policies for developing countries to return migrants, such as 'individual-based approach and 'environment for research' approach.

Leipziger (2008) outlined the challenges of retaining and attracting highly-skilled professionals, and briefly outlines the brain gain and the brain drain in the health sector, examining some of the existing programmes that encourage their return. The author provided an overview of the role of the diaspora in fostering the transfer of knowledge, technology, capital, and remittances. In addition, the large income differentials, the quality of living conditions and research facilities in high income countries, as well as the density of research networks and the size of the pre-existing diaspora like professionals or talents such as doctors, scientists, and engineers, are factors explaining the decision of highly-skilled professionals to emigrate to high-income countries (or to remain after completion of their higher studies. Factors favouring a return include proximity to family, cultural affinities, and emigrants' desire to contribute to the technological progress in their native country. Retaining skilled professionals, or attracting them back from abroad, requires a strong investment climate and adequate compensation and opportunities in the public sector. Financial incentives have not been successful for encouraging returns. Instead, encouraging the return of professionals may need to involve formulating coherent research policies, strengthening public-private research linkages, and funding research through transparent and competitive processes. The study notes that over investment in nurses and other professionals for export is a valid development strategy, and in order to offset this investment, rich country controls or subsidizing wages of highly-skilled professionals such as doctors or nurses in home countries are not likely to be effective. In the end, the study urges the need for rigorous analysis of the impacts of highly-skilled emigration on critical sectors such as education and health in developing countries.

Smith and Favell's (2008) focus was on students from Brazil, China and Italy who went with government-supported programmes for graduate studies abroad and were induced by the government efforts to return back. The authors viewed such governmental efforts that include incentives in providing better professional, educational and better living chances for the returnees and their families. Also, more creative strategies were in the public humiliation of publicizing through the

mass media, urging the current or former foreign students' "commitments to return and to repay the country". Governmental efforts to facilitate return, or continued engagement in domestic issues, coupled with non-governmental or professional social diaspora networks, might be a means to develop patterns of student migration that lessen the incidence of non-return or professional disengagement in forming issues of high importance in sending countries.

OECD (2008) chapter "mobility and its impact: Data and Evidence" indicated that the stay rates for graduate students vary according to students' country of origin. The stay rates for Korean recipients of PhDs from USA in science and engineering have increased through the mid-1990s, maximized in 2002 and afterward declined. Rather the Korean Ministry of Science and Technology is concerned to involve those expatriate researchers in the Korean Scientist and Engineers Network (KOSEN) which exists in eleven counties and receives funding for its activities.

Gribble (2008) attributed the causes for many international students choosing to remain in countries of their studies were due to domestic circumstances in the foreigner students' home countries, in terms of insufficient domestic supply, perceived advantages associated with foreign degrees, the domestic environment that fails to support and encourage research, innovation and entrepreneurship and the higher standard of living along with better employment and research opportunities in the receiving countries. In addition, for receiving countries international students' migration is a remedy for their declining fertility rates, aging populations and skill shortages, as can be noticed with the many countries upgrading their immigration policies to facilitate student migration. Whereas sending countries are benefiting from the returnee contribution to the economy, many developing countries encourage students to return home after graduation, if not permanently, at least for the purpose of collaboration and sharing knowledge. Gribble offers such policy options that sending countries can intake to encourage return migration. These are: i) bonding arrangements to force students to return home as a condition of assistance is a strategy used by some sending countries, ii)

repatriation schemes to assist post-doctoral scholars and scientists to re-integrate iii) fostering strong R&D environments.

Hein and Plesch (2008) examined the return decision of students from developing countries such as from Africa, Asia, Middle East, Latin America, Eastern Europe, who are involved in graduate studies in Germany and have a financial support from scholarship institutions. The authors concluded that age and time spent in the host country have a decisive impact on return decisions. Moreover, students who are integrated in Germany have lower chances to return to their home countries. A distinguishing feature of the study was that graduates from Africa and Asia were considering cultural differences between home and host country on their returning decision. The study recommended that in order to bring back students to their countries of origin, scholarship institutions have to take into account personal characteristics like age or family status in the process of selecting their students.

Xu (2009) questioned if the returnees will be able to make sustained contributions to Chinese management research in the long run, or if they just represent a short-term fashion. A growing number of western-educated management PhD graduates are starting their academic career in Chinese business schools. While opportunities are abundant for those returnees, they also face the choice between developing internationally transferable assets and building locally embedded competences. The study points out to a lack of a success stories of management PhD returnees outside the English-speaking nations. This situation creates a special challenge for the returnees, as in the Chinese case, in terms of their human asset specificity. A sensible strategy for the returnee is to take a relatively short time horizon when planning to return to China and this “short” horizon according to the author turned out to be six years. An important institutional solution for Chinese business schools would be to create a sizable domestic academic job market in order to minimize school-specific uncertainties for the returnee. In the near future, returnees may well become an important link between international business

schools and the Chinese management education market that is still largely untapped by these schools.

Lee and Kim (2009) found that South Koreans U.S. doctoral recipients' returning home is a form of a brain gain and a brain circulation. While the political economy might explain why Korean students choose to study in the U.S., but it does not fully capture their decisions to return. Family ties and cultural reasons transcended reasons related to economic mobility. The study also found that while both brain gain and brain circulation were present, brain adaptation was especially prevalent.

Harvey (2009) argued that most British and Indian scientists working in the pharmaceutical and biotechnology sector around Boston are likely to remain in the U.S. This provides a different perspective to many recent studies which have highlighted the temporary nature of highly skilled migration. The study concludes that professional job opportunities are the principal reason why highly skilled migrants return to their home countries. However, culture and lifestyle, family considerations, and to a lesser extent governments, are also significant in affecting those migrants' decisions. In addition, differences in the intentions of highly skilled migrants from developed and developing countries to return to their home countries prevail. In the end, migrants often face conflicting loyalties in different countries, and their individual social networks with actors in their host and home countries will help them to make their migration decisions.

4.3 International students' choices

The purpose of this section is directed towards identifying important themes, concepts, variables and significant findings of international students' choices of a destination country and fields of study. Understanding these factors is pivotal to facilitate the development of a theoretical framework to our case of study.

4.3.1 Choice of a destination country

Cummings and So (1985) classified eight factors responsible for the increasing number of Asian students pursuing their higher education studies in U.S. following

the post-war period. such factors are the advancement in Asian-American political ties, the growth of Asian-American economic exchange, increasing flows of Asian immigration to the United States, increasing similarity in the structure and content of Asian and American educational systems, large scale capacity of American higher education, quality of American higher education, complementarity of Asian demand and American supply and opportunities provided in the American higher education to cover educational costs for Asian students through part-time work.

Agarwal and Winkler (1985) noticed that since the 1950s the international student flows to U.S. have increased, however after 1973 this trend has been reversed. Causes for this slump can be attributed to rising cost of U.S. universities and advancement in higher education chances in source countries. The main macro factors behind international students' flows were per capita income in the sending country, the price or cost of education in the U.S., the educational opportunities available in the home country and the anticipated benefits of immigration to the U.S. through studying abroad.

Wobbekind and Graves (1989) raised the questions of causes for the growing international demand for U.S. education since the late 1960s. In applying higher education demand function in the United States, the study revealed that real domestic per capita income is the most critical variable in accounting for student flows to the U.S. The cost issues like tuition fees were significant, and policies to ease such costs would increase student flows. Additionally, better counseling facilities and foreign student social networks might reduce the psychic costs. As curricula at developed universities are not appropriate for less developed countries, hence, graduate departments might develop selective study courses compatible to less developed countries. The proceeding polices are expected to increase foreign students to U.S. higher education institutions without adding addition costs. Hence, foreign students would consider this issue in their decisions to study in a foreign country.

Altbach (1991) draws attention to the push-pull factors influencing the flows of foreign students. These pulling variables are the economic difficulties leading to restrictions on international students' mobility, the population changes which might lead to an increase in available student places, the changes in foreign policy, the re-emphasis on political commitments and finally education policy changes. On the other side, the pushing factors were economic difficulties resulting in a reduction in available state funds, economic boom and the expansion of demand for trained personnel, economic and political changes and educational policies. In addition, the author addressed other individual variables in the process of decision-making to study abroad. These are the recognition value of a foreign degree, the better opportunities abroad and the possibility of immigration and policies in both sending and host countries.

McMahon (1992) explored the factors responsible for the out-mobility of students from developing countries to the U.S. International students from eighteen developing countries were examined and a variety of political, economic and education variables were identified in the study. An outbound or "push" model and an inbound or "pull" model were identified. The push model suggested that international student flow was dependent on sending country economic wealth, the degree of involvement in the world economy, the priority assigned on education by the developing country and the availability of educational opportunities in the home country. For the pull model, it was revealed that student attraction to a host country was influenced by the relative sizes of the student's home country economy in comparison to the host country, economic links between the home and host country, host nation's political interests in the home country by means of foreign assistance or cultural links and the host nation support of international students through scholarships or other assistance. Rather with the emergence of new geopolitical alliances in the world, a deep understanding of the historical roots of the international students exchange phenomena is in need.

Baker *et al.* (1996) surveyed full-fee-paying international students who graduated from the University of Melbourne in 1993 and 1994. They found that choosing Australia was scoring the highest rank in terms of the quality of higher education institutions in Australia, quality of courses, good reputation of courses and the future job prospects.

Bourke (1997) analyzed the choice of Ireland as a host country by international medical students. The reputation of educational institution and accreditation of its education standard is among the factors for a host country choice. The cost of education in terms of tuition fees, reasonable costs of living and the use of English is an added value. In addition, the influencing factor of family and friends in the decision of the host country is apparent, as the majority of them are self funded.

Kemp *et al.* (1998) estimated factors influencing the choice of Australia as a destination country by Indonesians and Taiwanese students. The results show that family financial role and sex plays a role in travelling overseas for higher education. The recognition that overseas qualification is distinguished in comparison to domestic ones and the anticipation to discover Western culture are all likelihood indicators. Also, education service quality, information availability and overseas study environment are important determinants for the host country choice. The relation for studying in the U.S. in comparison to Australia is in favour of U.S. due to the reputation of U.S. higher education institutions. In addition to the facilities of having U.S. programme information, the existence of resident friends and relatives and the safety of the destination, along with geographic proximity (to the home country) are statistically important features for the overseas study environment. The choice of the U.S. as a place of study relative to Australia is greater when a resident population of friends or relatives exists, but lower due to the geographic proximity of Australia and its safe (low-crime) environment. The study concludes that the sample likelihood of travelling overseas for educational services is enhanced for males and when the study is family funded. The probability of travelling is also enhanced by the perception that an overseas

qualification is superior to that available domestically, or when there is a perceived need to better understand Western culture.

Kim (1998) tested the importance of various explanatory factors on aggregate student mobility flows over time to elucidate international students' choice of a country of study. For choosing a host country, foreign students are pulled to developed countries as the probability for a host country to be chosen and the GDP gap appears to be an inverted U-shaped, i.e., a negative and a significant coefficient for the squared GDP gap variable, means that students can't manage the high cost in these developed countries. In addition, whenever the host country is distant from the origin country, it is less likely to be chosen, although this dimension has decreased by falling transportation costs. The model also demonstrated that language or religion of the host country is important (similarities are positively correlated). The author adds that political stability is a relevant pulling factor, and foreign students will tend to favour host countries that are more politically stable.

Mavondo *et al.* (2000) presented the results of an empirical study on some determinants of international student satisfaction with the institution they study in. The results suggested that academic reputation, quality of lectures and provision of facilities are important, while market orientation is found to be a critical antecedent to student satisfaction. The study concludes that provision of student facilities and perceived career opportunities have direct positive relationships with recommending prospective students although they are not significantly related to student satisfaction. The results suggest that satisfied students recommend prospective students for the institution at which they studied. The study concludes that all these aspects of tertiary institution operation are important for attracting and retaining students, and for motivating them to recommend the institution to prospective students.

Sakellaris and Spilimbergo (2000) linked enrollment (accumulation of human capital) of international students in the United States with business cycle in the

sending country. For OECD countries this enrollment perceived to be “counter-cyclical”, while for non-OECD it is described as “pro-cyclical”. That means for non-OECD countries the affordability to pay and the financial constraints are a dominant factor. And for OECD the opportunity cost is the playing factor for enrollment in OECD countries.

Mazzarol *et al.* (2001) investigated Chinese students’ choice of a location to study abroad. The study found that the ease of obtaining information about the host country and courses are the primary determinant of the location of study. This is followed in importance by the social and cultural environment including safety, crime and tolerance, climate, quality of education, portability of qualifications and the availability of part-time jobs. Other factors include the presence of an established population of foreign students, government guarantees of quality, the cost of travel and prior family experiences.

Mazzarol and Soutar (2002) inspected the pushing forces of international students’ choice of a host country. Among the pushing factors identified were the economic and social forces in the home country, while for pulling factors for a destination country it was the ability of the host country and its universities to continue to attract foreign students. That means selectivity is dependent on the awareness and reputation of the host country and its universities, the personal recommendations or word-of-mouth-referrals of former alumni. Rather quality of reputation is to remain the most important factor influencing study destination choices. The authors conclude the possibilities of host country governments to invest in education to maintain the preserved quality and the marketing and promotion strategies are to be devoted to ensure quality matters.

Pimpa (2003) employed both qualitative and quantitative approaches to clarify Thai students’ choices of international education. The study identified the influence of the Thai family into five detrimental categories: finance (financial support from family), information (information from family-interpersonal influence and recommendation from family), expectation (familial expectation),

competition (competition among family members), and persuasion (persuasion from agents). Although the study supports family influence on Thai students' choices of international education in various ways, rather financial influence and expectation are among the strongest influencing factors. In addition, the author indicates that choices of academic programme and university are more personal as Thai students can freely make those choices with less family involvement. Hence, Thai students from different levels of education (undergraduate, masters, and doctoral) perceived the influence of family in different ways. Pimpa recommends for the marketing of Australian education are to better understand international students in order to sustain a strong position of Australian education services in the global market.

Binsardi and Ekwulugo (2003) surveyed international students' reasoning to study in the UK. The educational level and its creditable qualifications worldwide were ranked the first factor. University admission and immigration procedures were secondly rated, ease of finding employment during and after the study ranked as third position of reasoning and costs of living, accommodation, safeties and cultures placed in the fourth rank. Hence, the best way to entice more international students, according to respondents rankings were to reduce tuition fees, arrange for more scholarships, give improved quality care and service, and other factors like providing more facilities, computers, alumni networks and promotions. Respondents consider that the best promotional strategy to allure more international students into the UK in respondents' countries -in a ranking order are alumni, friends, relatives, local universities and colleges, the UK Web sites, the British Council (BC), consulates and others, such as TV, newspapers, government contacts, etc. In the end, this study asserted the significant importance of 4Ps variables. These are: price, product, place and promotion variables in planning and marketing UK education abroad.

Australian Education International- AEI (2003) surveyed international students starting a course study in Australia and revealed that decisions on overseas study

were substantial in their choice of Australia as a study destination, and at the same time was attributed to many factors. The most outstanding factor was the advantage of studying in an English-speaking country, the quality of Australian education, the positive impact of Australian qualifications on their job futures, Australia's reputation for the type of courses they were interested in and the safe and friendly environment that Australia enjoys. In addition, students' families at home and friends who studied in Australia were the most influential on their decisions and education agents were ranked as the most significant non-social influence on students' decisions.

Shanka *et al.* (2005) revealed the international students' choice of Australia to pursue their higher education was according to the closeness of the city to the students' home countries, safety and the educational quality/variety. Other reasons included are living costs and tuition fees.

Russell (2005) discussed the requirements for a university to take over a clearly defined marketing strategy to increase its international student population and generate additional revenues. The author concluded that within Bournemouth University, the reputation of the hospitality and tourism programmes and educational links were the most important considerations in student decision-making of a programme and place to study.

Chen and Zimitat (2006) examined the behavioural intentions of Taiwanese students to engage in higher education in Australia and U.S. based on planned behaviour theory. For Taiwanese students choosing Australia as transnational education destination was attributed to their understanding and belief in overseas studies for their higher education. For U.S., family and friends involvements were more substantial than the availability of resources. The authors supposed that such findings can be beneficial for these countries in their future marketing plans.

Cubillo *et al.* (2006) identified five factors behind "purchase intention" of international student. These are personal reasons; country image (which is

influenced by the city image), the institution image and the evaluation of the programme of study.

GAO (2007) analyzed important matters that may influence the U.S. aptitude in attracting international students to their universities. First, the international higher education environment is changing and offering diverse options for students, as other countries are increasing their educational capacity and technology-based distance learning opportunities. Therefore, U.S. universities are establishing branch campuses in other countries and partnerships with international institutions. In addition, greater competition has prompted some countries to offer courses in English and to extend their recruiting. Protecting national security in the wake of September 11 have also contributed to real and perceived barriers for international students, and the subsequent decline in international enrollments raises concerns about the long-term competitiveness of U.S. colleges and universities. Rising U.S. tuition costs and growing higher education options worldwide further demonstrate that the U.S. cannot take its position as a top destination for international students. While federal efforts to reduce barriers for international students have helped to overcome such obstacles, rather monitoring current trends and federal policies are a necessity in promoting the United States continues to attract talented students.

Naidoo (2007) examined some of the determinants of international student mobility to universities in the UK. The author indicated that access to domestic education opportunities in the source country, the level of tuition fees in the host country and the exchange rate in the short term are among the significant determinants. The study concludes that in accordance with such findings, it will provide the international student recruiter with an enhanced understanding of the dynamics of the international education sector.

Hemsley-Brown and Goonawardana (2007) discussed that UK universities have to encounter the worldwide market for enticing international students, in accordance to augmenting student outflows, cut-backs in universities resources and subsidies. This would urge UK universities to bring a model of a Unit of a University, in

accordance with the features of the British Education promoted through the British Council. To reach such a goal a two way communication between schools' and faculties' contributes to the identity of the brand for a British university.

Chen (2007) analyzed the causes for international students' choice of a higher education institution in Canada, a programme, and a city to pursue their advanced studies. A combination of pulling factors vary from the influence of institutional academic and administrative factors, the Canadian environment, the economics of Canadian education, and the ease of visa/immigration between third countries and Canada can play an important role in choosing Canada. The author concludes that those students are allured by the recognized high quality of Canadian graduate programmes at a competitive cost. Finally, the study asserts the role of Canada's reputation in tolerance and diversity for East Asian graduate students. Recommendations follow for both policy makers and institutional administrators to focus on investing in research and in guaranteeing the quality of graduate education and the overall image of their higher education institutions and programmes. Meanwhile, enhancing a proper national marketing strategy to the internationalization of graduate education is an added value.

Yang (2007) viewed factors influencing mainland Chinese students' choice of Australia as a study destination. Two stages were employed in this research. This first stage identified what factors influenced students' choice of study abroad using MaxDiff (Maximum Difference) scaling to specify their "best" and "worst" choices from a set of four statements. Stage two comprised a further investigation of why students choose Australia. Findings revealed that Australia is preferred to the U.S. and UK. The most important factors motivating Chinese to study in Australia are future migration opportunities after graduation, Australia's high quality of education, and competitive lower tuition fees and costs of living. The author concluded that by understanding the main factors attracting Chinese students to Australia, education providers can focus on their recruitment activities and enhance their marketing strategies.

Zhang and Zhao (2007) revealed that prospective international students consider a combination of academic and non-academic factors in selecting a university. The market for international education is highly competitive; national governments and universities alike realize the cultural richness and financial contributions that these students provide to universities and economies. Tuition fees, quality education and reputation have reached high in the student preference list. To attract a higher proportion of students it has been concluded that Griffith University (GU) needs to create interest in Australia as a country before any prospective student can consider GU. Other recommendations included market focus and the importance of distribution channels in disseminating information to candidates. As competition stiffens and government funding dries out, institutions will be required to quickly adapt to the market conditions or otherwise it will perish.

Pyvis and Chapman (2007) examined the driving forces for Malaysian students to enroll in an offshore campus of an Australian university in Malaysia. Two groups of students were figured out to conclude reasoning to receive an international education. For Malaysian nationals, international education was highly esteemed as a license to employment with (western) multinational corporations working in Malaysia; hence they made “*positional*” investments in Australian offshore higher education. For non-Malaysian students an international education was typically selected as an aid to gain a new identity, and choose an international education with the hope of eliminating provincial aspects. Through international education, they are looking for new ways of viewing the world, new habits of thinking and new skills. Those students, therefore, typically made “*self-transformative*” investments in international education. Students who made self-transformative investments were apparently more able to respond positively to challenging education experiences associated with studying at the campus.

Li and Bray (2007) analyzed the causes for the mobility of mainland Chinese students in Hong Kong and Macau. The authors noted that these flows were determined by equally excess demand, i.e., students who could not enroll at home

and searched for outside chances, and differentiated demand is for students who can enroll at home, but favoured to go outside. This differentiated demand initiated from the idea that non-local study is prestigious, and could offer better study conditions than were available domestically. The study concluded that analysis of the distinctive features of a pair of territories mentioned above adds to wider conceptual understanding of the nature of cross-border flows for higher education.

IOM (2008) identified the reasons for studying abroad. These reasons are depending on a range of educational, economic, cultural and social conditions. Such as the destination country's immigration/visa policy against international students, employment possibilities and recognition of skills and foreign qualifications in the host and origin countries and the removal of repeated obstacles of formal procedures for such recognition plays a role in explaining the success of student mobility under joint university programmes or partnerships between establishments. In addition, the degrees and qualifications obtained in the host country may be more accreditable internationally. Finally, the cost of studying abroad in terms of tuition fees, living expenses, financial assistance in comparison with the country of origin costs are all important determinants for a destination country choice.

Pan (2008) traced the changes in the directions of the international flow of Chinese human capital between the 1870s and 2000s. This article argues that the direction of human capital flow is not determined solely by an individual's choice; it can also be affected by people's psychocultural perception of overseas study, the international relations between host and source countries, the nation state's higher education policy and social changes in both the domestic and global contexts. China's experience exemplifies the potential of a developing country's success in influencing the distribution of internationally mobile students and in altering its status in the world system from a country on the periphery to a one approaching the core.

Lu *et al.* (2009) determined the causes for Chinese undergraduate students' migration to study in Canada. Students' demographic features, pre-move traits, Canadian experiences, parental anticipations and related ambitious aspects were among the outstanding factors for their choice. Family characteristics, both family structure and family finances are important factors influencing migration intentions. In addition, gender differences appear as a determinant for intentions to stay in Canada. The authors concluded that social and emotional adaptations are as important as economic adaptation in easing temporary residents' intentions to stay in Canada, in addition to the changes in immigration policies. The study suggested a broader research in examining the effects of most contemporary policy modification on foreign students' intentions to migrate.

Chadee and Naidoo (2009) reviewed the trend of Asian students studying in U.S. and UK. Findings asserted difference of variables affecting student from different countries. For example, international students from Hong Kong, Singapore and South Korea appear to be react more to changes in tuition fees (a proxy for the price of education), whereas exchange rates were critical for students from India, Hong Kong, Singapore and South Korea. In addition, domestic access to higher education is an important variable in influencing the flow of international students from China, India, South Korea and Thailand, which is in accordance with Lee and Tan (1984) and Agarwal and Winkler's (1985) findings that access to domestic higher educational facilities is a decisive and crucial factor explaining the number of students who go overseas for higher education. Other contributing factors were domestic per capita income (relevant only to students from Malaysia, Singapore, South Korea and Thailand), while global awareness (more students studying abroad as their countries become more involved in the global economy) was significant among Chinese students. As new competitors stratified to appear in the higher education market, marketing strategies of offshore higher education services need to be modified to the specific needs of different markets in order to be successful.

Park (2009) in his 2-D model, tried to explain the driving forces which are called the first D: *the driving force factor* on how and what components of the dissatisfaction with domestic higher education perceived by Korean students drives students' outward mobility to seek foreign higher education abroad. Different reasons for such disagreement with local education were low quality of college education, difficulty in college entrance, ambiguity about future jobs after graduation and preservative and bureaucratic environments at schools. For the choice of a destination country, it was termed *the directional factor*: the second D describes the factors that influence the choice of destination country for students' outward mobility, and is explained by the comparison of Korean students' perceptions on the images of universities in the U.S., China, the UK and Australia and their expectations for higher education in each country (categorized as 'academic'–'environmental'). The study considered all Korean high school students as potential applicants to international higher education and the findings were used to formulate recommendation for higher education institutions in each country to be included into their recruitment strategies for international students.

Cantwell *et al.* (2009) explored the reverse phenomenon of students flow to developing countries. They studied the dispositions of the flow of international students from Europe, Latin America and North America to study in Mexico. The author focused on dispositions, experiences, and expectations referred collectively as "Orientations" of explaining their incentives to study in Mexico. The findings reveal significant differences among international students' dispositions, experiences, and expectations by their geographical regions of origin. The authors demonstrated the ways in which the political economy shapes the orientations of students studying abroad. In more detail, for North American and European students, they seemed oriented into a short-term study and in the overall experience of studying in Mexico than earning a degree in Mexico. For students from Latin America they appeared to be more academically oriented towards studying and furthering their education in Mexico. In the end the study concluded the important

role of developing countries as not only senders but also as receivers of international students.

Roberts *et al.* (2009) provided an explanation for the international students incoming to study at the National Chengchi University (NCCU) in Taipei, Taiwan. The authors discourse the capability of NCCU as a host institution to sustain and attract increasing numbers of incoming international students is through the following factors. These are the unique opportunity to study traditional as opposed to simplified Chinese characters, the chances of available and accessible scholarships from the Taiwanese government, and the high standard of the NCCU Mandarin study programme. The outcome of the study implications is that universities in accordance with internationalization have to face positive and negative challenges of being in the international scene of globally competitive institutions. More important than having a total number of international students, is the focus on the appropriate type of international students at the NCCU and in determining the standards for their contribution to campus life.

4.3.2 Fields of study choice

Stromquist (1989) examined the choice of non-conventional fields of study by international female students at the undergraduate and graduate level. The study used as subjects 150 graduate students (100 female and 50 male) and 100 undergraduate students (75 female and 25 male) from 10 universities in the U.S. Conclusions rewarded that field of study choices develop over time with families, teachers, and schools playing an important role. In addition, competence in maths and science were seen to affect the selection of non-traditional fields. The study suggests that universities might adopt policies to provide more maths and science courses, and to become more supportive of female students.

Cai (2003) examined fields of study patterns and their determinants among Chinese and Taiwanese students who come to the U.S. for the purpose of advancing their education. The author argued that field of study choice is the result of both economic incentives as well as cultural and social values. The study

suggests that funding from U.S. university sources leads Chinese and Taiwanese students into science and technology-related fields. This study also proposes that choosing a field is a gender-specific behaviour that is affected by cultural and social values, as well as structural factors, such as educational policy. Despite the gender gap in choosing fields of study, women from China are more likely to choose science- and technology-related fields than those from Taiwan. This may be the result of China's central government's claimed campaign for gender equality. Such an alleged campaign may have created perceived equality and confidence within women that encourage some women to enter male-dominated fields.

Pereda *et al.* (2007) established and tested dimensions for measuring service quality in higher education, focusing on full-fee paying postgraduate students from non-EU countries at one institution in the UK choosing tourism and hospitality. The institution concerned has a particular reputation in tourism and hospitality and a significant proportion of the respondents were studying these subjects. This study was based on one institution and sought the views of the international, postgraduate, full-fee-paying students who had already taken a decision about where to study, and the configuration of the variables reflects this. Four important issues come out of this work in relation to what students' value in their university experience. These are recognition; the evaluation of higher education; quality of instruction and interaction with faculty; sufficiency of resources and aspects of physical quality. In the end, the most significant finding is the importance that students attach to their institution's reputation.

Sugahara *et al.* (2008) explored the influential factors that affect business students' selection of a major course of study at the tertiary level in Australian universities. The study examined the differences in the impact that various influential factors had on the decision to major in accounting among students studying at Australian universities. The results showed that domestic students possessing higher levels of creativity were more likely to select majors in subjects other than accounting.

Conversely, it was found that although Chinese students possessed relatively lower levels of creativity, they were more likely to major in accounting when studying in Australia. Another finding was that Asian students other than Chinese perceived the accounting profession as a career with less procedural characteristics so they were more likely to major in accounting compared to domestic Australian students who regarded the profession as one that had greater procedural characteristics. This study contributed to a better understanding of the differences in students' creativity and procedural images of the accounting profession among domestic and international students and how these factors influenced their choice of accounting as a major field.

Jackling and Keneley (2009) examined the influences on the potential supply of accounting graduates in Australia with reference to the personal and social influences on their decision to major in accounting using the Theory of Reasoned Action and focusing on differences between local and international students. Responses from 437 accounting majors found that personal attitudes linked to 'intrinsic interest' and 'extrinsic interest' was influential in the choice of the major, and the behavioural beliefs influence these personal attitudes. On the other side, 'Reference Groups' were an important social influence for international students. The findings have implications for government policy and accounting profession in terms of attracting students' particularly international students, who are sufficiently interested in accounting as a career choice to address the skill shortage in Australia.

4.4 Implications from the theory to the present study

This section presents how to measure the return of investment in human capital formation in terms of the effect of out migration of highly skilled on international students' enrollment in the sending country. Two conclusions are drawn from investment in human capital. The first conclusion is that out migration as investment in human capital can have a brain drain effect on the sending country, rather this drain can be turned into gain through return migrants who bring back

home the skills and knowledge they learned while abroad. Second, the return of investment in human capital to the sending countries can have different effects, through the inflow of earnings, jobs and income improvement, increase the level of human capital at home, improve social status, and investing in local higher education sector. The explicit focus of human capital theory is on educational level, but according to a common notion, human capital also includes different educational fields, different types of skills, and other individual attributes. In addition, the standard human capital theory does not distinguish between foreign and local education, especially at graduate level of studies. In the present study, five different attributes of the human capital will be included in the study and such human capital variables are to be distinguished between a foreign and a local source.

Many studies questioned the determinants for international students' enrollment in a destination country and ample studies suggest different economic, educational and political reasons for such a choice. The mobility of international students involves two main trends. One consists of students from Asia entering the major academic systems of North America, Western Europe, and Australia. The other one is within the European Union as part of its various programmes to encourage student mobility. The second observation that albeit none holding back of the flow of students seeking education beyond their borders, rather international students in the contemporary university era are inclined to study in newly host destination countries. Several strategies are implemented by developing countries to be educational potentials of a regional destination for student choice. In this regard, the present study is to analyze the determinants of cross-national flows of students within a south to south divide.

The brain drain discussion lends insights into the economic impact of migration on the sending country. In the early stages of the discussion and independent of whether a loss or a gain results to the world by the migration of human capital, the question of the causes behind out migration of highly skilled is raised by many

authors and always yielded a loss to the sending countries and a gain to the receiving countries. Later literature, however, raised three important issues leading to gains to the sending countries. The first is that an increasing number of individuals migrating abroad are mainly for economic reasons in their home countries. The second issue is that while migrants are abroad, transfer of knowledge, diaspora networks with the sending country result in a flow back of information that result in augmenting human capital level in their origin countries. The third issue involves benefits to the sending country through the return of migrants after acquiring skills abroad which they apply in their home countries through increasing domestic environment for innovation and scientific research, building corporations with scientific centres abroad and developing local higher education. In this regard, different policies are implemented by migrants home countries' governments to bring back their highly skilled migrants, but again little success is achieved within these schemes. Finally, this study will measure the return of investment in human capital at the higher education sector, in terms of whether a relationship between human capital formation variables and international students' enrollments exists or not.

5 Jordan: Economic background and higher education

5.1 Jordan: economic background

Jordan is classified by the World Bank as a lower middle income country. The GDP per capita growth for the periods (1970–1979), (1980–1989), (1998–2008) registered an averages of 11.1%, 0.1% and 6.5% respectively.⁵ In 2009, the GDP per capita registered 5,300 US\$⁶ and the inflation rate has steadily increased and fluctuated around 14% in 2008⁷ especially after the war on Iraq in 2003 and the increased liquidity in the Jordanian market brought by Iraqis migrants. In 2009, the unemployment rate has been more or less stationary between 14-15%.⁸ The incidence of poverty increased during the last decade of the twentieth century from 3% to 12% (Masri, 2004:5) and reached 21% in 1992 and 33% in 1997 (Hassan and Al-Saci, 2004). The Jordanian economic system is regarded as liberal and market oriented, one of the milestones of openness is Jordan accession to the World Trade Organization (WTO) in the year 2000.⁹ Rather the government continues to play a large economic role in development planning, as a financier and as the largest employer, employing an estimated of 50% of the Jordanian work force (MoPIC *et al.*, 2004).

Jordan is situated in the Middle East, bordered by Syria from the north, Iraq on the east, Saudi Arabia on the south, and Israel and the West Bank on the west. Jordan's territory extends to less than 100,000 square kilometers and has a population of 6 million¹⁰ who are primarily homogenous; the Arabic language and the Islamic religion predominate throughout the country. Jordan is poorly endowed with natural resources, and its natural resources are limited to phosphates and potash (Jaber *et al.*, 2004). At the forefront of Jordan's present environmental problems is that of water, which is attributed to meteorological, geographical and

⁵ The World Bank, 2008; 2009.

⁶ The World Factbook (2010): Middle East Jordan. URL: <https://www.cia.gov/library/publications/the-world-factbook/geos/jo.html> , 01.03.2010

⁷ Central Bank of Jordan: Inflation in Jordan. URL: <http://www.cbj.gov.jo/>, 02.04.2010

⁸ Department of Statistics, Jordan. URL: http://www.dos.gov.jo/dos_home_a/main/index.htm, 02.03.2010

⁹ World Trade Organization. URL: http://www.wto.org/english/thewto_e/countries_e/jordan_e.htm, 02.03.2010

¹⁰ The population number as in June/2010 (DOS, 2010).

demographical factors (Rosenberg, 2007). Jordan is located in a semiarid region and has a desert climate; the scarcity and uneven distribution of precipitation over Jordan resulted in a limited surface and groundwater resources available for domestic uses (Doppler *et al.*, 2002). Only 6% of Jordan's total land area is arable land, hence, such a fragile ecosystem has also been manifested by non- sustainable land use patterns and poor vegetative cover of the range land and the remaining forest patches (Kepner, 2006). The rapid population growth, combined with increased urbanization and industrialization, industrial pollution, heightened public water consumption, Jordan's absorption of hundreds of thousands of people since 1948 has resulted in the over-exploitation of many of its natural resources (Hadadin and Tarawneh, 2007). Compared to what internationally conceived as adequate water consumption at 1,000 cubic meters annually and water scarcity level at 500 cubic meters, Jordan has a share of 350 cubic meters per capita in 2006.¹¹ The availability of water is among the lowest in the world (below 1,000 cubic meters per capita per year).¹² Moreover, Jordan has no oil of its own, and imports its oil needs mainly from Iraq and often at concessionary prices, rather since the war on Iraq in 2003, Jordan started to import oil primarily from Saudi Arabia and other gulf countries.

5.1.1 Political crises

Jordan has been affected with vulnerability and sources of unrest situations from neighbouring countries. The collapse of the Jordanian rentier State in the mid-1980's,¹³ the suppress of regional trade and transit activity and the start declining in the Arab aid, while Arab workers were to be progressively replaced by Asians in the Gulf countries in the early 1980s (De-Bel Air, 2008), resorted Jordan to borrowing to keep up the strong public sector, to sustain economic growth and to encounter the gap in its budget deficit. Jordan's debt service exploded from around 300 million US\$ in 1983 to a peak of 1,150 million US\$ in 1988. In 1988, its total

¹¹ Hambright *et al.*, 2006.

¹²The World Factbook (2010): Middle East Jordan. URL: <https://www.cia.gov/library/publications/the-world-factbook/geos/jo.html> ,26.01.2010

¹³After the end of the Iraq-Iran war in 1988, and the fall in world wide oil prices.

external debt climbed to more than 190% of GDP and Jordan became one of the most heavily indebted countries in the world (Maciejewski *et al.*,1996), and combined with its diminishing currency reserves has led to a crisis and to a significant devaluation of the Jordanian Dinar (De-Bel Air, 2008). At that point, Jordan had no choice, but to open negotiations with the International Monetary Fund (IMF) as a first step towards debt rescheduling. Not only this, rather the mass returnees of over 350,000 Jordanian migrants from Kuwait and other Gulf states as a result of the Gulf war in 1990/1991 (Van Hear, 1995), where at that time Jordan was passing through a crucial economic situation characterized by rising unemployment, high inflation rates and difficulties in servicing its foreign debt, made Jordan enter into a drastic reform process of its economy, supported by a series of agreements with the IMF and the World Bank signed in 1989, 1992, 1995 and 1999, which called for far-reaching reform measures, including stronger stabilization, trade liberalization, financial deregulation and privatization in order to resume growth and address internal and external imbalances (Lauterpacht *et al.*, 1991).

Half of Jordan's exports and quarter of its imports are with its Arabic neighbouring countries. The US-invasion of Iraq in 2003, increased in the oil prices world wide, made Jordan's number one of oil its supplier (i.e. Iraq) combined with increasing in government spending - while no remarkable domestic revenues were available - have all consistently resulted in a trade deficit, which was equivalent to seven billion U.S. dollars in current prices, five billion Jordanian dinar (CBJ, 2006). The financing and sustainability of the trade account deficit will depend on the outcome of trade liberalization, macroeconomic policies (particularly those that influence demand), and developments in the real exchange rate as well as the inflows of foreign capital (Santos-Paulino, 2007).

5.1.2 Foreign capital inflows

Jordan lacks natural resources and its economy mainly relies on emigrant remittances and foreign aid (El-Sakka, 2004), this foreign aid flow from other Arab

countries, Western Europe, and the United States (IMF, 2004:122). The political ramifications of the Gulf war and its heavy economic costs have affected Jordan which relies heavily on aid from richer countries (Zoepf, 2006), and remittances from migrant labour employed in the Arabic Gulf countries felt the consequences. Foreign aid to Jordan has surged from 397 million US\$ in 1970 to 1,289 million US\$ in 1980. The partial loss of the Iraqi market, the relapse of the peace process with Israel in (1994) and the continuing heavy debt burden of Jordanian budget over around 100% of GDP has dominated the first years of the 21st century by a climate of uncertainty and accordingly the pace of local and foreign investments in Jordan has been low, and the real economic growth has, at best, matched the population growth. A sign of international investment uncertainty is declining importance of this foreign aid from 1980s level of 1,298 billion US\$ to 289 million US\$ in 1990, 227 million US\$ in 2002, 459 million US\$ in 2006 and 504 million US\$ in 2007 (CBJ, 2003; CRS, 2006; The World Bank, 2009a).

For Jordan, remittances are essential to the national economy and an important pillar in achieving monetary stability, economic growth, raising the level of the kingdom's reserves of foreign currencies - which tends to support the balance of payments - and in reducing the financing gap balance of the kingdom's trade deficit. Remittance flows from Jordanians working in the Gulf reached 1.4 billion US\$ in 1980 constituting 20.1% of GDP, while in 1990 have dropped to 583 million US\$ (12.4% of GDP) in 1990 as a consequence of the Gulf War and the return of Jordanians working in Kuwait and other Gulf countries. Again remittances have increased to 1.6 billion US\$ in 2000 amounting to 21.8% of GDP, which is one of the highest proportions in the world (CBJ, 2003). It has then a steady state pace and by 2003 and 2005 remittances triggered 2 and 2.5 billion US\$ respectively (Tab. 5.1). Rather, the repercussion of the late global financial crisis in 2008 (Read, 2009) has its negative impact on remittances form Jordanians in the Gulf countries and on investments from the Gulf countries inside Jordan. Not only this, but also the Dubai debt crisis in 2009 of its real state company "Dubai World" which could not make on-time payments for some of its \$59 billion

in debt (Tay, 2010:160), had consequences on large Jordanian expatriates who lost their jobs in the Emirate and returned to Jordan. The effect of the crisis can be seen in the slump of remittances in 2009 than its level in 2008 (Tab. 5.1) and in raising unemployment in the Kingdom (between 14%-15%).¹⁴ Hence, the persistence of a double-digit unemployment in Jordan shows that it remains a labour-surplus economy with an urgent need for job creation (IOM, 2006).

Table 5.1: Remittances to Jordan and their share to GDP (1970-2009)

Years	Remittances (million US\$)	GDP (million US\$)	GDP (%)
1970	62	2,559	2
1980	1,468	7,318	20
1990	583	4,692	12
2000	1,633	7,475	22
2003	2,006	10,182	20
2005	2,511	12,611	17
2008	3,157	21,205	15
2009	3,118	22,910	14

Source: Central Bank of Jordan (different years): Annual report.

5.1.3 Economic sectors

Jordan economy has a narrow base of industrialization and the service sector outweighs other productive sectors. Table 5.2 shows that service sector is the largest contributor to the GDP and the employment in Jordan, and also the industry sector such as (textile and mineral resources like potash and phosphate) played a significant role in development. Hence, increasing exports of both manufacturing and service sectors can be an important source for sustaining Jordan's economic development and solving its pernicious trade deficit. The widening in the trade deficit could be narrowed through a change in the growth differential between imports and exports, with imports growth slowing markedly and exports growth rising significantly (Mann, 1999). Increasing exports of manufacturing are confronted with the increased competition from more efficient imports, which means that some local industries will not survive. The population growth rate in Jordan that stands at 2.2%¹⁵ leads to high employment challenges

¹⁴ Rather unofficial rate is approximately 30% (The World Factbook, 2010).

¹⁵ Department of Statistics, Jordan. URL: http://www.dos.gov.jo/sdb_pop/sdb_pop_a/index3_o.htm, 01.02.2010

and an even higher population growth rate in the region means that employment opportunities in the region may not be as readily available a few years from now.

Although Jordan tried to reduce its deficits through aid from foreign donors and through fluctuating work remittances, its development choices are constrained by its weak natural asset coupled with high unrest situation in the region and high unemployment rates. Meanwhile Jordan has long realized that human capital is the major potential asset for the country and has traditionally received a high priority among the goals of successive Jordanian governments. Service sector exports can be part in solving Jordan’s modest endowment with financial resources as the country was and still is to a great extent dependent on education and the mobility of highly skilled professionals as a potential source for qualified skilled workers. That means relying on the growth of its human capital in the course of achieving an independent and sustainable development of its economy (Mincer, 1996).

Table 5.2: Jordanian economic sectors share of GDP (1986-2008) (in %)

Economic sectors	1986	1996	2006	2008
Agriculture	6	4	3	3
Industry	24	26	32	34
Manufacturing	11	14	21	21
Services	69	70	66	63

Source: World Bank (2007, 2009): Jordan at a glance.

5.1.4 Jordan’s investment in human capital at household level

One of the major achievements Jordan scored in the field of education during the past 1970s, 1980s and 1990s was the universalization of education (UNESCO, 1990; Hammoud, 2005) which resulted in dropping the illiteracy rate from 45% in 1970 to 7.9% in 2007 (UNESCO, 2008) and increasing the literacy rate to 93% during the period (2003-2008). According to the World Bank's Country Assistance Strategy for Jordan, the Jordanian achievements in human development during the past thirty years have been impressive.¹⁶ Participation rates were scored in various educational cycles. The percentage of the population with formal education to total

¹⁶ Hassan and Al-Saci, 2004.

population constituted 52.1% in 1979, went up to 78.7% in 1994 and 85.3% in 2004 (Al-Khalidi, 2006). Moreover, tertiary education Gross Enrollment Rates (GERs) increased from 2.1%, 13.1%, 45% and to 58% in the years 1970, 1985, 1999 and 2007¹⁷ respectively.¹⁸

Education was and still is in the forefront of Jordanian government priorities of different social and economic demand agendas, and education, be it school education or higher education, is a natural competency for Jordan. In 2008 an estimated number of (600,000-670,000) Jordanians were working abroad, of them 141,000 were working in the Arab Gulf States¹⁹ and a large percentage of those professionals work in education. The government of Jordan is instituting policies aimed at improving the quality of education and in ensuring that students have the relevant labour market skills needed to effectively compete for domestic, regional and international employment. In addition, Jordan looks to human capital not only as a cause of economic growth, but also grows as a result and as a primary engine of growth (Romer, 1990; Stokey, 1991; Grossman and Helpman, 1991; Young, 1991).

5.1.4.1 Household expenditures

Jordanian society values education both for its intrinsic merit and as a means to improve ones quality of life. The token value of a degree is an important title that distinguishes a degree-holder from the multitudes not fortunate enough to have the means to obtain it. Due to its status value, there is an ever-increasing social demand for higher education in Jordan and this demand continues to grow (Ahlawat *et al.*, 1996). Jordanian people value education and believe in it as a key for the future and it is always the first priority for families in Jordan and the high social respect for educated persons in Jordan that strongly motivates many students to continue their studies (Ahlawat *et al.*, 1996). The underlying features of Jordanian households imply that youth in Jordan potentially faces a lower risk of

¹⁷ In 2005, GER in tertiary education reached 39% one of the highest in the Arabic region (UNESCO, 2008).

¹⁸ World Bank, 2008; UNESCO, 2007.

¹⁹ DOS, 2008.

long-term unemployment, poverty and exclusion during an economic downturn when they are equipped with higher degrees. Most specifically, those with doctoral degrees are relatively highly esteemed in the Jordanian society and are on high demand. Therefore, higher education has been inculcated as a mean of social status and a key for the future. Moreover, parents enroll their children in higher education institutions even if it is at the expense of their basic needs, or if they have to borrow money, or sell the family properties (Bader, 1999). Hence, having a place in universities is of great worry for Jordanian parents towards their children. And there is an advantage for students from families with higher incomes with respect to university attendance, especially abroad. The level of encouragement to pursue education and the value placed on higher education by Jordanian families on their children has resulted in educational aspirations and expectations for individuals. Most Jordanians would sacrifice everything they have in order to send their children to schools and then off to universities. Some families sell their assets to invest into their children education (MoPIC *et al.*, 2004). Jordanian parents have placed the education of their children's at the first level of family priorities and shown during the last decade their sacrifice in sending their children to institutions of higher education (Hammad and Al-Basheer, 2000). Between 2003 and 2006, the Jordanian household expenditures on higher education have increased from 3.1% to 4% from total expenditures on all education respectively (Tab. 5.3).

Table 5.3: Jordanian households' expenditures in 2003 and 2006

Household expenditures on:	2002/2003		2006	
	million (US\$)	(%)	million (US\$)	(%)
All higher education (1)	278	3.1	419	4
Pre-tertiary education (2)	156	1.8	285	2.7
Total (1+2)	434	4.9	704	6.6
Expenditure on goods and services	8,881	5	10,594	7

Note: 1) Includes community colleges fees inside Jordan+ public university fees inside Jordan + private university fees inside Jordan + universities fees for studying outside Jordan.

(2) Includes: kindergarten and nursery + private schools fees + governmental schools fees + drawing and writing tools + books + typewriters, calculator + school bags + private teachers fees + dorms + training and education courses fees+ copying + other educational expenses.

Source: Department of Statistics (DOS): Household Expenditure and Income Survey for 2002/2003 and 2006.

Moreover, the Jordanian household expenditure on public universities has increased from 45% to 56% in 2003 and 2006 respectively, whereas this expenditure has been the same for community colleges 5%, and decreased for private universities from 43% to 35% from the total household expenditures on higher education, and finally for studying abroad the household expenditures have decreased from 7% to 5% from the total household expenditures in 2003 and 2006 (Tab. 5.4).

Table 5.4: Jordanian households' expenditures on higher education in 2003 and 2006

Household expenditures on	2002/2003		2006	
	(US\$)	(%)	(US\$)	(%)
Community colleges	14,524,937	5	19,278,970	5
Public universities	125,567,049	45	235,857,069	56
Private universities	120,064,785	43	146,077,576	35
Universities abroad	18,163,870	7	17,922,359	4
Total	278,320,641	100%	419,135,975	100%

Source: Department of Statistics (DOS): Household Expenditure and Income Survey for 2002/2003 and 2006.

5.1.4.2 Jordanian students abroad

Jordanian society recognized the importance of higher education when it is combined with migration and Jordanian parents consider English as the 'make or break' for their children's future (Khuwaileh and Al-Shoumali, 2001). Hence, higher education considered of high priority for Jordanian students across national boundaries, first, as it offers citizens an opportunity to increase their income and social mobility and second, it facilitates their advancement in an unstable world, especially in the Middle East where countries face the problem of massive immigration and refugees due to regional wars (Mazawi, 2004), hence he/she may acquire a form of international experience in order to compete in the academic job market.

Immediately after the Second World War, a tidal wave of desire for Jordanian people for learning began to gather impetus and has reached major proportions (Qubain, 1979). Several reasons for this development, in part, the influx of Palestinian refugees into Jordan, and the ability of many of them to obtain good

paying positions or to establish new businesses, demonstrated that knowledge is a valuable capital asset which can't be expropriated and which one can take with him wherever one goes (Qubain, 1979). Whereas previously the urban or urbanized middle class generally thought of higher education as something restricted to people of wealth and status beyond the limit of horizons for their children, education fever by time has caught both parents and children and every student who completed his secondary education wishes to continue his studies. However, investment in higher education for children involves costs that poorer parents can seldom afford (MoPIC *et al.*, 2004).

Jordan's first "study abroad" wave began in the 1960s, with doctors and engineers among the first group of emigrants. After 1973, an increasing demand on higher education appeared and could not be met with an adequate expansion of higher education capacity and led many Jordanians to study abroad. The beginning of higher education in Jordan started in the second half of the twentieth century with a post-secondary education (opened in 1952) and was the first institution to train the increasingly needed numbers of teachers. The term college was used to define this kind of post-secondary education to meet the high demand on school education characterizing that era. In the 1960s and 1970s numerous teachers' colleges were established throughout the country offering more specializations in various fields such as education, commerce, agriculture, hotel management, and social service professions. Later, engineering, paramedical technologies, communications and information technology were added. In 1980, government and private teacher training institutes were unified under the common concept of community college.

The University of Jordan only came into being in 1962, and a time was needed to develop sufficiently or to offer enough variety of courses to become even a partial substitute for studying abroad. In addition, the higher education institutions in Jordan were not able to provide adequate labour market preparations for their students to meet the specific needs for specialized manpower (Qubain, 1979). In 1972, ten years after the establishment of University of Jordan, it had around 3,000

students and most of the subjects offered were concentrated on social and human sciences as well as economics and were targeted to supply the country with teachers and civil workers. The limitation capacity of the Jordanian universities to just humanities and social sciences specialities, forced a lot of Jordanian students to achieve their higher education in engineering and medicine abroad. In 1972 there were almost 30,000 Jordanians studying abroad. In addition, entry barriers to study medicine or engineering in Jordan require high scores in the high school and can only be achieved by a few secondary school graduates. In the 1970s and 1980s the government has increased the higher education capacity by expanding specialities and faculties offered at the University of Jordan by introducing medicine in the year (1972), agriculture in (1974), engineering (1976) and law (1980). In addition, a prominent expansion was achieved by establishing more universities in the north, like the University of Yarmuk in (1976), the University of Science and Technology in (1986) and in the south of Jordan as in the University of Mu'tah (1981). Since 1954 until 2009, Jordanian students were still seeking higher education abroad (Tab. 5.5).

Table 5.5: Jordanian students in Jordanian and foreign universities at all higher education levels (1954-2009)

Academic Years	In Jordan Uni	Distribution of Jordanian students abroad						Un-specified	Total in foreign countries	Total of all abroad
		Arab Countries	West Europe	East Europe	North America	Asia				
1954/69	-----	29,500	3,500	2,500	1,000	-----	-----	7,000	36,500	
1972/73	2,700	24,300	3,300	-----	800	600	-----	4,700	29,000	
1975/76	5,200	27,400	6,200	2,700	1,000	2,100	-----	12,000	39,400	
1980/81	15,800	41,100	6,300	10,500	6,100	2,100	-----	25,000	66,100	
1985/86	26,700	8,300	4,200	5,800	6,600	1,000	9,900	27,500	35,800	
1990/91	39,700	7,200	4,500	4,400	4,300	7,300	----	20,500	27,700	
1995/96	83,500	10,300	2,500	3,200	2,500	3,100	8,000	19,300	29,600	
2000/01	126,212	12,000	1,700	6,100	1,900	1,300	8,000	19,000	31,000	
2005/06	208,174	9,529	1,549	3,575	2,374	193	8,000	15,691	25,220	
2007/08	226,401	11,315	1,545	4,195	2,374	267	8,000	16,381	27,696	
2008/09	236,820	10,828	1,419	4,193	1,922	249	2,243	10,026	20,854	

Note: (----): No data was available.

Source: For (1954-1981): Zaqq (2006); from (1985-2009): Ministry of Higher Education and Scientific Research (MoHESR)(different years): Jordanian students abroad.

After 1990/1991, the start of privatizing higher education institutions in Jordan and the increase in the number of private universities in Jordan,²⁰ the economic situation in Jordan and the high cost of living in foreign countries tend the number of Jordanian students abroad to stabilize between 25,000-30,000 during the period 2005 to 2009.

In a society like Jordan where until the late 1960s was rigidly stratified (Qubain, 1979), a university degree became the key to economic and social advancement, where it opens the doors and opportunities that otherwise would be closed, and hence it is thought to be the safest passport out of an unstable political environment. Human resource development in Jordan has been synonymous with the development and diversification of higher education and training to which Jordan has a long standing commitment (Alhalwat *et al.*, 1996). This in return exerted pressure on Jordanian students to migrate for pursuing their higher education studies to get the knowledge and skills necessary to earn a livelihood. University education is seen as an important means for training students and imparting the skills that are critical for securing jobs. Although the desire for knowledge per se is an important factor among many students, for others, particularly those with a middle or lower class background, the driving force is largely the desire for economic security and social recognition (Qubain, 1979). Holding a PhD degree from leading schools and universities in Europe and North America was and is still considered for the Jordanian person as he/she has reached the pinnacle of learning and has in many ways become the quintessential of global qualification. Many Jordanians seek to attend universities in either Europe or the U.S. (Coffman, 1996). Some people believe that acquiring a Western education would be better for the country and the economy (Sanyal, 1998). Moreover, internationally recognized and negotiable qualifications are needed for recruitment and promotion purposes. Thus students from a large middle-class find it better to become educated abroad in order to avail themselves of better job opportunities in

²⁰Until the late 1980s, the government was the sole provider of higher education. Private sectors initiatives were restricted to primary and secondary education (Oxford Business Group, 2009).

Jordan on their return. Another important factor of studying abroad is that it is viewed as an emigration option for young people in Jordan to escape the frustrations and limitations resulting from the chronic economic and other problems of their country. There is no accurate data existing on the number of Jordanian students in foreign universities abroad, especially in identifying their destination, sponsoring and level of study, and all the information available regardless of its source consists of rough estimates. The distribution of Jordanians abroad by PhD discipline during the period 1985-2006 is depicted in Table 5.6, which shows that most Jordanians abroad were specializing in scientific disciplines like engineering, medical sciences, dentistry and pharmacy. In addition, they are more attracted to other social sciences and humanities faculties, like law which seem to be the ones to expand most rapidly during 1985-2006 and enrollment in such speciality mushrooms year after year despite the evident oversupply of lawyers in Jordan and in most other parts of the Arab world. Studying law is very popular among Jordanians and this inclination for the legal profession is a phenomenon that dominates the entire Arab World (Qubain, 1979). Economic and social attributes in Jordan were also responsible for choosing main professions in scientific fields, like engineering and medical sciences, as they are most marketable and best paying. In contrast, a PhD graduate in physics, chemistry, or biology, for instance, where there is hardly any demand for this type of scientific skill in industry, so that the labour market is basically restricted to the government, where again the demand is extremely limited. If, after making all kinds of applications and petitions, he or she finally finds a position with the government, it may well be entirely unrelated to his training. Another alternative is teaching either in governmental or private schools, but the teaching profession in Jordan is not attractive for many reasons. In any case, again the market is very small and unlike the case for engineers, teachers or physicians, he cannot operate independently and consequently must seek employment. In addition, the social prestige inherited for the achiever of engineering and of a physician is of great value for the individual image.

Table 5.6: Jordanian PhD students abroad by fields of study (1985-2006)

Fields of study	1985/1986	1988/1989	1990/1991	2005/2006
Humanities and Religious Sciences	45	72	79	123
Education and Teaching Training	0	41	42	31
Fine and Applied Arts	0	0	5	6
Law	39	77	38	130
Social and Behaviour Sciences	0	26	68	61
Business Administration	21	92	38	53
Mass Communication	7	0	10	4
Natural Science	3	96	62	29
Mathematics and Computer	50	14	25	17
Medicine, Dentistry and Pharmacy	14	170	104	64
Medical Specialization	379	0	555	138*
Health Sciences	1	0	1	10
Engineering	134	115	146	65
Agriculture	0	24	11	24
Others	0	22	1	312
Total	690	749	630	929

Note: * Data from 2004/2005.

Source: Statistics of the Jordanian Students at Institutions of Higher Education Abroad (2005-2006): Ministry of Higher Education and Scientific Research. Statistics and Information Section Directorate of Information Technology March 2007.

5.1.5 Jordan's investment in human capital at institutional level

Studying abroad is also part of a deliberate strategy of the Jordanian government to foster the international mobility of students. The Jordanian government has encouraged the improvement of its human capital through linking it to different strategies and bylaws, and it is important in this place to view such national endeavours.

5.1.5.1 Higher education bursary bylaw

Jordan's policy approach since 1960 is to provide a greater number of bursaries to students based on national assessments to help them to attain a PhD in order to fill positions in state universities conditional on students returning home. This would minimize Jordan's risk investing in students' education to the benefit of other countries. According to the scientific bursaries law for 1957, Nr.840²¹ and law Nr.16/2005-Article (10)²² the Jordanian student signs a pledge in front of a notary committing himself/herself to serve in the Jordanian university for twice the time

²¹ Prime Ministry. Jordan.URL: http://www.lob.gov.jo/ui/bylaws/search_no.jsp?no=840&year=1957 , 05.02.2010

²²And also in accordance to Article 36/E of Jordanian universities law Nr.20/2009.

period he/she spends abroad. In addition, the student must either mortgage any property for the benefit to the university or to have collateral from a wealthy sponsor to guarantee the scholar student in case of scholarship transgressor conditions. In case of the student failure to accomplish the PhD while abroad, the student is required to pay the whole money spent on him plus a penalty of 100% on all financial provisions.

5.1.5.2 Higher education privatization law

Jordan's higher education institutions are governed by the Ministry of Higher Education and Scientific Research (MoHESR). The increasing recognition of higher education as a major engine of national economic growth and as a provider of individual opportunity and prosperity was intensified in Jordan by the end of 1980s. In the 1970s and 1980s, the government increased the higher education capacity by expanding the University of Jordan, the first public Jordanian university, and established more universities in the north of the country, i.e., Yarmouk University in 1976, and Jordan University of Science and Technology (JUST) in 1986 and in the south of the country as in Mu'tah University (1981). In addition, available subjects were also expanded by introducing medicine (1972), agriculture (1974), engineering (1976) and law (1980). The growing higher education demand on enrollment pressure began with the sheer demographic increase in the traditional tertiary education age cohort, compounded by the increasing secondary school completion rates and gross enrollment rates (GERs) in tertiary education which increased from 2.1%, 13.1% and 39.3% in 1970, 1985 and 2003 respectively (The World Bank, 2008) and has in turn increased the number of secondary school completers willing to pursue to higher education.

The influx of Jordanians back from Kuwait and other Gulf countries due to the Gulf War in 1990/1991 has intensified the demand on Jordanian higher education places. Consequently, this growing demand on Jordan's higher education services strained the inability of Jordanian state higher education institutions to meet this rising demand, as the government was the sole supplier of higher education till the

end of 1980s, where only three public universities were servicing. Hence, the Jordanian government realized that it can't satisfy this increasing demand on its own in terms of the available number of universities and of the types of programmes offered. Therefore, the government issued policies inviting the private sector to provide higher education services, and had phased out of the Ministry of Higher Education (Higher Education Law Nr.6 of 1998) in 1998 after 13 years of its creation in 1985 and replaced it by a Council of Higher Education with the purpose of imposing criteria to present private universities substantially (Smart, 2005). This clearly signalled to the private sector that the higher education fields are welcomed investments, and that state interference and regulation would apparently be minimal. Therefore, the year 1990 was a watershed in the historical development of private higher education in Jordan as in 1989 the Council of Higher Education endorsed the first policy document, the private universities Law Nr.19 of 1989, authorizing the establishment of the first private university.

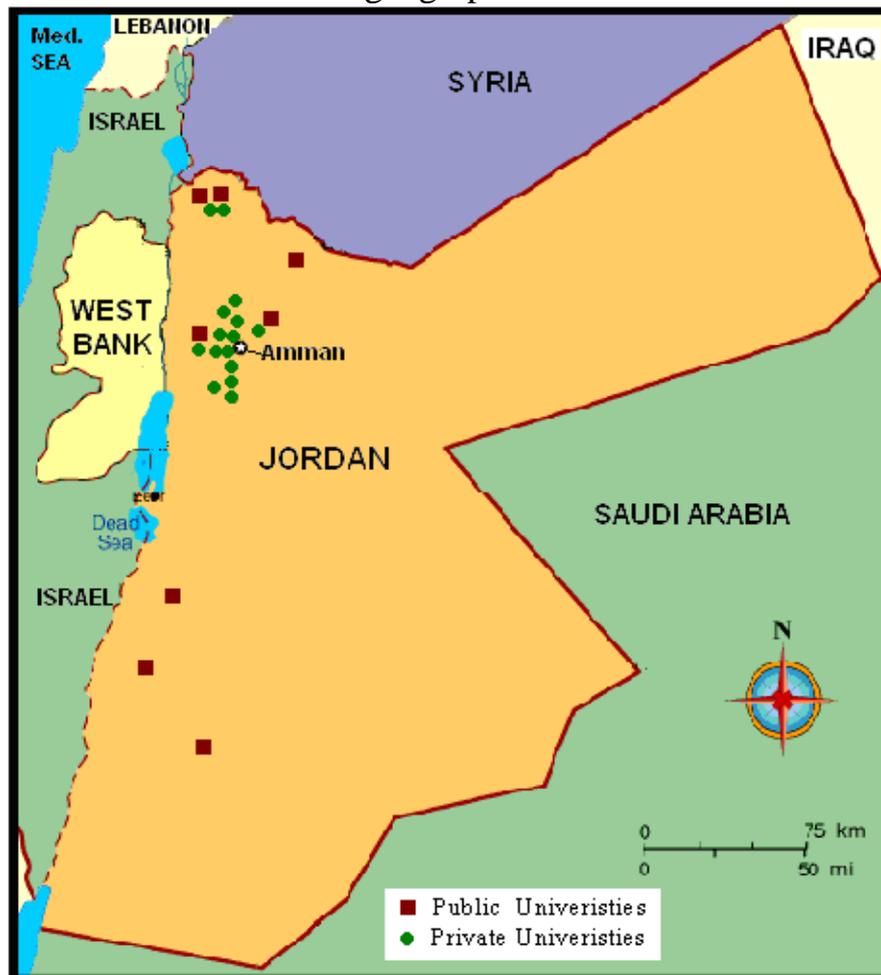
Following the Gulf War (1990-1991), the forced returnee of Jordanians' and Palestinians' capital owners and academics who used to work in the GCC coincided with the implementation of economic restructuring programmes and investing in private university ventures was significantly facilitated based on the 1989 legislation.²³ This has paved the way for establishing the first two private universities in 1980 and 1989²⁴ and by 1999 twelve private universities were established and private universities by the end of the 1990s outnumbered their state counterparts. Therefore, issues of regulation, accreditation and quality assurance by the end of the 1990 decade were more debated and privatization in Jordan does not mean opening up the doors for private higher education institution. The major concern is to prevent private universities from becoming "Shops" of sorts (*Dakakin*) as referred to in popular parlance (Smart, 2005). The war on Iraq in 2003 and the subsequent flows of Iraqi migrants into Jordan have increased the

²³ Reiter (2002) states that private universities in Jordan are a "Palestinian phenomenon" even if no one states this explicitly.

²⁴ These are Jordan Academy of Music (JAM) established in 1989 and Jordan Applied University College of Hospitality and Tourism Education (JAU) established in 1980.

pressure on higher education services. In addition, the unstable situation in the West Bank caused Palestinian students to flee into Jordan in search for a higher education opportunity. Moreover, the 11th September attacks have created difficulties for some Arab and Muslim students in western environments seeking higher education abroad, particularly for those from the Arab Gulf countries to acquire visas to U.S. and even to EU countries (IEE, 2003). As a consequence, the decade of the 2000s private higher education has continued in big strides where another three private universities were opened side by side with an already three established public universities. In 2010, there were 10 public universities and 18 private ones geographically distributed in the middle, north, south, east and west of Jordan (Fig.5.1; Tab. 5.7 and 5.8) and hosting a total of 237,000 students at all levels of higher education (Fig. 5.2).

Figure 5.1: Jordanian universities' geographical distribution



Source: MoHESR (2007): The Annual Statistical Report on Higher Education in Jordan for the Year 2005-2006. Statistics and Information Section Directorate of Information Technology: Ministry of Higher Education and Scientific Research; Magellan GeographixSM www.maps.com

Table 5.7: Jordanian public universities by years of establishment and uniform resource locator

Nr.	Public university name	Year of establishment	Uniform Resource Locator (URL)
1.	The University of Jordan (UJ)	1962	http://www.ju.edu.jo/arabichome.aspx
2.	Yarmouk University (YU)	1976	http://www.yu.edu.jo/
3.	Mu'tah University (MU)	1981	http://www.mutah.edu.jo/
4.	Jordan University of Science and Technology (JUST)	1986	http://www.just.edu.jo/index/default.aspx
5.	Hashemite University (HU)	1996	http://www.hu.edu.jo/
6.	Al al-Bayt University (AABU)	1993	http://www.aabu.edu.jo/
7.	Al-Balqa Applied University (BAU)	1997	http://www.bau.edu.jo/
8.	Al-Hussein Bin Talal University (AHU)	1999	http://www.ahu.edu.jo/
9.	Tafila Technical University (TTU)	2005	http://www.ttu.edu.jo/
10.	The German-Jordanian University (GJU)	2005	http://www.gju.edu.jo/

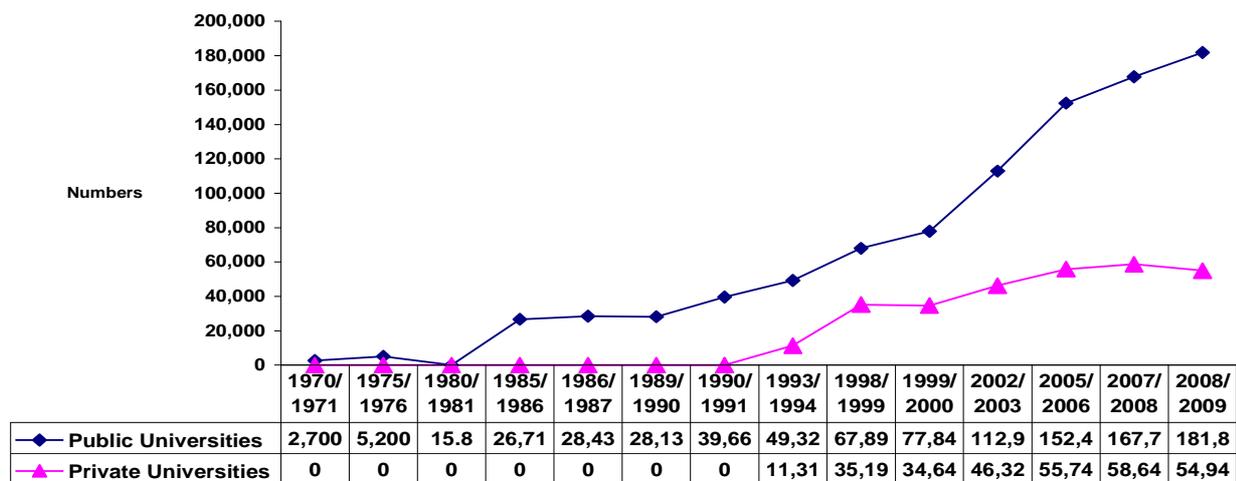
Source: MoHESR, 2010a.

Table 5.8: Jordanian private universities by years of establishment and uniform resource locator

Nr.	Private university name	Year of establishment	Uniform Resource Locator (URL)
1.	Al-Ahliyya Amman University (AAU)	1990	http://www.ammanu.edu.jo/new/
2.	Applied Science University (ASU)	1991	http://www.aspu.edu.jo/
3.	Philadelphia University (PU)	1991	http://www.philadelphia.edu.jo/default1.asp
4.	Isra Private University (IPU)	1991	http://www.isra.edu.jo/
5.	Petra University (PU)	1991	http://www.uop.edu.jo/
6.	Princess Sumaya University for Technology (PSUT)	1991	http://www.psut.edu.jo/
7.	Jerash Private University (JPU)	1992	http://www.jpue.edu.jo/EN/home.php
8.	Al-Zaytoonah Private University of Jordan (AZU)	1993	http://www.alzaytoonah.edu.jo/
9.	Faculty of Educational Sciences and Arts - United Nations Relief and Works Agency (UNRWA)	1993	http://www.fesa.edu.jo/homepage.htm
10.	Zarqa Private University (ZPU)	1994	http://www.zpu.edu.jo/
11.	Irbid National University (INU)	1994	http://www.inu.edu.jo/
12.	Amman Arab University for Graduate Studies (A.A.U)	2001	http://www.aau.edu.jo/
13.	Jadara University for Graduate Studies	2005	http://www.jadara.edu.jo/
14.	Middle East Uni. for Graduate Study (MEU)	2005	www.meu.edu.jo
15.	Ajloun National Private University (ANPU)	2009	http://www.anpu.edu.jo/portal/index.php
16.	Madaba Private University	2010	<i>Under construction</i>
17.	Jordan Applied University College of Hospitality and Tourism Education (JAU)	1980	http://www.jau.edu.jo/
18.	Red Sea Institute of Cinematic Arts (RSICA)	1989	http://www.rsica.edu.jo/home/index.html
19.	Jordan Academy of Music (JAM)	1989	http://www.jam.edu.jo/

Source: MoHESR, 2010.

Figure 5.2: Student enrollments at Jordanian universities at all levels of study (1970/1971-2008/2009)



Source: Ministry of Higher Education and Scientific Research: Information and Statistics Section-Directorate of Studies and Statistics (different years): Annual statistical report on higher education in Jordan.

5.1.5.3 Jordan higher education strategies

Jordan national strategy for higher education (2007-2012): The government of Jordan within a framework of its national agenda views higher education as a key tool for social and economic development and advancement. The national strategy for higher education which extends from 2007-2012 concentrates on seven axes:

1. University governance: The main focus is to guarantee the independence and autonomy of Jordanian universities financially, administratively and academically. It also focuses on reconsidering the composition of private universities' board of trustees, and other non-Jordanian higher education institutions inside Jordan, to assure their contributions to Jordanian higher education, and in accomplishing Education Management Information System (EMIS) project among Jordanian universities.
2. Admission rules: To improve admission criteria to ensure equality and efficiency between students, to implement the criteria of admission according to "competition" in the parallel programmes.
3. Accreditation and quality assurance: To apply both general and specific accreditation standards and quality assurance system on all higher education institutions in Jordan. In addition, planning the needs for the required and qualified academic staff at Jordanian universities and acquiring the quantitative

benchmarking for staffs performances. And finally, upgrading programmes and studying plans to cope with global developments in higher education.

4. Scientific research development and higher education studies: To activate the role of “Scientific Research Fund” to achieve its targets introduced in the bylaws Nr. (4)/2007 of scientific research and in trying to connect research purposes with country development goals. Also to encourage and support research atmosphere and scientific groups and scholars at graduate levels in all higher education institutions and to enhance the linkages between higher education institutions and industrial sectors inside and outside Jordan.

5. Technical education: Through making an overhaul to the programmes and specializations offered in community colleges and direct them towards technical education, to broadening the scope of technology education at the bachelor level and to enforce the vocational and technical concept among university students through university curricula.

6. Financing universities: Through establishing “Higher Education Fund” and continuing government support to state universities, and in covering the capital cost for state universities by the government. Establishing a “Student Bank” to cover the needs of a larger share of needy students and implementing additional strategies for financing universities through building philanthropic foundations (*waqf*) in each university and establishing “Center of Excellences” is on the planned agenda.

7. Universities environment: Concentrating on citizenship and democratic practices among students is of great value. Developing students’ confidence and improving a positive relationship between them and the academic and administrative staff is of great importance. Expanding non-curricula activities and taking care of international students in providing the suitable atmosphere for them is aimed.

Jordan higher education development project (HERfKE) 2000-2007: The Higher Education Development Project in Jordan that is supported from the World Bank and the Jordanian Government aims to initiate improvements in the quality, relevance, and efficiency of Jordan's higher education and to support the

government's programme to reform sector governance. The project consists of four components. The first one is toward helping to improve essential infrastructure for inter- and intra-university information technology networks, management information systems, modern library systems, and faculty training; and supporting the Higher Education Development Fund (HEDF) which allocates investment funding for university-based academic and entrepreneurial sub-projects, information technology, proposals, and faculty development centres. The second component improves governance by supporting the Higher Education Council's Secretariat, the Higher Education Accreditation Council and university management and planning. The third component helps in reforming the community college system by developing new programmes and human resources and in upgrading facility and equipment. The fourth component supports project implementation capacity by funding staffing and equipment.

Jordan Vision 2020: The value of 'education exports' has been increasingly recognized by the Jordanian Higher Education Institutions (HEIs) during the 1990s. In particular, the government has given very high priority into attracting overseas students from neighbouring countries and from elsewhere. In 2000, the Jordanian private and public sectors have launched an initiative called "Jordan Vision 2020".²⁵ The strategy document was inaugurate by 27 business associations, 30 governmental organizations, private companies and observers and was endorsed by H.M. King Abdullah II in 2000 (YEA *et al.*, 2005). The Jordan Vision 2020 initiative is spearheaded by the Young Entrepreneurs Association (YEA) aimed at guiding Jordan's growth and economic development into the 21st century, at doubling per capita real income of Jordanians by the year 2020 and enabling Jordan to meet its current challenges and ensure that its government and private sector is proactive in shaping a desired future. Given the abundance of governmental plans, this was the first time the private sector involved itself in macroeconomic planning. In the second phase of JV2020 strategy, the emphasis

²⁵ JV2020 led by Jordanian Business Associations, with the support from Ministry of Planning, Ministry of Higher Education and Scientific Research Ministry of Industry, Ministry of Tourism and other government authorities.

has shifted from envisioning to implementation, with a specific emphasis on translating the strategy goals into sustainable growth by increasing exports and attracting investment. As higher education was recognized as a key vehicle for enhancing Jordan's international competitiveness and, with only 19,669 foreign students in Jordan in 2003/2004, there is a clear potential for building on existing growth in 'exporting' Jordanian education to international students (YEA *et al.*, 2005). The goal was to increase the international demand on Jordanian higher education educational services to 100,000 international students by the year 2020. The strategy results suggested that *-inter alia-* the Jordanian private sector can play a huge role in catering the accommodation and medical insurance needs of foreign students' needs, and more than 50 recommendations to increase the competitiveness of Jordanian universities were recommended.

5.1.5.4 The Higher Council for Science and Technology (HCST)

The Higher Council for Science and Technology (H.C.S.T) was established at the end of 1987, with the aim of building a national science and technology base and developing it for the purpose of economic, social and culture development in Jordan. Chaired by His Royal Highness Prince El-Hassan bin Talal, the council has eight affiliated centres where their endeavours are to strengthen national capacity and development in three main fields: Research and Development (R&D), Science and Technology (S&T), and Training. In 2010, the (HCST) launched a two year project entitled "Building the Capacity of Jordanian Researchers" to enhance the capacity building of a scientific and technological national human capital at Jordanian universities. The project aims to create a new generation of distinguished researchers to support the scientific research base and in establishing centres of excellence in universities and research centres, through the rehabilitation and training of a group of researchers to build an "Institutional Scientific Research" in Jordan.²⁶

²⁶ HCST, 2010.

5.2 Higher education in Jordan

Access to higher education in Jordan is open to holders of the General Certificate of Secondary Education (*Tawjihi*) after completion of the secondary education cycle (UNESCO, 2008) and then can choose between private community colleges, public community colleges or universities (public and private). The university level studies consist of the following three stages (IAU/ UNESCO, 2005):

1. University level first stage: undergraduate level; 2. University level second stage: Graduate level: a Master's Degree is awarded by the public universities and some private universities in specific fields/faculties; 3. University level third stage: a doctorate degree is awarded by the public universities and one private university.²⁷ It lasts for three to five years of further study and the submission of an original dissertation.

For non-traditional studies (such as Distance Education), this type of education is offered only at the branch of the Arab Open University,²⁸ rather it is not accredited by the Jordanian Ministry of Higher Education (MoHESR, 2009).

5.2.1 University governance

Higher education institutions in Jordan are governed by the Ministry of Higher Education and Scientific Research which was established on 4 April 1985 (Bylaw Nr. 28 for 1985). Although the mandate of the Ministry is policy making, coordination and planning in general, its role has expanded to include the management of several functions including the approval of new academic programmes and the annual number of students to be enrolled. The need for a mechanism to properly plan, regulate, control and supervise higher education institutions in Jordan resulted in the establishment of Higher Education Council (HEC)²⁹ within the Ministry. All universities laws should be approved by (HEC) before the final approval by the Council of Ministers. The major concern for

²⁷ "Amman Arab University for Graduate Studies" established in 2001.

²⁸ Arab Open University-Jordan Branch. URL: <http://www.aou.edu.jo/>, 06.01.2010

²⁹ Article 5-A, MoHESR Law Nr. 23/2009 (PM,2010).

Jordan is to link between higher education and labour market needs. For that purpose several policies were underpinning alongside privatization, namely quality assurance and reforming of technological higher education. The former is a systematic review of educational programmes to ensure that acceptable standards of education, scholarship and infrastructure are being maintained through the accreditation of study programmes and the development of unified standards by which to evaluate their performance. The latter concerns strengthening the contribution of technological higher education to local labour market needs, in terms of training a workforce able to engage meaningfully with advanced technologies, increasing economic competitiveness and ever-changing markets (Smart, 2005). Until the Arab Regional Conference on Higher Education in Beirut (1998), Jordan has established a quality assurance body concerned with accreditation, although it was hardly operating as a licensing body for new private institutions (UNESCO, 2003). Jordan has created within the Ministry of Higher Education the “Higher Education Accreditation Commission” which defines the regulations, supervises the quality assurance and accreditation at the Jordanian higher education sector,³⁰and ensures that they reach their goals through continuous evaluation of their programmes (IAU/UNESCO, 2005). That is, the accreditation commission stands as an independent watchdog of all the public and private institutions in the country (UNESCO, 2008). The Jordanian “Accreditation Commission” operates in very much similar ways to their peer organizations around the world by conducting periodic reviews of curricula in the various academic disciplines, assessing the faculty to student ratios and reviewing allowable institutional capacity.

5.2.2 Universities’ financing

Both public and private universities operate under specific Jordanian laws. For public universities it is the Jordanian Universities Law No. 29 of 1987, where according to article 3 of the law it asserts that a university has a legal personality

³⁰Accreditation Law Nr.20/2007, article 4.

with financial and administrative autonomy, and as such has the right to own, sale, mortgage, borrow and conduct all legal transactions, including the conclusion of contracts, accepting aids, contributions, donations, grants and bequests. The University of Jordan (as the first public university in Jordan) represents the model for other Jordanian universities in terms of rules and regulations, at the same time assuring that each university still has its own identity. According to article 18 of above mentioned law, public universities have their own budgets and are financed through seven main sources:

1) Tuition fees and other lump sum fees paid by students for their services represent the second largest source of revenue for higher education. Table 5.9 shows different components for public universities revenues during the period (2001-2009). Tuition fees represented an average of 61% in comparison to government subsidies 23% and other revenue sources 16%. The university also receives fees for its services provided for the community and private enterprises, commissioned studies, fees for consultations and training.

Table 5. 9: Jordanian public universities’ sources of revenues (2001-2009)

Years	Gov. Subsidy (In US\$) (1)	Tuition Fees (In US\$) (2)	Other Rev. (In US\$) (3)	Subsidy/Total (%)	Tuitions/Total (%)	Others/Total (%)
2001	96,387,456	121,015,603	25,620,103	40	50	11
2002	100,951,787	133,196,515	43,122,392	36	48	16
2003	122,954,252	162,975,918	47,874,520	37	49	14
2004	88,648,161	227,561,879	61,347,686	23	60	16
2005	80,976,475	249,403,194	50,578,949	21	65	13
2006	90,850,204	278,286,938	66,309,461	21	64	15
2007	92,095,451	321,766,504	59,578,618	19	68	13
2008	60,304,576	299,451,972	61,587,210	14	71	15
2009	65,640,845	360,298,638	136,260,372	12	64	24

Source: Ministry of Higher Education Records of Jordanian Universities Budgets. Directorate of Financial Affairs. Universities and Project Financing Section upon approval from Jordanian Ministry of Higher Education (see appendix 2).

2) Revenues from investment in assets. The university invests into assets, stocks and real estates, and the returns are sometimes used for financing income generating projects.

3) Government subsidy, based on the recommendation of the Council of Higher Education and the decision by the Cabinet, the Ministry of Finance allocates this subsidy yearly for each university (according to the number of enrolled students). For example, the allocations of government subsidies to public universities represented an average of 9% of public universities subsidies during (2001-2009) (Tab.5.9).

4) Fees and custom surcharges. According to “surcharges fees law Nr. 4 for 1985 for Jordanian universities” and “custom surcharges fees law Nr.80 of 1966”, different percentages of fees and custom surcharges premiums are collected for the benefits of public universities or any public university to be established.

5) Revenues from university centres, faculties and other university productive projects. Income can be generated from research, consulting services and other university-industry linkages.

6) Grants, endowments, gifts and trust are accepted, but if it is from a non-Jordanian source approval from the Jordanian prime ministers is required.

7) Other revenue sources, like accrued income from prior years, budget conditional funding, saving money recycled, custom obligations rounded from previous years, supports to university budgets, recycled balances from revenues and other banking credit facilities.

Private universities operate under private universities’ law Nr. (19) and Nr. (43) for 1989 and 2001 respectively and their amendments,³¹ and also they operate under the regulation of the companies’ law as a private shareholding companies. In addition, they have a legal personality with financial and administrative autonomy, and as such have the right to own, sale, mortgage, and borrow and to accept contributions and donations. The following sources of revenues are identified:

- 1) Tuition fees and charges from university services provided to students and others;
- 2) Proceeds from investment in different assets;

³¹ Law Nr. 26/1999 and Law Nr. 26/2007.

- 3) Contributions, donations, grants, bequests and endowments, conditional on the approval of higher education council for donations from a non-Jordanian source;
- 4) Revenues realized from any academic, scientific and consulting services;
- 5) Revenues from publications.

While public universities receive a major share of funding from the government, private institutions do not obtain financial aid from public authorities. Private institutes' financing is fully based on tuition fees that form the financial backbone of many private institutions earnings and profits from running investment businesses. The total income for private institutions is determined, therefore, by the number of students and the rate of tuitions levied. Hence, they must meet their expenditures with what they collect from their students. For any given level of tuition fees, these institutions attempt to attract a larger number of students in order to maximize profitability. This is achieved, through introducing courses that are popular on the employment market and not offered by the traditional sector.

5.2.3 Academic staff at Jordanian universities

5.2.3.1 Academic staff by faculties

Academic staff at Jordanian universities who have achieved their PhDs from abroad and returned back to Jordan are illustrated in Table 5.10.

Academic staff at faculty of medicine have achieved their PhDs from UK (42%) and USA (26%). The same holds true for staff at faculty of business administration where 30% and 26% of staffs were graduated from UK and USA, respectively. Academic staff at faculties of educational science and foreign languages were dominated by staff graduated from USA with 57% and 46% each, respectively. Faculty of law had a prominent share of staff with PhDs from France (26%) and Egypt (21%). Germany witnessed a presence of Jordanian staff in faculties of science and IT with 10%, whereas only 1% of staff were graduated from Germany in the humanities' fields.

Table 5.10: Academic staff at Jordanian universities by PhD place of graduation and faculties in 2010 (in %)

PhD countries	Faculties								
	Scientific				Humanities				Total
	MeD	Nurs	Eng.	Sci.& IT	BA	LW	FL	Ed.Sc.	
USA	26	48	42	41	26	1	46	57	38
UK	42	34	25	22	30	31	29	18	27
France	3	0	5	1	4	26	0	0	4
Germany	7	2	2	9	0	1	0	1	4
Iraq	0	2	2	3	6	3	5	8	4
Egypt	2	10	0	0	3	21	2	10	4
Ukraine	0	0	4	3	5	1	0	0	3
Russia	0	0	5	2	4	1	0	0	2
Canada	3	0	4	4	0	0	2	1	2
India	0	0	1	2	7	0	7	0	2
Australia	6	3	1	2	2	2	2	1	2
Spain	0	0	0	1	1	2	0	0	1
Italy	1	0	2	1	1	0	0	0	1
Poland	0	0	1	1	2	0	0	0	1
Malaysia	0	0	0	2	2	0	0	1	1
Turkey	1	0	1	2	1	0	2	0	1
Others	7	1	4	3	5	12	3	5	4

Note: MeD: faculty of medicine, Nurs.: faculty of nursing; IT & Sci.: faculty of information technology and faculty of science Eng: faculty of engineering ; BA: faculty of business administration; LW: faculty of law; FL: faculty of foreign languages; Ed.Sc.: faculty of educational sciences.

Others = Ireland, Belgium, Switzerland, Austria, Sweden, Finland, Netherlands, Greece, , Romania, Moldova, Czech R., Bulgaria, Yugoslavia-former, Hungary, Slovakia, Uzbekistan, Latvia, Azerbaijan, New Zealand, South Korea, Japan, China, Philippine, Taiwan, Cuba, Pakistan, Morocco, Algeria, Tunis, Sudan, Syria, Cyprus, Lebanon, Saudi Arabia.

Source: Calculations by the author depending on Jordanian universities databases in 2010, including 10 public Jordanian universities and 16 private ones.

5.2.3.2 Employment conditions

According to Jordanian state universities law³² academic staff is one of the followings: 1) Professor who is a PhD holder; 2) Associate Professor A or B is PhD holder; 3) Assistant Professor A or B is PhD holder; 4) Lecturer A or B is PhD or M.Sc. holder; 5) Instructor is an M.Sc. holder. And according to private universities law³³ academic staff are either one of the following ranks: 1) Professor: a PhD holder, 2) Associate: a PhD holder, 3) Assistant: a PhD holder, or 4) Instructor: a Master degree holder. There are rules and regulations for the promotions of the academic staff from rank to rank. Among them are the number of published papers in internationally recognized journals, student evaluation and community services (Othman, 2002). For instance, in order to employ a new PhD

³² Nr.42 /2001(Article 25).

³³Law Nr.26/2007(Article 16).

holder as an academic staff at a public university, he /she must obtain his/her PhD from a distinguished university and through a regular PhD studies,³⁴ in addition, the PhD must be in the same field of his/her intended teaching, and that the PhD must be preceded by a general secondary certificate (*Tawjihi* in Jordan) or its equivalents. For appointing a new PhD holder in the assistant professorship rank, he/she must have published at least one article in a distinguished journal after his PhD graduation and for appointing a PhD holder in the associate professorship rank (besides other requirements mentioned above for the assistant rank), he/she must have worked for at least 5 years in the Assistant Professorship rank in a well known university, in addition, he /she must publish at least a work/article in a distinguished journal after being evaluated by the university evaluation system. For appointing a PhD holder in the full professorship rank (besides other requirements mentioned earlier for Associate rank), he/she must have worked for at least 5 years in the Associate Professorship rank in a well known university, and must publish at least a work/article after being evaluated by university evaluation system.³⁵ According to the regulations of higher education in Jordan, a faculty member in a university is defined first as an instructor whose main job is to teach. The teaching loads for full professor or associate professor or assistant professor are 9, 12 and 12 credit hours per week, respectively (Othman, 2002). The maximum teaching load is set by the academic staff bylaws, and it is the same for all public universities. Staff members will be paid more if their load of teaching exceeded the maximum load. Job promotions in universities are entirely dependent upon academic staff research activity and academic record (Meek *et al.*, 2009). Salaries are more or less the same in all Jordanian public universities and governed by the salaries' bylaw which is approved by Jordanian universities law (Nr. 42/2001). Hence, the universities are not free to set the salary structure outside these bylaws. All public universities have a similar scale for salaries which mainly depends of the professorship rank of the research staff (assistant, associate or professor). Table

³⁴Meaning that distance learning, or PhDs acquired through less than 1 year of residence in the host country is inspected.

³⁵ University of Jordan Law Nr.104/2007: Article 5, 7 A, 8, 9.

5.11 depicts salary scales for different academic staff ranks and represents the scale for salaries at Jordanian public universities. In a more summarized manner, the rate of salaries in Jordan for a “Full Professor” is in the range from 1,972-2,254 US\$, for the “Associate Professor” from 1,549-1,831 US\$, for “Assistant Professor” from 1,268-1,408 US\$ and for a “Lecturer” from 1,127-1,268 US\$. In comparing these ranges of academic staff salaries with, for example, a general medical doctor working at Jordanian Health Ministry who tends to earn around 563 US\$, and for a teacher in a Jordanian public school who earns around 338 US\$ (Meek *et al.*, 2009), a discrepancy of fully elaborated package appears to be valid.

Table 5.11: Salary structure at public Jordanian universities by academic ranks (in US\$)

Academic ranks	Basic salary	Annual increment	Others
Professor	470-977	17	Speciality Allowance= 135% of basic salary and 775 US\$ as university allowance and transportation
Associate Professor A	459-515	14	135% of basic salary and 599 US\$
Associate Professor B	415-359	14	university allowance and transportation
Assistant Professor A	354-359	11	135% of basic salary and 514 US\$
Assistant Professor B	337-292	11	university allowance and transportation
Lecturer A	261-311	8	135% of basic salary and 408 US\$
Lecturer B	192-242	8	university allowance and transportation
Instructor	137-182	7	

Source: 1- Public universities law Nr. 42/ 2001.2-Prime Minister (2009): Salaries and bonuses Bylaws for workers at the University of Jordan. Issued in accordance with Article (25) from the official Jordanian Universities Act No. (42) for the year 2001 Jordanians Legislation, The National Information Technology Centre (NITC).

The academic staff member is entitled to one fully paid sabbatical year every six years of service. The other benefits include 10% of the basic salary to be paid by the university towards the saving fund, and each staff member will be paid at the end of his/her service a compensation of one month of the total salary for each year for the first five years of service and 1.5 month for each year for the second five years of service and 2 months per year for each year for the third five years of service and 3 months per year for the years beyond fifteen years of service (Othman, 2002). The Jordanian universities bylaws give the freedom to the academic staff to do a research and a paid consultancy services. Research staff

working on large-scale projects and at the same time indulged into other administrative work usually get paid for such extra efforts.

Table 5.12 frames the progression of Jordanian academic staff who are PhD holders and are in different ranks at Jordanian universities (public and private) during the last 25 years, from a less than 1,000 staff in 1984/1985 to almost 3,000 in 1993/1994 and 7,000 academic staff in 2008/2009.

Table 5.12: Academic staff at Jordanian universities by academic ranks during the academic years (1984/1985-2009/2010)

Academic years	Public universities			Private universities			Total
	Assistant	Associate	Prof.	Assistant	Associate	Prof.	
1984/1985	725	175	111	----	----	----	1,011
1987/1988	749	275	170	----	----	----	1,194
1990/1991	764	385	226	----	----	----	1,375
1993/1994	1,004	491	276	233	110	72	2,186
1996/1997	1,219	624	428	828	195	117	3,411
1999/2000	1,005	674	553	774	232	137	3,375
2002/2003	1,186	709	657	904	286	133	3,875
2005/2006	1,554	824	829	1,018	348	172	4,745
2008/2009	1,750	1,007	942	1,356	395	281	5,731
2009/2010	2,283	1,107	964	1,893	384	289	6,920

Source: Ministry of Higher Education and Scientific Research -MoHESR: Information and Statistics Section-Directorate of Studies and Statistics (different years): Annual statistical report on Higher Education in Jordan.

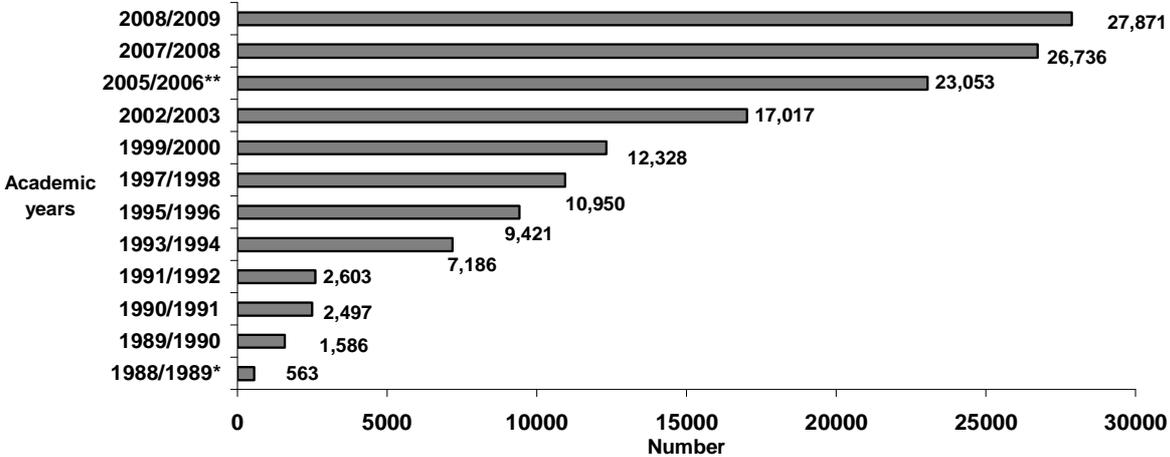
5.2.4 International students at Jordanian universities

This section presents the profile of the international students' in terms of their growing numbers in absolute terms, their distribution by study level and sex, fields of education and countries of origin. Finally the level of tuition fees alongside their contribution to Jordanian economy is presented.

For some years in the 1980s and early 1990s, a substantial number of international students had rapid entry rates to higher education institutions in Jordan, and in the course of the 1990s, this concern did not vanish, on the contrary, enrollment increased. From less than 600 international students in public universities during the academic year (1988-1989) to 2,602 in the year of commencing private higher education in Jordan, that is 1990/1991. Between 1993 and 2009 the number of

foreign students studying at Jordanian universities rose from 5,545 to 27,871 presenting a 10 % annual growth rate during that period (Fig. 5.3).

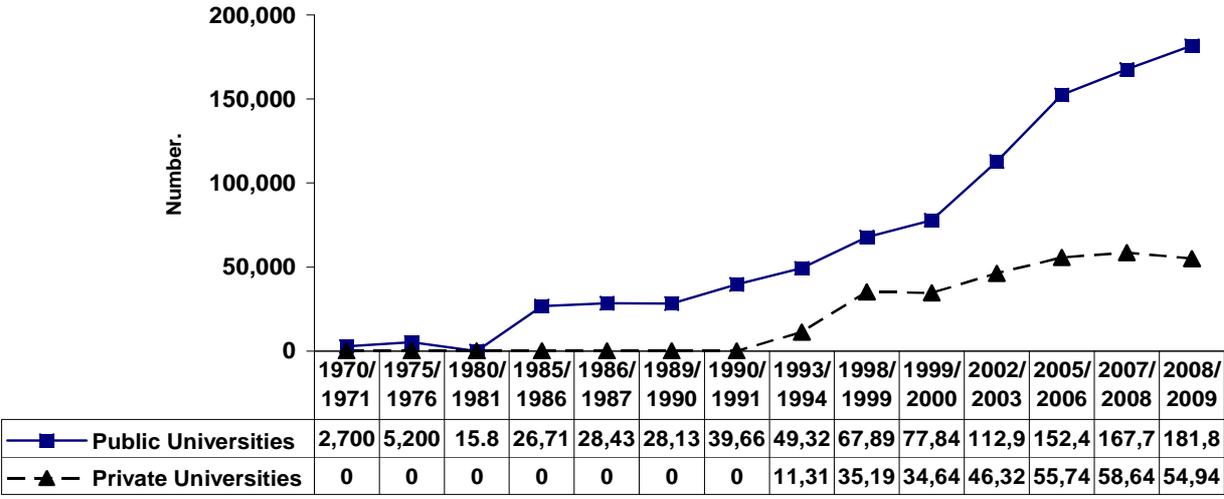
Figure 5.3: International student enrollments at Jordanian universities at all levels of higher education during the academic years (1988/1989-2008/2009)



Note: *There were no private universities yet in Jordan. **It was only in 2005/2006 when only one private university: Amman Arab University for Graduate Studies started to offer graduate programmes.
 Source: From (1988-2009) Ministry of Higher Education and Scientific Research (MoHESR) (different years): The Annual Statistical Report on Higher Education in Jordan.

International students’ enrollments in public and private universities (Fig. 5.4) allows for examining the long term growth in their enrollments over the past 12 years in both types of universities.

Figure 5.4: International students at Jordanian public and private universities during the academic years (1988/1989-2008/2009)



Note: It includes international students at all levels of higher education, i.e., graduates and undergraduates.
 Source: From (1988-1999): MoHESR (different years): The annual statistical report on higher education in Jordan. From (2000-2009): MoHESR Statistics. URL: <http://www.mohe.gov.jo/Statistics/tabid/69/language/ar-JO/Default.aspx>, 03.05.2010.

Before private universities were initiated in 1990 the enrollment of international students in 1991/1992 were less than one thousand, while almost double that number was in public universities, suggesting that international students are mostly attracted to public universities at the first stage. This is due to the diversity of programmes and specialities in public universities and the attractiveness of advanced research programmes at the graduate level. In addition, private universities have a student admission ceiling that is of 800 students per specialization and 8,000 students per university for certain specializations that are highly demanded regionally, and maintaining that certain criteria are met (e.g. student-professor ratio, number of students per computer, and other ratios not to exceed certain limits so as not to jeopardize quality (YEA *et al.*, 2005a). These criteria are determined every academic year by the Jordanian Higher Education Council (HEC).³⁶

5.2.4.1 International students: study level and sex

The distribution of international students by study level and sex in both public and private universities are presented in tables 5.13 and 5.14 respectively, which shows that 95% of international students are enrolled in undergraduate studies either at public or private universities. Subsequent to private universities laws,³⁷ it was just in late 2001³⁸ where private universities were granted the eligibility of awarding graduate degrees of master, higher diploma and doctorate degrees. And the beginning there was an opening of master degrees on a narrow scale, such as in some specialities like accounting, and in subsequent years it was proceeded by other faculties, such as Information technology, after complying with the special accreditation standards imposed by Jordanian Accreditation Council. That start was in 2002/2003 when 61 international students were enrolled at private universities at the graduate level, representing 5% of total international students at graduate level in that year. Changes in foreign student numbers indicate that the

³⁶ Private Universities Law Nr.43/2001(Article 9).

³⁷Law Nr.19 /1989 and Nr.26/1999.

³⁸ Law Nr. 43/2001, article3 (Prime Ministry, 2010).

growth in foreign enrollments has been larger at the undergraduate levels on average than at graduate level.

From the academic year 1999/2000 the number of international students at both private and public universities started to be equal. This is due partly to the fact that private universities try to respond quickly to the market needs and are especially concerned with what to offer to enhance their students' employment opportunities. They try to orient themselves to the needs of the labour market, needs of society and the needs of the students as clients. In addition, the majority of high school graduates understandably select public universities as a first reference if their examination scores surpass the admission criteria, and their choice for a private university is only after they have failed to enter a public university. This pattern suggests that although foreign enrollments increased throughout higher education levels (undergraduates vs. graduates); the growth in foreign enrollment was even higher among males than females, especially in private universities. Among public universities, the number of males outnumbered the number of females enrolled at public universities at graduate level or undergraduate level. The ratio of females' attending public universities at undergraduate level was between 35-39% in comparison to 60-64% for males during the period from 1990 until 2009. At graduate level and during the same period, females' enrollment ratio was between 16-29% and 75-84% for males, meaning that international female students are under-represented in advanced studies, rather they are often more present than men at earlier educational levels, but fewer pursue graduate studies. In private universities, it shows significantly the higher proportion of male's enrollment at undergraduate level, comprising a range from 75-82% of total enrollment during the time period from (1990-2009) in comparison to 18-23 % for females. And the same pattern prevails at the graduate level, where females presented between 16-26% of the total enrollment compared to range of enrollment from 74-84% for males during (1990-2009). In the end, a gender gap persists at both graduate and undergraduate levels of study being slightly higher in private

universities in comparison to public universities. International students had an overwhelming preference for private institutions at the bachelors level (undergraduates) and the reverse preference for graduate degrees, although, this can be partially explained through the absence of private graduate degree programmes prior to the academic year 2001/2002.

Table 5.13: International student enrollments at public universities by study level and sex during the academic years (1990/1991-2008/2009)

Academic years	Undergraduate			Graduate		
	Male	Female	Total	Male	Female	Total
1990/1991	1,520*	652*	2,172*	280*	46*	325
1993/1994	1,960*	1,143*	3,267	474	90	564
1999/2000	3,752	2,314	6,066	655	152	807
2000/2001	4,377	2,613	6,990	708	163	871
2001/2002	4,836	2,760	7,596	732	197	929
2002/2003	4,856	2,751	7,607	816	324	1,140
2003/2004	5,175	3,033	8,208	933	702	1,635
2004/2005	5,719	3,134	8,853	986	305	1,291
2005/2006	5,882	3,332	9,214	1,163	343	1,506
2006/2007	6,134	3,509	9,643	1,563	427	1,990
2007/2008	6,622	4,010	10,632	1,797	556	2,353
2008/2009	7,170	4,623	11,793	1,808	729	2,537

Note: * Estimated by author depending on: Ministry of Higher Education (1993): The Annual Statistical Report on Higher Education in Jordan for the year 1990-1991. Information and Statistics Division.
Source: MoHESR (different years): The Annual Statistical Report on Higher Education in Jordan.

Table 5.14: International students' enrollment at private universities by study level and sex during the academic years (1990/1991-2008/2009)

Academic years	Undergraduate			Graduate		
	Male	Female	Total	Male	Female	Total
1990/1991	1,085	239	1,324	0	0	0
1993/1994	2,689	666	3,355	0	0	0
1999/2000	4,103	1,352	5,455	0	0	0
2000/2001	4,502	1,236	5,738	0	0	0
2001/2002	5,255	1,331	6,586	0	0	0
2002/2003	6,686	1,523	8,209	49	12	61
2003/2004	7,778	1,796	9,574	103	22	125
2004/2005	8,445	2,124	10,569	182	39	221
2005/2006	9,376	2,464	11,840	415	78	493
2006/2007	10,019	2,665	12,684	297	85	382
2007/2008	10,197	3,209	13,406	278	67	345
2008/2009	10,003	3,061	13,064	354	123	477

Source: MoHESR (different years): The annual statistical report on higher education in Jordan.

5.2.4.2 International students: fields of study

As shown in table 5.15, international students enrolling in humanities' faculties in the academic year 1989/1990 were 851 in comparison to 729 in scientific faculties. Moreover, according to the Jordan Ministry of Information Technology and UNCTAD report in 2006 (MoIT and UNCTAD, 2006) it was asserted that half of the international students were enrolled in specific faculties such as Business Administration, Computer Science, IT, Engineering and Law. International students are more attracted to academic programmes depending on the economic, political and cultural backgrounds of international students' home countries. Palestinian students were enrolled in science and engineering (S&E) fields of study, such as engineering and sciences with 88 and 104 respectively. The same is true for Iraqis, who were specializing in scientific fields, such as sciences and engineering with 80 Iraqi and 53 compared to 24 and 17 in the humanities' fields as in business administration and law, respectively. The Yemenis were also having a prominent share of enrollment in scientific fields of study, like engineering, sciences, agriculture and educational sciences had the largest share of Yemenis enrolled in humanities disciplines. Omanis, were more involved in humanities' faculties than in scientific ones, mostly in business administration, educational sciences and faculty of arts with 82, 37 and 20 Omanis in the respective faculties. The same trend can be observed among Saudi students, where 36 out of 38 were enrolled into humanities faculties such as business administration, educational sciences and faculty of arts. The total number of international students from GCC countries in 19989/1990 were 354 and 71.5% of them were enrolled into humanities' faculties, like business administration, educational sciences, arts, law and Islamic law (*Shariah*), and the rest (28.5%) were enrolled into scientific faculties which are in a descending order, i.e. faculty of sciences, medicine, engineering, dentistry, pharmacy and nursing.

Table 5.15: International students' enrollment at public Jordanian universities by their countries of origin and fields of study in the academic year (1989/1990)(in Nrs.)

Countries of origin	Fields of study														Total
	Bus.	Arts	Edu.S	Shari	Law	Phy	Total	Sci.	Eng.	Med.	Agri	Pha	Dent.	Nur.	
Palestine	54	102	50	28	10	9	253	104	88	23	20	8	4	8	255
Oman	82	20	37	7	9	0	155	21	2	2	3	1	0	0	29
Yemen	6	9	19	0	1	0	35	27	30	13	20	11	1	0	102
Iraq	24	8	2	0	17	2	53	31	29	7	9	1	3	0	80
Syria	7	7	2	14	9	0	39	6	9	5	3	3	6	2	34
Lebanon	6	6	1	0	4	0	17	11	11	0	3	4	0	2	31
Sudan	12	4	2	0	1	0	19	2	10	10	1	3	2	0	28
Saudi Arabia	20	8	8	0	2	0	38	2	2	0	1	0	1	1	7
United Arab Emirates	3	2	1	0	0	0	6	4	6	13	0	4	7	0	34
Kuwait	23	3	3	0	4	0	33	0	1	0	0	0	2	0	3
Qatar	4	2	0	3	0	0	9	4	4	6	0	6	4	1	25
Eritrea	0	7	0	0	0	0	7	3	9	3	6	2	0	0	23
Yugoslavia -former	0	8	0	22	0	0	30	0	0	0	0	0	0	0	0
Egypt	3	2	0	1	0	1	7	3	3	4	0	6	5	1	22
Malaysia	0	12	0	13	0	0	25	0	0	0	0	0	0	0	0
U.S.A	4	4	1	0	1	0	10	3	2	0	0	0	2	0	7
Algeria	3	3	5	0	6	0	17	0	0	0	0	0	0	0	0
Bahrain	4	1	6	0	1	0	12	0	0	1	2	0	0	0	3
Morocco	4	2	0	0	0	0	6	1	3	0	0	2	1	0	7
Pakistan	0	6	0	2	0	0	8	1	1	0	1	1	1	0	5
Libya	2	1	0	0	1	0	4	2	1	1	0	1	0	0	5
Somalia	1	1	0	0	0	0	2	0	1	0	6	0	0	0	7
Turkey	1	3	0	3	1	0	8	0	0	0	0	0	0	0	0
Indonesia	0	2	1	5	0	0	8	0	0	0	0	0	0	0	0
Others	7	18	1	21	3	0	50	7	7	0	2	0	4	2	22
Total	79	85	26	70	19	1	851	30	40	28	18	22	27	5	729

Note: Numbers are for enrollment at all levels of higher education: undergraduates and graduates.

Fields of study abbreviations are: Bus. = Economics and Business; Edu.S = Educational Sciences, *Shari*= *Shariah* (Islamic Law); Phy = Physical Education. Sci. = Science; Eng. = Engineering; Med. = Medicine; Agri = Agriculture; Pha = Pharmacy; Dent. = Dentistry; Nur.= Nursing.

Others include: Thailand, Philippines, Brazil, Britain, Ethiopia, Ghana, China, Iran, Senegal, Comoros, Venezuela, Russia, Afghanistan, India, Austria, Tunisia, Sierra Leone, Romania, Korea, France, Greece, Italy, Spain, Ireland, Canada, Sweden, Nigeria, Colombia and Bangladesh.

Source: Ministry of Higher Education (1990): The annual statistical report on higher education in Jordan for the Year (1989-1990). The Hashemite Kingdom of Jordan.

Almost 39 Syrians were more enrolled into humanities' faculties, mainly in Islamic law (*Shariah*) and law, where only 17 Lebanese were enrolled into humanities' fields, like business administration and faculty of arts. At the scientific faculties, both Syrians and Lebanese were attracted to faculty of sciences and engineering with 34 and 31 for the respective nationalities. Other countries showed a large proportion of international students enrolled in scientific disciplines like in the case

of Sudan, where 28 Sudanese were enrolled into scientific faculties compared to 19 in humanities. For Egypt it showed the same trend of 22 and 7 Egyptians in the scientific and humanities' faculties, respectively. The picture changes slightly when considering other disciplines. For example, the proportion of international students enrolled in agriculture is higher among Somalis where 6 out of 7 were in an agriculture specialty. In addition 86% Qataris, 73% Egyptians, 47% Syrians, 25% Yemenis were enrolled into medical programmes like medicine, pharmacy, dentistry and nursing. Among the non-Anglophone countries, like Algeria, it experienced a high proportion rate of students in the humanities fields. Six out of 17 enrolled into humanities fields such as faculty of law. Arabic programmes for non-natives attract a large majority of international students coming from Malaysia, USA and Sweden who were enrolled in the faculty of arts, mainly, the faculty of Arabic language and literature. In addition, other countries like Malaysia, Indonesia and former Yugoslavia witnessed a large number of their students engaged in Islamic studies (*Shariah*).

5.2.4.3 International students: admission

The university education system in both public and private universities follow the credit-hour system and the academic year is divided into two obligatory semesters, the fall semester which extends over 16 weeks from early October until mid January, the spring semester that lasts for 16 weeks from late January until early June and an optional summer semester which lasts for 8 weeks from mid June until mid August. The weekend is Friday and Saturday. The general framework of higher education system consists of three cycles which leads to three degrees: Bachelor of Science (B.Sc.) or Bachelor of Arts (B.A.), Master of Science or Arts (M.Sc. or M.A.), and Doctor of Philosophy (PhD). The duration of study for the first academic degree-the Bachelor's degree normally lasts four years (for most subjects) and a maximum of 6 years. For a bachelor in Dentistry, Pharmacy, and Engineering it lasts for five years and for a maximum of 7 years or 6 years for Bachelor of Medicine and at a maximum duration of 8 years. This means 132 to 223 credit hours during the whole study period, depending on the discipline

(MoHESR, 2004; Snobar, 2002). The Bachelor degree is offered at both types of universities, i.e. in public and private universities³⁹ and in some private universities which offer master degrees and only one private university offers doctorate degrees. The English language is the language of instruction in scientific faculties and in business administration at the University of Jordan, while the Arabic language is generally used in humanities' faculties. For admission to higher education in Jordan a General Certificate of Secondary Education called *Tawjihi* is required and should be in a stream that enables the student to enroll in his/her desired specialization. For example, the General Certificate of Secondary Education (scientific stream) is accepted in all specializations/faculties at Jordanian universities, where the General Certificate of Secondary Education in humanities stream is accepted only in literature, humanities and social science disciplines at the university level. Students are admitted to Jordanian public universities according to different tracks. The first one is through a regular programme that is based on a competitive basis. The students of the regular programme are subject to tuition fees set by the Ministry of Higher Education. The minimum average grade for enrollment ranges from 65-70% in humanities faculties and depending on the speciality/faculty.

In 1997/1998, the public Jordanian universities initiated a second admission track what is called the "Parallel Program".⁴⁰ This programme aims at preparing both Jordanians and non-Jordanian students to be given the chance to obtain their degrees from highly-reputable academic institutions. The parallel and the regular programmes are very much alike in terms of the curriculum, use of university utilities, training, examination regulations, assessment, and academic follow-up of students. The only difference is in the tuition fees, where the Jordanians in the regular programme pay in Jordanian dinars, while the Jordanians admitted under

³⁹There is only the "Amman Arab University for Graduate studies" which is a private university specialized in offering Master's and Doctorate degrees. And some other private universities started to offer master programmes in accounting.

⁴⁰University of Jordan (1998): Annual report. The University of Science and Technology (JUST) started a parallel programme in (1996-1997) (JUST (2005). In successive years all Jordanian public universities have launched their parallel programme, except the German-Jordanian University which has the same level of fees for all students regardless of their nationalities.

the parallel programme pay also in Jordanian dinars, rather much higher rates than the regular programme fees, and for the international students or Jordanians having a foreign high school certificate⁴¹ pay in US dollars or its equivalents.⁴² As an admission requirement into Jordanian universities, foreign students should have qualifications that are equivalent to the Jordanian General Certificate of Secondary Education or its equivalent, which are attained through the approval from the Jordanian Ministry of Higher Education and Scientific Research (IAU/UNESCO, 2005). A minimum score in general secondary high school of 85% for medicine and dentistry is required for enrollment, 80% for enrolling into pharmacy and engineering, 75% for allied health sciences, and 65% in the scientific or arts streams and in accordance with the nature of the discipline (IAU/UNESCO, 2005).

For international students, a visa is required to enter Jordan and when foreign students are accepted at a university, they receive an annual residence permit which can be obtained from the Ministry of Interior. Any student wishing to study in Jordan should refer to his or her country's embassy in Jordan. Embassies provide general or specific information on study and life in Jordan (Othman, 2002). Foreign students can apply to Jordanian public universities through their embassies in Jordan in case of cultural exchanges, if not, they can apply directly to the public or private universities.

5.2.4.4 International students: tuition fees

Tuition fees and costs of living are equally important factors for prospective international students when deciding in which country to study in. Jordan has adopted differentiated tuition fees for different students at public higher education institutions, i.e., tuition fees differ between Jordanians in the regular programme, Jordanians in the parallel programme and non-Jordanians (international students) at

⁴¹ Examples are the UK General Certificate of Education (GCE), the International Baccalaureate or American high school certificate.

⁴² UoJ, 2010.

the parallel programme too.⁴³ For private universities they do not distinguish between Jordanians and non-Jordanians in terms of levying the same range of fees on all in Jordanian dinars, rather tuition fees in private universities are much higher than what public universities charge for both regular and parallel programmes.

At public universities, Jordanian students are willing to enroll in the parallel system because they did not have the required scores to enroll in specific faculties at Jordanian universities. The difference between the Jordanian regular and parallel programme is that both of them pay in Jordanian dinars (JD), rather the former pays much lower fees in comparison to the latter, rather for non-Jordanians in the parallel programme they pay in US\$ a higher fee than the previous. Levels of tuition fees imposed in both public and private Jordanian universities are presented in tables (5.16) and (5.17), respectively. Data on tuitions were collected through universities data bases during the academic year 2009/2010, and a range of maximum and minimum tuition fees charged in humanities and scientific disciplines were compiled by the author depending on these databases. Tuition fees' levels for the graduate levels are also included for the sake of reference. At the undergraduate level among humanities faculties, the tuition fees charged by public universities are on average between (14-85) US\$ for a Jordanian student in the regular programme, from (35-85) US\$ for a Jordanian enrolled in the parallel programme and from (56-130) US\$ per credit hour for an international student. Among scientific faculties at undergraduate level, public universities credit hour fees ranges from (17-113) US\$ for Jordanians in the regular programme, from (42-211) US\$ for Jordanians in the parallel programme and from (85-296) US\$ for the non-Jordanians (international student). In private universities for the same level for study (undergraduate) in the humanities disciplines, the range of fees are set between 28 and 141 US\$ for both Jordanians and non-Jordanians, and among the scientific facilities, credit hour fees are in the range between (56-155) US\$. At the

⁴³Several countries make a distinction in the amount of tuition fees charged according to the citizenship of students like Austria, Canada, France, Iceland, New Zealand, Turkey, the United Kingdom and the United States (OECD, 2007). The level of tuition fees in public Jordanian universities in 2007 is more than 3,000 US\$ and in Lebanon is more than 3,000 US\$, where it is less than 500 US\$ in Egypt in specific programmes (OECD and WB, 2010: 270).

graduate level, there are only two tracks of enrollment at public universities, one is for Jordanian students and the other one is for international students, where the latter pay in US\$ or its equivalent, the formers pays in Jordanian dinars.⁴⁴ In private universities it is again the same fees levied on all students, regardless of their nationalities.

Table 5.16: Minimum and maximum rates for tuition fees (per credit hour) at public Jordanian universities in the academic year (2008/2009) (in US\$)

Study level Discipline	Enrollee nationalities /Types of programme		
	Jordanian/ Regular	Jordanian/ Parallel	Non –Jordanian/ Parallel
Undergraduate			
Humanities			
Credit hour fee	14-85	35-85	56-130
Other fees- normal course	146-401	318-401	303-537
Other fees- summer course	132 -401	190-401	303-537
Scientific			
Credit hour fee	17-113	42-211	85-296
Other fees- normal course	154-401	190 -401	303-580
Other fees- summer course	139-401	368 - 401	303-555
Graduate -Master			
Humanities			
Credit hour fee	113-141	113-141	375-375
Other fees- normal course	430	430	1,725
Other fees- summer course	430	430	1,725
Scientific			
Credit hour fee	113-113	113-113	375-375
Other fees- normal course	486-2,458	486-2,458	1,725- 4,925
Other fees- summer course	486-2,458	486-2,458	1,725- 4,925
Graduate- PhD			
Humanities			
Credit hour fee	113-211	113-211	375-450
Other fees- normal course	430	430	1,725
Other fees- summer course	430	430	1,725
Scientific			
Credit hour fee	113-113	113-113	375-375
Other fees- normal course	486-2,458	486-2,458	2,175-4,925
Other fees- summer course	486-2,458	486-2,458	2,175-4,925

Source: Calculations by the author based on: 1) Public universities database; 2) Ministry of Higher Education and Scientific Research (2009): Specialities available at private Jordanian Universities. The Hashemite Kingdom of Jordan (In Arabic); 3) International Arab Centre (2009): Jordan Higher Education Guide 2008-2009. International Arab Centre (in Arabic).

The credit hour fees in a master programme in the humanity discipline at public universities is in the range from (113-141) US\$ for Jordanians and around 375

⁴⁴UoJ,2010a.

US\$ for international students, and among scientific faculties, this range is in the digits of 113 US\$ and 375 US\$ for both Jordanians and international students, respectively. At PhD level, the range of fees at public university in the humanities fields are from (113-211) US\$ for Jordanians and from (375-450) US\$ for international students. In the scientific disciplines, it is in the range of 113 US\$ and 375 US\$ for both Jordanians and the internationals. The range of tuition fees at the master level in private universities and among humanities are from (77-225) US\$ and from (158-282) US\$ in scientific ones.

Table 5.17: Minimum and maximum rates for tuition fees (per credit hour) at private Jordanian universities in the academic year (2008/2009) (in US\$)

Study level Discipline	Enrollee nationalities	
	Jordanians	Non- Jordanians
Undergraduate		
Humanities		
Credit hour fee	28-141	28-141
Other fees- normal course	268-690	268-690
Other fees- summer course	169-575	169-575
Scientific		
Credit hour fee	56-155	56-155
Other fees- normal course	268-690	268-690
Other fees- summer course	169-575	169-575
Graduate -Master		
Humanities		
Credit hour fee	77-225	77-225
Other fees- normal course	268-775	268-775
Other fees- summer course	190-634	190-634
Scientific		
Credit hour fee	158-282	158-282
Other fees- normal course	268-775	268-775
Other fees- summer course	190-634	190-634

Source: Calculations by the author based on: 1) Private universities databases; 2) Ministry of Higher Education and Scientific Research (2009): Specialties available at private Jordanian universities. The Hashemite Kingdom of Jordan.(In Arabic); 3)International Arab Centre (2009): Jordan Higher Education Guide 2008-2009. International Arab Centre (in Arabic).

Other fees charged by public universities vary across programmes under which the student is enrolled (Tab. 5.16 and 5.17). These include: enrollment application fees (paid once); admission fees (paid once), registration fee (each semester). Service charges such as library and Internet use are included in such other fees. In addition, a proficiency examination in both Arabic and English languages are paid once upon passing them, in addition to a proficiency exam in computer skills.

Refundable fees are paid once in both humanities and scientific faculties and refunded to the students upon graduation. The level of “other fees” varies across undergraduate and graduate study level. In public universities at the undergraduate level, the credit hours required from the student to finish a bachelor degree range from (132-144) in the humanities and (132-255) credit hour in the scientific disciplines (Tab. 5.18). The same ranges applies in private universities, where for undergraduates in the humanities fields this ranges from (132-143) credit hour and from (132-170) in the scientific fields. At the master level in both humanities and scientific faculties, this ranges from (33-54) and (33-42) respectively, in public universities and from (33-36) in private ones.

Table 5.18: Cumulative number of credit hours subject to student graduation at Jordanian universities for the academic year (2009/2010)

Level of study	Number of credit hours by university type and disciplines			
	Public universities		Private universities	
	Humanities	Scientific	Humanities	Scientific
Undergraduate	132-144	132-255	132-143	132-170
Graduate-Master	33-54	33-42	33-36	33
PhD	33-54	33-54	33	33

Source: Jordanian universities databases 2010.

5.2.4.5 International students: economic contribution

Income generated from international student incurs from their expenditures on their educational costs, travelling and living expenses. According to export data released by the Department of Statistics (DOS), Jordan education exports during 2006/2007 were estimated at 227 million US\$ (161 million dinars) representing around 10% of the total income received from tourism (as students are considered visitors for educational purpose).⁴⁵ In addition to the export revenues from the foreign students themselves, there are other economic benefits derived from people who visit those students. According to a survey performed among international students in 2004, the average international student in Jordan receives 2.44 visits from family and friends every year, with each visit lasting on average 6.5 days (YEA *et al.*, 2005a). That is, the average length of stay for all visitors staying in

⁴⁵ Department of Statistics-DOS (2008): Social Trends in Jordan. Issue No.5. The Hashemite Kingdom of Jordan.

Jordan per international student studying in the Kingdom is 16 days (MoIT and UNCTAD, 2006). Those visitors often travel with international students to different tourism local destinations such as the Dead Sea, Aqaba and Petra (the Rose-Red City). The ratio of international student spending (expenditures) to the per capita income in Jordan is equal to 5.4 meaning that each international student supports more than five Jordanians, or a Jordanian family⁴⁶ and the ratio of international students to the population was one international student for every 303 residents in Jordan (YEA *et al.*, 2005). Hence, the benefits of higher education export to Jordan can be seen through mitigating public universities' reliance on the Ministry of Higher Education's anticipated diminishing budgetary financial support, through offering the government a fiscal relief (Teixeira *et al.*, 2004:232). Educational export can also strengthen the role of Jordan as an educational hub in the Middle East region. About 12% of the total students at Jordanian universities are international students, which have grown by 15.4% since 1989/1990⁴⁷ (compared with 11% growth in the number of Jordanian students during the same period) and those international students can be ambassadors for the university they attended after graduation (Gaebel, 2008; Jones and Brown, 2007). This has positive long-term spillover effects for trade with and investment in Jordan. In addition, higher education can develop many education related products and services for export. Jordanian students also benefit from the increased diversity in university which prepares them for diversity in the workplace. The advantages of diversity in education have been acknowledged by several researchers and such benefits are universal. In a 1998 poll conducted by Ford Foundation's Campus Diversity Initiative,⁴⁸ 91% of Americans agree that the global economy makes it more important than ever for them to understand people who are different than them. 94% say it is important for colleges and universities to prepare people to function in a more diverse work force. 88% percent support offering courses in

⁴⁶The Jordanian family was estimated at 5.2 individuals including the father and mother.

⁴⁷There were less than 2,000 international students' in 1989/1990 and reached almost 30,000 in 2008/2009.

⁴⁸It is a partnership with American colleges and universities to promote understanding of cultural diversity as a resource for learning (Ford Foundation, 1998).

business schools on managing a diverse work force.⁴⁹ Moreover, Jordanian students benefit from networking opportunities with international students and in developing life-long relationships with international friends during university studies, eventually this would increase the potentials for trade and investment (OECD, 2006a:161; Barrow *et al.*, 2003:13). A strong higher education sector is essential to the enforcement of the knowledge and modern economies on which Jordan's future relies, and can be a potential to develop entrepreneurship and an enterprise culture as well as direct earnings of a foreign currency.

To calculate the contribution of international students to the Jordanian economy, the relevant data for the sector revenue are rarely available, as in countries that do not consider cross-border education as trade in education services as the example of Jordan and no attempt has been made to date to quantify higher education export revenues. The calculations in this study will depend on Jordan vision 2020 survey estimates which were performed in the middle of 2004. The time span that will be used extends from (1994-2009). The present value concept will be used in the first period from (1994/1995-2002/2003), and the future value concept will be applied to calculate the contributions for the second period from (2003/2004-2008/ 2009). As the time frame in this section and in some other sections in the thesis extends between 1995 and 2009, hence, to enable a comparison of different currencies and times, all monetary data was converted into constant 1995 US\$, as Jordan has operated a fixed exchange rate pegged to the US\$ since 1995 (Maziad, 2009)⁵⁰ and since then the 1 US\$ = 1.408450704 Jordanian Dinar (JD) (Saadi-Sedik and Petri, 2006). The present and future value methodology to the costs and expenditures of international students during their stays and study in Jordan involves moving amounts of money to different points on a time line. As there are different values to goods and services today and in the future, costs and benefits that occur at different times can't be added up without adjusting them to take into account what

⁴⁹ Ford Foundation, 1998.

⁵⁰The Central Bank of Jordan has changed pegging the Jordanian Dinar (JD) to special drawing rights (SDRs), to completely fixing it to the US\$ where the JD remained unchanged against the US\$ at the rate of JD 0.71/US\$ until now (Maziad, 2009).

is called Time Value of Money (TVM) (McPake *et al.*, 2002). The theory of Time Value of Money(TVM) indicates that purchasing power of money may change with time (Nel, 2007) and it permits comparison of sums of money at different times (Shim and Siegel, 2007). Hence time plays a role (Wang, 2006) and inflation is a time value of money calculations (Shim and Siegel, 2007). It is widely asserted that the value of a cost or a benefit is not the same if it occurs at different times and a need is therefore to take this into account (McPake *et al.*, 2002), as the rate of inflation to be used is to escalate today's prices into the future when the costs will be incurred. Estimating the values of a cost or benefit is not the same if it occurs at different times and in order to estimate these values. The time value of money has two major components, the future value and the present value (Kapoor *et al.*, 2004). The processes of determining the future value is called compounding and the opposite of that is determining the present value from the future value which is called discounting (Crundwell, 2008). In the end, the present value and future value are equivalent measures, but, separated in time (DeFusco *et al.*, 2007).

Future value: is the value of an initial amount at a predetermined time in the future, given the rate of growth per period and the number of periods until that future time (Gallagher and Andrew, 1997). Hence it is the process of taking money and finding its equivalent value at some future date (Pabla, 2004). Future value is sometimes called the amount of, sum of, or compound value (Choudhry, 2005). Compounding involves the application of a rate of growth for more than one period (Drbal *et al.*,1996) and this compounding is applicable to inflation, which is the growth in price due to the erosion of the buying power of money with time (Crundwell, 2008). The time value of money formula may be used to calculate the future value of money in terms of its present value, as in equation (1):

$$FV= PV (1 + i_1) (1 + i_2)+..... + (1 + i_n) \quad (1)$$

Where:

- PV = Present value, the starting amount or original principal
- FV = Future value, the ending amount

n = Number of time periods
*i*_n = Inflation rate per period

The future value according to the formula approach-shown in equation 1 above, when inflation rates are the same for the whole period of time, is given by equation (2)(Ehrhardt and Brigham, 2003:37):

$$FV = PV (1 + r)^n \quad (2)$$

In order to compute future value of a series of payments, such as annual expenses or revenues, formula (3) is used for calculations (Bettinger *at al.*, 2008):

$$\text{Future Value} = \left(\frac{(\text{Annual revenue or cost}) \left((1 + i)^t - 1 \right)}{i} \right) (1 + i)^{pl} \quad (3)$$

If the period length (pl) is one year, then the equation reduces to:

$$\text{Future Value} = \left(\frac{(\text{Annual revenue or cost}) \left((1 + i)^t \right)}{i} - 1 \right) (1 + i) \quad (4)$$

Applying the above given equations to our time series starting from the academic year 2003/2004 to 2008/2009, given the inflation rates in these periods, will yield the future value of international students total receipts as shown in table 5.19 and explained in a more articulated manner in the example given afterwards.

Table 5.19: Future value from international students' receipts during the academic years (2003/2004-2008/2009)

Academic years	Number of international students	Inflation rate (%)	Living expenditures (1) (in US\$)	Tuition fees (2) (in US\$)	Tax (3) (in US\$)	Total receipts* (in US\$)
2003/2004	19,542	2.60	140,350,644	120,300,552	15,719,272	276,370,468
2004/2005	20,934	3.50	151,666,830	130,000,140	16,986,685	298,653,655
2005/2006	23,053	6.25	171,456,688	146,962,875	19,203,149	337,622,712
2006/2007	24,699	4.70	181,018,971	155,159,118	20,274,125	356,452,214
2007/2008	26,736	13.90	213,166,128	182,713,824	23,874,606	419,754,558
2008/2009	27,871	0.070	196,462,679	168,396,582	22,003,820	386,863,081

Note: *Total receipts = 1+2+3.

Source: calculation by the author depending on: a) YEA, 2005; 2005a b) Central Bank of Jordan (different years): Inflation in Jordan c) Jordanian Sales Tax Act Nr. (6) for 1994 and its Amendments Published on Page 1037 of Official Gazette Nr. 3970 on 31.05.1994 d) Ministry of Higher Education and Scientific Research -MoHESR: Information and Statistics Section-Directorate of Studies and Statistics (different years): Annual Statistical Report on Higher Education in Jordan.

Example: calculating international students total receipts in the academic year 2003/2004 using future value

Living expenditures:

The living expenditures were computed as an annual average of 7,000 US\$ or 5,000 JD and comprises accommodation, food, transportation, books and other expenses (YEA, 2005, 2005a). To calculate the future value for living expenditures is given as follows:

$FV_{\text{living expenditure in year } n} = \text{Estimated annual average of living expenditure} (1 + \text{Inflation rate in year } n)$

$FV_{\text{living expenditure in (2003/2004)}} = 7,000 \times (1 + 2.6\%) = 7,182 \text{ US\$}$

$\text{Total receipts from living expenditure in year } n = FV_{\text{living expenditure in (2003/2004)}} \times \text{Nr. international students in year } n$

$\text{Total receipts from living expenditure in (2003/2004)} = 7,182 \times 19,542 = 140,350,644 \text{ US\$}$

Tuition fees:

International students spend an annual average of 6,000 US\$ or around 4,300 JD on tuition fees (YEA, 2005, 2005a). For calculating the future value of tuition fees is given as follows:

$FV_{\text{Tuition fees in year } n} = \text{Estimated annual average of tuition fees} (1 + \text{Inflation rate in year } n)$

$FV_{\text{Tuition fees in (2003/2004)}} = 6,000 \times (1 + 2.6\%) = 6,156 \text{ US\$}$

$FV_{\text{Total receipts Tuition fees in year } n} = FV_{\text{tuition fees in year } n} \times \text{Nr. International students in year } n$

$\text{Total receipts Tuition fees in (2003/2004)} = FV_{\text{tuition fees in (2003/2004)}} \times \text{Nr. International students in (2003/2004)}$

$\text{Total receipts Tuition fees in (2003/2004)} = 6,156 \times 19,542 = 120,300,552 \text{ US\$}$

Tax revenues:

For calculating tax revenues, a 16% is the prevailing sales tax in Jordan since 1994⁵¹ and in our model is imposed on 70% of students living expenditures and for the 30% of living expenditures that go to rent, they do not inherit any sales tax by tax law, and hence were not included in the calculations.

$FV_{\text{Tax in year } n} = [70\% \text{ Living expenditures in year } n] \times \text{Sales tax in year } n$

$FV_{\text{Tax in (2003/2004)}} = [70\% (\text{Living expenditures in (2003/2004)})] \times \text{Sales tax in (2003/2004)}$

$\text{Total receipts Tax in year in (2003/2004)} = [(70\% \times 140,350,644)] \times 16\% = 15,719,272 \text{ US\$}$

Total receipts:

$\text{Total receipts in year } n = FV_{\text{Living expenditure in year } n} + FV_{\text{Tuition fees in year } n} + FV_{\text{tax in year } n}$

$\text{Total receipts in (2003/2004)} = FV_{\text{Living expenditure in (2003/2004)}} + FV_{\text{Tuition fees in (2003/2004)}} + FV_{\text{tax in year in (2003/2004)}}$

$\text{Total receipts in (2003/2004)} = 140,350,644 + 120,300,552 + 15,719,272 = 276,370,468 \text{ US\$}$

Present value: Finding the equivalent value of a cost or a revenue at some earlier time is called present value calculation (Pabla, 2004). The present value of a future expense is determined by discounting it from the future time in which the expenditure occurs to its value at the present (Green, 2001), i.e. discounting the

⁵¹ Jordanian Sales Tax Act Nr. (6) for 1994 and its amendments published on page 1037 of Official Gazette Nr. 3970 on 31.05.1994 .

future sums back to the starting point, which is the present (Weaver and Weston, 2001). The reverse of the future value equation will be applied for determining three variables: living expenditures, tuition fees and tax revenues for the time series from 1994/1995 to 2002/2003 and the discount rate used in this study is considered the rate of inflation (Tab. 5.20). The formula for computing the present value is expressed in equations (5) and (6) (DeFusco *et al.*, 2007:118)

$$PV = FV_N \left[\frac{1}{(1+r)^N} \right] \quad (5)$$

or

$$PV = FV_N \left(1 + \frac{r_s}{m} \right)^{-mN} \quad (6)$$

Where:

m = number of compounding periods per year

r_s = quoted annual interest rate

N = number of years

For calculating the present value, we apply equation 5 into our dataset starting from the academic year 1994/1995 to 2002/2003 given the inflation rates in these periods will provide the present value of international students' total receipts as shown in table 5.20 and explained in more detail in the example given afterwards.

Table 5.20: Present value from international students' receipts during the academic years (1994/1995-2002/2003)

Academic years	Number of international students	Inflation rate (%)	Living expenditures (1) (in US\$)	Tuition fees (2) (in US\$)	Tax (3) (in US\$)	Total receipts* (in US\$)
1994/1995	8,564	2.20	58,657,534	50,277,886	6,569,644	115,505,065
1995/1996	9,421	6.60	61,863,977	53,026,266	6,928,765	121,819,009
1996/1997	10,991	3.00	74,696,117	64,025,243	8,365,965	147,087,324
1997/1998	10,950	3.10	74,345,296	63,724,539	8,326,673	146,396,508
1998/1999	11,639	0.60	80,987,078	69,417,495	9,070,553	159,475,125
1999/2000	12,328	0.70	85,696,127	73,453,823	9,597,966	168,747,917
2000/2001	13,599	1.80	93,509,823	80,151,277	10,473,100	184,134,200
2001/2002	15,111	1.80	103,906,680	89,062,868	11,637,548	204,607,096
2002/2003	17,017	1.60	117,243,110	100,494,094	13,131,228	230,868,433

Note: *Total receipts = 1+2+3.

Source: calculations by the author depending on: a) YEA, 2005, 2005a b) Central Bank of Jordan (different years): Inflation in Jordan c) Jordanian Sales Tax Act Nr. (6) for 1994 and its amendments published on page 1037 of Official Gazette Nr. 3970 on 31.05.1994 d) Ministry of Higher Education and Scientific Research –MoHESR: Information and Statistics Section-Directorate of Studies and Statistics (different years): Annual Statistical Report on Higher Education in Jordan.

Example: calculating international students total receipts in the academic year 1994/1995 using present value

Living expenditures:

The living expenditures were computed as an annual average of 7,000 US\$ or 5,000 JD and comprises accommodation, food, transportation, books and other expenses (YEA, 2005, 2005a). To calculate the future value for living expenditures is given as follows:

$PV_{\text{Living expenditures in year } n} = \text{Estimated annual average of living expenditures} / (1 + \text{Inflation rate in year } n)$

$PV_{\text{Living expenditures in (1994/1995)}} = 7,000 / (1 + 2.2\%) = 6,849 \text{ US\$}$

$\text{Total receipts}_{\text{Living expenditures in year } n} = PV_{\text{Living expenditures in (1994/1995)}} \times \text{Nr. International students in year } n$

$\text{Total receipts}_{\text{Living expenditures in (1994/1995)}} = 6,849 \times 8,564 = 58,657,534 \text{ US\$}$

Tuition fees:

International students spend an annual average of 6,000 US\$ or around 4,300 JD on tuition fees (YEA, 2005, 2005a). For calculating the future value of tuition fees is given as follows:

$PV_{\text{Tuition fees in year } n} = \text{Estimated annual average of tuition fees} / (1 + \text{Inflation rate in year } n)$

$PV_{\text{Tuition fees in (1994/1995)}} = 6,000 / (1 + 2.2\%) = 5,871 \text{ US\$}$

$\text{Total receipts}_{\text{Tuition fees in year } n} = PV_{\text{Tuition fees in year } n} \times \text{Nr. International students in year } n$

$\text{Total receipts}_{\text{Tuition fees in (1994/1995)}} = 5,871 \times 8,564 = 50,277,886 \text{ US\$}$

Tax revenues:

For calculating tax receipts, 16% was the prevailing sales tax in Jordan since 1994⁵² and is imposed on 70% of international students living expenditures and the 30% of living expenditures that go to rent, do not inherit any sales tax by tax law, and hence were not included in the calculations.

$PV_{\text{Tax in year } n} = [70\% \text{ living expenditures in year } n] \times \text{Sales tax in year } n$

$PV_{\text{Tax in year (1994/1995)}} = [70\% (\text{living expenditures in (1994/1995)})] \times \text{Sales tax in (1994/1995)}$

$PV_{\text{Tax in year in (1994/1995)}} = [(70\% \times 58,657,534)] \times 16\% = 6,569,644 \text{ US\$}$

$\text{Total receipts}_{\text{Tax in year in (1994/1995)}} = [(41,060,274)] \times 16\% = 6,569,644 \text{ US\$}$

Total receipts:

$\text{Total receipts}_{\text{in year } n} = PV_{\text{Living expenditures in year } n} + PV_{\text{Tuition fees in year } n} + PV_{\text{Tax revenues in year } n}$

$\text{Total receipts}_{\text{in (1994/1995)}} = PV_{\text{Living expenditures in (1994/1995)}} + PV_{\text{Tuition fees in (1994/1995)}} + PV_{\text{Tax revenues in (1994/1995)}}$

$\text{Total receipts}_{\text{in (1994/1995)}} = 58,657,534 + 50,277,886 + 6,569,644 = 115,505,064 \text{ US\$}$

The total contribution of international students to the Jordanian economy - as percentages to Gross Domestic Product (GDP) - is presented in figure 5.5. Higher education export scored 279 million US\$ in the academic year 1994/1995 or 1.70% of GDP increased to 2% in the academic year 1996/1997 (148 million US\$) and continued in this trend until 2003/2004 where it registered 2.5% of GDP, and

⁵² Jordanian Sales Tax Act Nr. (6) for 1994 and its amendments published on page 1037 of Official Gazette Nr. 3970 on 31.05.1994.

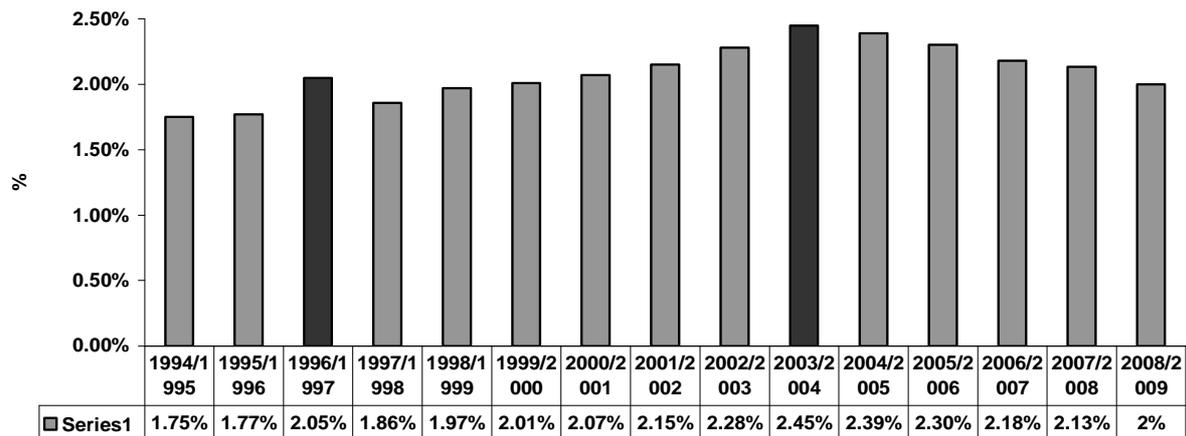
afterwards sequenced to a value of 387 million US\$ in 2008/2009. Therefore, almost 30,000 international students in Jordan contribute today to what is equivalent to 2% of Jordan's GDP. The academic years 1996/1997 and 2003/2004 witnessed a prominent increase in higher education export revenues to Jordanian GDP which can be attributed to the following factors:

1996/1997 factors: The private universities which were established in 1990/1991 had just emerged to prove their quality and ability in attracting students, not only Jordanians, but also from the region, depending on the level of reputation that has been achieved. In addition, the number of private universities in 1990s and afterwards has increased enormously as follows: Al-Ahliyya Amman University (AAU) was established in 1990; Applied Science University (ASU) established in 1991; Philadelphia University (PU) established in 1991; Isra Private University (IPU) established in 1991; University of Petra University (UOP) established in 1991; Princess Sumaya University for Technology (PSUT) established in 1991; Al-Zaytoonah Private University of Jordan (AZU) established in 1993; Jerash Private University (JPU) established in 1993; Educational Sciences Faculty (UNRWA) established in 1993; Zarqa Private University (ZPU) established in 1994; Irbid National University (INU) established in 1994. In addition, in the academic year 1996/1997 a large number of public universities started to accept international students on a wide scale under what is called “parallel programme”.

2003/2004 factors: The US-invasion of Iraq in 2003 and the increasing number of Iraqi nationals who left their home country in search of a residence in neighbouring countries, particularly Jordan and Syria was a prominent reason for the surge in higher education exports in 2003/2004. An estimated number of Iraqis in Jordan have been put forward as high as one million or 750,000 (DOS *et al.*, 2009). A study undertaken by Department of Statistics (DOS), Norwegian Research Institute Fafo; and United Nations Population Fund (UNFPA) in 2009 about Iraqis characteristics in Jordan pointed out that 25% of their surveyed sample was at

bachelor level and 8.3% at high school level. This means that 34% of the sample requires higher education places, with the supporting fact that more than one third of them was coming from the highest wealth quintiles in Iraq and that have been translated in an increasing numbers of Iraqi enrollees' at Jordanian universities. Moreover, an expansion in the number of public and private universities have taken place in 2005 with the establishment of the German-Jordanian University and Tafila Technical University (TTU) along with other two private universities, The Middle East University for Graduate Study (MEU) and Jadara University for Graduate Studies, which absorbed a large proportion of the Iraqi migrants and other nationalities.

Figure 5.5: International students' contribution to the Jordanian GDP during the academic years (1994/1995-2008/2009) (in%)



Source: Depending on tables 5.19 and 5.20 above; Central Bank of Jordan (different years): Annual report.

6. Methodology

The hypothesis set up in this study is that returnee migrants with human capital attributes involve economic benefits to the country of origin. The output of significantly more PhD students graduated from western countries versus Arabic ones is contributing in the end to higher education export earnings, which is essential for an economy lacking endowments of any natural resources like Jordan. This section extensively integrates Saunders *et al.* (2009); Wolf (2008); Leedy and Ormrod (2005); Kumar (2005) in identifying steps involved in building the research methodology and the construction of a model to test the hypotheses.

6.1 Formulating a research problem

Despite the literature offering guidance on acknowledging the determinants of higher education exports and also in finding out factors which attract international students to a destination country, there is a noticeable dearth of investigations of such determinants among developing countries, such as Jordan.⁵³ The present research focuses on the role of circular migrants in driving the higher education sector in Jordan. In order to formulate the research problem more precisely, two related analyses are in order, First, does university academic staff with foreign human capital attributes have an effect on international student enrollments at Jordanian universities? Second, what brings Jordanian graduate students back home after finishing their PhD from abroad? Third, what attracts international students to choose Jordan as a destination country?

6.2 Identifying variables

In order to assess the macro economic impact of the return of investment in human capital, a relationship between international student enrollment and human capital formation variables was built up as follows:

⁵³ Jordan as a developing country: Thorpe and Thorpe (2010); Kamel, 2006; The World Bank (2004); IMF (2003); Chomo (2002).

1. Five human capital formation variables among academic staff who returned to Jordan “returnees” were used in the study 1) PhD country of graduation 2) teaching experiences 3) professional experiences. These variables were disaggregated according to their sources, in terms of foreign and Arabic. For other human capital variables it included 4) related training courses, 5) experiences in international organizations (Tab. 6.1).
2. Three public universities and three private ones were included in the analysis (Tab. 6.2).
3. In each university, three scientific and three humanities faculties were utilized in the analysis (Tab. 6.3).

Table 6.1: Human capital parameters, acronyms and explanation

Human capital parameters	Human capital acronyms	Explanation
PhD Foreign	PhD F	Doctorate degree achieved from non-Arabic countries
PhD Arabic*	PhD A	Doctorate degree achieved from an Arabic countries (excluding Jordan)
Teaching experience outside (Foreign)	Teach. Exp.F	Teaching experiences achieved in non-Arabic countries
Teaching experience inside (Local)	Teach. Exp. L	Teaching experience acquired in Arabic countries (including Jordan)
Professional experience outside (Foreign)	Profi. Exp.F	Professional experiences acquired in non-Arabic countries
Professional experience inside (Local)	Profi. Exp.L	Professional experiences achieved in Arabic countries (including Jordan)
Training courses	Tr.Cert.	Training courses related to academic staff speciality/fields of study
International experience	INT Exp.	Experience in international organizations

Note: * Arabic countries are those whose official language is Arabic.

Table 6.2: Surveyed universities included in the study and their acronyms

University types and names	Acronyms
Public universities	
University of Jordan	UoJ
Mu'tah University	MU
Al al-Bayt University	AABU
Private universities	
Applied Science University	ASU
Isra Private University	IPU
Zarqa Private University	ZPU

Table 6.3: Surveyed faculties included in the study and their acronyms

Faculties	Acronyms
Faculty of Engineering	Eng.
Faculty of Information Technology	IT
Faculty of Nursing	Nurs.
Faculty of Foreign Languages	FL
Faculty of Business Administration	BA
Faculty of Law	LW

6.3 Hypotheses

Hypotheses are statements about what the theoretical propositions lead to expect in the findings, and such theoretical propositions were not incorporated altogether in the literature. Therefore hypotheses predict the pattern of associations in the observed data as a means for testing causal theories. The following research hypotheses were formulated:

PhD Foreign

H1 Academic faculty staff with a doctorate degree from a foreign source does not affect international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

PhD Arabic

H2: Academic faculty staff with a doctorate degree from an Arabic source does not affect international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Teaching experience outside Jordan

H3: Academic faculty staff with academic experiences gained from outside Jordan have no effect on international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Teaching experience inside Jordan

H4: Academic faculty staff with academic experiences gained from inside Jordan have no effect on international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Professional experience outside Jordan

H5: Academic faculty staff with professional experiences gained from outside Jordan have no effect on international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Professional experience inside Jordan

H6: Academic faculty staff with professional experiences gained from inside Jordan have no effect on international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Training certificates

H7: Academic faculty staffs with related professional qualifications/certificates have no effect on international students' enrollment in faculty of Eng., IT, Nurs., FL, BA and LW.

Working experiences in international organizations

H8: Academic faculty staff with working experiences in international organization have no effect on international students' enrollment in faculty of Eng, IT, Nurs., FL, BA and LW.

In addition, the reasons for why Jordanian PhD graduates have returned to Jordan after completing of their PhDs is the research question sought to be answered in this study. Regarding international students, the reasons for choosing Jordan as a destination country to pursue their higher education studies is the second research question in this study.

6.4 Testing hypotheses

A number of statistical procedures may be applied to test the null hypothesis. Following Hayes (2005); Baker (2002); Sims (1999); Wallace and Lewis (1998); Rangaswamy(1995); Viljoen and der Merwe (2000); Messina (1987), main four steps were identified for that purpose:

1. State the null hypotheses. In this research study the stated null and alternative hypotheses were presented earlier in section (6.3). The next step is to decide upon

the criteria for choosing the critical or the table values for a statistical test to use for making the decision rule whether to accept or reject the null hypothesis.

2. Selecting the significance level denoted by alpha α : Indicates the percentage of sample means that is outside the cutoff limits, also called the critical value. A significant level of .05 level of significance means that the results of the study would be due to chance five or fewer times out of 100 (Wallace and Lewis, 1998).

3. Select the probability value: The probability value (*P*-value) measures the strength of evidence in supporting a hypothesis in order to decide whether or not we can reject the null hypothesis. It is the probability that an observed result is due to chance. In statistical hypothesis testing the *p*-value is used to decide whether we have enough evidence to reject the null hypothesis and say that the research hypothesis is supported by the data.

4. Reject or fail to reject the null hypothesis: A decision rule is a procedure that the researcher uses to decide whether to accept or reject the null hypothesis. Comparing the probability value to the significance level and then the statistical decision is made. If *p*-value is less or equal than the significant level ($p \leq \alpha$), then the null hypothesis is rejected and the research results are statistically significant (Rogerson, 2010; Black, 2009; Hayes, 2005).

Regarding the causes of Jordanian graduate students returning to Jordan, the answers for question numbers (15) in the academic staff human capital formation survey in the Educational Backgrounds section that states: Why you have returned home after completing your PhD?, shall be interpreted in more depth. Moreover for international students' choice of Jordan, the list of the actual questions that put the respondents verbatim reasoning in a specified order will be examined.

6.5 Instruments for data collection

Research in which the individual or a group is responsible for the design of a study actively participates in its implementation is known as primary research and information gleaned in this way is termed primary data. However, there are many instances in which the data required to answer a research question will have been

already collected by others and this kind of research is termed secondary research and the data are termed secondary data (McQueen and Knussen, 2002). A social survey can be defined as a technique for gathering statistical information about the attributes, attitudes or actions of a population by administering standardized questions to some or all of its members. In that case, the aim is to collect evidence which supports or contradicts some hypotheses about the causes of people's behaviour or attitudes (Buckingham and Saunders, 2007).

As a first step, a questionnaire to collect data among academic staff at Jordanian universities is identified, and a second step decides on the content of the questionnaire. This content was designed in accordance to the first, the literature search for the parameters of the study that is helpful in defining how the study would be built on or extend the existing work in the area of human capital formation. Therefore, the items included in a questionnaire are justified against the theoretical purpose of the research question. Developing and designing new questions when no existing sets of questions are available has been appropriately adapted for the purposes of this study survey. Research questionnaire used in this study was developed following a review of the literature associated with academic staff survey performed at higher education level. Examples of such surveys are the Carnegie Foundation surveys of US faculty members, which provides comparable data about faculty attitudes. Another example is Boyer, Altbach, and Whitelaws (1994) International Survey of the Academic Profession (Smart, 2005).⁵⁴ Survey of Doctorate Receipts (SDR) in the United States as in Hammond and Morgan (1991), Clark in (2000) and finally some aspects were also helpful from the survey of Roueche *at al.* (2003).

⁵⁴This particular survey follows the model of Carnegie Foundation surveys of U.S faculty members and provides comparable data about faculty attitudes and activities across 14 countries (Australia, South Korea, Japan, Hong Kong, Brazil, Chile, Mexico, the United States, England, Germany, the Netherlands, Sweden, Russia and Israel), all of which are in well-developed systems of higher education (Smart, 2005).

6.5.1 Academic staff's human capital formation survey

A self-administrated questionnaire was designed to collect data among academic staff at Jordanian universities. It was completed using paper-and-pencil techniques and completed by respondents outside the presence of the surveyor or other monitoring personnel. This is one of the most frequently used methods for collecting data in research studies (Bourque and Fielder, 2003). As there is no interviewer to be present to help the respondents to understand the questions, or how the respondent should go about completing the questionnaire, general instructions were part of the introductory material included in the questionnaire covering letter, which explains the purpose of the study, tells how and why the individual was selected to be respondents. This covering letter was also signed by a name recognized by the respondents and stressed the importance of the individuals to respond and how important they are to the research.

One of the advantages of self-administrated questionnaires is allowing for a wider geographic coverage and larger samples. Some people are reluctant to have an interview with anyone they do not know, either in person or on the phone. The use of self-administrated survey was according to the confidence that the desired sample populations are accessible at the designated locations, the avoidance of open-ended questions in the questionnaire, the availability of clear and sufficient instructions for respondents and finally to avoid personal biases in the wording of questions and answering categories. On the other side, the disadvantages of self-administrated questionnaires are in the availability of a list of the sample to be surveyed and the second problem is administrative as there is a lack of control over who responds and not and then caution must be given to the construction of the questionnaire in terms of objectives, formats and order effects. Question-answering instructions were also used to provide respondents with relatively elaborate instructions on how to fill the questionnaire. The demographic questions were placed at the beginning of the questionnaire, as demographic questions are easy for respondents to answer because they know the information being sought, and

second it maximizes the likelihood of getting complete demographic information by ending completing the questionnaire.

The questionnaire was distributed among academic staff, holders of a doctorate degree, at Jordanian universities. The survey involved those in the assistant, associate and professorship ranking and was distributed among six faculties, three of them in the scientific disciplines and three in the humanity ones. The questionnaire comprised three parts:

(1) Academic staff (PhD holders) demographic backgrounds: it included items such as gender, date of birth, marital status, nationality, and community origin.

(2) Educational backgrounds: it included information on the country of achieving Bachelor's, Master and PhD degrees, year of achieving PhD, reasons for pursuing PhD, PhD completion language, duration of PhD, financing PhD, reasons for returning to Jordan, duration of stay after finishing PhD, what has been done in the period following PhD completion and the respondents competency in foreign languages.

(3) Academic experiences: includes current academic rank, teaching experiences inside and outside Jordan and its duration and finally staff's academic research in terms of publications.

(4) Professional experiences: it was based on four questions, whether the professional experience was gained from inside or outside Jordan, in which country and number of experience durations. The scope of having related training certificates and a world wide experience in international organizations were asked. A summary of the academic staff survey is provided in table.6.4.

In ending the questionnaire, the surveyor invited the respondent to comment on its contents, to make suggestions and to criticize it. Afterward, a "ventilation" message⁵⁵ thanking the study respondents for their time, corporation and courtesy were placed. The whole questionnaire, which was contained on six A4 pages with a covering letter and took about (5-7) minutes to complete, is provided in appendix (1.1).

⁵⁵ Bourque and Fielder (2003).

The questionnaire was distributed by the surveyor and the administration for this questionnaire was through handing in the questionnaire to the head of the department of each faculty in the selected surveyed universities and instructions for returning the completed questionnaire to the faculty department secretary was given. The implementation and distribution process of the survey took the following steps:

1. *A request letter from each university president* was required to allow the distribution of the survey, accompanied by a letter of support from head of Department of Development Economics, Migration and Agricultural Policy (DEMAP) at University of Kassel in Germany. Examples of these letters are presented in appendix 3. The contact details of academic staff were obtained from Jordanian university websites and department secretariats of the surveyed faculties.
2. *A phone call to each head of the departments* in the six specified faculties of the surveyed universities was followed showing their university's acceptance letter and asking for proceeding.
3. *A practice visit to the six universities* and faculties was set where the survey was distributed either to the head of the department or by hand to the selected sample staff and in other cases to the department secretary to hand in the survey to the sampled staff.
4. *A phone call early* in the week after distributing the survey was followed to assure the delivering of the questionnaire to the academic staff.
5. *Follow-up procedures* after 10 days of the original distribution were set in motion. These follow-ups take the form of telephone calls and in one-to-one-supervision (Bourque and Fielder; 2003)⁵⁶ in front of surveyed universities' administration, stressing on the importance of study purpose and the importance of respondents.
6. *Additional follow-ups* were conducted every ten days and a track of the rate of return for each university/and faculty was kept and a further reminder for those

⁵⁶One-to-one-supervision is a situation where the surveyor is available to answer any questions the respondent has about completing the self-questionnaires. This type of administration is rarely used, because it is very expensive; nonetheless, surveyors use one-to-one supervision on occasions often within the context of studies in which in person (face-to face) interviewing is the major method in data collection.

who didn't complete the survey, or for non-returned questionnaires was taking place.

7. *Processing return* means applying particular methods to record the receipt of the completed questionnaires and to convert the data from these instruments into numeric results ready for analysis. This process can be done through a sample log or roster. The ideal sample log is the one that allows finding out the location and status of any given questionnaire upon request.

Table 6.4: Academic staff's "human capital formation survey"

Items	Components
Sponsor (URL)	Department of Development Economics, Migration and Agricultural Policy (DEMAP)-University of Kassel-Germany http://www.uni-kassel.de/agrar/epo/?c=6
Collector Purpose	PhD student <ul style="list-style-type: none"> • Reflect on academic staff PhD place of graduation ; • Assess academic staff experiences achieved inside and outside Jordan; • Measure relation between human capital formation components and international students enrollments
Running Time	01.02-2009-01.06.2009
Target Population	University academic staff holding PhD degrees
Sampling Frame*	PhD academic staff in UoJ, MU, AABU, ASU, IPU, ZPU who are at least holding assistant professorship
Sample Design	Stratified sampling, random sampling
Sample Size	250 academic staff
Use of Interviewer	Self-administrated questionnaire completed by academic staff and proctored by the surveyor
Mode of Administration	Paper and pen self-administered questionnaire

Note:*The sampling frame is the list of ultimate sampling entities, which may be people, households, organizations, or other units of analysis (Babbie, 2010; Lavallée, 2007; Zikmund, 1997).

Source: Author's concept based on (Groves *et al.*, 2004).

6.5.2 International students' survey

The instrument used for international students was a questionnaire distributed among international students, and parts of it were quoted from JV 2020 survey⁵⁷ who conducted this survey for the first time during the academic year (2003/2004) among foreign students in Jordan at graduate and undergraduate level. The questionnaire focused on the reasons for international students' choice of Jordan as

⁵⁷YEA *et al.*, 2005.

a destination country. Contacts with the “International Students Office” at the specified universities were set up who overtook the responsibility of distributing the survey according to universities bylaws and after acquiring the university administrative acceptance. In later stages, telephone calls were followed to all international students’ offices as a reminder. The questionnaire which was contained on three pages with an introductory statement of research purpose was distributed in Arabic in the second semester of the academic year (2008/2009) through the “International Students Office” in each university to the international students, who met the study criteria of being at his/her undergraduate level of studies (Bachelor of Sciences or Arts). Moreover, the students were informed that their participation was essential and their identities were anonymous and would be kept strictly secret. A copy of the survey appears in appendix 1.2.

The survey data included students' socio-demographic characteristics, details of their current education, reasons for choosing Jordan, their educational experiences in Jordan, in addition to their institutional views on different aspects of related services to higher education studies in Jordan. The survey has tapped into different aspects:

- 1) Demographic backgrounds like age, nationality, country of permanent residence, university, field of study, year of study, sex, level of study.
- 2) Reasons for choosing Jordan.
- 3) Different ways they knew about their universities.
- 4) The popularity of his/her university in his/her home country.
- 5) The average monthly expenditure for rent, books, clothes, living, and university supplies after deducting tuition fees.
- 6) Satisfaction regarding government requirements pertaining to residence in Jordan, embassy’s accreditation requirements, prospects about education in Jordan in strengthen the chances of finding a job after graduation and finally whether students were planning to stay in Jordan after graduation.

6.6 Sampling

It is seldom to collect information from all members of a population in order to make reliable statements about the characteristics or attributes of that population. The importance of survey samples lies in the accuracy with which they represent or mirror the target population (Fink, 1995). By restricting attention to only a few individuals, extremely comprehensive information can be collected providing the sample is collected properly, valid conclusions about the key characteristics of the population can be drawn, with only a surprisingly small degree of uncertainty (Burt and Barber, 1996). Sampling helps to focus the survey on precisely the characteristic of interests (Fink, 1995). As a part of the population is sampled, the estimated parameters are subject to a sampling error. Sampling error is a measure of how “closely” can be reproduced from sample results that would be obtained if a complete count should be taken or a census (Iarossi, 2006). Sampling is efficient and precise, can be studied more quickly than target populations, less expensive to assemble, efficient in that resources that might go into collecting data on an unnecessarily large number of individuals or groups can be spent on other activities like monitoring the quality of data collection.

The selected samples should be as representative of the underlying population as possible. There are two general sampling methods or sampling designs, the probability and non-probability sampling (Saunders *et al.*, 2009; Kolb, 2008). In probability sampling, each member of the population has a known non-zero probability of being selected. Probability methods include random sampling, systematic sampling, and stratified sampling (Weissberg *et al.*, 1989). Probability sampling provides a statistical basis for saying that a sample is representative of the study or target population. Non-probability samplings are those in which members of a sample are deliberately elected for a specified purpose. That is, the choice of probability sampling is based on judgment regarding the characteristics of the target population and the needs of the survey (Fink, 1995). What follows is a

brief description of the two probability sampling techniques to be introduced and to be used in this research.

First: *simple random sampling*, it contains a list of eligible units composing a population from which the sample is obtained. This list or sampling frame must include all or all members of the population, and every subject or unit has an equal chance of being selected. The members of the target population are selected one at a time and independently, and once they have been selected, they are not eligible for a second chance (Iarossi, 2006; Biemer and Lyberg, 2003). Because of this equality of opportunity, random samples are considered relatively unbiased, i.e., every unit has an equal chance of selection. The main benefit of simple random sampling is that it guarantees that the sample chosen is representative of the population and ensures that the statistical conclusions will be valid.

Second: *Stratified random sampling*, the group of the population is divided into subcategories, and then a sample is drawn from each stratum so that each stratum within the population is proportionately represented in the sample. Stratified sampling can decrease the likelihood of obtaining an unrepresentative sample and in reducing sampling error through defining homogenous strata. That is, before drawing the sample, the population is divided into none overlapping subdivisions called strata on the basis of one or more characteristics of interest of the studying problem and then selecting appropriate single random sample from each stratum. Hence, the stratum consists of individuals that are very much alike in terms of the principal characteristics of the study (Burt and Barber, 1996). This method of sampling can be more precise than simple random sampling because it homogenizes the groups. The strata or subgroups are chosen because evidence is available that they are related to the research outcome (Fink, 1995). Stratified random sampling ensures that certain key categories of people will be included in the sample in appropriate numbers. Stratified random sampling has the following properties:

- The population consists of N elements.

- The population is divided into H groups called strata.
- Each element of the population can be assigned to one, and only one, stratum.
- The number of observations within each stratum N_h is known and $N = N_1 + N_2 + \dots + N_{H-1} + N_H$
- A probability sample from each stratum is obtained.

The advantage of stratified random sampling is that the surveyor can choose a sample that represents the various groups and patterns of the characteristics in the desired proportions. In addition, a stratified sample can guard against an “unrepresentative” sample.⁵⁸ Offsetting potential benefits of stratified sampling are some other potential disadvantages, chief among them being greater cost and complexity during both the selection (e.g. questions of allocation and stratum boundary definitions) and estimations (e.g. more complex estimator) phases as compared with simple random sampling (Pedhazur and Schmelkin,1991). In addition, stratified random sampling requires more effort than simple random sampling and often needs a larger sample than a random sample to produce statistically meaningful results (Fink, 2006). A simple random sampling is then drawn from each of the stratified group according to proportionate allocation, i.e., the sample size is allocated proportionally to the size of each stratum. In other words, strata sample sizes are kept proportional to the strata population sizes. This method of selection is generally called “representative sampling” of samples which are miniatures of the population and by the notion that the different parts of the population should be approximately represented in the sample (Pedhazur and Schmelkin, 1991; Iarossi, 2006). Equation (7) below considers calculating sample size in a stratified sampling.

$$n_b = n_0 \frac{N_b}{N} \tag{7}$$

Where:

n_0 = desired sample size

⁵⁸For example an all-male sample from a mixed-gender population.

n_b = stratum sample size

N_b = population size of the b th stratum and $\sum_{b=1}^H N_b = N$

H = Number of strata

Using data from the universities' databases in Jordan and to achieve an un-biased representation, the population in this study was stratified/divided to subgroups according to fields of study or disciplines into six strata of faculties. The intent in stratified sampling is to reduce variability by creating relatively homogenous strata with respect to the dependent variable of interest (Pedhazur and Schmelkin, 1991). These sub-groups refer to the groups in the sample whose survey results must be obtained in sufficient numbers for accurate conclusions. The selection of these strata (faculties) was due to information collected from "Admission and Registration Directorate" at the designated universities, in which different levels of international students are enrolled in different proportions in these faculties. The first stratum covered academic staff at faculty of engineering, stratum, 2 to 6 covered academic staff at Faculty of Engineering, IT, Nursing, Foreign Languages, Business Administration and Faculty of Law, respectively.

6.7 Sample size

6.7.1 Academic staff survey

The size of the sample refers to the number of units that need to be surveyed to get precise and reliable findings. Different factors are considered when calculating adequate sample sizes such as assembling and clarifying all survey objectives, questions and hypotheses. The sample size formulas and procedures used for both continuous and categorical data are based on Cochran (1977), who states that one method of determining sample size is to specify margin of errors for the items that are regarded as most vital to the survey (Bartlett *et al.*, 2001). The considerations for the appropriate use of Cochran's (1977) sample size formula are summarized in the following terms:

1) The *margin of error or sample error*: is a statistic expressing the amount of random sampling error in surveys results (Hutchison, 2010). As the sample is only a portion of the population, the variable being measured is not known with perfect precision, hence the margin of error is the certainty with which the variable being measured is known (Weil *et al.*, 2010: 6). The margin of error selected depends on the precision needed to make the population estimates from a sample relative to an acceptable margin of error. In educational and social research studies 5% is the largest level of acceptable error in the social sciences (Jamison, 2006:24).

2) The *confidence level or risk*: the level of acceptable risk the researcher is willing to accept that the true margin of error exceeds the acceptable margin of error. The alpha level measures how often the findings will be out of the error margin, often expressed in percentage points. It is also known as Type I error that the probability of differences revealed by statistical analysis really does not exist (Bartlett *et al.*, 2001). In Cochran's formula, the alpha level is incorporated into the formula by utilizing the t-value for the selected alpha level. Researchers usually chose a higher confidence level in order to reduce the chance of making a wrong conclusion about the population from the sample estimate. The 0.95 level of confidence corresponds to the 0.05 level of significance and means that the results of the study would be due to chance only five or fewer times out of 100.

3) To produce a maximum possible sample size, a proportion is used by researchers that a percentage of the sample will provide a given response to a survey question. The most conservative estimate used by researchers is 50% (Cottrell *et al.*, 2011; Hicks, 2004; Alkin, 1992; O'Donnell, 2001) and is called *degree of variability* which is the proportion or percentage in the sample that will choose a given answer to a survey question being measured is chosen -potential responses (Cottrell *et al.*, 2011; Köhl *et al.*, 2006; Singh and Mangat, 1996; Lehr, Robert, 1992). Applying Cochran's sample size formula for sample size determination is given by the following equation:

$$n = \frac{t^2 N .pq}{t^2 pq + N .d^2} \quad (8)$$

Where:

t = t-value for chosen alpha level

N = Population size

d = acceptable margin of error

p.q = estimate of variance: 25; p = 5 maximum possible proportion; q =1- p

Performing the previous calculations, the sample sizes of academic staff used in the survey is depicted in Tab. 6.5.

Table 6.5: Surveyed academic staff's sample sizes by faculties and university types

Faculties	University types						Total
	Public universities			Private universities			
	UoJ	MU	AABU	ASU	IPU	ZPU	
Eng.	35	21	2	13	7	1	79
IT	8	3	3	8	3	6	31
Nurs.	5	2	1	4	2	1	15
FL	5	6	2	4	3	5	25
BA	12	13	5	21	16	11	78
LW	9	6	4	3	4	2	28
Total	74	51	17	53	35	26	256

Source: Author's calculations.

6.7.1.1 Selecting criteria: universities' choices

The study samples consist of three public and three private universities. These universities are geographically distributed in different locations from the capital Amman. In the middle of Amman is the University of Jordan (UoJ), northern to Amman is the Al al-Bayt University and from the south is the Mut'ah University (MU). The same geographic distribution applies for private universities, where the University of Applied Science (ASU) is in the middle of Amman, the Isra Private University (IPU) in the south of the capital and the Zarqa Private University (ZPU) is in the north. The inclusion of geographical distribution takes into account different costs of living, different scale of tuition fees among these universities, services and infrastructure facilities and even climate. In addition, these differentially located universities have different proportions of international

students' enrollment. The highest proportions of international students among public universities were found in a descending order in UoJ, AABU and MU, respectively, and in ASU, IPU and ZPU in private universities.

6.7.1.2 Faculties' choices

The faculties which were included in the survey were from both scientific and humanities' disciplines. Among the scientific streams are the faculty of Engineering, Faculty of Information Technology (IT) and Faculty of Nursing. Among humanities faculties, the Faculty of Foreign Languages, Business Administration and Faculty of Law were the candidate faculties. The reasons for such selections are:

- (a) The selected universities have the common six faculties designated in the proposed surveys (academic staff survey and international students' survey) which could not be found in such a combination in other mixes of Jordanian universities and that tends to reduce potentials for biases;
- (b) The selected faculties have different proportions of international students' enrollments (these enrollments are based on the secondary data obtained from Jordanian universities "Registration and Admission Directorates", i.e., Faculty of Engineering and Business Administration have the highest ratio of foreign student enrollments, where Faculty of IT and Faculty of Law have moderate ratios of enrollment and Faculty of Foreign Languages and Nursing have the lowest enrollments;
- (c) The intention behind including private and public universities is that the higher education system in Jordan does exist in such a combination of both private and public universities;
- (d) The selected faculties (and universities) have a mix of both academic staff of different PhD sources. Hence, the comparison between similar faculties and universities chosen stands to be valid.

Table 6.6 summaries these criteria, thus, the sample of academic staff is assumed to be representative for the Jordanian human capital at Jordanian universities.

Table 6.6: Surveyed universities and faculties: rationale selection criteria

Criteria	Public university	Private university
Number of international student enrollments in 2008/2009	High enrollment: UoJ =2,098 Middle enrollment: MU=941 Low enrollment: AABU= 390	High enrollment: ASU= 3,153 Middle enrollment: IPU=1,351 Low enrollment: ZPU= 464
Geographic distribution	Middle: UoJ South: MU North: AABU	Middle: ASU South: IPU North: ZPU
Common faculties	Humanities and scientific faculties are in common with private universities	Humanities and scientific faculties are in common with public universities
Diverse enrollment of international students in faculties	<i>Scientific Faculties:</i> High: Faculty of Engineering Middle: Faculty of IT Low: Faculty of Nursing <i>Humanities Faculties:</i> High: Faculty of Business Administration Middle: Faculty of Law Low: Faculty of Foreign Languages	<i>Scientific Faculties:</i> High: Faculty of Engineering Middle: Faculty of IT Low: Faculty of Nursing <i>Humanities Faculties:</i> High: Faculty of Business Administration Middle: Faculty of Law Low: Faculty of Foreign Languages
Sources of PhD	Existence of academic staff with different PhD sources, where staff of foreign PhDs outweigh those of Arabic ones	Existence of academic staff with different PhD sources, with more agglomeration of staff holding Arabic PhDs than of foreign sources

Source: Identified by the author.

The survey among academic staff among the six Jordanian universities was carried out during the fall semester of the academic year 2008/2009. The selected Jordanian universities were stratified by faculties as mentioned previously in section (6.7.1) and a simple random sampling from each stratum was done with caution to double counting. 256 questionnaires were distributed to academic staff holding a PhD of different ranks among different faculties.

6.7.2 International students' survey

The population of interest in the international students' survey comprised of international students enrolled in the same six faculties and universities identified in the academic staff survey mentioned earlier. These are Faculty of Engineering, Information Technology, Nursing, Foreign Languages, Business and Law. Following the simple random sampling (SRS) technique, a total sample of 279 international students was selected, which fulfilled the research criteria of being at

undergraduate level in their level of study (Tab. 6.7). The reason for choosing international students at undergraduate level was due to the high numbers at undergraduate level in comparison to graduates as shown previously in section (5.2.4.1). In addition, their geographic distribution among the six universities guarantees that their enrollment despite different locations and hence costs, services and cultural atmosphere, was included.

Table 6.7: Surveyed international students’ sample sizes by university type

University type	University name	Sample size
Public university	UoJ	68
	MU	32
	AABU	13
Private university	AASU	103
	IPU	45
	ZPU	18
		Total : 279

Source: Author’s calculations.

6.8 Collecting data using secondary sources

The secondary data in the academic staff survey was obtained from different sources such as Universities Admission and Registration Directorate; Ministry of Higher Education and Scientific Research: Statistics and Information Section Directorate of Information Technology; Young Entrepreneur Association (YEA); Department of Statistics (DOS) and Central Bank of Jordan (CBJ). The secondary sources for data relating to international students were obtained from the “Administration and Registration Directorates” records in Jordanian universities which reported international students’ enrollments by faculty, semester involved, nationality and financing mode. Other sources include the Ministry of Higher Education and Scientific Research, research and previous studies performed in this field.

6.9 Processing data

Processing data consists of the following steps: editing, coding, developing a frame for analysis and analyzing the data. Editing data consist of scrutinizing the

completed research instruments (survey) to identify and minimize as far as possible errors, incompleteness, misclassification and gaps in the information obtained from the respondents (Kumar, 2005). Through examining the answers by the respondents, the completed questionnaires were reviewed to detect and correct errors. Cleaning data represents a set of final editing and imputation procedures used to enhance data quality and prepare it for analysis. In coding, it summarizes survey answers into meaningful categories to identify study patterns such as yes or no questions (Iarossi, 2006). Developing a frame of analysis was then proceeded through loading the questionnaire responses into an Excel spreadsheet (Microsoft Office Excel, 2003) for preliminary analysis and then importing them into the SPSS statistical package.

6.10 Analyzing data

This section introduces quantification and interpretation of the data achieved through the use of statistics and computers. Linear models are able to approximate a large amount of metric data structures in their entire range of definition or at least piecewise. The simple linear regression model was used to predict the relationship between international students' enrollment in specific faculties among Jordanian universities and human capital variables associated with academic staff. Approaches like analysis of variance model effects of the linear deviations from the total mean have proved their flexibility (Rao *et al.*, 2007). The statistical estimation procedures such as principal of least squares were employed to estimate the parameters of the model. Moreover, a range of analytical tools including linear regression, analysis of variance (ANOVA) were used in analyzing the output of this research.

6.10.1 Simple linear regression

To enable an evaluation of the effect of human capital formation attributes on international students' enrollment, the analysis of variance (ANOVA) is used to identify the significance of such attributes and the direction such associations

based on a simple linear regression of the predictors on the dependent variable(s). The regression analysis will be performed on all predictors in this study.

6.10.1.1 Explanatory variables

The independent variables built into the design were measured by a questionnaire. The explanatory variables included measures of human capital formation attributes. These are PhD graduation country and the country of acquired academic and professional experiences. For related training courses it relates to training courses and other upgrading skills attained by the academic staff and at the same time related to his/her speciality. For other international experiences it refers to working experiences in international organizations such as the World Bank, United Nations (UN) and others.

6.10.1.2 Dependent variable

The dependent variable in the model is international student enrollments at selected faculties, which is defined as the number of international students enrolling at undergraduate level during the academic year 2008/2009. International student enrollment was modeled as a function of academic staff human capital formation variables. The regression function is defined in terms of a finite number of unknown parameters that are estimated from the data using the following equation:

$$Y = f(X) + \varepsilon \quad (9)$$

The random variable ε is independent of X and on average is equal to zero. For a fixed X the response variable Y in this model is also referred to as the dependent variable, the endogenous variable or criterion variable and on average will be equal to $f(X)$ or what is called the regression function. An important application of the linear model is the regression analysis where the average response is explained via other observed variables, through X s which are also called independent or exogenous variables. In the context of some special cases these are called repressors, predictors or factors (Sengupta and Jammalamadaka, 2003). Applying

the previous model equation to explain the response in terms of the explanatory variables in this study, the following formula is achieved:

$$\text{Enrl}_i = \beta_0 + \beta_1 X_i + \varepsilon_i \quad (10)$$

Enrl_i = International student enrollment in faculty i in each of the selected universities in this study. β_0 and β_1 are the intercept term and slope parameters respectively, which are usually called regression coefficients. The unobservable error component ε_i accounts for the failure of the data to lie on the straight line and represents the difference between the true and observed realizations of y ; it is the residual or error for individual i and represents the deviation of the observed value of the response for this individual from that expected by the model. These error terms are assumed to have a normal distribution with variance σ^2 (Rao *et al.*, 2007).

Generally, the direct regression estimates are estimated by least squares (Landau and Everitt, 2004). The principle of least squares aims at estimating β_0 and β_1 so that the sum of squares of difference between the observations and the line in the scatter diagram is minimum and such an idea can be viewed as a *direct regression*, where the vertical difference between the observations and the line in the scatter diagram is considered and its sum of squares is minimized to obtain estimates of β_0 and β_1 (Rao *et al.*, 2007). The solution for β_0 and β_1 is obtained by setting equation (9) equal to zero. Thus, the obtained solutions (estimates of the parameters) are called the direct regression estimators or the Ordinary Least Squares (OLS). This direct regression approach minimizes the sum of squares and the partial derivatives of equation (10) with respect to β_0 and β_1 and gives the ordinary least squares estimates b_0 of β_0 and b_1 of β_1 , and that the ordinary least squares estimators (b_0 and b_1) possesses the minimum variance in the class of linear and unbiased estimators and are termed as the Best Linear Unbiased Estimators (BLUE) (Rao *et al.*, 2007). Equation (10) reveals that the enrollment prediction in a specific faculty at Jordanian universities is related to attributes of academic staff in terms of their

PhD, experiences, and related trainings and other working experiences in the selected faculty.

The “Statistical Package for Social Sciences” (SPSS) version 15.0 running under Windows 2003 was used in the analysis. The SPSS is a package of programmes for manipulating, analyzing, and presenting data and widely used in the social and behavioural sciences (Landau and Everitt, 2004). In order to quantify the magnitude of an association or a relationship, other descriptive statistics were used to provide an indication of the confidence which can be placed in the findings of the reasons why Jordanian human capital (academic staff) returned back to their home countries. Moreover, the analysis of the international students’ survey involved descriptive statistics such as means, frequency distributions and percentages. The next step is presenting the findings by displaying them in an easily understood manner such as tables and graphs as will be presented in the next chapter.

7 Results and discussion

In this chapter, the results of the two surveys conducted within the scope of this work will be presented. In the first section, academic staff's human capital formation variables were analyzed by different faculties. Second, reasons for academic staff retuning to Jordan were investigated. Furthermore, determinants for international students' choice of Jordan as a destination country were discussed. Finally, to enable an evaluation of the effect of academic staff's human capital formation variables on international students' enrollments, a regression analysis was undertaken by each faculty to examine whether investment in different human capital variables has been influential in driving higher education sector in Jordan.

7.1 Academic staff survey

A total of 250 academic staff was surveyed, 49% of them were in the scientific faculties and 51% were in the humanities ones (Tab. 7.1).

Table 7.1: Surveyed academic staff by academic disciplines and faculties (in %)

Criteria		Academic disciplines and faculties							
		Scientific				Humanities			
		Eng.	IT	Nurs.	Total	FL	BA	LW	Total
Age group	25-36	13	5	4	9	3	12	9	10
	37-48	38	21	10	28	8	28	15	20
	49-60	13	4	3	8	9	25	4	15
	61-75	9	1	0	4	3	12	1	6
Sex	Male	68	31	8	43	17	72	26	46
	Female	4	0	9	5	6	5	3	6
Marital status	Married	65	30	15	44	20	68	25	45
	Single	7	1	2	4	1	8	4	5
	Divorced	1	0	0	0	0	0	0	0
	Widow	0	0	0	0	2	1	0	1
Academic rank	Professor	15	0	0	6	5	12	3	8
	Associate	16	3	1	8	4	22	9	14
	Assistant	41	28	16	34	14	43	17	30
University type	Public	52	15	10	31	14	30	19	25
	Private	21	16	7	18	9	46	10	26
Total		49				51			

Source: Author's survey 2008/2009.

The age range for 28% of the surveyed academic staff in the scientific faculties was from 37 to 48 years old and for 9% was from 25 to 36 years old. In humanities' faculties, 20% of the academic staff were at the age of 37 to 48 and

15% were between 49 to 60 years old. In the scientific faculties, 43% of the surveyed staff were males and 5% were females compared to 46% and 7% in the humanities' faculties, respectively. In scientific faculties 44% of surveyed staff were married and 4% single, in comparison to 45% married, 5% single and 1% widowed among humanities' faculties. Academic staff in the professorship rank represented 6% and 8% in both scientific and humanities' faculties, 8% and 14% were in the associate rank and 34% and 30% were in the assistantship rank in the respective faculties. 31% and 25% of the surveyed academic staff were at public universities compared to 18% and 26% at private universities.

7.1.1 PhD sources

PhD foreign

The academic staff survey results showed that Faculties of Engineering and Business Administration had the largest share of staff who achieved their PhDs from a foreign source with 33% and 30%, respectively. In addition, 33% of the surveyed staff were achieving their PhDs from UK and USA in equal terms (Tab. 7.2).

The survey results are in line with McMahon (1992) asserting that despite being free of colonial ties, the appeal of U.S. higher education system is due to the existence of many institutions of different types and levels, the maintenance of a high quality level in most parts of the system, the decentralized and the expanding system of the U.S. higher education provided a receptive target of opportunity for foreign students' enrollment. The existence of a large number of Jordanian students in U.S. can be attributed to the fact that many of them have relatives who helped them financially and encouraged them to come there, at a second stage, the existence of employment opportunities and the various forms of scholarship. Hence a large number of Jordanians in the U.S. combine study with full or part-time employment, and that goes hand in hand with IOM (2008:61) remarks that with the outset of the 1990s the U.S. had over half of the world's highly skilled migrants from the developing world.

Table 7.2: Surveyed academic staff with a foreign PhD by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
UK	30	41	25	30	35	38	33
USA	45	16	50	50	29	5	33
India	1	6	0	10	18	0	7
France	1	0	0	0	4	57	7
Ukraine	4	13	0	0	3	0	4
Russia	4	6	0	0	4	0	4
Australia	1	0	25	5	0	0	2
Germany	3	0	0	0	1	0	1
Italy	3	3	0	0	0	0	1
Malaysia	0	0	0	0	0	0	1
Poland	0	0	0	0	1	0	1
Turkey	1	0	0	5	0	0	1
Canada	1	0	0	0	0	0	0
Spain	0	0	0	0	1	0	0
Cyprus	1	0	0	0	0	0	0
Greece	0	3	0	0	0	0	0
China	1	0	0	0	0	0	0
Philippines	0	0	0	0	1	0	0
Taiwan	1	0	0	0	0	0	0
Pakistan	1	0	0	0	0	0	0
Total	33	14	5	9	30	9	100

Source: Author's survey 2008/2009.

Moreover, the attractiveness of UK to the surveyed staff are as cited in Asteris (2006), that UK universities' provision incorporating western know-how and using English as the medium of instruction offers prospective students a number of advantages compared with studying in the West. In addition, the outflow of the surveyed staff mainly to U.S. and UK is in tandem with Smith and Favell's (2008) observations that the predominate use of English as a lingua franca among world languages has strengthened the draw of the "Anglo-Saxon" countries as a preferred venue of international education. The choice of U.S. and UK among surveyed staff is perfectly consistent with Wobbekind and Graves (1989) who proved that migrants' ability to speak the language of the host country appears to reduce the adjustment costs, and the importance of a foreign language spoken by potential migrants or as Baláz and Williams (2004) call "language capital" represents a specific but important form of communication skills. The results of the survey, in terms of staffs -previously PhD students- are indeed as pointed out by OCED (2001b:112) that migration of students to countries with a language other than their

mother tongue is driven by motives of an economic nature in terms of exploiting language skills learned abroad in the labour market.

The results in this section showing a clustering of surveyed staffs in USA and UK are also consistent with Gürüz's (2008:238) comments that the higher education system in the English speaking countries (the United States, United Kingdom, Australia, Canada and New Zealand) are traditionally based on variants of what is today referred to as the "entrepreneurial model" which provided the incentives and the decision making powers" for them to be active in the "international higher education market". Moreover, the geographic distribution of surveyed staff by PhD place of graduation shows that also countries like France, Russia, the Ukraine and Germany comes afterward as hosting countries, and this is in accord with OECD (2001b) where "the language barriers may seem to be an obstacle in attracting students from countries whose languages are little used internationally, rather countries where teaching is in historically or economically important languages like (English, French, German) have a greater propensity to host foreign students".

The migration of the surveyed staff to countries abroad can be also explained by the economic arguments raised in OCED (2001b:110) examining the determinants for students' mobility is in the opportunity for the sending countries concerned to educate young people in special disciplines for which domestic education provisions are not sufficient to reach the critical mass needed to achieve a satisfactory quality of education. This is asserted by Jamieson and Naidoo (2007), where the adaptations of the American model of PhD consists of a mandatory coursework followed by a dissertation have been influential for students speciality where they didn't have such specialization focus in their studies before. This model of specialization can also be found in some European contexts particularly the UK, and such a framework was emphasized by Teichler (2006) reporting that "still the European model of doctoral education and training - in contrast to North America - is still shaped by the traditional master-apprentice model".

PhD Arabic

A disaggregation of the surveyed academic staff who achieved their PhDs from an Arabic source reveals that both faculties of business administration and law have a presence of staff with a PhD from Arabic countries with 48% and 30%, respectively (Tab.7.3). Egypt has the lion share as a destination country with 52%, afterwards came Iraq with 17%. The reasons for choosing Egypt by some Jordanian graduates can be explained that some Jordanian students have relatives in Egypt and they feel they are at home, in addition to the comparative low cost of tuition fees (OECD and WB, 2010:270). Unlike the case in Egypt, most Jordanian students in Lebanon come from well-to-do families, self-supporting, or on scholarships from the Jordanian government or other governments and agencies which explain the modest existence of surveyed staff in Lebanon.

Table 7.3: Surveyed academic staff with Arabic PhD by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
Egypt	0	0	13	0	17	22	52
Iraq	4	0	0	0	13	0	17
Sudan	0	0	0	0	13	0	13
Morocco	0	0	0	0	0	9	9
Lebanon	0	0	0	4	0	0	4
Algeria	0	0	0	0	4	0	4
Total	4	0	13	4	48	30	100

Source: Author's survey 2008/2009.

7.1.2 Teaching experience

Teaching experience inside Jordan

The survey results showed that 88% of staff who have teaching experience gained from inside Jordan have achieved their PhD from a foreign source (Tab. 7.4) in particular from UK and USA with 33% and 27%, respectively (Tab. 7.5).

Table 7.4: Surveyed academic staff with teaching experience inside Jordan by faculties and PhD sources (in %)

Faculties	PhD sources	
	PhD foreign	PhD Arabic
Eng.	27	0
IT	12	0
Nurs.	5	2
FL	9	1
BA	28	5
LW	9	3
Total	88	12

Source: Author's survey 2008/2009.

Table 7.5: Surveyed academic staff with teaching experience inside Jordan by PhD countries and years of experience (in %)

PhD countries	Teaching experiences in years								Total
	1-3	3-5	5-7	7-9	9-11	11-13	13-15	More than 15	
UK	43	26	29	30	36	20	47	28	33
USA	13	21	19	30	36	40	27	43	27
India	9	0	13	15	5	20	0	7	7
France	11	0	3	10	9	10	7	7	7
Egypt	9	8	6	5	0	0	0	4	5
Russia	0	8	3	0	0	0	0	7	3
Ukraine	2	8	6	5	0	0	0	0	3
Australia	0	11	0	0	5	0	0	0	2
Iraq	0	5	0	0	5	0	7	0	2
Germany	2	3	0	0	5	0	0	0	1
Italy	2	0	6	0	0	0	0	0	1
Malaysia	0	5	0	0	0	10	0	0	1
Turkey	0	3	0	0	0	0	0	2	1
Morocco	0	0	3	0	0	0	7	0	1
Sudan	4	0	0	0	0	0	0	0	1
Cyprus	0	0	3	0	0	0	0	0	0
Spain	0	3	0	0	0	0	0	0	0
Greece	0	0	0	5	0	0	0	0	0
Poland	0	0	0	0	5	0	0	0	0
Lebanon	0	0	0	0	0	0	0	2	0
Algeria	0	0	3	0	0	0	0	0	0
China	0	0	3	0	0	0	0	0	0
Philippines	0	0	0	0	0	0	7	0	0
Pakistan	2	0	0	0	0	0	0	0	0
Taiwan	2	0	0	0	0	0	0	0	0
Canada	2	0	0	0	0	0	0	0	0
Total	19	17	14	9	10	3	7	21	100

Source: Author's survey 2008/2009.

In addition, 21 % of the surveyed staff have more than 15 years of experience inside Jordan and for 19% were having from 1 to 3 years of experience (Tab. 7.5). These results are as noted by McSherry and Johnson (2005:46) that working with

other local higher education institutions and teaching expertise can be used in developing the curricula of a study modules (in becoming work-based learning). Moreover, teaching experiences among surveyed staff was concentrated at the Faculty of Business Administration and Engineering with 28% and 27%, respectively (Tab.7.4). The importance of having experiences in such faculties are as Saroyan and Frenay (2010) suggested that teaching expertise implies knowledge about learning and teaching drawn from both evidence based sources and experiential learning, which is seen central to academic career prospects and is suitably rewarded through promotion and remuneration (Natarajan *et al.*, 2009).

Teaching experience outside Jordan

For 37% and 30% of surveyed staffs who have teaching experience from outside Jordan were graduated from USA and UK, respectively and Faculties of Engineering and Business Administration had the largest share of staff with such experiences (Tab. 7.6).

Table 7.6: Surveyed academic staff with teaching experience gained outside Jordan by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
UK	29	41	22	31	26	43	30
USA	47	18	33	46	35	14	37
France	2	0	0	0	7	43	5
India	2	6	0	8	9	0	5
Egypt	0	0	33	0	5	0	4
Ukraine	4	6	0	0	2	0	3
Australia	2	0	11	8	0	0	2
Russia	4	0	0	0	2	0	2
Malaysia	0	18	0	0	0	0	2
Poland	0	6	0	0	2	0	1
Iraq	2	0	0	0	2	0	1
Germany	0	0	0	0	2	0	1
Italy	2	0	0	0	0	0	1
Greece	0	6	0	0	0	0	1
Cyprus	0	0	0	0	0	0	1
Turkey	2	0	0	0	0	0	1
Lebanon	0	0	0	8	0	0	1
Algeria	0	0	0	0	2	0	1
Sudan	0	0	0	0	2	0	1
Philippines	0	0	0	0	2	0	1
Canada	2	0	0	0	0	0	1
Total	35	12	7	10	32	5	100

Source: Author's survey 2008/2009.

The surveyed staff have gained their teaching experiences from USA, Iraq and UK with 23%, 17% and 12%, respectively (Tab. 7.7).

Table 7.7: Surveyed academic staff with teaching experience outside Jordan by countries of teaching experience and faculties (in %)

Countries of teaching experiences	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
USA	36	25	22	21	12	13	23
Iraq	15	19	0	14	26	0	17
UK	11	13	11	7	12	25	12
Saudi Arabia	2	0	11	21	16	0	9
Oman	2	13	11	7	5	13	6
United Arab Emirates	0	0	0	7	7	25	4
Kuwait	6	0	0	0	2	13	4
Egypt	2	0	44	0	0	0	4
Libya	4	0	0	0	5	0	3
Qatar	0	13	0	14	0	0	3
Lebanon	0	6	0	0	0	13	1
Russia	2	0	0	0	2	0	1
Ukraine	2	0	0	0	2	0	1
Malaysia	0	13	0	0	0	0	1
Australia	2	0	0	7	0	0	1
India	2	0	0	0	0	0	1
Pakistan	2	0	0	0	0	0	1
Bahrain	0	0	0	0	2	0	1
Syria	0	0	0	0	2	0	1
Yemen	0	0	0	0	2	0	1
Sudan	0	0	0	0	2	0	1
Algeria	0	0	0	0	2	0	1
Turkey	2	0	0	0	0	0	1
Cyprus	2	0	0	0	0	0	1
Japan	2	0	0	0	0	0	1
Canada	2	0	0	0	0	0	1
Germany	2	0	0	0	0	0	1

Source: Author's survey 2008/2009.

The results are in line with OECD (2004) findings, where the cross-border mobility of highly skilled allows for the training of human resources for knowledge, information sharing, networking to stimulate innovation in the academic world, all of which are crucial for enhancing the quality of academic research, teaching and learning. As reported in Marginson and van der Wende (2007) words “the mobility of faculty has long been a positive professional norm though varying by nation and field”. Such experiences gained from western countries are indeed in accordance with Enders and Musselin’s (2008) observations of the diversification of career patterns brought by the massification

of the academic profession which have resulted into three different career models that are still frequent, the first model is the “tenure” model which is typical of the U.S. system, the second one is the “survivor” model which is typical of countries in which the Humboldtian and chair-system tradition is strong (as in Germany) and the third model can be described as a “protective pyramid” that is used in many public systems of higher education (as in Italy, Spain, France).

Another aspect can be observed is the existence of surveyed staff’s experience in countries of the Gulf Corporation Council countries (GCC) like Saudi Arabia, Oman and Kuwait, where according to Al-Hawaj *et al.* (2008) they have attributed Jordanian academic staff seeking teaching experience in the GCC countries due to higher salaries, better working conditions and service benefits for teaching and research professional in the region than are available at home, as the prerequisite conditions for employment in higher education institutions in all Gulf States requires both a doctoral degree and a publication record (Altbach, 2003). Teaching experience gained from outside Jordan was from 1 to 3 years and above 9 years for 39% and 22% of the sample respectively (Tab.7.8). For experience of more than 9 years, they were mainly at a Faculty of Business Administration and Engineering and that is resonated in Siebert and McIntosh (2001), where university staff members’ better understanding of the teaching and learning process will enable students’ opportunities to enhance both understanding and appreciations of science to which advances in science will depend.

Moreover, for 58% of surveyed staff with teaching experience achieved from outside Jordan were in the assistantship rank (Tab. 7.9) and this is in tandem with Teichler (2010: S161) pointing out “that many years of the junior academic career are characterized by a long process of both learning and productive work”. The results in this regards are emphasized by OECD (2008c:114) stating that “the contribution of institutions of higher education to the economy are determined by how much human capital they produce (capital stock), as well as by the number of years in which that human capital is used in productive activities (capital flow)”.

Table 7.8: Surveyed academic staff with teaching experience outside Jordan by years of experience and faculties (in %)

Number of teaching experiences (in years)	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
Less than 1	8	1	1	1	1	1	14
1-3	13	6	2	3	15	1	39
3-5	4	1	1	2	2	1	12
5-7	2	1	1	1	3	1	9
7-9	0	1	0	0	1	1	3
10	4	0	0	12	4	0	20
14	0	0	0	0	4	0	4
15	4	0	0	0	8	0	12
18	0	0	0	0	4	0	4
19	4	0	0	0	0	0	4
20	12	8	0	0	8	0	28
22	0	0	0	4	0	0	4
25	8	0	0	0	0	0	8
30	0	0	0	0	12	0	12
36	0	0	0	4	0	0	4
37	0	0	0	20	0	0	0

Source: Author's survey 2008/2009.

Table 7.9: Surveyed academic staff teaching experience outside Jordan by years of teaching experience and academic ranks (in %)

Number of teaching experiences (in years)	Academic ranks		
	Professor	Associate Professor	Assistant Professor
Less than 1	0	2	11
1-3	4	6	29
3-5	2	1	9
5-7	1	3	7
7-9	1	1	1
Above 9	11	9	1
Total	19	23	58

Source: Author's survey 2008/2009.

7.1.3 Professional experience

Professional experience inside Jordan

The surveyed academic staff with professional experience have gained their PhDs from UK and USA with 32% and 28%, respectively, and such experience was among staff in both Faculties of Business Administration 36% and Engineering 27% (Tab. 7.10). The clustering of professional experience among surveyed staff in faculty of business administration is in accordance with Fry *et al.* (2009) where the operational engagement of business administration faculty should give students exposure to realistic, open-ended problems, teaching them relevant skills and

motivating them towards careers in industry. The results shown in this section cope with the body of research which has identified the importance of professional experience⁵⁹ that may affect the quality of teaching (World Development, 2007) and incorporates both education and learning that academics as professionals engage in during their transition from novices to experts and beyond (Bitzer, 2009; Subotnik and Jarvin, 2005). And that goes hand-in-hand with a redefinition of the roles and tasks of higher education identified in Enders and Musselin (2008) which has its role played by education and training in improving the human capital as well as in economic development. The importance of professional experience in engineering fields of study are emphasized by Bornhäuser (2006) reporting that engineering courses must provide students with the range of knowledge and innovative problem-solving skills to work effectively in industry, as well as motivating students to become engineers on graduation. The results are also in tandem with Natarajan *et al.* (2009) asserting to embed a multidisciplinary approach-based on systems thinking with strong industry links within all engineering courses to ensure that academic staff are aware of developments faced by the profession at the workplace (OECD, 2002b). The findings in this regards are contended with Bitzer (2009:256) results where “the university lecturer as a professional function within a unique area of professional proactive requires elements of both discipline-specific and educational expertise. Such relevance is adopted in Natarajan *et al.* (2009), where specialities such as technology-driven information technology requires innovative course design and strengthen the links with industry through new forms of cooperation, not only across the traditional academic disciplines, but also between academia and other research providers and users. As asserted by Ashwin (2006), the industry top priorities for graduates skills are practical application, theoretical understanding, creativity and innovation with a high level of relevant competencies backed up by the ability to apply it to meet the professional standards. Such results are as Saroyan and Frenay (2010) mentioning that faculties’ engagement into a practice driven inquiry through a

⁵⁹ Includes the appropriate skills, knowledge (Ngh, 2010:61) and working experience (World Development, 2007).

range of teaching issues is to learn how to better facilitate the student learning experience. Fry *et al.* (2009:393), for example, have pointed out that “lecturers can use their professional practices to inform the context within their students’ study, and the orientation of a lecturer can have an important influence on the student perception of the subject”.

Table 7.10: Surveyed academic staff with professional experience inside Jordan by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
UK	29	45	20	33	37	28	32
USA	43	18	60	33	20	6	28
France	0	0	0	0	0	39	6
India	0	0	0	0	15	0	5
Egypt	0	0	0	0	5	22	5
Russia	6	0	0	0	5	0	3
Ukraine	3	18	0	0	0	0	3
Italy	6	9	0	0	0	0	3
Sudan	0	0	0	0	7	0	3
Iraq	0	0	0	0	5	0	2
Australia	0	0	20	0	0	0	2
Canada	3	0	0	0	0	0	1
Taiwan	3	0	0	0	0	0	1
Philippines	0	0	0	0	2	0	1
China	3	0	0	0	0	0	1
Pakistan	3	0	0	0	0	0	1
Morocco	0	0	0	0	0	6	1
Algeria	0	0	0	0	2	0	1
Lebanon	0	0	0	33	0	0	1
Cyprus	3	0	0	0	0	0	1
Greece	0	9	0	0	0	0	1
Spain	0	0	0	0	2	0	1
Total	27	9	9	3	36	16	100

Source: Author’s survey 2008/2009.

Professional experience outside Jordan

The surveyed staff professional experience gained from outside Jordan shows that 36% and 33% have achieved their PhDs from USA and UK, respectively (Tab. 7.11) and these results are in tandem with Enders (2002) who concluded that education from abroad has varying effects on professional experience or in working in non-academia, in what he calls the professional model. In addition, such experiences associated with PhD from foreign sources are in line with IOM (2008) reporting that common academic curricula have contributed to a veritable

sense of “global citizenship” worldwide with professional credentials serving as passports. In addition, faculties of engineering and business were having the largest share of staff with professional experience from outside Jordan, which is in accordance with OECD (2007c:47) where a work-based expert knowledge is near the cutting edge of developments than the content of teaching and research programmes in higher education institutions.

Table 7.11: Surveyed academic staff with professional experience outside Jordan by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
USA	43	30	40	17	38	22	36
UK	39	40	20	33	23	44	33
India	0	10	0	17	15	0	7
France	0	0	0	0	8	33	6
Egypt	0	0	20	0	8	0	4
Ukraine	4	20	0	0	0	0	3
Australia	0	0	20	0	0	0	2
Iraq	4	0	0	0	4	0	2
Turkey	4	0	0	17	0	0	2
Cyprus	4	0	0	0	0	0	1
Lebanon	0	0	0	17	0	0	1
Algeria	0	0	0	0	4	0	1
Taiwan	4	0	0	0	0	0	1
Total	31	11	11	7	29	10	100

Source: Author’s survey 2008/2009.

The professional experiences of surveyed staffs shows that 34 of them have gained such experience from foreign countries compared to 53 who have gained their experience from Arabic countries (Tab. 7.12). The concentration of the surveyed highly skilled human capital towards Middle Eastern countries for new opportunities in entrepreneurial academics are in contrast to the literature, where data on international mobility of academics or on Human Resources in Science and Technology (HRST) imply that it is predominantly a South-to-North phenomenon, where the United States (as host for a temporary stay of junior staff), Canada, Australia and France usually experience a strong positive net inflows of tertiary-educated migrants (OECD, 2008:12).

Table 7.12: Surveyed academic staff with professional experience outside Jordan by sources, countries and faculties (in numbers)

Professional experience by source and countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
Foreign source							
USA	8	4	3	2	3	0	20
UK	3	0	1	0	1	1	6
Australia	0	0	2	0	0	0	2
France	0	0	0	0	0	1	1
Russia	1	0	0	0	0	1	2
Pakistan	0	1	0	0	0	0	1
Turkey	1	0	0	0	1	0	2
Total- foreign	13	5	6	2	5	3	34
Arabic source							
Iraq	8	2	0	1	5	0	16
Kuwait, Saudi Arabia, United Arab Emirates							
Oman, Qatar	6	3	1	3	9	7	29
Egypt	0	0	2	0	1	0	3
Libya	1	0	0	0	1	0	2
Yemen	0	0	0	0	2	0	2
Algeria	0	0	0	0	1	0	1
Total-Arabic	15	5	3	4	19	7	53

Source: Author's survey 2008/2009.

Moreover, the professional experience of surveyed staffs gained from Arabic sources were mainly achieved in GCC countries, and this is tandem with human capital migration models of Sjaastad (1962) and spatial job-search models that suggest a likelihood of an individual moving from one region to another is related to both personal characteristics of the individual, as well as to the local economic and employment characteristics of regions involved (Faggian and McCann, 2007). In terms of personal characteristics, the dominant determinants of migration behaviour are individual human capital characteristics, with other characteristics such as marital status, ethnicity and previous migration and for regional characteristics, the probability of individual migration depends on local unemployment rates, relative local wage levels, levels of income and employment growth rates, amenity variations, and differences in the long run combined expected wages across the region (Faggian and McCann, 2007). The concentration of surveyed staff in the GCC countries was among three main faculties; these are business administration, law and faculty of engineering (Tab. 7.12). And this is in tandem with Al-Hawaj *et al.* (2008) where GCC countries rely on non-citizen

expertise for teaching in specialized and professional courses in absorbing scientists and engineers and recruiting expatriates to close their knowledge gap. The findings also resonates with Al-Hawaj *et al.* (2008) that the existence of a need-based and employment-centered programmes and institutions in GCC such as King Fahd University of Petroleum and Minerals, King Saud bin Abdul Aziz University for Health Sciences in Saudi Arabia, Gulf University for Science and Technology in Kuwait, Ajman University of Science and Technology in the UAE, support the GCC need for business and engineering specialists. Therefore, the importance of developing professional learning standards for teaching in GCC stemmed from the conviction that academic staff plays a key role in developing their human capital (Al-Hawaj *et al.*, 2008a).

The survey results showed that 32% and 30% of academic staff's professional experience were at Faculties of Engineering and Business Administration, respectively, and 31% of them have professional experience for more than 6 years and 19% have from 1-2 years of experience (Tab. 7.13).

Table 7.13: Surveyed academic staff with professional experience outside Jordan by years of professional experience and faculties (in %)

Number of professional experience(in years)	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
Less than 1	6	0	1	0	2	0	9
1-2	6	2	3	0	6	2	19
2-3	1	2	2	2	3	3	15
3-4	1	1	1	0	3	0	7
4-5	2	1	1	0	6	1	11
4-5	2	0	0	0	2	3	8
Above 6	14	5	1	5	7	0	31
Total	32	11	10	7	30	10	100

Source: Author's survey 2008/2009.

7.1.4 Training courses

The survey results showed that 88% of academic staff who have joined training courses related to their specialties also achieved their PhDs from foreign sources (Tab. 7.14). In more detail, 33% of staffs in both faculty of engineering and business administration have considered attending training courses related to their specialties, then next staff at faculty of law and nursing with 15% and 10%,

respectively. The results are as reported in Enders and Musselin (2008:127), where more academics face a situation in which they are asked to move from the circumscribed world of academia to a growing emphasis on the quasi-entrepreneurial role of academics. As emphasized by McIntyre and Alon (2005:295) that in business schools there has been an important role to play in teaching the fundamentals of management education, which provide the basis for more specific training, lifelong learning, and career development. In an attempt to analyze a framework for aligning professional education and practice in architecture for example, Piotrowski and Robinson (2001) discussed that engineering theories can develop methodologies that pertain to the discipline and that “point-to point alignment” connects directly from the academic to the professional experience and hence acquiring learning technologies can have an influence on the quality of university teaching and learning outcomes. The importance of training courses in engineering as the survey results showed are in line with NRC (1990), where the ability to remain competitively productive and creative as a peer-respected member of the engineering profession is through the acquisition and the application of new knowledge, skills, and experiences that a changing profession demands.

Table7.14: Surveyed academic staff related training courses by PhD source, country and faculty (in %)

PhD source	PhD country	Faculties						Total
		Eng.	IT	Nurs.	FL	BA	LW	
PhD foreign (1)	UK	56	0	20	0	25	43	35
	USA	38	33	60	100	13	0	27
	India	0	0	0	0	25	0	8
	France	0	0	0	0	6	29	6
	Germany	0	0	0	0	6	0	2
	Greece	0	33	0	0	0	0	2
	Ukraine	6	0	0	0	0	0	2
	Poland	0	33	0	0	0	0	2
	Australia	0	0	20	0	0	0	2
	Total		33	6	10	2	25	10
PhD Arabic (2)	Egypt	0	0	0	0	6	14	4
	Sudan	0	0	0	0	13	0	4
	Iraq	0	0	0	0	6	0	2
	Morocco	0	0	0	0	0	14	2
	Total	0	0	0	0	8	4	13
Total(1)+(2)		33	6	10	2	33	15	100

Source: Author's survey 2008/2009.

A list of training courses attended by surveyed staff is presented in table 7.15, which again proves to show that the faculties of engineering and business administration were among the largest faculties to have staff attending training courses. The results are in tandem with Chapman and Austin (2002a) where a growing importance of continuing education needed to update knowledge and skills on a regular basis because of the short “shelf life” of knowledge, which takes place in a myriad of contexts, i.e. on the job, in specialized higher education institutions or even at home. As pointed out by Enders (2001:212) staff development although on a voluntary basis aims to create optimal possibilities for staff to develop themselves and improve their teaching. The assertion of training certificates to the staff’s specialties is confirmed by Natarajan *et al.*(2009) where a balance between academic theory and practical training is necessary and appropriate qualification courses and experience required for appointments to areas of professional studies should not be overloaded with technical content, but on the ability to understand and apply theory to real problem, as the technology is an “add-on” which reinforces the existing delivery of methods and outcomes (Evans and Nation, 2000).

Table 7.15: Surveyed academic staff with related training courses by faculties

Faculty of Engineering
CCNA: Cisco Certificate for Networking Associates
CFD: Computational Fluid Dynamics
CCNP: Cisco Certificate Networking Professional Part(7)
DP: Division manager, Japan Network Administrator
ATM Switches, Networks
Professional Engineering (USA)
Medical Physics and Bio-Engineering
Contraction Management Research Tools
Management for Engineers
M.I.E.T C.: The Institution of Engineering and Technology
Medical Physics and Bio-Engineering
Certificate Java Programmes
Certified Engineering (Jordan Engineers Association)
EIT: Engineering in Training(USA)
AutoCAD; D. MX; Primavera
Faculty of IT
CCNA: Certified Cisco Network Administration
Quality Assurance Certificate
Certified in Software Engineering Methodologies
JAVA Programming; Flash At.VB.net
Faculty of Nursing
Graduate Certificate in Gerontology
Higher Diploma in Midwife Nursery : Jordanian Medical Royal Services(RMS)
Certified of Registered Nurse License RN in USA
Diploma in Instruction Technique
Diploma in Midwifery
Faculty of Business Administration
Advanced Finance Diploma Series 7 (Broker)
Transportation Planning Specialization (UK)
Oracle Certificate Professional (OCP)
Diploma in Journalism of Mass Media
Diploma in Finance and Accounting
AIB: American Institute of Banking Certificate
Diploma in Computer Science
Higher Diploma in Cost-Accounting
ICDL: International Computer Driving License
SCPA: Syrian Certificate of Public Accounting
Diploma in Library and International science
Islamic Banking certificate
JCPA: Jordan Certified Public Accountant
Diploma in Marketing and Sales Management
Training for Trainees 'in Economics(USA)
Faculty of Foreign Languages
Microsoft office
Faculty of Law
Professional Law Certificate
Par Association Diploma
Certified Lawyer (Jordan Bar Association)

Source: Author's survey 2008/2009.

7.1.5 International working experience

The surveyed academic staff with working experience in international organizations have achieved their PhDs from UK and USA with 40% and 23%, respectively (Tab. 7.16), and the name of international organizations attended by surveyed staff is summarized in table 7.17. The results are in line with the findings of Adams (2007) and Dietrich (2006) who relate international organizations (like the World Bank) bias towards the Anglo-Saxon education and graduates, but according to Adams and Dietrich it is simply because of linguistic advantages, in addition to other academic credentials and key qualifications. As the survey results show, having a job assignment with an international institution for those staff with PhDs from UK and USA are as noted by Wiers-Jenssen (2008) that a country-specific or transnational human capital acquired abroad definitely makes a difference in horizontal career. This horizontal dimension of the current job is to what extent doctoral degree holders are employed inside or outside the higher education and research sectors (Enders, 2002). Both faculties of engineering and business administration have the largest share of staff with international experience accounting for 43% and 34%, respectively (Tab. 7.17). Such results are in tandem with Chapman and Austin (2002a:28) where a demand for internationally recognized qualifications, especially in management related fields is on the increase, and many entrepreneurial university leaders have been quick to identify and capitalize on this trend. As quoted by Enders and Musselin (2008:142), for faculty staff using “temporary international experiences is to increase their standing and career opportunities when returning home, where for others, working in another country is a “second best” solution owing to a lack of career opportunities in their home countries”. The results of surveyed staff acquiring international experience are similarly as reported in Chapman and Austin (2002b:259-260), where some forms of international experience contribute to a growing international orientation by returning home or by retaining a certain commitment to, and support for, their home countries in the enormous potential for regional collaboration in the sharing of expertise. In addition, universities in the

developing world are being radically reshaped by informational technologies and these institutions will need international support and assistance to become leaders in such new fields in their own geographical spheres (Austin and Chapman, 2002:259-260). As cited by Bornhäuser (2006), the international experience of the faculty members contributes to the design and delivery of programmes with a broader international and regional focus, and such staff according to McIntyre and Alon (2005a:231) with international flavour provide educational opportunities in terms of language proficiency, global competency and intercultural sensitivity.

Table 7.16: Surveyed academic staff with experience in international organizations by PhD countries and faculties (in %)

PhD countries	Faculties						Total
	Eng.	IT	Nurs.	FL	BA	LW	
UK	17	6	0	0	14	3	40
USA	9	0	3	3	9	0	23
India	3	0	0	0	6	0	9
Germany	3	0	0	0	3	0	6
Italy	3	3	0	0	0	0	6
Russia	3	0	0	0	0	0	3
Canada	3	0	0	0	0	0	3
Cyprus	3	0	0	0	0	0	3
Australia	0	0	3	0	0	0	3
Iraq	0	0	0	0	3	0	3
Egypt	0	0	0	0	0	3	3
Total	43	9	6	3	34	6	100

Source: Author's survey 2008/2009.

Table 7.17: Name of international organizations attended by surveyed academic staff

Acronyms	Name of organizations
USAID	United States Agency for International Development
UN	United Nations(USA)
ILO	International Labour Organization
World Bank	The International Bank for Reconstruction and Development(USA)
JICA	Japan International Cooperation Agency
IMF	International Monetary Fund
UNDP	United Nation Development Program (USA)
UNCTAD	United Nations Conference on Trade and Development (Switzerland)
ESCWA	United Nations Economic and Social Commission for Western Asia (UN-Asia)
Tempus	European Union Co-operation Scheme for Higher Education
NSF	National Science Foundation (USA)
EUI	European University Institute (Italy)
IEEE Institute	Technical Professional Association (USA)

Source: Author's survey 2008/009.

7.2 Reasons for returning to Jordan

The focus of this section is to provide a deep inspection of whether a brain return phenomenon among academic staff at Jordanian universities exists. Two main reasons were identified among PhD students returning home. These are family matters in the home country (45%) and commitment to return to the sponsor university (41%) (Tab. 7.18).

Table 7.18: Surveyed academic staff's reasons for returning home by marital status

Marital Status		Scholar-ship ended	I signed a contract with my university	Competitive salaries at Jordanian universities	Family matters	Raising my children in Arabic and Islamic culture	All of the above	Other reasons	Total (%)
Married	Nr.	65	94	22	110	63	4	27	385
	%	15	22	5	26	15	1	6	90
Single	Nr.	4	10	0	10	1	0	8	33
	%	1	2	0	2	0	0	2	8
Widow	Nr.	0	0	0	1	1	0	0	2
	%	0	0	0	0	0	0	0	0
Divorced	Nr.	0	1	0	3	1	0	1	6
	%	0	0	0	1	0	0	0	1
Total	Nr.	69	105	22	124	66	4	36	426
	%	16	25	5	29	15	1	8	100
	%		41	5		45	1	8	100

Source: Author's survey 2008/2009. Multiple answers can be selected by respondents.

Family matters

Family ties in Jordan in terms of social commitment towards the parents, wife and relatives were the most quoted reason by surveyed staff for returning to Jordan, and this appears in that 90% of the surveyed staff were married (Tab. 7.18). The survey results are in accordance with Hein and Plesch (2008) where graduate students with family at home are more likely to return as they want to live close to their spouses and children and perceive separation from their families as a psychic cost. In addition, the results are broadly in line with Hugo (2005) explaining that family reasons were the most prominent focus for Australian academic expatriates returning home. This goes hand in hand with OCED (2008a) where individuals' attachment to the home country and other family matters play a role in migrants'

return decision, or what Tiemoko (2004) call a “return of conservatism” where migrants return decisions are affected by their families, and this is confined by Arasteh (1994) where the responsibility towards the parents was among the effective factors for Iranian student decisions to return from the USA to Iran. The survey results contradicts with de Palo *et al.* (2006) where they downsize the importance of social ties for highly educated people returning home and with Hein and Plesch (2008) arguing that graduates who spent some time in the host country get used to higher standards of living and might, thus, be reluctant to return.

Signing a contract with my university and scholarship ended

The second reason for the surveyed staff returning home was their pledge of commitment with the scholarship agency/university (Tab. 7.18). Although several criteria and arrangements were made by Jordanian higher education institutions to encourage the return of its scholars as discussed in section 5.1.5.1, there is a high possibility that many of them might not return if they could detach from the pledge obligations. The survey results resonate Gribble’s (2008) notes that government and aid agency funded assistances and scholarships impose a policy of “returning by force or bonding arrangements and stipulations” to ensure the return of graduates and researchers back to their home countries. Moreover, the results are in line with Hein and Plesch (2008) where sponsored students have a higher propensity to return because sponsorship programmes help to select students and often make arrangements for return.

Raising my children in Arabic and Islamic culture

The survey results showed that 15% of academic staff’s intentions to return back home is to raise their children in an Islamic and Arabic culture (Tab. 7.18), and this is consistent with De Palo *et al.* (2006) findings that migrants from countries with larger cultural differences socialize less in the host countries, and as emphasized by Baruch *et al.* (2007) that graduates from countries which are culturally more distant from the host country have a higher propensity to return home. The survey results also proves Comay’s (1971) conclusion that psychic determinants (such as

strength of ties in a country of origin and difficulty of adjustment in country of destination) over-shadowed the purely pecuniary considerations for highly professionals' and scientists' decision to return home.

Competitive salaries at Jordanian universities

As cited by 5% of surveyed staff, the availability of job opportunities and competitive salaries at Jordanian universities have encouraged their return home, and this is consistent with Baruch *et al.* (2007) contending that the perceptions of the labour markets in the home and host countries have a compelling bearing on the academic staff decision to stay abroad or return home. It is concluded by Tremblay (2005:225) that the risk of students' non-return to their sending countries is the comparative employment opportunities between origin and destination countries. The survey results reflects what Tansel and Güngör (2002) reported that economic improvements or deterioration in terms of lower salaries and lack of employment opportunities in the home country are important factors for students' decision to return. The results revealed in this section are within the framework of Solimano (2008) where government policy of what he called "environment for research approach" would lure back researchers and scientists in their most productive years through job attractive opportunities.

Other reasons

The surveyed academic staff have mentioned "other reasons" for retuning to Jordan (Tab. 7.19). These "other reasons" varied between social, occupational, patriotic, political and institutional reasoning. Such results are in line with Arthur (2008) where according to his "individual approach" returning home after a short or lengthy stay is attributed to the psychological state, networks and the perceived benefits of staying versus returning. Moreover, the results are in tandem with Olaniyan and Okemakinde (2008) asserting that education as an investment has future benefits in terms of status creation, job security and other benefits in cash and in kind.

Table 7.19: Surveyed academic staff’s “other reasons” for returning home

Social and personal	Career and occupation
Feeling homesick	Job opportunity in Jordan
I finished my target	To work in Jordan
The need to go back home	My interest to develop nursing profession
To start new life	Hoping to have a prominent position in Jordan
Simply I returned home	To transfer the knowledge I gained
Patriotism	Political
To serve my country	The 11 th September
Loving to serve my community	Institutional - contractual obligation
To help my people	Commitment with the state/ministry
To help our citizens and develop my country	

Source: Author’s survey 2008/2009. Quoted by respondents’ words.

All of the above reasons

The choice of “all of the above reasons” was selected by 1% of surveyed academic staff (Tab. 7.18). That is returning to Jordan depended on a mix of variables, like family status of the migrating students, cultural and social aspects, existence of institutional safeguards and employment opportunities in their home countries.

7.3 International students’ survey

The international students’ survey was based on 279 anonymous questionnaires comprised mainly of closed item questions. The data were disaggregated by students’ geographical countries of origin (nationalities) and compared along a number of variables that explored students’ choices of Jordan to study in.

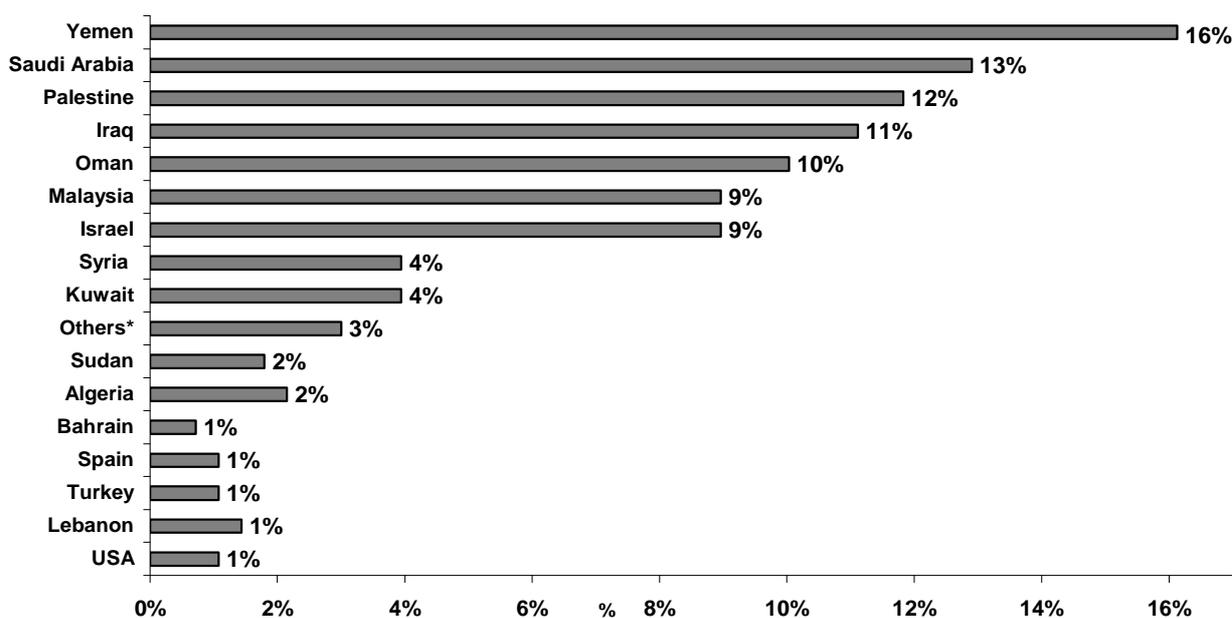
Around 47 % of surveyed students were in the second, third and fourth year of their studies, while 11% were in their first year and 5% were in their fifth year of studies. 81% were in the age group from (20-29) years old, 14% were less than 20 years old and 4% were 30 years old or above. Males constituted 70% of the overall surveyed respondents and their dominance was a trend among all international students (Tab. 7.20). A total number of 24 nationalities were identified, where 88% of them originated from nine countries. These are Saudi Arabia, Yemen, West Bank, Iraq, Oman, Israel, Malaysia, Kuwait and Syria. The other 15 nationalities were Bahrainis, Emiratis, Mauritians, Lebanese, Egyptians, Algerians Sudanese, Americans, British, Germans, Spanish, Turkish, Romanians, Armenians and Chinese (Fig. 7.1).

Table 7.20: Surveyed international students by groups of countries and sex

Groups of countries*		Males	Females	Total
GCC	Nr.	50	30	80
	%	63%	38%	100%
Middle East	Nr.	115	35	150
	%	77%	23%	100%
Asia	Nr.	15	12	27
	%	56%	44%	100%
Africa	Nr.	7	5	12
	%	58%	42%	100%
North America	Nr.	1	0	1
	%	100%	0%	100%
Europe	Nr.	6	3	9
	%	67%	33%	100%
Total	Nr.	194	85	279
	%	70%	30%	100%

Notes: *For simplifying viewing the data, countries were grouped to decrease table space: GCC = Kuwait, Oman, Bahrain, Saudi Arabia, United Arab Emirates; Middle East = West bank, Israel, Yemen, Iraq Lebanon, Syria, Turkey, Armenia. Africa= Egypt, Algeria, Sudan, Mauritius; North America=United States of America. Europe=Germany, United Kingdom, Spain, Romania; Asia = Malaysia, China.
Source: International students' survey performed by the author in 2008/2009.

Figure 7.1: Surveyed international students' by countries of origin



Source: Author's survey 2008/2009. Others = Egypt+ United Arab Emirates+ UK+ Germany+ Armenia+ Romania+ Mauritius+ China.

An analysis of the questions included in the survey (*Q1* → *Q10*) shall be presented and discussed in the following.

Q1: Reasons to choose Jordan

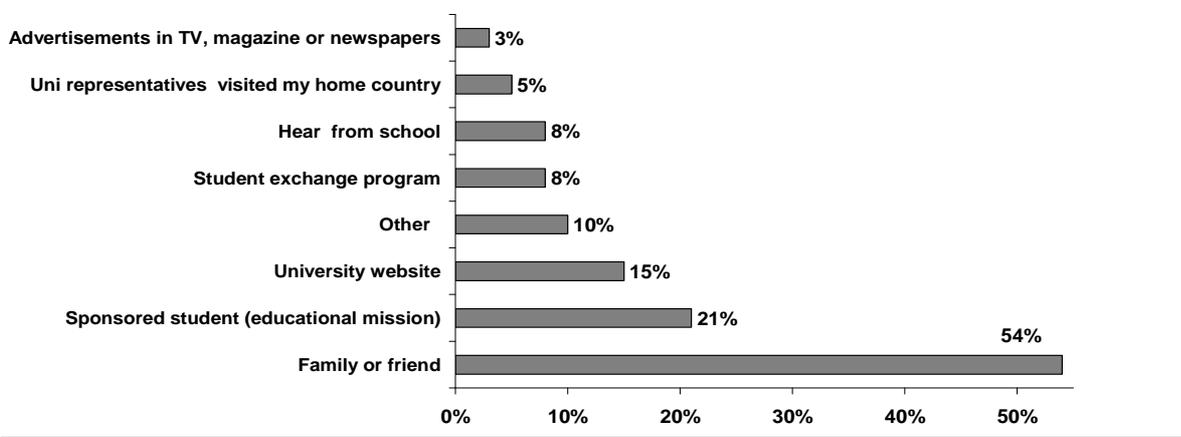
In considering why international students have chosen Jordan to continue their undergraduate studies, a list of 10 reasons was presented so that the students could

select among the most important reason to the less important one, as will be discussed in section 7.3.1.

Q2: International students’ knowledge about their universities

Regarding how international students came to know about their current university in Jordan, the results showed that 54% said that “family and friends connections” were the mechanism to know about their universities, 21% were “sponsored students who came through Jordanian educational missions” and for 15% it was through “Jordanian universities websites”. Almost 10% identified their current universities via other means such as office for higher education services; ministry of higher education in their home countries; father’s relatives; relatives in Jordanian universities and through the “office of international students” in Jordanian universities. Moreover, 8% knew about their universities through “student exchange programmes” and “hearing about their universities in their high schools”. For 5% of the respondents they have reported that “a representative of the Jordanian universities’ visit to the international students’ home country in an educational mission” was the mechanism to know about their universities, and for 2.5% they knew about their universities in Jordan though “advertisements in TV, magazine or newspapers” (Fig. 7.2).

Figure 7.2: Surveyed international students’ mechanisms to know about their specific university (in %)



Source: Author’s survey 2008/2009. Multiple answers are possible.

Q3: Current university “known” in the home country

Considering whether the current Jordanian university attended by international students is well known in their home countries, the results showed that for 56% of them it was “fairly well known”, for 34% was “very well known” and for 10 % it was “not known at all”.

Q4: Average monthly expenditures

The average monthly expenditures were ranging from less than 500 US\$ to 750 US\$ per year for 61% of the international students (Tab. 7.21). These expenditures, excluding university tuition fees, include living costs, rents, books, university supplies, clothes, ..etc.

Table 7:21: Surveyed international students' average monthly expenditures (excluding tuition fees) in US\$ by nationalities

Nationalities		Range of monthly expenditures					
		Less than 500	500 - 750	750 - 1,000	1,000 - 1,250	1,250 - 1,500	More than 1,500
Yemeni	Nr.	14	22	6	3	0	1
	%	16	26	15	10	0	5
Malaysian	Nr.	9	4	1	7	4	1
	%	10	5	2	23	20	5
Palestinian	Nr.	18	9	3	3	2	1
	%	20	11	7	10	10	5
Israeli	Nr.	0	10	5	5	4	1
	%	0	12	12	16	20	5
Iraqi	Nr.	9	11	6	1	3	1
	%	10	13	15	3	15	5
Syrian	Nr.	2	7	1	1	0	0
	%	2	8	2	3	0	0
Saudi	Nr.	13	9	5	4	3	2
	%	15	11	12	13	15	11
Omani	Nr.	6	5	8	1	2	6
	%	7	6	20	3	10	32
Kuwaiti	Nr.	3	1	0	3	0	4
	%	3	1	0	10	0	21
Bahraini	Nr.	0	1	0	0	0	1
	%	0	1	0	0	0	5
Emirati	Nr.	0	0	0	1	0	0
	%	0	0	0	3	0	0
Sudanese	Nr.	5	0	1	0	0	0
	%	6	0	2	0	0	0
Algerian	Nr.	3	1	0	1	0	1
	%	3	1	0	3	0	5
Lebanese	Nr.	1	2	1	0	0	0
	%	1	2	2	0	0	0
American	Nr.	0	0	0	0	2	0
	%	0	0	0	0	10	0
German	Nr.	0	0	0	1	0	0
	%	0	0	0	3	0	0
British	Nr.	1	0	0	0	0	0
	%	1	0	0	0	0	0
Egyptian	Nr.	0	0	1	0	0	0
	%	0	0	2	0	0	0
Chinese	Nr.	0	0	1	0	0	0
	%	0	0	2	0	0	0
Total	Nr.	89	85	41	31	20	19
	%	61		25		14	

Source: Author's survey 2008/2009.

Q5: Adjusting to the Jordanian culture

65% of international students felt that they have fully adjusted to the Jordanian culture, whereas 35% find it difficult to adjust (Tab. 7.22).

Q6: Government residence requirements

45% of the surveyed international students found Jordanian government requirements pertaining residency in Jordan are “difficult and burdensome”, while 54% found they are “not too difficult” (Tab. 7.22).

Q7: Local embassy’s accreditation requirements

International students’ local embassy’s accreditation requirements in Jordan were “difficult and time consuming” for 41% of them, while 58% felt the “opposite” (Tab. 7.22).

Q8: Feeling safe in Jordan

For 84% of surveyed international students “felt safe in Jordan” in comparison to 16% felt not safe (Tab. 7.22).

Table 7.22: Surveyed international students’ responses to different questions

Questions	Answers	Responses (in %)
Q5: Adjusting to the Jordanian culture	Have fully adjusted to the Jordanian culture	65
	Difficult to adjust	35
Q6: Government residence requirements	No, they are not too difficult	54
	Yes, they are difficult and burdensome	45
Q7: Local embassy’s accreditation requirements	Difficult and time consuming	41
	No, they are not too difficult	58
Q8: Feeling safe in Jordan	Yes	84
	No	16

Source: Author’s survey 2008/2009.

Q9: Jordan education in enhancing job opportunities after graduation

The international students’ survey showed that for 36% of them, their education in Jordan “will strengthen their chances of finding a job after graduation” (Tab 7.23).

Table 7.23: Jordan education enhancement for surveyed international students in finding a job after graduation (Q9)

Answers	Number	Percentage
Certainly	101	36
Probably	109	40
I don’t know	42	15
Probably not	20	7
Certainly not	6	2

Source: Author’s survey results 2008/2009.

40% of international students were “not sure”. On the other side, 15% “do not know” if their education in Jordan will benefit them in the future, for 7% answered they “do not believe in that” and for the rest they “disagreed such benefits” (Tab. 7.23).

Q10: Plans after graduation

Regarding international students plans to stay in Jordan after graduation, 56% wanted to “go back home”, 15% would like to do “further studies in his/her current or other university in Jordan”, whereas for 12% they would like “to work in Jordan” (Tab. 7.24).

Table 7.24: International students’ plans to stay in Jordan after graduation (Q10)

Answers	Number	Percentage
a. No, I want to go back home	156	56
b. Yes, I would like to work here	33	12
c. Yes, I would like to do further studies in my current university	42	15
d. Yes, I would like to do further studies in a different Jordanian university	42	15

Source: Author’s survey 2008/2009.

7.4 International students’ reasons for choosing Jordan

The international students were asked to respond to the question “why have you chosen Jordan to study in?” and to prioritize their answers from the most important to the less important. The results showed that international students have identified these reasons in a descending order as follows:

My parents chose Jordan for me

The first reason for choosing Jordan to study in was according to “My parents chose Jordan for me” which was ranked the first choice among international students originating from Saudi Arabia, Yemen, Iraq, Palestine, Israel, Oman, Kuwait and Malaysia (Tab. 7.30). For international students’ choice of Jordan, the parents have or can impose the selection of universities and this can be explained in part to the “migration corridors” (OECD, 2007; 2009c; Ratha and Shaw, 2007) of Jordanian families spending a large span of their lives working in the (GCC)

countries during 1970s, 1980s and 1990s and until now, which helped in having a knowledge about the level of Jordan higher education systems, not only by Jordanian families, but among GCC nationals who exaggerate the value of higher education credentials (Teichler, 2008). Moreover, a significant number of Jordan's population are from the West Bank who have worked in academia in the Gulf countries since the 1960s and those tend to send their children to study in Jordan. Family influence has been extensively reported as a key push factor profoundly affecting the choices of international education, and this is broadly in accord with Mazzarol and Soutar (2002); Pimpa (2003); Duan (1997); AIEF(1997); Lawley (1997); Steadman and Dagwell (1990). According to Pimpa (2003) families' influence their children's education financially and studies in this field mention only two aspects of family influences, i.e., through recommendation and financial support (Pimpa, 2003). Table 7.25 summarizes previous studies performed during the period from (1990-2009) regarding familial influence on international students' choices of a destination country.

Education is considered as a form of investment, where some kind of return is expected from the children towards their parents in the form of social reciprocity. Parents might expect to have care from their children when they become older, as it seems unlikely, however, that investment in one's children's education could be justified as a way of providing care for old age on purely economic grounds. It is also a social norm and prestige among Arabic families who appreciate higher education as "a family duty" and parents would expect to have mental satisfaction for their efforts of sending their children to university and waiting for their graduation from a university. The family influence on international students' decision for studying is consistent with the obligation of Arab students to their families' recommendations which is embodied in the Islamic term of "parents' obedience", where a large body of research has identified the importance of commonly held values including obedience and aversion for disagreement and negotiation with parents (Lu *et al.*, 2009).

Table 7.25: Family influence on international students' choice of a destination country

International students	Method	Results	References
International students in Queensland	Survey with 178 international students	11% stated that their parents made the whole decision for them	Steadman and Dagwell (1990)
Hong Kong students in Australia	Survey with 347 students	Family is one of three major factors influencing students' decision process	Lawley (1993)
International students in Australia	Survey and interview with 807 students	17% of students' parents were responsible for choice of college or university	AIEF (1997)
Thai and Malaysian students in Australia	Semi-structured interview	Opinion of family is important for the choice of academic course and country	Lawley (1997)
Hong Kong, Chinese and Malaysian students in South Australia	Survey with 282 students	Recommendation from family is one of the significant influencing factor	Duan (1997)
Indonesian, Taiwanese, Indians and Chinese students in Australia	Survey with Indonesians, Taiwanese, Indians, Chinese	Recommendation from parents has a stronger influence than other sources	Mazzarol and Soutar (2002)
Thai students in Australia	Three focus group interviews and questioner to 803 Thai's	Family influence through finance, information and recommendations, familial expectation and competition among family members	Pimpa (2003)
Chinese students in UK	Descriptive analysis	Family pressure for university education	Shen (2005)
Mainland Chinese students in Hong Kong and Macau	385 questionnaires and 28 interviews	Family background: father higher status occupation	Li and Bray (2007)
International graduate students from China, Hong Kong, Japan, Korea & Taiwan in Toronto.	In-person interviews and a mailed survey questionnaire	Existence of family ties in destination country, recommendations from family/spouse	Chen(2007)
Brazilian, Chinese and Italian in U.S	Semi-structured interview	Influence of family members and relationship with family members	Smith and Favell (2008)
Students from Europe, Latin America and North America at Mexico universities	Survey of 279 international students	Personal and family safety at home	Cantwell <i>et al.</i> (2009)
Chinese in Canada	Surveys of 172 Chinese	Remove traits: only child, parents' marital status, family financial situation, parents' educational level and occupation	Lu <i>et al.</i> (2009)

Source: Author's compilation.

Jordan is an Arabic/Islamic country

The choice of Jordan for being “an Arabic and Islamic country” was the first priority of choice among Saudis, Malaysians, Kuwaitis, Yemenis and Omanis

students (Tab. 7.30). As noted previously in the survey results, 88% of the surveyed students originated from nine countries: Yemen, Saudi Arabia, West Bank, Iraq, Oman, Israel, Malaysia, Kuwait and Syria and these countries are at the same time Arabic; Islamic and neighbouring countries to Jordan (except for Malaysia). Such results are in accordance with Hammar and Brochmann (1997:56) in their models of gravity migration models, where they incorporate the importance of geographical distance into economic migration research and in adding some form of distance deterrence function that reflects the degree of spatial separation between origin and destination country. The geographic proximity between Jordan and international students sending countries explains their flows from certain countries, and this is in line with Shanka *et al.* (2005); Mazzarol and Soutar (2002) and Kemp and Madden (1998) correlating international student enrollments with geographic proximity.

The findings are broadly in accord with OECD (2009c) where proximity in distance has an effect on the cost of migration including visas and transportation, where in the end these “migration costs” and “returns to migration” stand as generics as factors that might affect individual incentives in their migration decision. In other words, the cultural distance between the country of origin and the destination is part of the costs of migration and if the destination country shares a common language, migration is likely to be easier, both by lowering the psychological barriers to migration and by increasing the migrants’ returns (OECD, 2009c). According to Hammar and Brochmann (1997), they extend the notion of “distance” beyond its geographic meaning and include factors like cultural and linguistic proximity. Usually the language spoken and used in instruction in the host country is critical for selecting a country in which to study (OECD, 2004). For Jordan, following the Anglo-Saxon model in its higher education has an advantage in offering courses at the university level in English language mainly among the scientific faculties, whereas in humanities’ faculties the Arabic language with English references is used on a wide scale. At the same

time, maintaining the language of daily communications in Arabic explains the cultural proximity between Jordan and international students' origin countries whose spoken language is Arabic too. This is in accordance with Racine *et al.* (2003) indicating that linguistic and cultural connections explained the stability over the years in the number of international students who chose to study in Québec originated from Francophone Africa as opposed to greater variability in international student numbers at Anglophonic Canadian universities from year to year. Moreover, Kim (1998) asserted that similarity in language and religion of the host country are important explanatory factors on aggregate international student mobility flows over time in their choice of a country of study.

Jordan is safe and politically stable

International students having prioritized “Jordan as a safe and politically stable” as their first reason to choose Jordan to study in, were mainly among students originating from Iraq and the West Bank (Tab. 7.30). Political instability, wars and the threat of global terrorism have all affected the international students' movement (Zhang and Zhao, 2007) and also ethnic discrimination in a country may influence the demand for overseas study (Bourke, 1997). Jordan was affected by a series of shocks resulting from regional turmoil, and this was obvious in the second uprising *Intifada* in the West Bank in 2000 (MoPIC/UNDP, 2004:35), where Palestinian universities in the West Bank and Gaza Strip continued to be critically affected by the stalemate in the peace talks between Israel and the Palestinians. Hence, the military conflicts have inflicted a heavy toll on human and infrastructural losses and impede the teaching and research activity of universities in the occupied territories (Mazawi, 2004) and that explains the choice of Jordan for its political stability among students from the West Bank (Tab. 7.30). The Gulf War in 1990/1991 also resulted in another influx of Arab students from neighbouring countries into Jordan. The worldwide unrest situation in some countries and changes in political and economic powers has led to uncertain environments for common top destination countries for international students (Rhee and Sagaria, 2004). According to de Wit *et al.* (2005) foreign students

mobility initiatives have been affected by immigration policies and regulations, especially the issuing of visas after September 11, 2001, where difficulties for some Arab and Muslim students particularly from the Arab Gulf were created in their applications for a visa to U.S. and to EU countries (IEE, 2003). This in part explains the choice of students from Saudi Arabia, Yemen and Kuwait to Jordan according to its political stability. Such results are in line with Luchilo and Albornoz (2008) empirical findings, where students traveling to the USA after the 11 September from Saudi Arabia have reduced their participation to 16%, for Kuwaitis to 17%, for Jordanians to 15%, for the United Arab Emirates to 30% and for some other Asian countries whose majority populations are Muslims. The US-invasion of Iraq in 2003 has forced students and faculty members due to the uncertain political situation of their country to flee to Jordan in search of education and work opportunities (Mazawi, 2004), which explain the choice of Jordan as a political safe county by Iraqis (Tab 7.30). The results are in line with Chadee and Naidoo (2009) and Hirsch and Weber (1999) where limited capacities of higher education in the country of origin (due to political unrest situations) push students to continue their higher education abroad. To give more insights to the results mentioned in this section, the surveyed international students were also asked whether they feel safe in Jordan or not, and the results indicated that students from Yemen, Saudi Arabia, Iraq and West Bank answered positively (Tab. 7.26).

Table 7.26: Surveyed international students’ responses regarding “feeling safe in Jordan” (Q8) by nationalities

Nationalities	Answers			
	Yes		No	
	Number	Percentage	Number	Percentage
Yemeni	43	17	2	1
Saudi	34	14	3	1
Iraqi	30	12	1	0
Palestinian	29	12	4	2
Israeli	21	9	4	2
Omani	16	7	12	5
Kuwaiti	9	4	1	0
Syrian	9	4	2	1
Malaysian	9	4	16	7
Total	200	82	45	18

Source: Author’s survey 2008/2009.

I have a scholarship from Jordan

Yemenis and Israelis students were among the most frequent nationalities who choose “I have a scholarship from Jordan” as their first priority of reasons to choose Jordan to study in, then students from the West Bank, Algeria and Kuwait (Tab. 7.30), which means that some international students are within “cultural corporation” or “scholarships programmes” between Jordan and governments of international students, and this is in accordance with OECD (2004), where education exchange programmes are among the factors taking place in bilateral agreements or joint academic programmes between countries or in national policies to foster students exchange mobility. According to Smart (2009); OECD (2004) and OECD (2002b) the recognition of skills and qualifications of higher education institutions between home and receiving country explains the success of student mobility as part of a joint academic programme or academic partnership, and gives insights among surveyed international students’ governments in considering sending their students to Jordan as a mean of improving the quality of their higher education institution and as an element of prestige.

My university has a strong reputation

The choice of Jordan according to “international students’ university having a strong reputation” was the first choice selected among students from Oman, Saudi Arabia, Syria, West Bank, Iraq, and Yemen (Tab. 7.30). At the same time, international students were asked whether their current universities are well known in their home countries, a strong evidence of the familiarity of the Jordanian universities was among students from the Middle East and the GCC countries (Tab. 7.27).

The results are in accordance with OECD (2004), where the reputation and the perceived quality of educational institutions of the host country is one of the determinants for international student enrollments. The education system in Jordan has a perceived reputational advantage in comparison to Arabic countries in the Middle East region which has been highlighted by a World Bank report, 2008 “The

Road Not Traveled”, that Jordan is a leader in higher education in the Middle East region. The results resonate with Mahroum (2000) comments that individuals in considering achieving a university degree from an institution enjoying prestige and reputation is a further boost to their careers in their home countries and in the international job market. The results here are in accordance with Sjaastad (1962) where the return to migration is higher in the home countries as long as the chances of being employed and wages are higher.

Table 7.27: Surveyed international students’ responses regarding “is your university well known in your home country?”(Q3)

Answers		Groups of countries *					
		GCC	Middle East	Asia	Africa	North America	Europe
Very well known	Nr.	35	51	2	2	1	3
	%	47	33	7	15	33	50
Fairly well known	Nr.	37	92	14	11	0	2
	%	50	60	47	85	0	33
Not known at all	Nr.	2	10	14	0	2	1
	%	3	7	47	0	67	17

Note:* To simplify viewing the data, countries were grouped as follows: GCC = Kuwait, Oman, Bahrain, Saudi Arabia, United Arab Emirates; Middle East = Lebanon, Syria, Palestine, Israel, Yemen, Iraq. Africa= Egypt, Algeria, Sudan, Mauritius. North America = USA. Europe =Germany, United Kingdom, Spain, Romania. Asia = Malaysia, China, Turkey, Armenia.

Source: Author’s survey 2008/2009.

Other reasons

The surveyed international students who have chosen “other reasons” for studying in Jordan as a first choice were from Israel, West Bank, Iraq, Saudi Arabia and Oman (Tab. 7.30). A list of a diversity of such “other reasons” by international students’ own words is presented in table 7.28. The results show that for every nationality a combination of political, geographic proximity, familial, educational and other reasons were dominant in international students’ choices.

Table 7.28: International students “other reasons” to choose Jordan

Other reasons	Country of origin
Situation in Iraq	Iraq
It is better than neighbouring countries	Iraq
My home country lacks security and safety	Iraq
Near to Iraq	Iraq
My father works in Jordan	Iraq
Education in this university is better than other Arabic countries	Saudi Arabia
One of my relatives graduated from Jordan	Saudi Arabia
Because Oman accepts only Jordanian certificates for my speciality and not from any other Arabic countries	Oman
Good place to study my speciality	Oman
Cultural, political and security ties between Jordan and Oman	Oman
Secure and safest country in the world	Kuwait
Higher education in Jordan has its strength and reputation	Yemen
Through my previous colleagues' graduates	Yemen
I have friends who studied in Jordan	Yemen
The best Arabic country at higher education level	West Bank
My family lives in Jordan	West Bank
Israel acceptance for students above 21 years old is limited to specific subjects	Israel
I couldn't have acceptance in Israel in the subject I want to study ⁶⁰	Israel
Fees of the university are reasonable	Syria
My wish to study architecture engineering	Syria
To learn Arabic	Malaysia
I like Jordan	Malaysia
Near to my country	Lebanon
Exchange programme	USA

Source: Author's survey 2008/2009.

I have family in Jordan

The surveyed international students who choose Jordan for “having family in Jordan” originated from the West Bank, Saudi Arabia, Oman and Iraq (Tab. 7.30). The results are in accordance with IEE (2009); Santiago (2008); Monfries (2006); Mazarol *et al.* 1996a), where the presence of relatives, parents, friends and recommendations by other students through networks of present and former students in the host country play an important role in studying abroad. The survey results are consistent with the empirical findings of Mazarol and Soutar (2002),

⁶⁰In addition, entrance to higher education in Israel is complex and depends not only on a score calculated from the end of school exam (Bagrut certificate), but also on a separate aptitude test called the Psychometric test (OECD, 2009d).

where the existence of family/brothers/sister or what they call “gatekeepers”⁶¹ often encourages students to attend higher education institutions where they exist, and students’ selection of such institutions abroad is a matter of trade-offs between family, friends’ counselors and other influences. As noted by Bourke (1997), parents and/or brothers/sisters having studied in a particular country often encourage their offsprings and relatives to attend the same institution. The survey results are broadly in accord with Pimpa (2003) where family and social groups stand as “normative reference groups” or groups that provide the individuals with norms, attitudes and values through direct and indirect influences, and as such, the effect of such reference groups can widen over and above recommendations and financial support alone.

University tuition and living costs are reasonable

The results of the international students’ survey show that students from Oman, Saudi Arabia and Kuwait have chosen Jordan as a first priority to study in according to the “reasonable university tuition fees and living costs” (Tab. 7.30). The decision for studying in Jordan is to a great extent dependent upon individuals’ families’ status and in a second stage upon governments’ funding. The survey results are in tandem with Mazzarol and Soutar (2002); Agarwal and Winkler (1985), where university costs influence the decision of international students in selecting a particular host country. The choice of Jordan by students from the GCC countries indicate that tuition fees and living costs in Jordan are affordable by these groups of students, although higher education costs in Jordan are expensive compared to other countries in the region like Egypt and Lebanon (OECD and WB, 2010:270).

I could not get a visa to another country

Table 7.30 shows that students from the West Bank and Iraq have selected the reason: “I could not get a visa to another country” as their first priority to choose Jordan to study in, afterwards were students originating from Saudi Arabia and

⁶¹ The level of referrals or personal recommendations, parents, relatives, friends.

Yemen. The results are in line with OECD (2004), where the host country policy for obtaining a visa plays a decisive factor for international students' choice of that country to pursue their higher education. The political instability and wars affect the mobility of international students, and that explains hosting students from Iraq and the West Bank. In addition, the survey findings are indeed as reported by Florida (2004), where a significant drop in the enrollment to U.S. universities in fall 2003 - especially after the 9/11 were from students whose home countries have large Islamic populations, especially United Arab Emirates, Saudi Arabia, and Pakistan.⁶²

I can do a lot of activities in Jordan

Malaysians, Saudis, Kuwaitis and Iraqis were the most frequent nationalities in citing the reason "I can do a lot of activities in Jordan" as their first priority to choose Jordan to study in (Tab. 7. 30). The results resonates with OECD (2004), where the perceived quality of life in the host country, the host city's activities, climate and culture attractions is a decisive factor in international students' choice of a destination country. The common language between Jordan and students' home countries (Arabic) helps in transforming "tacit knowledge"⁶³ (OECD, 2008), among individuals with a common social context and physical proximity, where on the contrary to other Arab students originating from Algeria, Tunisia or Morocco, they have their own languages, dialects which can affect the transfer of such tacit knowledge. More clear evidence is when international students were asked whether they were adjusted to Jordanian culture, responses of 74% and 64% of students' originating from GCC and Middle Eastern countries have agreed to have fully adjusted to Jordanian culture (Tab. 7.29).

⁶² The *New York Times* reported that the rejection rate for "cultural exchange" visas used by many medical students rose from 5.1% in the fiscal year 2001 to 7.8% in 2003, and the number of students whose visas were rejected rose from 27.6% in 2001 to 35.2% in 2003, according to the National Science Board's "Science and Engineering Indicators, 2004" (Florida, 2004).

⁶³ It is any knowledge that cannot be codified and transmitted as information through documentation, academic papers, lectures, conferences or other communication channels that spills over to geographically proximate individuals. It is transmitted informally and through direct and repeated contact (OECD, 2008: 28).

Table 7.29: Surveyed international students adjusting to Jordanian culture by groups of countries (Q5)

Answers		Groups of countries*					
		GCC	Middle East	Asia	Africa	North America	Europe
Yes: I have fully adjusted	Nr.	50	94	12	8	1	3
	%	74	64	48	67	100	75
No, I find it difficult	Nr.	18	52	13	4	0	1
	%	26	36	52	33	0	25
Total	Nr.	68	146	25	12	1	4

Note: *To simplify viewing the data, countries were grouped as follows: GCC = Kuwait, Oman, Bahrain, Saudi Arabia, United Arab Emirates; Middle East = Lebanon, Syria, Palestine, Israel, Yemen, Iraq. Africa= Egypt, Algeria, Sudan, Mauritius. North America =USA. Europe =Germany, United Kingdom, Spain, Romania. Asia = Malaysia, China, Turkey, Armenia.

Source: Author's survey 2008/2009.

Table 7.30: Surveyed international students' reasons to choose Jordan in a descending rank and by nationalities (in Nrs.)

Nationalities	Ranks of reasons for choosing Jordan in a descending order									
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Saudi	13	13	5	-	6	3	5	2	1	2
Yemeni	10	6	7	13	4	-	2	1	1	-
Iraqi	8	-	12	2	4	3	2	1	1	1
Palestinian	5	3	10	3	4	3	6	-	2	-
Syrian	-	-	-	2	5	2	2	-	-	-
Israeli	5	1	-	11	2	6	-	-	-	-
Omani	5	5	-	-	6	3	3	3	-	-
Kuwaiti	4	6	3	2	2	2	1	1	-	1
Bahraini	-	2	-	-	-	-	-	-	-	-
Emirati	-	1	-	-	-	-	-	-	-	-
Lebanese	-	-	2	-	-	-	-	-	-	-
Algerian	-	-	-	3	-	-	-	-	-	-
Sudanese	-	-	-	1	-	-	-	-	-	-
Malaysian	4	10	5	1	-	2	-	-	1	2
British	-	1	-	-	-	-	-	-	-	-
Mauritian	-	1	-	-	-	-	-	-	-	-
Chinese	-	1	-	-	-	-	-	-	-	-
Total	54	51	44	38	33	24	21	8	6	6

Note: R1: My parents choose Jordan for me, R2: Jordan is an Arab/Islamic country, R3: Jordan is safe and politically stable, R4: I have a scholarship from Jordan, R5: My university has a strong reputation, R6: Other reasons, R7: I have family in Jordan, R8: University tuition and living costs are reasonable, R9: I could not get a visa, R10: I can do a lot of activities in Jordan.

Source: Author's survey 2008/2009.

7.5 Human capital formation and international students' enrollment

The results of the relationship between international students' enrollment and academic staff human capital variables at scientific and humanities' faculties are shown in tables 7.31 and 7.32 respectively.

The statistical significance of the results is represented under *P*-value, which suggests whether the results are being "representative" of the whole population. The estimated regression coefficients are given the heading "regression equation" which gives for each of the explanatory variables the predicted change in the dependent variable when the explanatory variable is to increase by one unit. The decision rule for accepting or rejecting the null hypotheses is given in the decision block in the prescribed tables.

Table 7.31: Regression results between academic staff's human capital variables and international students' enrollment at scientific faculties

Faculties	Human capital parameters	P-value*	Regression equation	Decision about H ₀
Eng.	PhD F	0.044	Yf1 = 331.515 + 43.68 X1	R
	PhD A **	---	Less than 2 variables	---
	Teach. Exp.-F	0.121	Yf1 = 546.551 - 94.295 X1	A
	Teach. Exp. L	0.090	Yf1 = 258.177 + 141.661 X1	A
	Profi. Exp.F	0.132	Yf1 = 564.006 - 89.685 X1	A
	Profi. Exp.L	0.563	Yf1 = 366.713 + 33.944 X1	A
	Tr. Certificates	0.111	Yf1 = 229.893 + 110.044 X1	A
	INT Exp.	0.643	Yf1 = 479.305 - 33.372 X1	A
IT	PhD F	0.029	Yf2 = 90.542 + 23.533 X2	R
	PhD A ***	---	No PhD Arabic	---
	Teach. Exp.-F	0.244	Yf2 = 201.039 - 42.686 X2	A
	Teach. Exp. L	0.202	Yf2 = 62.824+ 70.213 X2	A
	Profi. Exp.F	0.230	Yf2= 218.255-47.355 X2	A
	Profi. Exp.L	0.027	Yf2 = 1.649 + 82.532 X2	R
	Tr. Certificates	0.333	Yf2=254.713-61.046 X2	A
	INT Exp.	0.963	Yf2=143.931-2.931 X2	A
Nurs.	PhD F	0.048	Yf3 = 60.333 -16.500 X3	R
	PhD A	0.789	Yf3 =-18.500+7.500 X3	A
	Teach. Exp.-F	0.650	Yf3 = 40.667 -5.333 X3	A
	Teach. Exp. L	0.171	Yf3 = -2.250 +33.125 X3	A
	Profi. Exp.F	0.298	Yf3 = 15.600 +12.200 X3	A
	Profi. Exp.L	0.736	Yf3 = 27.227+ 4.136 X3	A
	Tr. Certificates	0.585	Yf3 = 22.036+7.164 X3	A
	INT Exp.	0.740	Yf3 = 21.467+ 6.033 X3	A

Note: A: accept; R= reject. * $P \leq 0.05$, significance level.

Source: Author's survey results 2008/2009.

Table 7.32: Regression results between academic staff's human capital variables and international students' enrollment at humanities faculties

Faculties	Human Capital Parameters	P-Value*	Regression Equation	Decision about H ₀
FL	PhD F	0.541	Yf4= 26.037 + 1.695 X4	A
	PhD A **	----	Less than 2 variables	----
	Teach. Exp.-F	0.429	Yf4 = 39.730 -6.087 X4	A
	Teach. Exp. L	0.452	Yf4 = 45.727 -13.8 64 X4	A
	Profi. Exp.F	0.363	Yf4 = 44.765-7.765 X4	A
	Profi. Exp.L	0.048	Yf4 = 70.833 - 21.167 X4	R
	Tr. Certificates	0.222	Yf4 = -12.227 + 22.227 X4	A
	INT Exp.	0.435	Yf4 = 59.364 -14.364 X4	A
BA	PhD F	0.695	Yf4 = 356.945 -7.280 X4	A
	PhD A	0.310	Yf5 = 2538.250 - 229.125 X5	A
	Teach. Exp.-F	0.232	Yf5 = 253.191 + 82.949 X5	A
	Teach. Exp. L	0.071	Yf5 = 40.622 + 319.689 X5	A
	Profi. Exp.F	0.474	Yf5 = 285.703+52.374 X5	A
	Profi. Exp.L	0.199	Yf5 = 246.812 + 89.711 X5	A
	Tr. Certificates	0.335	Yf5 = 523.775-82.213 X5	A
	INT Exp.	0.182	Yf5 = 139.159+ 126.674 X5	A
LW	PhD F	0.993	Yf6 = 103.400 -0.700 X4	A
	PhD A	0.364	Yf6 = 1508.857-149.857 X6	A
	Teach. Exp.-F	0.911	Yf6 = 115.202 + 4.923 X6	A
	Teach. Exp. L	0.434	Yf6 = 210.143 - 83.571 X6	A
	Profi. Exp.F	0.808	Yf6= 141.056 - 10.278 X6	A
	Profi. Exp.L	0.077	Yf6=28.632 + 70.684 X6	A
	Tr. Certificates	0.978	Yf6 = 121.429 + 1.286 X6	A
	INT Exp.	0.256	Yf6 = -43.667 + 86.667 X6	A

Note: A: accept; R= reject. * $P \leq 0.05$, significance level.

Source: Author's survey results 2008/2009.

7.5.1 PhD source

The ANOVA analysis in the Faculty of Engineering shows a rejection of the H₀ at *P*-value (0.044) (Tab. 7.31). This implies that academic staff with a PhD from a foreign (non-Arabic) country are positively correlated with international student enrollment at that faculty, and hence the results can be generalized on all engineering faculties at Jordanian higher education institutions (universities). On the other side, the relationship between staffs with PhD achieved from Arabic countries and international students' enrollment at the faculty of Engineering could not be reached, as only two members of staff held an Arabic-PhD, and more variables (staff of PhD- Arabic) is required to compute the regression. The relationship between international students' enrollment at the Faculty of IT and

PhD of a foreign source is significant, at the same time as there were no staff with a PhD from an Arabic country in the IT sample and therefore a decision could not be reached. At the Faculty of Nursing, the relationship between international students' enrollment and staff with a PhD from a foreign source is significant and for staff with a PhD achieved from Arabic countries, the results shows no significant correlation. In the Faculty of Foreign Languages, the results indicate no regression relationship between international students' enrollment and PhD achieved from a foreign source, and for staff with a PhD from an Arabic source the statistics could not be computed as there were only three member of staff with an Arabic PhD and accordingly no decision could be reached. In the Faculty of Business Administration and Law there was no regression relationship between international students' enrollment and staff with a PhD from a foreign source or from an Arabic source. To explain the previous results, an understanding of the background relationship between PhD sources and university types, discipline choices and students nationalities shall be discussed.

PhD foreign by university type and discipline

The survey results showed that academic staff in public universities having a PhD from a foreign source averaged 100% among scientific faculties, compared to 85% in private universities (Tab. 7.33). In humanities' faculties, the average of staff holding a PhD from foreign countries was 97% in public universities compared to 68% in private universities for the same disciplines.

PhD Arabic by university type and discipline

In public universities, there were no staff with a PhD earned from an Arabic country among scientific faculties; whereas in private universities, staff with a PhD from an Arabic source averaged 15% in the same discipline. In humanities faculties, 3% was the average of staff holding a PhD from an Arabic source in public universities compared to 32% for the same discipline in private universities (Tab.7.33). That in part explains the regression results, in terms of the significant relationship found between international students' enrollment and PhD of a foreign

source in the scientific faculties, while this relation did not exist in the humanities faculties.

Table 7.33: Surveyed academic staff's PhDs' distribution by faculties, university types and PhD sources (in %)

Faculties	Public universities		Private universities	
	PhD foreign	PhD Arabic	PhD foreign	PhD Arabic
<i>Scientific</i>				
Engineering	100	0	91	9
IT	100	0	100	0
Nursing	100	0	29	71
Average	100	0	85	15
<i>Humanities</i>				
Foreign Languages	100	0	67	33
Business Administration	100	0	74	26
Law	89	11	40	60
Average	97	3	68	32

Source: Author's survey results 2008/2009.

Reputation by disciplines

The single most important criterion for international students as well for Jordanian students is the reputation of the university or institute they are attending. This trend was emphasized by the surveyed international students, where 60% who have acknowledged the importance of such reputation were enrolled in scientific faculties and 40% were in humanities' faculties (author's survey results, 2009). In addition, 12% of the surveyed international students stated that their universities they are attending "had a strong reputation" (author's survey results: reason of rank 5). This can interpret the results reached earlier of the significant relation between PhD source from a foreign country and international students' enrollment in scientific faculties and not among humanities. That is, albeit the importance of scientific faculties' reputation, international students enrolled at Jordanian universities in humanities' faculties outweigh their numbers in scientific faculties with 54% and 46%, respectively (MoHESR, 2010). The results showing reputation importance among scientific faculties are consistent with OECD (2006) stating that foreign students' destinations relate to the academic reputation of particular institutions or programmes. For the surveyed international students, giving a lower rank for humanities' faculties reputation compared to scientific ones are attributed

to the fact that their main concern is to achieve a university degree (certificate) from a reputational institution and do not concentrate on the PhD source of university academic staff.

Discipline choice by nationalities

A breakdown of surveyed international students by discipline and groups of countries shows that students from Middle East like the West bank, Iraq have a high propensity for enrollment in scientific faculties compared to humanities with 86% and 32% respectively, whereas such ratio is the opposite for students originating from the GCC countries (Tab. 7.34). A high enrollment ratio of surveyed students from the Middle East region was in the scientific discipline with 86% compared to 16% for students from GCC in the scientific fields too. In addition, the surveyed international students gave 60% of importance for reputation to scientific disciplines and the number of international students from Middle East outweighs their GCC counterparts or other students from different nationalities (Tab. 7.34). This has contributed to the survey results showing a significant relationship between PhD source from a foreign source and international students enrollments in scientific faculties and not in humanities ones. This difference in discipline choices between students from the two regions (Middle East and GCC) or the reasons behind their choice can be explained in the following:

Table 7.34: Surveyed international students by groups of countries and academic disciplines (in %)

Groups of countries*	Scientific	Humanities	Total
GCC	16	39	26
Middle East	86	32	55
Asia	10	11	11
Africa	3	7	5
North America	1	2	1
Europe	2	2	2

Note: *For simplifying viewing the data, countries were grouped to decrease space as follows: GCC = Kuwait, Oman, Bahrain, Saudi Arabia, United Arab Emirates; Middle East = West bank, Israel, Yemen, Iraq, Lebanon, Syria, Turkey; Africa = Egypt, Algeria, Sudan, Mauritius; North America =United States of America; Europe =Germany, United Kingdom, Spain, Romania; Asia = Malaysia, China.
Source: International students’ survey performed by the author in 2008/2009.

Middle Eastern students and the choice of scientific disciplines

Less skilled youth are more likely to face difficulties in finding work compared with more skilled youth, and the growing demand for skills has increased the value of further education and made it more important for growth. Moreover, competition has also driven up the demand for skill-intensive technological innovation (World Bank, 2006) as the global economy is characterized by fast-changing technologies, innovative administration and management, and creative production methods. Hence, the modern labour force has to be prepared to embrace innovations and to be retrained on a continuous basis (Heba and Zafiris, 2002). The Information and Communication Technology (ICT) sector (OECD, 2006d; Huizenga, 2004) or as referred to “digital divide” is expanding at an explosive rate from Africa to Jordan in the Middle East (Gürüz, 2008). Consequently, the result of skills-based technological change and the growing importance of knowledge have increased the demand for workers with post-primary education, particularly tertiary education (The World Bank, 2006).

The quality education and training is a key to enhance economic productivity and social-well being (Heba and Zafiris, 2002) and higher education has the capability of elevating the economic and social status of graduates. Moreover, the view of enrollment in science and engineering versus humanities and social sciences could be viewed as an index of the “quality” of human capital at the level of higher education (The World Bank, 2008). Hence, the prospect of seeking job opportunities in a fierce market is driving in part the demand for obtaining quality of higher education certificates in response to international market demand (The World Bank, 2006) and the signs of an accredited place of graduation are a value added for the student seeking a higher education degree. This is in line with Mazzarol *et al.* (1996a) explaining the factors for international students’ choice to study in Australia was according to the recognition of international students’ qualifications by future employers, the higher education institution’s reputation for its quality, its willingness to recognize previous qualifications and staff’s

reputation for quality and expertise. These previously mentioned justifications explain why surveyed international students in this study originating from Middle Eastern countries, particularly from countries like West Bank and Iraq were pushed to enroll into scientific disciplines such as engineering and IT as they need to compete in the international labour market due to their countries political instability situation which seems to be unsolved in the future.

GCC students and the choice of humanities' disciplines

According to IMF (1997), labour market policies in the GCC countries are defined to facilitate the employment of nationals and increase labour market flexibility. The highly specialized technical positions as well as low-skilled menial jobs are filled by expatriate workers; hence the nationals tend to gravitate towards administrative positions (IMF, 1997; Fasano *et al.*, 2004). This situation created a demand for higher education fields of study which correspond to real economic needs and to the lowering demand for technical education because of the nontechnical nature of guaranteed jobs in government. As noted by IMF (1997) and Fasano *et al.* (2004) the rise of the public sector in employment became a key factor in segmenting labour markets in GCC.⁶⁴ Therefore, as the public sector in which most nationals used to find employment, has already become saturated, the private sector has remained too competitive for the great majority of them. Although enhancing human capital of nationals and acquisition of skills that are valuable to the private sector is likely to increase private sector demand, employment and the productivity of nationals, the public sector has become successfully nationalized (Fasano *et al.*, 2004). In the private sector, the localization is still very low and the private sector is usually unattractive for nationals, as it is perceived as “debasing” to their social status (Kapiszewski, 2006). Given their very high average income per capita, the oil states, such as Bahrain, Kuwait, and Saudi Arabia, all seems to provide, lower quality education than most other MENA countries (The World Bank, 2008). This explains the

⁶⁴ For example in Kuwait and United Arab Emirates (UAE), over 90% of nationals in the labour force are employed by the public sector (IMF, 1997; Fasano *et al.*, 2004).

enrollment of GCC students in humanities disciplines which is historically consistent with a policy of absorbing most university graduates into civil service jobs (The World Bank, 2008: 21-22). This emphasizes this current study result where students from GCC enrollment into humanities' faculties as their main concern, is to achieve a university degrees from a reputation, credential and a recognized higher education institution in their local labour markets, which will grant them a job opportunity in their home country in the civil service sectors. Therefore, regardless of the staffs' PhD sources, GCC students will be largely enrolled in humanities' faculties.

Tuition fees-rivalry competition and quality

There is an increasing competition among existing and new universities in the Middle East region particularly from Egypt, Lebanon and the Gulf.⁶⁵ Certain Middle Eastern countries charge enrollment fees to foreign students at actual cost, thus creating a source of additional revenues for higher education institutions and as a powerful incentive to receive foreign students. For example, foreign students in the Egyptian governmental universities are mainly studying in humanities' faculties with almost 71% in comparison to 30% are enrolled in scientific faculties (YEA *et al*, 2005a). The fields of study that mostly attract foreign students in the Egyptian governmental universities are Business Administration, Law and Engineering.⁶⁶ In addition, most of the foreign students in the Egyptian governmental universities came from Arabic countries representing about 91% of the total students, followed by those originating from Asian and African countries and having a share of 4% and 3%, respectively (YEA *et al.*, 2005a). Moreover, the majorities of international students in the Lebanese universities in 2005 were enrolled in humanities, social and law fields of study with 67% of the total enrolled students, and this trend has been persistent over several years. Services, communications and languages came second in line with almost 17% of the

⁶⁵ The ability of the Gulf States to subsidize higher education in their own countries is a threat for Jordanian higher education (YEA *et al.*, 2005).

⁶⁶ The highest percentage of Arab students comes from West bank since a tuition subsidy of 50% is given to them by the Egyptian government, followed by students from Sudan, Kuwait, Yemen and Jordan, where they represent about 68% of the total foreign students in the governmental universities (YEA *et al.*, 2005a).

students enrolled into such fields (YEA *et al.*, 2005a). Scientific fields were the least attractive for foreign students in Lebanon and captured 16% of the enrolled students, 12% in “Sciences and Engineering” and 4% in “Medical and Health Sciences” (YEA *et al.*, 2005a).

The living expenses for each student in the Egyptian governmental universities per month were estimated at US\$500 and the length of stay for the international student per academic year is an average of 9 months. Therefore, the living cost for each student was estimated at US\$4,500 annually, and the total revenues generated by the foreign students in the Egyptian governmental universities were estimated at an average of US\$38.9 million (YEA *et al.*, 2005a). In Lebanon, each international student spends around US\$20,000 for tuition fees, living expenses, rooms and board, books and other expenses when studying in the governmental university, and to US\$38,000 in private universities.⁶⁷ Living expenditures were estimated at US\$6,555 per year per international student in the Egyptian governmental universities⁶⁸ and US\$ 8,000 for Jordan (Tab.7.35).

Table 7. 35: Comparison of international students’ living expenditures* in some Middle Eastern countries (in US\$)

Countries	Living expenditures
Jordan	8,000
Egypt	6,555
Lebanon	20,000

Note: *Includes: tuition fees, living expenses, room and board, books. Data are for the year 2003.

Source: compiled by author based on : 1)Egypt: Developing exports from the educational services, Egypt Council of Ministers/ Information and Decision Making Support Centre, August, 2003. 2) Lebanon: Ministry of Education and Higher Education (CDRP- Centre de Recherche et de Développement Pédagogiques)– Lebanon. URL : http://www.crdp.org/CRDP/Arabic/a_default.htm, 05.08.2009 ; 3) YEA *et al.*, 2005.

While Lebanon played an important role in attracting international students, it lost its position due to the high living costs and strict regulations other countries are applying regarding accrediting some university certificates from the Lebanese universities (YEA *et al.*, 2005a). In this respect, the comparatively low cost for

⁶⁷Most of the foreign students in the Lebanese universities are concentrated at two of the 35 universities in Lebanon. And these two universities consist of one public (Lebanese University) and one private (Beirut Arab University).

⁶⁸ Developing exports from the educational services, Egypt Council of Ministers/ Information and Decision Making Support Center, August, 2003.

foreign enrollments at Egyptian universities presents a threat to Jordan higher education. The cost of tuition for each student at undergraduate level in the humanities faculties in the Egyptian governmental universities reached US\$1,453 annually compared to US\$12,834 in Jordan and this number goes up to US\$2,179 per student annually for the scientific faculties in Egypt compared to an annual average of US\$37,054 per student in Jordan (Section 5.2.4.5 in this study; YEA *et al.*, 2005a). Moreover, Jordan hosted a total of 19,665 foreign students, Lebanon 13,505 foreign students and Egypt 10,550 foreign students'.⁶⁹ Therefore, despite tuition fees significant role, they are not an exclusive one (OECD, 2004), and such results contradicts with OECD (2008c); Varghese(2008) where the smaller the cost differential between studying abroad and studying at home or in other countries in the region, the more mobile students will be.

The quality of education and its likely returns play a significant role and make the investment worthwhile. Students' decisions about undertaking study in another country involve balancing the costs of this study, both monetary and non-monetary costs, against the expected benefits. The quality of education in the scientific fields made Jordan in better footing compared to other countries in the region although of high cost compared to Egypt, and that enhanced the significant relationship, found in this study, between international students' enrollment and PhD from a foreign source among scientific faculties.

7.5.2 Teaching experience

The regression ANOVA results (Tab. 7.31 and 7.32) shows that teaching experiences achieved either from inside Jordan (local source) or from outside Jordan (foreign source) has no effect on international student enrollments, either at scientific or humanity faculties. The reason that the dependent variable, which is international students at the undergraduate level, does not give much weight for

⁶⁹Figures are for the academic year 2002/2003 for Jordan, for the academic year 2001/2002 for Lebanon, and for the academic year 2000/2001 in Egypt, as such data for these years were only available and hence were used to make comparison (YEA *et al.*, 2005a).

academic staff's experiences in their enrollment decision to a specific faculty, as their concern is usually the overall higher education institution's reputation.

7.5.3 Professional experience

The regression results showed that professional experience gained from outside Jordan have no effect on international student enrollment at the surveyed faculties. In addition, professional experiences gained from inside Jordan (local source) has no effect on international students enrollment, except in two faculties. These are the Faculty of IT and Foreign Languages. This result resonates with Hénard (2010:69) commenting that staff's professions and skills are more discernible than the impact of pedagogy. The importance of professional experience on enrollment, especially in IT and foreign languages, reflects the personalities and life experience of staff in both faculties, which is noted by Bruce *et al.* (2006:108) stating that a diverse experiences of the staff in corporate and government sectors may help their students in proposing further job opportunity by their staff in an IT faculty. The regression results showing the importance of professional experience in IT and foreign language faculties are in line with Lowry and Turner (2007) where in IT career-oriented disciplines, students require practice-based learning, like information technology, as emphasized by Buzzetto and Nicole (2007:195; 2006:118;175) where a curriculum has to be developed to encompass both discipline knowledge and work place skills.

7.5.4 Training courses

The ANOVA analysis (Tab. 7.31 and 7.32) shows that academic staff's related training courses to their specialties were not significant in their effect on international student enrollment neither in the scientific nor in the humanities faculties. The findings can be attributed to the fact that international students in this study are at undergraduate level and have a minor concern about academic staffs training courses, as they are more interested in the academic reputation of the programme/university they are attending. Such results are in tandem with OECD (2002b) pointing out that students' perceptions of the relevance and power of

particular learning experiences at undergraduate level may change some years after graduation (e.g. at graduate level).

7.5.5 Experience in international organizations

The regression results (Tab. 7.31 and 7.32) showed that academic staff's experience in international organizations has no effect on international student enrollment in either the scientific or humanities faculties. The reasons are attributed to the fact that international students in this study are at their undergraduate level and their interest is more towards the reputation of the institution they are attending. These results are broadly in accord with Hénard (2010:38) where students enrolling in doctoral studies may be willing to continue their research activity, and in that case, they need to add skills to their learning experience other than knowledge in their discipline.

To summarize, the drivers for higher education sector in Jordan are:

1. PhD source: in terms of foreign vs. Arabic, where staff with PhD from a foreign source have an effect on international students' enrollment in scientific faculties and not in humanities' ones and this is attributed to the followings (Tab. 7.36):

1.1 PhD distribution by university type: in scientific faculties academic staff with a PhD from foreign countries in public universities were outweighing those with PhDs from a foreign source in private universities among scientific disciplines. In humanities faculties staff with a PhD from an Arabic source in private universities exit in a higher percentage than their counterparts in public universities in the same discipline;

1.2 Reputation effect: international students have the perception that Jordanian universities have a reputation in the scientific disciplines among the Middle East region;

1.3 Labour market effect by nationalities: international students from Middle Eastern countries were more attracted to enroll into scientific disciplines than students from GCC countries who are more inclined to enroll into

humanities' faculties and at the same time those from Middle Eastern countries favouring scientific faculties more than humanities' ones.

1.4 Discipline selection: international students' enrollment in humanities' disciplines exceeds their numbers in scientific ones;

1.5 Tuition fees and quality: in humanities' disciplines international students have options for enrolling into other neighbouring countries, like Egypt and Lebanon, which have cost advantages for studying humanities. In scientific fields of study, although Jordan is more expensive than other neighbouring countries like Egypt and Lebanon, rather the quality of programmes among scientific disciplines proved to be competitive.

Table 7.36: Drivers for higher education export in Jordan (regression analysis)

Determinants		Faculties	
		Scientific	Humanities
Academic staff human capital variables	PhD source (<i>foreign vs. Arabic</i>)	✓	X
	Teaching experience (<i>foreign vs. local</i>)	X	X
	Professional experience (<i>foreign vs. local</i>)	X	X, ✓
	Training courses	X	X
	International experience	X	X
Higher education system	Foreign PhD distribution (<i>public vs. private</i>)	✓	X
International students	Reputation effect (<i>discipline choice</i>)	✓	X
	Labour market effect (<i>nationalities</i>)	✓	X
	Discipline preference (<i>enrollment</i>)	X	✓
	Tuition fees (<i>rivalry competition</i>)	X	✓

Note: ✓: has an effect ; X: has no effect

Source: Author's conclusion.

8 Summary and conclusions

8.1 Major findings

Education, training and migration are investments in the human capital that have costs and render returns. The case study at hand shows that higher education export earnings continue to be an important source of foreign exchange and that out migration of highly skilled human capital continues to possess a comparative advantage. In the absence of other sources of income, some countries have to consider treating investment into the human capital as a permanent phenomenon and shape their policies towards achieving sustainable economic benefits from it. This study was built upon an assessment of the drivers of higher education export in Jordan, which took steps towards addressing three areas of related research questions. First, the reasons for Jordanian PhD students returning home. Second, the determinants for international students' choice of Jordan to pursue their undergraduate higher education studies in, and third, the effect of investment in human capital formations on international students' enrollment. The analyses of these themes were supported by allied theories of human capital, circular migration, and theories of international students' enrollments. The results showed that that the main reason for academic staff returning home (after achieving their PhDs abroad) were due to family considerations and governmental policies, and the determinant factors for international students choice of Jordan was coherent with family influence, cultural proximity and political stability. Furthermore, in trying to understand the implications of the theory of human capital and investing in its formation on their effect on higher education sector in Jordan, the results indicated that a PhD achieved from a foreign source has an effect on international students' enrollment in scientific faculties, whereas other human capital formatted variables such as teaching experience, professional experience (except for experience gained from a local sources in two faculties), training courses and experience in an international organization proved to have no effect on international students' enrolment, neither in scientific nor in humanities faculties at Jordanian universities,

whether such investment in human capital formation was acquired from a foreign or a local source.

Investment in human capital at higher education level in Jordan that started in the 1950s have resulted into positive gains associated with academic staff or “returnees” bringing back home a tertiary education from different western universities worldwide. This in the end enhanced the reputation of Jordanian universities and attracted international students from Arabic neighbouring countries and elsewhere, and has generated a service export revenues through fee paying students, which constituted in the end to a new source of income and a new source of foreign currency in a country lacking resources, such as Jordan.

8.2 Future prospects for migration from Jordan

The importance of higher education export or hosting international students are thought of as means of achieving three major objectives. First, gaining international recognition of Jordan’s delivery of higher educational services in a global market; second, enhancing Jordan’s international political and diplomatic relations with other countries and third, expanding Jordanian influence in the regional and international higher education market. Higher education worldwide is now a “global business” and will become even more in the near future and competition will be even fiercer (Gürüz, 2008). The academic profession is highly important in a society like Jordan that is often characterized as a “knowledge based economy” where human capital plays a decisive role in the growth of the economy. Moreover, in a country like Jordan that lacks natural resources, constrained by its geo-political position and confronted with the consequences of the recent financial crisis in 2008 where austerity measures in absolute or relative terms can be felt by universities, academic staff, students and parents, and which may be manifested by the loss of institutional capacity to respond to change; the loss of academic, research or other staff, particularly the best staff, lower staff allegiance and morale (due to declining salaries), or the loss of much of the time and attention of teachers or researchers as they are forced to ‘moonlight’ elsewhere to maintain their real

wages (Johnstone, 2002). Hence, the crisis is expected to result in contracting export volumes, slowing domestic demand, declining remittances and foreign direct investments and in shrinking revenues.

Jordan's exports of its highly skilled human capital that started in the 1970s, 80s and 90s consisting of exporting teachers, engineers, physicians and other highly skilled professionals will continue in the future, instead through the export of more skilled human capital, i.e. doctoral holders who will compete in the GCC labour markets. Jordanian universities role reflects Jordan's strong desire to produce more highly trained human capital for the high end labour market, and to develop world-class universities capable of competing with other educational institutions in the region and elsewhere through supplying a high level of human capital which plays an important economic role by adding value to the national economy. Not only this, but to greater extent the export of female academic staff to the conservative Gulf countries can be seen as an optimal and a key factor leading to economic development to Jordan's economy. The evidence collected in this study showed that the return on investing in human capital through out-migration of graduate students to achieve their PhDs from distinguished universities abroad is increasingly expected to replace and support inward remittances Jordan used to depend on as mere cash flows and foreign exchange through the 1970s and until now, especially in situations of uncertainty and political volatility. That is, the long-term impact of out-migration of highly-skilled labour force will continue to exist in the future and that remittances achieved through the return on circulated brains appears to be readily a "win-win" mantra and can provide an immediate benefit to the development of Jordan as such growth has its sustainable components.

8.3 Recommendations

The recommendations offered here while based on Jordan as a case of study, but quite relevant and adaptable in other international contexts, where critical issues with higher education institutions in developing world grapple as they respond to

changing contexts. The findings of this study have important policy consequences and simulations on human capital investment, international students and their fields of study to suggest the following.

8.3.1 Human capital upgrading

The results in this study showed that PhD source from a foreign country has affected international students' enrollments in scientific faculties which enhanced Jordanian higher education institutions reputation in the Middle East region. Therefore, efforts to help faculty members to make adjustments, develop new skills and function effectively in new environments are a strategically wise choice in supporting and upgrading academic staff in order to maintain Jordanian universities' reputation. To achieve this goal, the following mechanisms are highly recommended:

Maintaining bursaries: cross-border mobility of graduate students and academics is indispensable. During their university education, students develop knowledge, skills, and abilities that over their lifetime provide private benefits to themselves as well as social benefits or social capital to the larger society. This human capital perspective provides the logic for public subsidies for supporting higher education bursaries' system. In theories of migration the policy issues matters (OECD, 2009e), hence, the Jordanian government policy must be reflected to increase the total number of graduate students to achieve their PhDs from distinguished western universities worldwide. In this regard, Jordan can learn lessons from Chile, China, Korea, Colombia⁷⁰ and others in their scholarship programs support for PhDs and post graduate programmes (OECD and WB, 2010a).

Female brain circulation notion: the study results showed that 10.8% of surveyed academic staffs were females, which indicates a lack of female participation in the bursaries' schemes and in the general outflow of women going abroad at PhD

⁷⁰These programmes are for Chile: Becas Chile Programme; China: China Scholarship Council to manage the State Sponsored Study Abroad Programmes (SSSAP); Colombia: COLCIENCIAS, the Colombian Institute for the Development of Science and Technology and COLFUTURO, the Foundation for the Future of Colombia (OECD and WB, 2010a:13).

level. In this regard the study recommends Jordanian universities to focus more on increasing the share of scholar women and in introducing safeguard measures for others, who could independently study abroad,⁷¹ through facilitating the flow of information and necessary requirements for such purposes.

Post-graduate programmes abroad: through formulating an appropriate package for a post-graduate programme abroad, such mobility can regard researchers mobility not as a form of ‘brain drain’ and a loss of human capital, but as a necessary and desirable career-development step for the highly talented staff who later return into the higher education system. Over the post doctorate programme, the academic staff receives tailored training and undergoes several months into work and research assignments into different regional and international universities. Faculty mobility not only provides participating individuals with international experience and contacts with peers abroad, but eventually will be translated into the classroom and the research activities back home. Such efforts have to be driven by a strategy at the Jordanian institutional level.

The diaspora option: as noted by OECD (2008) a stock of skilled Human Resources in Science and Technology (HRST) abroad can act as a conduit for the flow of knowledge and information back to their home country, and combined with social and other links at home, this can still increase the probability that knowledge will continue to flow back even after individuals move back home or move away. Therefore, in order to maintain having foreign human capital at Jordanian universities, the diaspora option plays a remote mobilization of intellectuals abroad and their connections to scientific, technological and cultural programmes at home (Meyer *et al.*, 1997). The creation of a vibrant and technologically sophisticated diaspora may be beneficial in net terms, especially when domestic opportunities are limited. Moreover, the foreign connections and foreign knowledge in the absence of temporary emigration can even give Jordan an alternative option for contacts with the most recent knowledge by international

⁷¹ In a Muslim country and according to *Shariah* (Islamic Law), for women to study/travel abroad, permission from her sponsor (either father or husband) must be acquired.

standards at little cost when compared to student mobility. Such connections to foreign universities are essential to build international networks and national innovation systems.

Partnerships with universities: as revealed in this study, foreign human capital proved to have a positive effect on international students' enrollment. Therefore, in order to maintain such foreign capital among Jordanian higher education institutions, programmes and institutions mobility can help to improve the quality of a domestic higher education system through knowledge spillovers between foreign and domestic institutions and through training of domestic scholars and that encourage building the following types of partnerships:

(a) Partnership arrangements: Jordanian universities must develop joint academic programmes with foreign universities as well as research projects, where the Jordanian university enters into a bipartite (or sometimes tripartite) arrangement with a partner university and in some cases a government partner as well. Through forming a fruitful partnership with a top number of aspiring world-class universities in industrial countries, it can transfer the contribution of foreign scholars and accordingly enhance the development of university faculty staff (b) Interchange possibilities: such an arrangement originates primarily from the initiatives of professors and researchers with little formal participation of their respective universities (Luchilo, and Albornoz, 2008). Governments and universities will need to continue to mobilize such partnerships which require the necessary resources to develop the academic staff abroad through training courses, post doctorate programmes, staff exchanges, visiting fellowships and the like (Poole *et al.*,1997) and that could foster the academic staff's "Transnational Capital"⁷² (c) Centre of excellences: as the new patterns of knowledge creation imply the reorganization of research and training around the search for solutions to complex problems rather than the analytical practices of traditional academics disciplines, establishing centres of excellence through promoting strong research

⁷²It is the value added to one's human capital that accrues from time spent, networks established and knowledge acquired overseas (Vanhonacker *et al.*, 2005).

and development sectors and affording conditions and incentives for that purpose will encourage both transnational investments and entrepreneurs opportunities (Gribble, 2008). This evaluation leads to the emergence of what some experts call “transdisciplinarity” departments with distinct theoretical structures and research methods (Chapman and Austin, 2002a). For Jordan, through harnessing the feedback effects and drawing on the experiences and skills of returnees, this would raise the quality of research and will place Jordan’s higher education institutions reputation in a better position in the Middle East region.

Job opportunities and working conditions: the results of the academic staff survey showed that 5% have returned to Jordan for job opportunities available in Jordanian universities, therefore in order to encourage the return of the highly skilled (PhDs and researchers) to their home countries and still have a brain gain, Jordan needs to ensure a level of salaries and a rate of remuneration that commensurate with their human capital. The return of academics with the promise of better working conditions and with a research infrastructure support would certainly help capitalizing on studying abroad to transfer the technology and the know-how and eventually contribute to the scientific and technological development in the sending countries. Many Jordanian academics who work at Arabian Gulf universities are attracted by higher salaries and better working conditions than are available at home. Hence, the domestic labour market incentives, increasing competitive salaries at Jordanian universities and improving working conditions for academics in higher education and research institutions are thought to be a key important channel in bringing Jordanian highly skilled human capital back home upon completion of their study/research period abroad, and in supporting and building a national and international reputation for themselves, for their institutions and for the research capabilities in Jordan. Job security offered to Jordanian returnee academic staff must not stand still, i.e., the pay increases that are governed by bureaucratic personnel systems which reward long service of the staff combined with little contribution in publications has to be reconsidered. The market forces which attempt to reward good performance are active in determining

the performance of academic staff, i.e., the conditions for promotion must take into consideration not only teaching experiences, but alternatively a record of research in publishing into refereed and peered international journals. Such endeavours will enhance the reputation of the Jordanian universities on the long run, at the same time will encourage the competition between staff and in developing their experiences.

Staffs developments: the results of the study showed that neither teaching, professional experience (whether from inside Jordan or outside) or training courses achieved by surveyed academic staff have an effect on international students' enrollment. The need for and the benefit of having better qualified staff through developing the staff is twofold. First, better teachers and researchers with expertise in specific areas acquired from working in industry help to produce better students and graduates of the institutions. Second, better qualified staff can contribute to strengthen the institutions reputations both nationally and internationally (Mabokela and King, 2001).

“Third stream” income: as shown in the Jordanian universities financing section (5.2.2- table 5.9), tuition fees represented the largest source of revenue for financing public universities in 2009 and government subsidy represented 12%. Furthermore, in order to maintain the level of scholarships, staff development, attractive scientific environment, continue programme partnerships mentioned previously, Jordanian universities are encouraged to develop new ways and sources for raising revenue and to behave entrepreneurially, i.e., generating revenues from the commercial exploitation of their intellectual assets or what is called: “third stream” income (Pilbeam, 2006).⁷³ Many public universities recognize that public subsidies will not grow in the near future especially in cases of insufficient state funds at times of economic recession and budget crunch. For that reason, Jordanian

⁷³Third stream income is commercializing ideas and utilizing facilities. It is the income from industry, commerce, public corporations and from charities or government bodies, and was considered to be reasonable proxy measures for ‘third stream’ income, since the outputs of research sponsored through these sources were deemed likely to carry development implications for product, practice, process or policy (Pilbeam, 2006).

public universities should involve business entrepreneurial activities including research, consultancy, commercialized research results and even start new firms.

8.3.2 International students

The international students' decisions are influenced by a wide array of factors that need to be considered by Jordanian higher education institutions in order to boost their numbers in the future.

Promotion and diplomatic missions abroad: the international students' survey results showed that 5% of them found out about their current universities through representatives of the Jordanian university, and that suggests that more marketing efforts could be utilized in promoting Jordan's national higher education system abroad through the following initiatives:

(a) Educational trade missions, as the relative ease with which information is obtained about Jordan education programmes enhances the likelihood of undertaking a study in Jordan, at the same time foreign students can contribute in raising the profile of Jordanian universities abroad (b) International educational fairs, specific advertised briefings, web based marketing and print advertising can also promote Jordan's national higher education system (c) Jordanian embassies have to open or to have governmental bodies in international students' embassies, and a greater co-ordination and co-operation between students' countries of origin and destinations would lead to fairer sharing of the advantages linked to international student mobility (d) In order to increase global competition for the attractiveness of international students, Jordan has to open some faculties for "girls", as 38% of surveyed international students originated from GCC countries (Tab. 7.21), hence enrolling into an environment almost similar to their environments in their home countries.

Quality and accreditation: the surveyed international students' results showed that 12% of respondents have chosen Jordan, as their current universities have a strong reputation, and this reason was ranked the fifth among the ten reasons for choosing Jordan to study in. Therefore, in order to keep on attracting international

students, universities need to keep abreast of academic quality and an enhanced academic reputation. The interest in branding is leading institutions to seek out accreditation or quality-assurance services by national and international accrediting bodies, some of which are very trustworthy and some others are not reputable (Knight, 2004). Jordan's higher education competitive advantage is threatened by new entrants to the higher education market, low tuition fees in neighbouring countries, new potential opening universities in Jordan (oversees or offshore of foreign universities).⁷⁴ For example, Harvard is planning to set up a branch campus in the United Arab Emirates. In Bahrain, the University of Hanover (Germany) is planning an affiliation with a new Euro University, Saudi Arabia is establishing new private universities that involve foreign institutions and investors, and Egypt is already a home to the American University established more than 80 years ago, whereas the German University in Cairo and the L'Université Française d'Egypte have only been established in the last three years, and a new British University is under development (Altbach and Knight, 2006). The cross-border provision become crucial for exporting countries as a kind of "industry brand protection", where the quality of such provision delivered to international students is to enhance the attractiveness of their higher education system for the most skilled international students or to secure their markets (OECD, 2004). Hence, it is obvious that any major incident about quality and standards has the potential to damage the higher education export industry in Jordan, and the Jordanian higher education system has to make important strides in raising its educational standards to international levels. This in the end put pressure on the higher education system in Jordan to improve the quality and uniqueness of its higher education services. The maintenance of robust quality assurance mechanisms for Jordanian universities is a major challenge, if not, these institutions will lose their *raison d'être*.

⁷⁴Offshore institutions constitute one variation of multinational academic enterprise; this may be carried out through franchising or Mcdonaldization or simply by opening a branch institution (Forest and Altbach, 2006).

Governmental procedures and requirements: the international students' survey results showed that 45% of respondents found that Jordanian government residence requirements procedures are difficult and burdensome. Therefore, the role of the Ministry of Interior and other related visa policy requirements have to be reviewed.

Scholarships: 13% of the surveyed students indicated they have a scholarship from Jordan. Therefore, in order to enroll more international students who have been identified as the elite of their high school graduating cohort and sponsored to obtain specialist qualifications overseas, new partnerships such as twinning and sandwich programmes are needed between international students' countries of origin and Jordan, bringing in the private sector to ensure the preparation and availability of adequate human resources.

Networking: 54.10% of surveyed international students answered that "family and friends" connections" were the mechanism to know about current Jordanian universities. As concluded in Faggian and McCann (2007) the extent of previous migration of an individual is highly correlated with their subsequent migration behaviour. Hence, Jordan universities are encouraged to have institutional channels in different international students' home countries, and in trying to create chapters of an alumni office in each university that caters for the needs of all international graduates, which reduces the uncertainty involved in their mobility and facilitates the decision for others to study abroad.

8.3.3 Specialties/fields of study

The opportunities in the job market, differences in earnings among occupations and sectors and the capacity of tertiary education institutions may all affect the study fields international students may choose. The main trends in cross-border higher education can be summed up in two words, namely growth and diversification. The growth is in the number of students enrolled in foreign education programmes or abroad and the diversification of the supply of cross-border education (IOM, 2008).

One of the economic arguments aimed at encouraging the sending of students abroad is the opportunity for the countries concerned to educate young people in special disciplines for which the domestic supply and demand of education provision are not enough to reach the critical mass needed to achieve a satisfactory quality of education. Changing Arab economies especially as the GCC countries move beyond merely selling oil and natural gas and seek to develop subsidiary industries and strong service economies, means that related degrees are in great demand regionally (Zoepf, 2006).

Economic development is associated with more refined division of labour, and higher education institutions have an essential role to play in imparting the necessary skills and the increasing importance of knowledge makes the related skills in wider demand than ever before (World Bank, 2000). A growing part of international student mobility is becoming market-driven due to the recognition by those students to develop more work-relevant skills and the post graduate education has a role in meeting economic as well as individual needs. In this regard, while horizontal differentiation is driven by increased demand for higher education, vertical differentiation is a reaction to demand for a greater diversity of graduate studies, i.e. rise of graduate schools. This means Jordanian universities have to seize expanding horizontally, i.e., the focus of their higher education system diversification through institutional types has to move towards vertical diversification, through reputation hierarchies of individual universities (Teichler, 2008). Therefore, Jordanian universities are encouraged to continue expanding vertically through opening new programmes at both PhD and master levels. In addition, as scholarly discourse in the world has been mostly conducted in English, it is recommended that academia at Jordanian universities has to continue using the English language as the language of instruction in all faculties and not only among scientific ones.

8.4 Further research

The urgency of developing a vibrant higher education sector, compounded by Jordan's lack of natural resources and its subsequent reliance on human capital to remain competitive, led Jordan to place more significant attention on the sector and to push for concrete strategies to support and expand its performance. In this regard, Jordan has a potential of opportunities to broaden their role in the global "business" of higher education as there are three interwoven forces that are fuelling higher education systems and institutions at a turning point. These are economic globalizations, increased importance of knowledge as a driver of growth and the pervasiveness of relatively low-cost and high speed information and communication systems (Chapman and Austin, 2002c:9). Despite the central role international migration played in the higher education export, however, the author believes that such a phenomenon has not been at the forefront of research in mainstream of economics over the past twenty years in Jordan. In addition, the author is unaware of other analyses or scientific research pertaining to the driving forces of higher education sector in Jordan except the JV2020 project performed six years ago that studied international students' needs from a marketing prospective. Therefore, important research has to fill such a gap and includes the following:

1. The international market for higher education is maturing and the sources of competition are numerous and daunting, and the long-run competitive position of universities will depend on how well they will adapt. Hence, it is important for Jordanian higher education institutions to remain competitive effectively to differentiate themselves from alternative suppliers. Achieving a successful differentiation strategy requires the ability to offer sufficient perceived added value of their higher education services (products) that international students still willingly select over others and even pay a premium. Moreover, in order to satisfy students' requirements, universities must be aware of the perceptions of their institutions and courses. Hence, a research on international students' choice of

Jordan and choice of specialities at graduate level is of great value to Jordanian higher education institutions. For that end, it requires having a frequent research of the higher education sector from different aspects, but that will be conditional on the availability of statistical data about international students and the whole higher education system.

2. The research standing of institutions is a key marker in the global higher education landscape, more so since the advent of global research rankings in 2003 (Marginson and van der Wende, 2007: 34). Therefore, academic research has to be supported by universities, governments and other stakeholders and in finding appropriate incentives for supporting it.

3. Higher education competitive advantage depends on the rivalry in the higher education market, and for Jordan in order to reduce volatility of foreign exchange earnings they have to assess the position of Jordan's higher education services in comparison to other competitors in the Middle East region, especially where signs of emergence of certain types of institutions and providers are making inroads into transnational higher education. Hence, studying higher education industry could bode well for future productivity trends in policy reforms.

4. Universities are seen as a critical connection in the human capital pyramid that, in turn, helps to determine the competitiveness and economic growth in particular places. Hence, there is an urge to open centres of research in Jordanian higher education institutions to study the concept of country-specific human capital, i.e., the influence of "human capital returnees" not only in the higher education sector, alternatively in other sectors such as health, tourism and the financial sector. For a labour exporting country such as Jordan, they have to consider treating labour export as a permanent phenomenon and shape their university institutions towards studying such phenomena in more detail, which is used to secure and can continue to be a sustainable source of income.

Migration research should receive high priority in countries, whose economies rely significantly on remittances and higher education exports, such as Jordan. However, the number of recent internationally available publications in this field suggests that this is not the case. Jordan has the potentials to carry out this research, especially through the Higher Council for Science and Technology (HCST) whose mission is to enhance human capital development and to build a national science and technology base that contributes to the achievement of Jordan's national developmental objectives, appears to be best equipped to coordinate this research in Jordan.

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Appendices

Appendix 1: Surveys

Appendix 1.1: Academic staff's human capital formation survey

16th February 2009

Dear faculty member,

In an effort to provide analysis of the effectiveness of various academic staff characteristics on the enrollment of foreign students into Jordanian universities at different faculty levels, this survey is part of a doctorate research program on international students enrollment at different Jordanian universities. A list of basic practices and theories of higher education enrollment has been inferred from a review of research and literature on enrollment decisions and a questionnaire has been developed from this review.

The questionnaire includes 25 questions and covers three different sub-elements of university academics staff characteristics. With the requisite information in hand, we estimate it should take approximately 4 to 6 minutes to complete this survey.

We consider you an expert in the field, and will appreciate your assistance in evaluating this survey instrument in the end. The survey has been developed so you may add comments in the end of the survey.

You are not asked to put your name or address anywhere on this questionnaire, as data will be anonymous and solely used for scientific analysis.

When you are finished with the questionnaire, please handle in your completed questionnaire to the secretary designated envelope.

I want to thank you warmly in advance for your cooperation and assistance. If you have any questions regarding this instrument, please feel free to contact me at 079 657 9219 or by e-mail to :rasha.stateyeh@uni-kassel.de

Thank you for taking the time to complete this survey.

Sincerely,

Prof. Dr. Béatrice Knerr
University of Kassel
Head of Department of Development Economics,
Migration and Agricultural Policy
Steinstr. 19
37213 Witzenhausen
Germany

Rasha Istaiteyeh
PhD Student
University of Kassel
Department of Development Economics,
Migraion and Agricultural Policy
Steinstr. 19
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Germany

Demographic Backgrounds

1. Your age is between:

_____ 25-30 years old

_____ 31-36 years old

_____ 37-42 years old

_____ 43-48 years old

_____ 49-54 years old

_____ 55-60 years old

_____ 61-66 years old

_____ Above 66 years old, please specify _____

2. Place of birth:

_____ Jordan

_____ Other, please specify _____

3. Gender:

_____ Male

_____ Female

4. Marital status:

_____ Married

_____ Single

_____ Widow

_____ Divorced

5. Your nationality is:

_____ Jordanian

_____ Palestinian

_____ Other, please specify _____

Educational Backgrounds

6. Country of achieving your Bachelor's degree?

7. Country of achieving your Master's degree?

8. Name of the country you achieved your PhD?

9. Year of achieving your PhD? (YYYY)

10. Your PhD grade was:

_____ Excellent

_____ Very good

_____ Good

_____ Fair

_____ Pass

_____ Other, please specify _____

11. Why you have pursued your PhD? (You can choose more than one reason)

_____ (1) A scholarship was available for me

_____ (2) Respectful social status in the community

_____ (3) Poor job opportunities outside academia

_____ (4) Job security in academia

_____ (5) Teaching and research consideration

_____ (6) Personal ambitious

_____ (7) My family wish

_____ (8) All of the above

_____ (9) Other, please specify _____

12. In which language you have completed your PhD?

_____ English

_____ German

_____ French

_____ Arabic

_____ Others, please specify _____

13. Your PhD study has lasted for:

_____ Less than 3 years

_____ 3-4 years

_____ 4-5 years

_____ 5-6 years

_____ More than 6 years, please specify _____

14. Who financed your PhD study?

- _____ (1) My parents
- _____ (2) Self financing
- _____ (3) Scholarship from a public Jordanian University
- _____ (4) Scholarship from a private Jordanian University
- _____ (5) Scholarship from German Academic Exchange Service(DAAD)
- _____ (6) Scholarship from Fulbright
- _____ (7) Scholarship from other institutions, please specify _____
- _____ (8) Other, please specify _____

14.a. Was this finance important for choosing the country of your PhD?

- _____ Yes
- _____ No

15. Why you have returned home after completing your PhD?

(You can choose more than one reason-choose all that apply)

- _____ (1) Scholarship ended up
- _____ (2) I signed a contract with my university to return back after completing PhD
- _____ (3) Competitive salaries at Jordanian universities
- _____ (4) Family matters (mother, father, wife, relatives ...)
- _____ (5) Raising my children in Arabic and Islamic culture
- _____ (6) All of the above
- _____ (7) Other reasons, please specify _____

16. After finishing your PhD graduation, for how long did you stay in the PhD graduation country?

- _____ Less than 6 months, indicate number of months (if possible) _____
- _____ 6 months -1 year
- _____ 1-2 years
- _____ 2-3 years
- _____ 3-4 years
- _____ 4-5 years
- _____ More than 5 years, please specify _____

16. a What did you do in this time?

_____ Achieved additional certificate(s)/diploma(s)/....

_____ Continued a post doctorate studies

_____ Preparing myself to return back to Jordan (Home country)

_____ Others, please specify_____

Teaching and Academic Experiences

17. What is your current academic rank?

_____ Professor

_____ Associate Professor

_____ Assistant Professor

18. Do you have teaching experiences inside Jordan?

_____ Yes

_____ No (Move to question Nr.25)

18.a If YES, for how many years?

_____ 1-3 years

_____ 3-5 years

_____ 5-7 years

_____ 7-9 years

_____ 9-11 years

_____ 11-13 years

_____ 13-15 years

_____ More than 15 years, please specify_____

19. Do you have teaching experiences outside Jordan?

_____ Yes

_____ No (Move to question Nr.26)

19.a If YES: In which country?

19.b For how many years?

_____ Less than 1 year

- _____ 1-3 years
- _____ 3-5 years
- _____ 5-7 years
- _____ 7-9 years
- _____ Above 9 years, please specify _____

Professional Experiences

20. Do you have professional experiences inside Jordan? (Like working in a Bank, Company, Factory, Research Institution...etc)

- _____ Yes
- _____ No (Move to question Nr.28)

20.a If YES, for how many years?

- _____ 1-2 years
- _____ 3-5 years
- _____ 6-8 years
- _____ 9-11 years
- _____ 12-14 years
- _____ Above 15 years, please specify _____

21. Do you have professional experiences outside Jordan?

- _____ Yes
- _____ No (Move to question Nr.29)

21.a If YES: In which country?

21.b And for how many years?

- _____ Less than 1 year
- _____ 1-2 years
- _____ 2-3 years
- _____ 3-4 years
- _____ 4-5 years
- _____ 5-6 years
- _____ Above 6 years, please specify _____

22. Do you have other professional qualifications related to your academic field (certificates, diplomas/...) (e.g: a doctor in the department of accounting has CPA: *Certified Public Accountant* or other professional certificates)

_____ Yes
_____ No

22.a Please name these certificates, diplomas,....etc (Use coma for separation)

23.Do you work- occasionally- for other international organizations/corporations/companies? (like United Nations, World Bank, World Health Organization,etc)

_____ Yes
_____ No

23.a If YES, can you name these organizations?

24-Please use the following 1-5 scale to rank the ease-of-use and clarity of this survey, where 1 indicates hard to use and understand and 5 indicates easy to use and understand.

_____1 _____ 2 _____3 _____4 _____5

25-My dear and respectful doctor, if you have any comments, suggestions or concerns regarding this questionnaire, I will be very happy to receive your contribution, either by using the space provided below or by attaching an additional sheet (You can answer here in Arabic or English).

Thank you for your time

Appendix 1.2: International students' survey

The survey below has been constructed so that we find ways that our Jordanian universities can better serve our international students in devising programs and making changes that would be based entirely on their inputs. We would appreciate if you take five or ten minutes to fill out the questioner below. We have not asked for your name, and therefore your responses will be strictly confidential and will be solely used for research purposes.

Age:

Nationality:

Country of Permanent Residence:

Male Female

University:

Field of study:

Year of study:

1. Why you have chosen Jordan to study in? (Please rank in descending order of importance, most important getting a "1")

a. Because my parents chose Jordan for me	b. Because it is an Arab/Islamic country	
c. Because I have family in Jordan	d. Because Jordan is safe and politically stable	
e. Because there is so much to do in Jordan	f. Because my university has a strong reputation	
g. Because I could not get a visa to another country	h. Because university tuition and living costs are reasonable	
i. Because I have a scholarship from Jordan	j. Other reasons:	

For questions 2 through 4, please check all that applies

2. How did you come to know about your specific university?

a. Through family or friend	b. I heard of it in school	
c. Representatives of the university visited my home country in an educational mission	d. I am a sponsored student and came through an educational mission	
e. Through student exchange program	f. Through university website	
g. Through advertisement in TV, magazine or newspapers	h. Other:	

3. Is your university well known in your home country?

Very well known	Fairly well known	Not known at all	
-----------------	-------------------	------------------	--

4. After paying university tuition, what is your average monthly expenditure (living, rent, books and university supplies, clothes, etc.)?

a. Less than US\$ 500	b. Between US\$ 500 and US\$ 750	
c. Between US\$ 750 and US\$ 1000	d. Between US\$ 1,000 and US\$ 1,250	
e. Between US\$ 1,250 and US\$ 1,500	f. More than US\$ 1500	

5. Do you feel that you have fully adjusted to the Jordanian culture?

Yes, I have fully adjusted	No, I find it difficult to adjust
----------------------------	-----------------------------------

6. Do you find government requirements pertaining to residence in Jordan difficult or time consuming?

Yes, these are difficult/burdensome	No, they are not too difficult
-------------------------------------	--------------------------------

7. Do you believe that your local embassy's accreditation requirements are difficult or time consuming?

Yes, these are difficult/burdensome	No, they are not too difficult
-------------------------------------	--------------------------------

8. Do you feel Jordan is relatively safe?

Yes	No
-----	----

9. Do you believe that your education in Jordan will strengthen your chances of finding a job after graduation?

Certainly	Probably	I don't know	Probably not	Certainly not
-----------	----------	--------------	--------------	---------------

10. Are you planning to stay in Jordan after graduation?

a. Yes, I would like to work here	b. Yes, I would like to do further studies in my current university
c. Yes, I would like to do further studies in a different Jordanian university	d. No, I want to go back home

11- Please feel free to provide us with any additional information that you would like to share.

Thank You For Your Time

Appendix 2: Jordanian Ministry of Higher Education and Scientific Research approval

Rasha Istaiteyeh
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بسم الله الرحمن الرحيم

عمان في ١٣/٥/٢٠٠٩ م

لدى وزير التعليم العالي للبحث العلمي الأستاذ الدكتور وليد المعاني المحترم

الموضوع: بيانات إحصائية

المستدعي: رشا استيتيه

أرجو التكرم بالموافقة بالإيعاز لدى دائرة الشؤون المالية بالموافقة على تزويدي
بمعلومات عن خلاصة الإيرادات المالية والنفقات للجامعات الأردنية الرسمية والخاصة في
الأردن.

وتفضلوا بقبول فائق الاحترام

المستدعي

رشا استيتيه

٠٧٩٦٥٧٢١٩

University of Kassel

ألمانيا

المملكة الأردنية الهاشمية وزارة التخطيط والبحث العلمي
١٢ أيار ٢٠٠٩
رقم السجل: ٨٦٥٤
رقم الملف: ٣/٧

مدير مكتب لوجستيات العلاقات

مدير الشؤون القانونية

ليسانس في القانون

مؤهلها في القانون

بمطابق ١٢/٥/٢٠٠٩

الرئيس له

لدينا رأيي في ظل قانون الحصول على المعلومات

مرفوع من استيفاء ما توفيقه

٥١١٢

Appendix 3: Request letters from universities

Universität Kassel

Prof. Dr. Béatrice Knerr

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Datum 09.01.2009

Research Cooperation

Dear Sirs,

First of all, we would like to introduce ourselves to You. The University of Kassel in Germany is one of the leading-edge universities in the research-intensive fields of development economics. The Department of Development Economics, Migration and Agricultural Policy has its major focus on the determinants of national and international development of labour mobility, remittances and human capital formation.

Mrs. Rasha Istaiteyeh is working as a PhD student in our research project on „The Role of Human Capital Formation Abroad in the Development of Jordan's Higher Education System“. For that purpose, *Mrs. Istaiteyeh* will do a field research work and conduct a survey among academic staff at Jordanian Universities, which is an integral part of her academic doctorate work.

Your corporation is a critical part of this academic project and is highly appreciated, as it will enhance and enrich the academic knowledge associated with the practical experiences of Jordanian higher education system.

Hoping to have further prospect cooperation in the future,

Sincerely,



Prof. Dr. Béatrice Knerr
- Head of Department -

Curriculum vitae

Personnel information

Name: Rasha Istaiteyeh
Date of Birth: 12.10.1973
Place of Birth: Kuwait
Nationality: Jordanian
Marital Status: Married
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Education

10.1996- 02.1999 M.A. / Economics (rating: Very Good), University of Jordan –Jordan.
Thesis title: *Financing Agricultural and Industrial Sector in Jordan*.
09.1991- 06.1994 B.Sc. / Economics Minor: Populations Study, (rating: Excellent),
University of Jordan-Jordan.

Awards

DAAD-STIBET Scholarship
Honour Award of Economic Department during Undergraduate Studies

Professional Experiences

09.2003-02.2004 Research Assistant, University of Jordan –with Prof. Dr. Ismail A. Rahman:
Macroeconomics and industrial economics. Amman, Jordan.
07.2002- 08.2003 Research Assistant, in Al-Manar: Jordanian-Canadian Project at the National
Center for Human Resource Development (NCHRD) Amman, Jordan.
11.1994- 06.2002 Arab Bank plc, Amman, Jordan.

Conferences

Istaiteyeh, Rasha (2010): Jordan Higher Education Export and Circular Migration. Proceeding
Paper presented the European Population Conference (EPC) 1-4 September 2010-Vieena.Austrai.
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Istaiteyeh, Rasha (2010): Integrating Scientific Knowledge through Circular Migration: The
Case of Jordan”. Proceeding Paper presented to the World Congress for Middle Eastern Studies.
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Higher Education Sector. Workshop on „ Deutschlands Position im Wettbewerb der EUStaaten
um Hochqualifizierte. Deutschlands Position im Wettbewerb der EU-Staaten um Hochqualifizierte
7, May.2010. Kassel University, Germany.

Series International Labor Migration

*edited by Prof. Dr. Béatrice Knerr**

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Education, training, and experiences are keys to investment in human capital. In the same sense migration of highly skilled is considered as an investment, involving costs and rendering returns. Out-migration of persons endowed with a high level of human capital could imply a loss for their home country's economy, a phenomenon known as "brain drain". Still, there are conditions under which this "brain drain" can be converted into a "brain gain"; this has received particular attention in research since the beginning of the 21st century. The case of Jordan which is presented in this volume, demonstrates that returns on investment in human capital through PhD studies at distinguished foreign universities which are encouraged on government as well as private household level, have significantly contributed to building a strong reputation of Jordanian universities in the Middle East region. The highly-qualified returnees – endowed with new skills, experiences, and academic education – employed in Jordanian universities have ultimately attracted international students and thus contributed to generate considerable amounts of service export revenues that constitute an increasingly important source of income and foreign exchange for Jordan, a country which is largely lacking natural resources and a basis for industrial development.



Rasha Istaiteyeh was born in Kuwait in 1973. After the Iraqi invasion to Kuwait in 1990 she moved with her family to Jordan, where she earned her General Certificate of Secondary Education in 1990, a Bachelor of Science in Economics with an honour degree in 1994 from the University of Jordan and a Master of Arts in Economics in 1999 from the same university. Her professional experience started in the banking sector and afterwards she worked as a research assistant in a Jordanian-Canadian project on labour market and human resource development. Being of a migrant background, she has the interest in exploring thematic issues of migration. In 2007 she joined the PhD program at the Department of Development Economics, Migration and Agricultural Policy (DEMAP) at the University of Kassel-Germany, where she earned her PhD in Economics in 2011. She is married to Dr. Nabil Al-Hadithi.