

# International Labor Migration

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# Economic Development and Export of Human Capital A Contradiction?

The impact of human capital migration on  
the economy of sending countries  
A case study of Jordan

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## **Abstract**

Higher education is increasingly becoming an important factor in determining the success of the migration process from the individual's point of view. To the sending countries, the migration of its human capital may be associated with high social costs as their scarce resources are spent on individuals who will later be productive elsewhere.

The hypothesis of this study is that there is a positive social return on an investment in higher education even if the educated people (skilled workers) choose to out-migrate. Furthermore, a deliberate policy aimed at providing a surplus of higher education graduates can be seen as an "export" strategy leading to positive social returns to the country practising it.

The study attempts to evaluate the net result of an individual's out-migration to the sending country via a cost-benefit approach. This approach is based on a model for out-migration consisting of three distinguished phases: Education, migration and return. The model is applied to the case study of Jordan and the necessary data is collected via a survey.

The results show that the social return on education and migration is dependent on the sending country's employment situation in the labour market for skilled workers. In the case of unemployment, the social return is positive since the opportunity costs of forgone production diminish. In the case of scarcity, the social return is only positive if higher education takes place in the sending country or at a comparable cost abroad. When higher education takes place in an industrialised country with tuition fees, the return to the sending country is negative. Achieving a positive return to the sending country in this case would require one or more of the three following conditions: Higher remittances, repatriating more of the migrant's savings or a better utilisation the migrant's skills after return to achieve productivity gains.

## **Preface**

International labour migration is a central component of international economic relations. With its broad spectrum of implications, it has developed into a top priority issue on the political agenda of an increasing number of countries since the middle of the 20th century. Although it is driven primarily by private individual, or household interests, its consequences go far beyond the impact on these primary actors. Labour migration is closely related to economic and social development in the source and host regions. At the beginning of the 21st century, it constitutes both a driving force and a consequence of globalisation.

Although significant increase in the volume and velocity of international labour migration has been taking place since the mid-1950ies, ways and consequences of international labour migration are not yet fully understood. Out-migration and immigration of low-skilled labour and high-potentials, large-scale remittance inflows into economically less developed countries, and return migration of more experienced individuals are interrelated issues which require further insights in order to broaden and strengthen the basis for appropriate policy measures. This series on International Labour Migration has been initiated to bring together studies made in the field and to provide a forum for theoretical and empirical research.

The present volume, entitled “Economic Development and Export of Human Capital: A Contradiction?” addresses the aspect of international migration of high-potentials. It analyses the social welfare implications which out-migration of highly educated labour force bears on the population of the source country, and hence focuses on an issue which has gained high priority in the face of growing transnational migration of highly skilled and educated persons from economically less to economically more developed countries. For his analysis, the author applies an innovative three-phase cost-benefit model which includes the inflow of migrants’ remittances and the return of the migrants. This comprehensive approach goes ahead of earlier studies which concentrated almost exclusively on the impact of the loss of human capital for the country of out-migration, and, therefore only insufficiently took care of the conditions in the early 21st century. The analysis is carried out for the case of Jordan, which is one of the world major exporters of highly educated labour force, and at the same time one of the major recipients of remittances. It provides new insights into the complex relationships between

migrants' educational level, labour market situation, remittances and implications of out-migration for the source country by simulating different scenarios which combine these aspects.

The major findings of the study demonstrate that a positive social return of the out-migration of high-potentials accrues to the sending country if their higher education has been accomplished there rather than in an industrialised country. The extent of this return increases with the domestic rate of unemployment among the relevant skill category, the volume of remittances and the utilisation of the migrants' skills after their return. In addition, the study shows that Jordan had succeeded in avoiding the symptoms of 'Dutch Diseases' which often occur as a consequences of large-scale labour out-migration and remittance inflow.

With the present analysis the author provides a valuable contribution about the international migration of high potentials to the scientific community as well as to policy makers who have to found their decisions in the fields of migration and investment in higher education.

Prof. Dr. Béatrice Knerr

University of Kassel

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# 1 Introduction

## 1.2 Problem statement and hypotheses

The movement of skilled labour from economically less to economically more developed countries is a much debated issue among development specialists. It has resumed importance over the last decade as international competition for so-called “high-potentials” has significantly expanded. By providing a favourable climate, the USA succeeded in becoming a primary destination country for highly skilled labour force from all over the world. Likewise, Germany launched a “Green Card-Initiative” in 2000 to close a growing gap in information technology specialists. This competition is an indication, that the migration of skilled labour force is increasingly characterised by a “demand pull” on the side of the receiving countries, whose immigration policies are being directed towards satisfying the needs of their domestic labour markets (Beine et al., 2002).

Higher education is increasingly becoming an important factor in determining the success of the migration process from the individual point of view. Carrington and Detragiache (1998), found that individuals with little or no education generally have limited access to international migration and that migrants tend to be better educated than the rest of the population of their countries of origin.

The neo classical theory of international trade suggests that under certain assumptions out-migration from low-income countries to high income countries could lead to welfare gains to the world, since it improves resource allocation by overcoming local labour surpluses in sending countries and labour scarcities in receiving countries. However, this aggregated view ignores distribution effects, which lead to winning and losing groups depending on geography (sending and receiving countries), sectors of the economy (traded and non-traded goods) or human capital investment (skilled and unskilled labour).

From the point of view of the sending countries, a part of their scarce resources is spent on the education of persons who will later be productive elsewhere. This

especially applies to investments in higher education<sup>1</sup>. The out-migration of persons with higher education (also referred to as skilled workers in the context of this study) has for a long time been associated with the term "brain drain"<sup>2</sup>. New approaches are providing a more positive perspective to sending countries and include gains through remittances, higher growth rates through increased educational attainment (Beine et al., 2002) and acquiring knowledge from specialist networks in receiving countries and from returning migrants that would never have been gained without migration (Hunger, 2003). The out-migration of human capital is, therefore, not necessarily a final process for the sending country and may result in a future "brain circulation", which could be demonstrated by countries such as India and Taiwan (Hunger, 2003).

To answer the question of whether the out-migration of human capital results in a net loss or gain, a quantification of the benefits and costs described above is required. This study attempts to evaluate the net result of an individual's out-migration to the sending country via a cost-benefit approach. This approach is based on a model for out-migration consisting of three distinguished phases: Education, migration and return. The cost of education and forgone production to the sending country during education and migration is regarded as an investment yielding future returns. The return on this investment is evaluated using discounted cash flow analysis. Future returns include benefits resulting from remittances during the migrants' absence and from enhanced productivity after their return as they utilise their experiences gained abroad.

The model was applied to the case study of Jordan and the necessary empirical data was collected via a survey. To reduce profession specific bias, the survey was directed at persons of four specific professions that require higher education and were typically involved in migration. These were teachers, engineers, physicians and IT-specialists. Three different groups of persons were interviewed: non-migrants, migrants and returnees. Assuming perfect competition and wages equalling to marginal productivity, the income of non-migrants was used as a measure to determine forgone production to the sending country, which resulted

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<sup>1</sup> Higher Education refers to post-secondary education, also termed tertiary education.

<sup>2</sup> The Human Development Report 2001 estimates, that the cost of higher education in India is between 15.000 US\$ and 20.000 US\$ per person.

from the migrants' absence. The income of non-migrants was also compared to the income of returnees to determine whether the re-employment of the latter resulted in productivity increases to the sending country. Migrants and returnees delivered information on their remittance behaviour.

The first hypothesis of this study is that there is a positive social return on an investment in higher education even if the educated persons choose to out-migrate after finishing their studies.

The second hypothesis is that a deliberate policy aimed at providing a surplus of higher education graduates can be seen as an "export" strategy leading to positive social returns to the country practising it. This study attempts to identify the factors, which contribute to a successful human capital export strategy and to recommend the necessary political actions to ensure its success.

In relation to the population size, Jordan is currently one of the largest suppliers of labour and human capital in the world. An estimated 300.000 Jordanians or one fourth of the labour force are earning their living in foreign countries. Between 1968 and 2003, the accumulated net number of out-migrants amounted to over 1,1 million<sup>3</sup> persons, most of whom left on a temporary basis to the oil producing Gulf States. Since the mid 1970s, migrants' remittances are Jordan's most important source of foreign exchange, and a decisive factor in the country's economic development and the rising standard of living of the population. In 2003 they amounted to 2,2 bn. US\$, representing 22% of the country's GDP (CBJ, 2003).

Labour export is one of Jordan's most important determinants of economic development. This development took off in 1973 with the so-called "first oil-boom", which led oil-exporting countries in the Middle East-North African (MENA) region to initiate ambitious development projects requiring manpower, which significantly exceeded their domestic labour resources. To counter this bottleneck, they recruited workers from abroad. Many Jordanians took advantage of this opportunity to increase their income in the neighbouring countries. Over the subsequent years, the competition for well-paid jobs in the MENA region grew on a global level, involving labour force from countries as far as Bangladesh, or the Philippines,

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<sup>3</sup> Cross-border movements of Jordanians. Source: Directorate of inner security as published in the Yearbooks of the Department of Statistics (HKJ/DoS 1968-2003).

exerting a downward pressure on the wage rates and an up-ward pressure on the skill qualifications.

Consequently, education has become an important competitive factor for the individuals involved. Jordan's public and private sector reacted to this challenge by increasing investment in the educational system. As a result, Jordanians have been occupying a place in the upper quality segment of the regional labour market.

Higher education of Jordanians in Jordan and abroad has also increased their qualifications as potential migrants to the USA, Canada and Australia, countries which have immigration policies geared towards attracting human capital.

### **1.3 Concepts, definitions, assumptions and delimitations**

Migration in the context of this study, describes the movement of persons across political borders also referred to as "international" or "transnational" migration. The focus is on the region of origin, here described as the "sending country" as opposed to the region of destination, here described as "receiving country"

The UN (2004) distinguishes between short and long-term international migrants whereby according to their definition, a short-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 3 months but less than 12 months except in cases where the movement to that country is for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage. For purposes of international migration statistics, the country of usual residence of short-term migrants is considered to be the country of destination during the period they spend in it.

A long-term migrant moves to a country other than that of his or her usual residence for a period of at least 12 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 from that of the receiving country the person will be a long-term immigrant.

This study focuses on long-term migration, as short-term migration mainly involves seasonal labour where human capital is assumed to be underrepresented. The movement of people away from the sending country is referred to as out-migration.

The statistics, which are used to quantify out-migration are border crossing statistics, which do not distinguish between any of the above groups of migrants. The change in the stock of out-migrants in one year is calculated by subtracting the number of persons possessing the nationality of the sending country and moving into it from the number of the same group moving out of it. This methodology would net out any short-term movements for the purpose of recreation and tourism, short-term visits of long-term migrants and short-term migration. The limitations of this approach is that the number of out-migrant labour among the total out-migrating population can only be estimated. This is done by relying on returnee surveys<sup>4</sup> and assuming that the returnees are representative for the migrant population.

Of equal significance to this study is the concept of return migration. According to the Migration Policy Institute (2004), returning migrants are persons returning to their country of citizenship after having been international migrants (whether short-term or long-term) in another country and who are intending to stay in their own country for at least a year. Return migrants or “returnees” in this study refers to out-migrant labour that returned to the sending country.

Out-migration from the sending country usually results in an inflow of remittances. According to the United Nations Population Information Network, remittances are “monies earned or acquired by migrants that are transmitted back to their country of origin”. Data on remittances is published by public institutions, usually the central bank of a country. These remittances are usually referred to as formal or recorded remittances and are less than total remittances. According to the ILO (2000) total remittances from migrant labour in the world are likely to be twice as much as formal remittances.

Human capital refers to people with post-secondary education, which extends over more than two years. This education is also referred to as tertiary or higher education (UNESCO, 1997). The reason for choosing only tertiary education as a definition for human capital is its close association with the brain drain phenomenon. According to the World Migration Report 2003 (IOM, 2003), brain drain describes the cross-border movement of highly skilled persons who are

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<sup>4</sup> Shachatreh, Billeh, 1991 and HKJ/DoS, 1993. The returnee surveys took place in 1991/1992, when a large number of Jordanians returned from the Gulf States as result of the Iraqi invasion of Kuwait and its implications.

defined as having studied or are currently studying for a university degree or possessing equivalent experience in a given academic field.

The evaluation of the human capital migration impact on the sending country in this study is performed on the individual basis, i.e. it is concerned with the impact of one person who acquired human capital and then out-migrated from the country of origin. This impact on the sending country is termed “social” as it affects the economy there and is to be distinguished from the “private” impact on the economic situation of the individual involved.

As for the case study Jordan, the country is located between the Jordan River in the West, Syria in the north, Iraq in the East and Saudi Arabia in the East and South. Persons of all origins possessing the Jordanian nationality are referred to as the population of Jordan. Between 1950 and 1967, the “West Bank” was a part of Jordan and until the signing of the peace treaty with Israel, the Palestinians living there carried Jordanian Passports. In this study, the population of the West Bank are not considered to be Jordanians. This delimitation is important, as many migration statistics from the 1970s and 1980s did not distinguish between Palestinians and Jordanians.

The time frame analysed in this study extends between 1970 and 2003. To enable a comparison of different currencies and times, all monetary data is converted into constant 1995 US\$.

#### **1.4 Study design**

Following the introduction, chapter two presents the literature on and the theoretical background of the migration of human capital. This chapter starts by introducing the models, which show the macro economic impact of labour migration on the sending country. This macro economic point of view explains changes to the labour market and possible shifts in the sectors of the economy as well as in the aggregate demand due to changes in demand and supply of labour and the inflow of remittances from migrants abroad. In the next step, labour becomes heterogeneous as the concept of human capital is introduced. The cost of (post-secondary) education is regarded as an investment, which yields future returns to the individual in the form of increased income. Assuming that wages

reflect marginal productivity, education also yields a return to the economy. This social return on education is disputed in the literature, and the arguments of the different points of view are cited. Educated persons may also choose to work outside their country of origin, an act resulting in eliminating the direct utility of education to that country. This migration of human capital initiated the so-called “brain drain” discussion, which is chronologically handled in the next section of chapter two. The brain drain – as the title suggests – was originally associated with a loss to the sending country. However, recent sources also emphasise the benefits of human capital migration terming it as brain gain or brain exchange. These benefits accrue to the sending country during the absence of the migrants and after their return. The factors leading to a cost or a benefit to the sending country are identified.

Chapter three builds on the costs and benefits of human capital migration, which were identified in chapter two and presents a methodology for evaluating the cost and benefit and for collecting and processing the data used to investigate the problem. The methodology is based on a model of a “human capital life time cycle”. The cycle consists of three distinguished periods: The higher education period in which the person invests in his/her higher education; the migration period in which the person leaves his/her country of origin to work abroad and finally, the period of return to the country of origin. The life time cycle is then translated into an equation containing the variables that describe the costs and benefits over the life cycle. This equation is based on the principle of discounted cash flow analysis. Early costs of education are regarded as an investment yielding returns in later years. This equation calculates the net present value (NPV) of or the internal rate of return to that investment. The calculation is made from a social point of view, i.e. not private but social costs and benefits are regarded. After constructing the model, the chapter turns to the collection of data. As the inputs to the model are not attainable from literature sources, a survey was designed to collect the specific data required to perform the calculations. For the case study of Jordan, data from migrants of four specific professions were collected using the questionnaires presented in the appendix. These professions were teachers, engineers, physicians and IT-specialists who typically are involved in out-migration from Jordan. To collect the required data for the distinguished phases of migration the

survey forms were designed for three different groups of persons: migrants abroad, returnees and non-migrants. The last group was used as a reference group. Under the assumption of perfect competition and wages equalling marginal productivity, the average income of the reference group was used as a measure for forgone production to the sending country and a benchmark to determine whether returnees on average had a higher income and thus a higher productivity. Migrants residing abroad yielded information on their remittance behaviour, the most significant benefit during the period of out-migration.

In chapter four, evidence of the migration of labour and human capital is presented. This evidence is preceded by information on the development of the Jordanian economy, its labour market and its education sector, which is essential in explaining human capital investment and its migration. This development resulted in the out-migration of one fifth of the population and one fourth of the labour force between 1968 and 2003. Evidence and statistics on the extent of out-migration of labour in general and human capital in specific is updated in this study according to the latest available sources.

Chapter five presents the data from the survey conducted within this study. On the basis of this data the calculations are performed using the equation constructed in chapter three. The results are then analysed and set in relation to the hypothesis of this study. A sensitivity analysis is performed with respect to the financial benefits to the sending country from different levels of remittances, repatriated savings and productivity increases. Furthermore, different typical scenarios concerning the regions of education and migration are constructed to analyse their impact on the Jordanian economy.

The results of the study are summarised in chapter six, which also introduces potential policy implications as well as recommendations on further research.

## **2 Theoretical background**

The economic impact of human capital migration is related to theories concerned with the economics of labour migration and human capital formation. These theories were brought together in the so-called “brain drain” discussion, which emerged in the 1960s. A summary of the relevant research on labour migration, human capital formation, the brain drain, and the consequence of remittances is presented chronologically in this chapter. The implications of these theories lead to the formulation of the model to be presented in the next chapter.

### **2.1 The impact of labour migration and remittances on sending countries**

Looking at the economy from an aggregate view, the out-migration of labour can have a significant impact on total demand, production (assumed to be equal to supply), unemployment, inflation, the distribution of income between labour and capital and the international competitiveness of the sending country. To demonstrate these effects two models are presented. The model introduced by Layard et al. (1992) highlights the labour market situation and the distribution effects between the sending and the receiving country. Utilising the “Dutch Disease” theory, Knerr (1996) analyses the impact of out-migration on the tradable and non-tradable sectors of the economy and, thus, on the international competitiveness of the sending country.

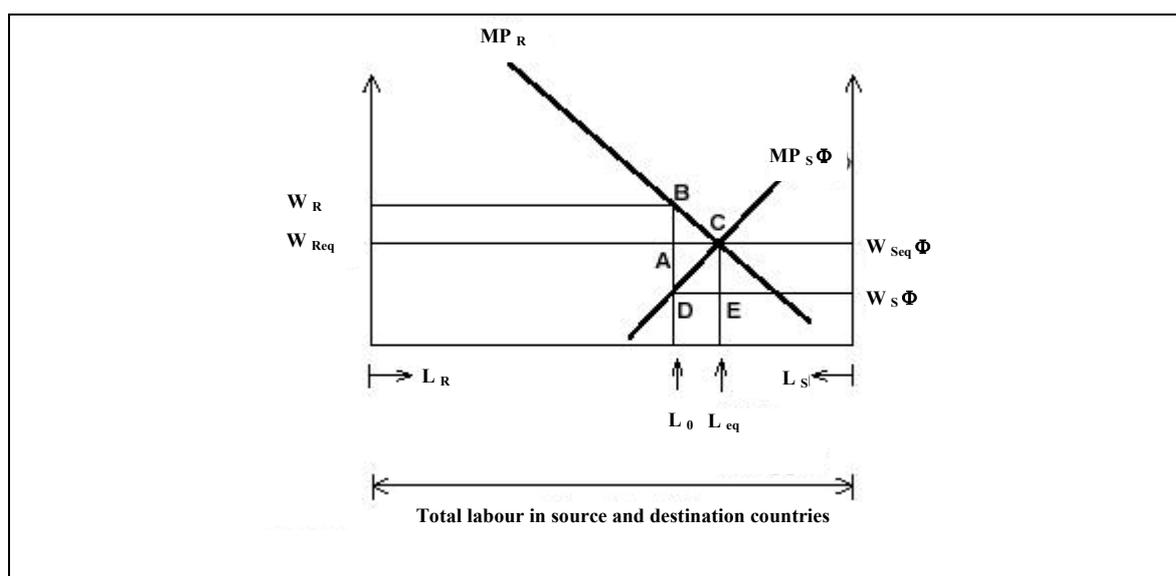
#### **2.1.1 Out-migration and the labour markets**

A result of the theory of international trade is that labour migration leads to welfare gains for the world, since it improves resource allocation by overcoming local labour surpluses in sending countries and labour scarcities in receiving countries. However, this aggregated view ignores distribution effects that lead to winning and losing groups<sup>5</sup>. A simple model by Layard et al. (1992) displaying two labour markets with initial full employment (Fig. 2.1), demonstrates this effect. Labour

demand in the receiving country is represented by  $MP_R$ , which is defined by the marginal productivity of labour. The demand curve of the sending country is represented by  $MP_S$  multiplied by a factor  $\Phi \leq 1$  representing the preference of the labour force of the sending country to remain in their country and accepting a wage rate less than their marginal productivity.

Initially, all labour in both countries is fully employed and receiving wages of  $W_R$  and  $W_S \Phi$  respectively. Assuming that unrestricted migration can take place a new equilibrium will be achieved when labour of the magnitude of  $L_0 - L_{eq}$  emigrates from the sending country to the receiving country. Wages of  $W_{Req} = W_{Seq} \Phi$  will prevail in both countries.

**Figure 2.1 Distribution effects resulting from migration**



Source: Layard et al. (1992).

The distribution effects result from the change of wage rates in both countries as labour from the sending country profits due to higher wages whereas labour of the receiving country loses due to lower wages. Contrary to the labour force and assuming that the production output of labour remains unchanged, receivers of profit in the receiving country win while those in the sending country lose. Migrants gain by the rectangle  $ACED$  as their wages increase from  $W_S \Phi$  to  $W_{Seq} \Phi$ .

<sup>5</sup> In Layard's model, these groups consist of migrant and non-migrant labour as well as profit receivers in the sending and receiving countries.

Assuming that the migrants are regarded as citizens of the receiving country, the economy of the receiving country grows by the triangle ABC, whereas the economy of the sending country contracts by the triangle CDE. Remittances sent by the migrants to the sending country would reduce the loss to the sending country.

### **2.1.2 Out-migration and competitiveness / the Dutch Disease model**

The "Dutch disease" models predict that an export boom of one sector in the economy results in a decline of other sectors producing internationally tradable goods<sup>6</sup>. At the same time, sectors producing internationally non-tradable goods expand due to an appreciation of the real exchange rates. The overall result is a declining competitiveness in the international tradable goods sector. Knerr adapted this approach to migration and remittance income.

The Dutch disease model is represented by a simple open economy producing two kinds of goods: internationally tradable goods  $t$  and non-tradable goods  $n$ . Tradable goods ( $X_t$ ) such as grain or machines are traded internationally without restrictions and their price is determined by the international demand and supply, which is exogenous to the sending country. Non-tradable goods ( $X_n$ ) are only traded within the model economy due to either trade restrictions or because international trade is not possible e.g. government services or perishable goods. The price of non-tradable goods is determined by the domestic demand and supply.

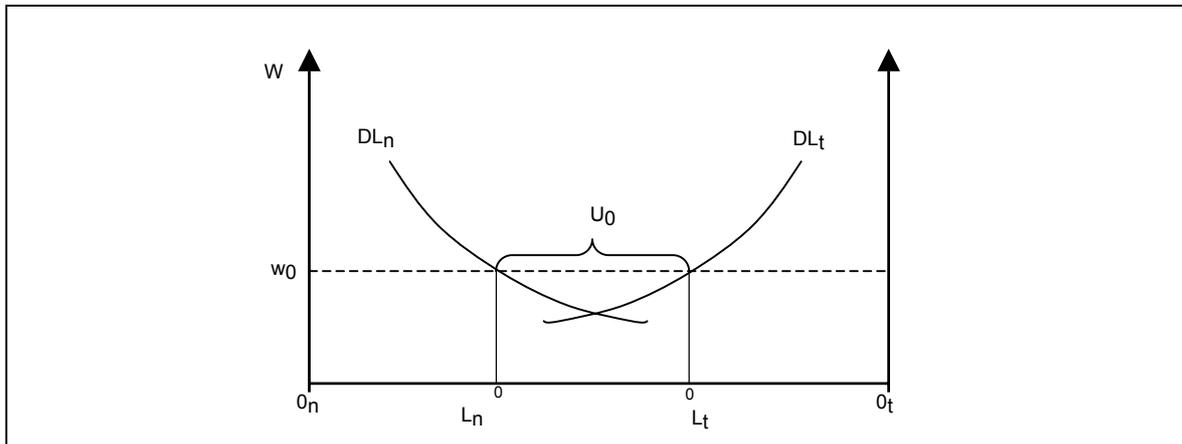
The demand for both goods is less than completely elastic and they are produced by two factors of production: labour and capital. Labour is assumed to be homogenous and completely mobile between the sectors while capital, which is always fully employed, is only mobile in the long run. The marginal productivity of labour may diminish, therefore, unemployment of labour is possible.

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<sup>6</sup> The literature on Dutch Disease first focused on the impacts of oil export (see, e.g. Buitier and Purvis 1982; Gelb 1986), later on other products, like coffee and drugs in Columbia (Kamas 1986) or copper (Kayizzi-Mugerwa 1991) where the same effects have been found. The Dutch Disease effects on Labour exporting countries were introduced by Knerr (1996). For a comprehensive presentation of the Dutch Disease model see Corden and Neary (1982).

Fig. 2.2 displays this basic model. Before the start of migration, at a wage rate of  $w_0$ ,  $0_n L_n$  workers are employed in the non-tradable sector and  $0_t L_t$  are employed in the tradable sector leaving  $U_0$  workers unemployed.

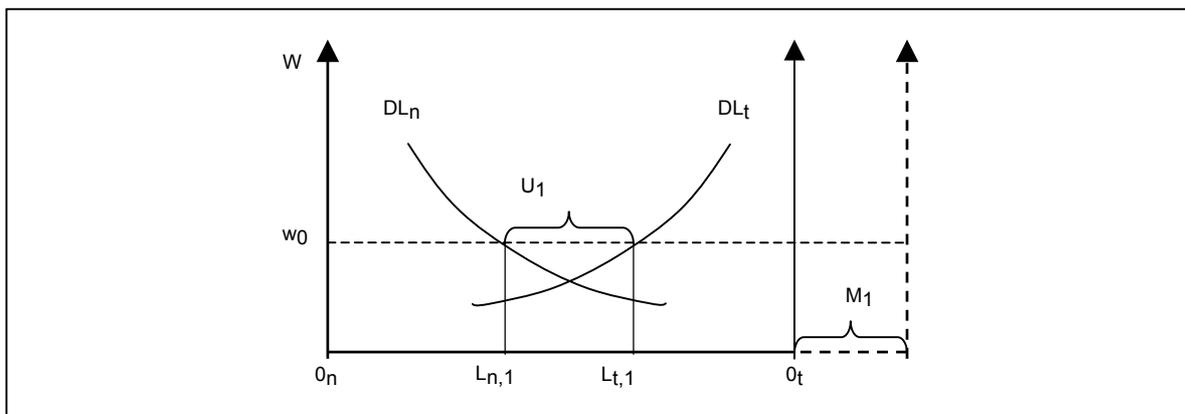
**Figure 2.2 The basic model of the Dutch Disease approach**



Source: Knerr (1996)

Without taking remittances into account and assuming unchanged household preferences, output will not decline as a result of labour out-migration because migrant workers are replaced by unemployed workers. Wages will remain unchanged as long as there is unemployment and the total demand of the economy will remain at the same level as deficient consumption of emigrants is compensated by higher consumption of those remaining.

**Figure 2.3 Dutch disease approach: restricted migration**

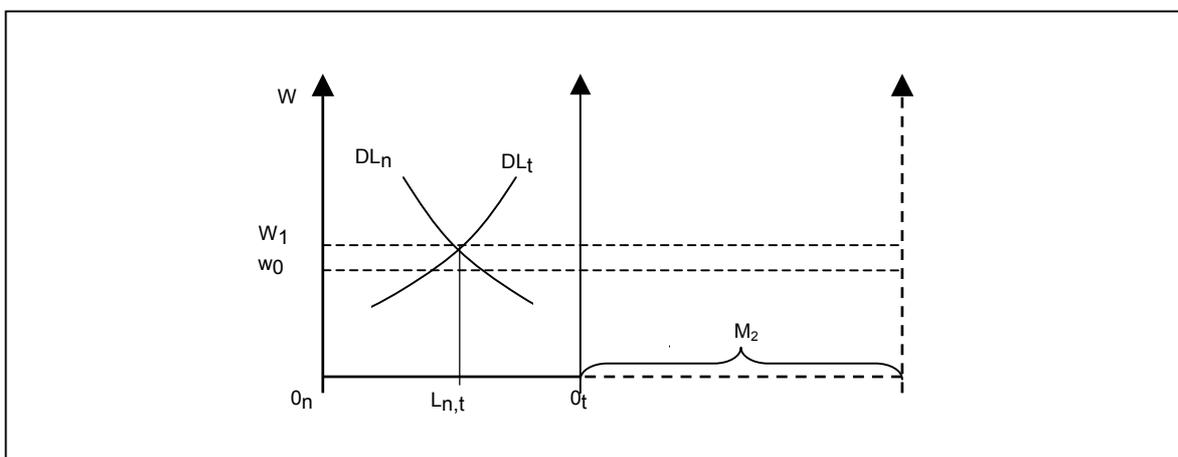


Source: Knerr (1996)

Out-migration under restrictions or quotas would lead to  $M_1 < U_0$  migrants leaving the country, thus reducing unemployment from  $U_0$  to  $U_1$  as shown in Fig. 2.3.

Migration might continue to take place until full employment is achieved. Beyond this point, the limited supply of labour will lead to an increase in wages as displayed in Fig. 2.4. Here the out-migration of  $M_2$  workers has reduced the labour force in both sectors to  $0_n L_{n,t}$  and  $0_t L_{n,t}$  respectively and wages increased to  $w_1$ . Out-migration would continue until  $w_1 = w_j \Phi - c_m$ , where  $w_j$  is the wage rate in the receiving country and  $c_m$  the cost of migration and  $\Phi$  the factor representing the preference to remain in the sending country.

**Figure 2.4 Dutch disease approach: unrestricted migration**



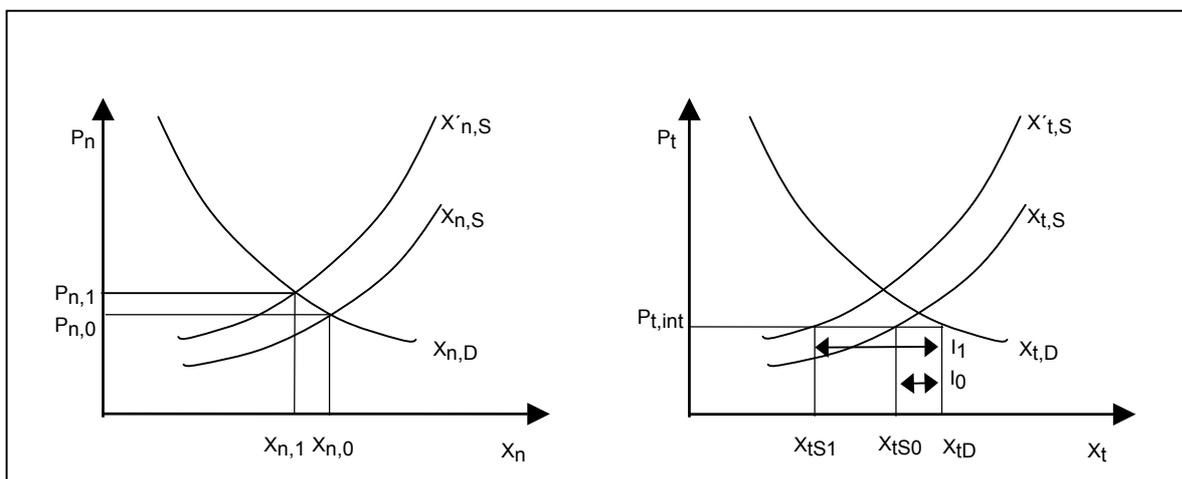
Source: Knerr (1996)

Higher wages would lead to a shift of the supply curve of both tradable and non-tradable goods as demonstrated in Fig. 2.5. In the case of non-tradable goods, the new supply curve  $X'_{n,S}$  intersects the unchanged demand curve at lower quantities  $X_{n,1}$ , thus reducing total demand quantity-wise. However, a part of this reduction is compensated by higher prices  $P_{n,1}$ . The decline in the tradable sector is more significant as the price is determined by the world market and remains unchanged, thus imports increase from  $I_0$  to  $I_1$ . This increase matches the decline of domestic production at unchanged demand.

Unrestricted out-migration would, therefore, lead to full employment and to the contraction of the economy of the sending country, the magnitude of which depends on the increase of marginal productions costs due to higher wages and

on the elasticity of domestic demand for those products. The less elastic demand and supply are, the higher the increase in wages is.

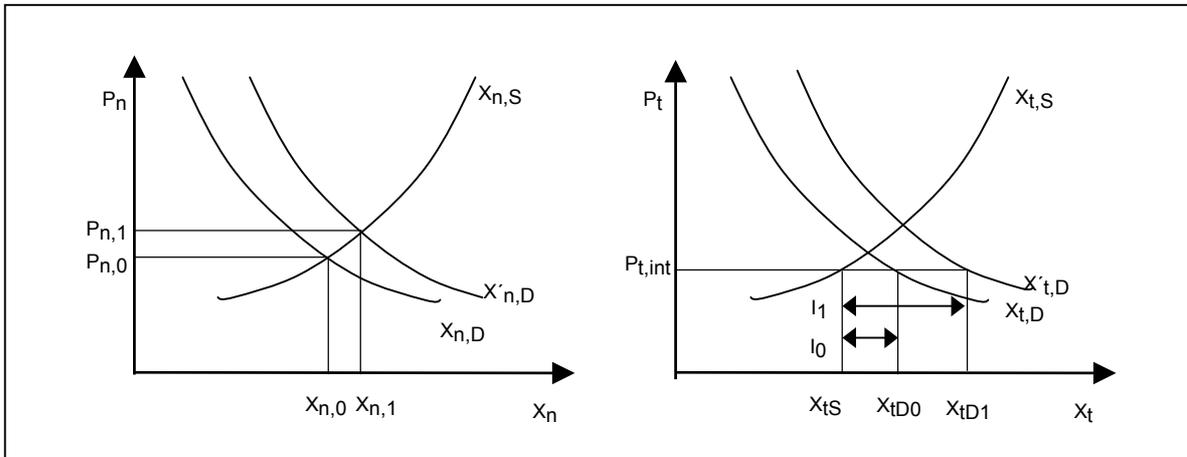
**Figure 2.5 Effects of increasing wages on the markets of tradable and non-tradable goods**



Source: Knerr (1996)

The above considerations have not yet included the impact of remittance income that normally characterises labour migration and results in an increasing total demand in the sending country. This increase depends on the share of remittances in GNP, the income of the groups receiving additional income, the propensities to spend income on investment or consumption, consumer preferences e.g. for purchasing imported rather than domestic goods, the elasticity of supply and on foreign trade restrictions. The demand for the products of both sectors shifts to the right in a magnitude that depends on consumers' preferences. Since capital is immobile in the short-term, supply remains unchanged. This situation is demonstrated in Fig. 2.6 where increased demand would lead to higher prices for non-tradable goods while the price of tradable goods remains unchanged since it is determined by international markets. The additional demand will be covered by imports, which will increase from  $I_0$  to  $I_1$ .

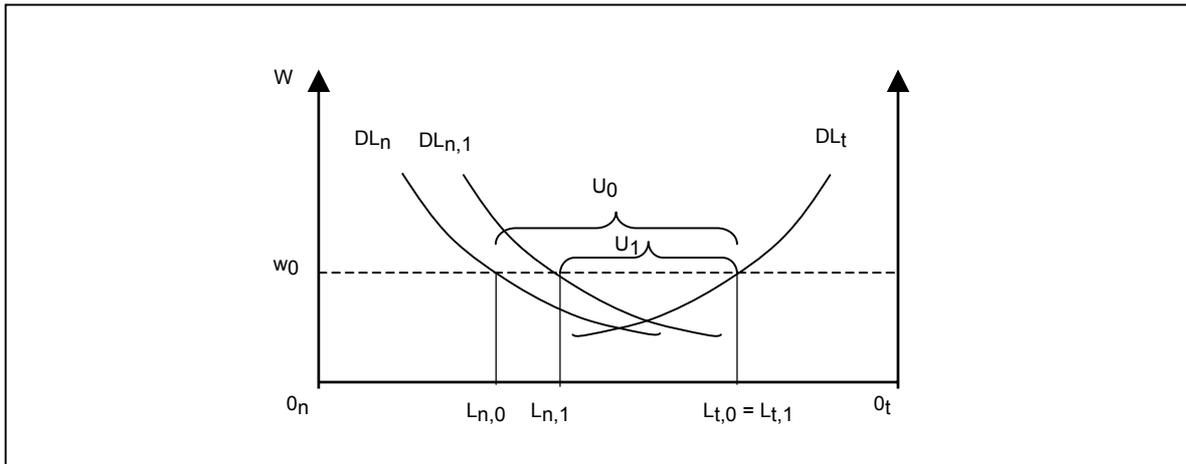
**Figure 2.6 Effects of remittances on the markets of tradable and non-tradable goods**



Source: Knerr (1996)

If unemployment prevails, the additional demand can be satisfied without increasing wages as demonstrated in Fig. 2.7. In spite of constant wages  $w_0$ , marginal cost, however, in both sectors will increase with output due to the given technologies. The  $DL_n$  curve shifts to the right, as  $P_n$  increases. The  $DL_t$  curve remains unchanged as higher cost leaves no incentive to increase output in  $X_t$  and higher demand will be satisfied by imports, which are more competitive on the world market. Employment and output, therefore, increase in the N-sector while the T-sector stagnates. This applies under the given assumption that capital shortages do not constitute constraints. Spending mechanisms increase labour demand in the N-sector by  $L_{n,0}-L_{n,1}$ . This reduces unemployment to  $L_{n,1}-L_{t,0}$ . As long as the higher demand for labour in the N-sector  $DL_{n,1}$  and the demand for labour in the T-sector  $DL_t$  do not intersect above  $w_0$ , wages will not increase.

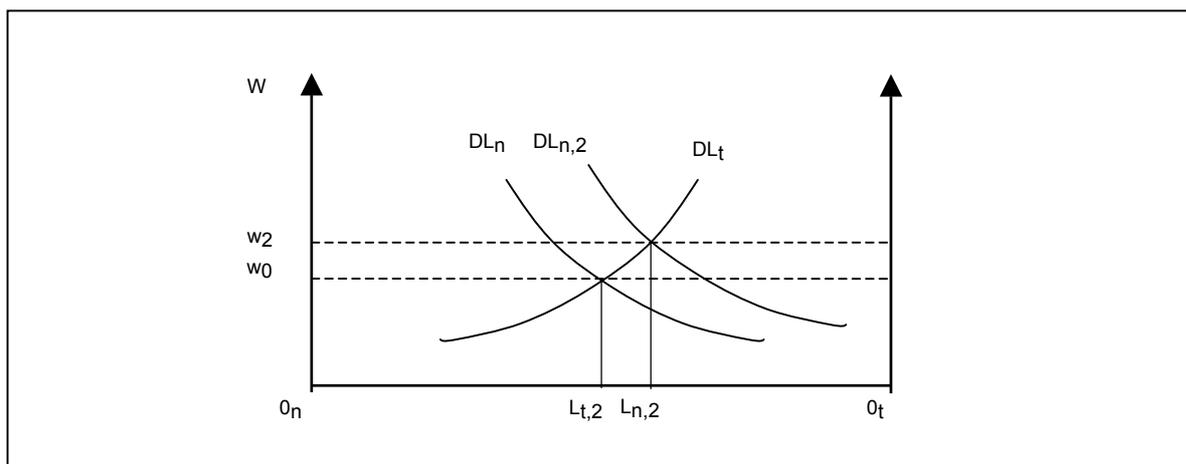
**Figure 2.7 Dutch disease approach: Spending effect with unemployment**



Source: Knerr (1996)

If at full employment the export of labour continues, both sectors of production will start competing for the available labour and as a result wages increase above  $w_0$ , which leads to an increase of the cost of production. The real exchange rate ( $p_t/p_n$ ) declines. Fig. 2.8 illustrates the adaptations to a labour export and remittance boom, which leads to full employment of labour. Since capital is assumed to be immobile in the short-term, additional demand through remittances does not induce real output growth. Growth is then supply constrained.

**Figure 2.8 Dutch disease approach: Spending effect with unemployment**



Source: Knerr (1996)

The continuing export of labour with increasing remittances will pull labour out of the T-sector, which will contract. The economy as a whole will develop a full

employment scenario. Remittances will cause inflation, the rate of which will be higher, the less elastic the supply of  $X_n$  is. To avoid this scenario, the sending economy can allow labour in-migration to replace the out migrating labour force. In-migration could take place if other countries with less favourable labour market conditions were to export labour. With labour in-migration wages would drop and employment in both sectors of the economy would increase. The effects of the Dutch Disease would be moderated and the country would regain some of its competitiveness on the world market. Labour in-migration and remittances from the economy would have the opposite impact on the economy as described for out-migration. The impact of replacement migration depends on the time it takes place as well as the income and price elasticities of N- and T-goods.

In the long run, capital is shifted to the sector where its marginal productivity is highest, namely, the N-sector. The T-sector loses competitiveness due to higher cost and unfavourable exchange rates. The external value of the currency appreciates due to an increase of foreign reserves caused by the inflow of remittances. In addition to the shifting of existing capital, capital accumulated from foreign income could also be invested in the N-sector of the domestic economy.

So in essence, the Dutch disease leads to declining international competitiveness through a higher cost of labour and the appreciation of the external value of the currency. A shift of labour and capital from internationally tradable goods sector towards the non-tradable goods sector takes place. The level of welfare under Dutch Disease symptoms may not be affected as long as the inflow of remittances remains unchanged. However, a reduction in remittances would result in an adaptation crisis, which always accompanies significant changes.

## **2.2 The role of education in forming human capital**

The theory of human capital, which was introduced by Schultz and Becker in the early 1960s, stresses the importance of intangible factors such as knowledge, skills and health in attaining higher incomes and achieving economic growth. The process of developing human capital is regarded as an investment that yields future returns to the individual and his society. By quantifying the cost and its future benefits, returns to investments in human capital can be calculated.

Human capital investments affect the whole economy through an improved supply of labour and its organisation. Humans are, therefore, regarded as "...an important part of the wealth of nations. Measured by what labour contributes to output, the productive capacity of human beings is now vastly larger than all other forms of wealth taken together" (Schultz, 1961).

According to Becker (1993), education and training are the most important contributors to human capital formation. His research has shown that high school and college education in the United States greatly raise a person's income, even after netting out direct and indirect costs for schooling and after adjusting for the better family backgrounds and greater abilities of more educated persons. Similar evidence is now available for many points in time and for a large number of countries (Psacharopoulos 1972, 1994, OECD 1998, Psacharopoulos and Patrinos 2002).

The cost of human capital formation consists of a direct part attributed to the attainment of education and training as well as an indirect part resulting from forgone income during education. According to Schultz (1961), forgone income comprises the greater part of the cost of building human capital. This finding, however, cannot be generalised as in many countries the lack of national education capacities leads to a significant number of students seeking education abroad, the cost of which can comprise the dominant part of the investment in human capital. High unemployment rates reduce the cost of forgone income.

Based on data provided by Psacharopoulos (1972) for 18 countries of which 10 were "less developed" Blaug (1973) finds that the private rates of return to education in these countries exceed the social rates of return despite the fact that the private rate takes into account only personal earnings after deducting income tax, whereas the social rate is calculated on earnings before income tax. He suggests that the reason for this is that the total resource costs of education everywhere exceed the costs that students and their parents have to bear themselves. His findings suggest that the private and the social cost of education have to be determined in any regional study to assess the gap between private and aggregate impact of investment in human capital. New findings by Psacharopoulos and Patrinos (2002) confirm that private returns to education remain higher than social returns.

The above findings are, however, challenged by two different points of view. On one hand, researchers question whether other factors besides formal education cause the increase in personal income, on the other hand they pose the question of whether the straight forward relationship between education and income, which is supported by evidence on the micro economic level still holds on the macro economic level (Psacharopoulos and Patrinos, 2002). The arguments of both parties are presented later in this section.

Following Mincer (1974), not only formal education but also experience plays an important role in determining income of individuals. He introduces a model of human capital with two inputs: education and experience, the latter expressed by the number of years working in a certain job. Using income data from non-farming, white US males, Mincer's model shows that schooling and experience account for two thirds of income equality in the reference group, whereby both factors have the same magnitude of influence. More recent research by Bils and Klenov (2000) using Mincer's model show similar results for 52 countries with an average of 5.000 observations per country.

Unlike the human capital approach, Thurow's (1975) job competition model states that productivity and earnings are more related to job characteristics than to the worker's educational attainment and that job skills are acquired either formally or informally through on-the-job training after a worker finds an entry job. The job-competition model entails a matching process in which two queues have to be brought into line: the job queue and the person queue. Jobs in the job queue are sorted according to the skills they require. Individuals competing for these jobs also form a queue, their relative position being determined by the qualifications they have acquired (Büchel, Pollmann-Schult, 2001). Employers are likely to assign the job to the individuals with the highest qualifications as this minimises the expected training costs. Instead of competing against each other on the basis of wages, individuals compete for jobs on the basis of background characteristics (Muysken & ter Weel, 2000). The consequence of the model is that individuals tend to invest more in their education than required by the jobs they fulfil which in turn implies a sub optimal use of resources and a reduced return to education.

Some research is directed towards the investigation of the signalling effect of education, i.e. whether educational attainment acts mainly as a screening or

sorting device that enables employers to allocate individuals to higher-earning occupations. If this is to be the case, there is a risk that the expansion of learning opportunities will simply increase the supply of credentials and produce only limited or no social returns. Groot and Hartog (1994) show that the screening and investment roles of education are not incompatible to some extent as employers may use educational qualifications as a signal to human capital. Altonji and Pierret (1996) empirically analyse how quickly employers learn about the true productivity of workers, and adjust their relative wages accordingly. Their results suggest that the value of education in predicting future wages does not decline over time, because the increased information about the individual's productivity that employers acquire by observing them on the job confirms the expected relationship between productivity and education levels. Over time, they claim that the "signalling component" of educational qualifications accounts for a relatively small part of the wage differential associated with education. Further research evidence confirms that education appears to play a significant role in human capital formation, over and above any role it plays as a screening device (Psacharopoulos, 1994).

Turning to the macro economic impact of education, evidence remains inconclusive. Lau, Dean, and Louat (1991) investigate the effects of education level expressed as the schooling years of the population in the age of 15 to 64 in five regions and find that education has a negative effect in Africa and the Middle East and North Africa and insignificant effects in South Asia and Latin America. They find a positive and significant effect only in East Asia. Benhabib and Spiegel (1994) and Spiegel (1994) find a negative correlation between increased years of schooling and the growth of per worker productivity (GDP divided by the labour force). Spiegel (1994) shows that the negative effect is robust to the inclusion of a wide variety of variables such as regional dummies, the size of the middle class, political instability, the share of machinery investment, and inward orientation. The World Bank's World Development Report 1995 on labour issues also notes the lack of importance of education in explaining aggregate growth (World Bank 1995, Fig. 2.4). López, Thomas, and Wang (1998) offer three explanations for the „education puzzle“, stating that the quality and an equal distribution of education as well as the policy environment are important factors in determining the impact of

human capital on economic performance. Using data from 91 countries<sup>7</sup>, Pritchett (1996) finds a significant negative correlation between human capital accumulation expressed in the years of schooling of the labour force and productivity growth expressed in the growth of GDP per worker. His analysis offers three explanations: schooling creates no human capital, the marginal returns to education are falling rapidly where demand for educated labour is stagnant, and perverse institutional environments misdirect educated labour to activities that are counter productive to economic growth (e.g. increased bureaucracy).

The technical capacity of economies is a further determinant of economic performance and entangling it from education comprises a further difficulty for research, since the characteristics of the labour force closely interact with the technological or organisational environment in which they work (OECD, 1998).

### **2.3 Is human capital migration a cost or a benefit to sending countries?**

Historically, the debate over the economic impact of human capital migration was captured in the “brain drain” literature, which emerged in the early 1960s and referred to the out-migration of British scientists to the US and Canada. In the following years, the expression turned into a „ ..description of the tendency for talent people from poor countries to seek employment in richer ones” (Gianoccolo, 2004).

In summarising the chronological development of the brain drain debate, aspects of cost and benefit related to human capital migration are highlighted and used in the building of a model to be presented in the next chapter. The summary draws mainly from three recent publications, which partly cite the same sources but also add different aspects of the brain drain discussion. These publications are referred to for comprehensive information and were made by Reichling (2001), Beine et al. (2002) and Hunger (2003).

In its early stages, the debate is theoretical and the welfare consequences of the brain drain are captured by two competing views: The international and the national view. The internationalists, lead by Johnson (1965, 1968), look at the

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<sup>7</sup> The data stems from two data sets containing the educational attainment of the labour force: Barro and Lee (1993) and Nehru, Swanson and Dubey (1994).

world as a whole and argue that the world only loses from brain drain if the net social cost of it exceeds the private gain to the migrants. A net social loss, however, would only occur if the loss of externalities to the sending countries is greater than the gain of externalities to the receiving countries. Grubel and Scott (1966a, 1966b), while supporting the nationalist view also argue that no loss to the sending countries is associated with brain drain as they assume that the national objective is to maximise welfare for the nation, including its migrant population abroad. They reject the argument that educated emigrants have a debt to the society and argue that there are several important ways in which brain drain increases the welfare of the sending country such as increasing the sending nation's capital-labour ratio and thus raising the long-run average income of those left behind. In addition, emigrants significantly raise the incomes of their families at home through remittances. The potentially largest benefit to those left behind, however, is claimed to arise from the research of scientists and engineers in the receiving country because the product of basic research is a free good and becomes available to all as it is published<sup>8</sup>. Because most scientists emigrate to countries where conditions for conducting research are better, there is a high probability that out-migration will increase the scientists' overall productivity. For these reasons, they conclude that the continuation of policies supporting the free movement of human capital would be beneficial to all parties.

Godfrey (1970) criticises Johnson's international view as based on the value-judgement that the international distribution of income does not matter and suggests that the welfare goal should be that of equal distribution of income among individuals in the world. Given this view, the question as to the effect of the brain drain upon this distribution would have to be raised. Similarly, Weisbrod (1966) also comments on Grubel and Scott's national view that it ignored redistribution effects, which in his opinion are likely to be the most important consequence of brain drain. Godfrey argues that the question of compensation from the emigrants to the sending countries for the education they received should depend on the extent of externalities of education. At the same time he acknowledges that these externalities are almost impossible to measure. He concludes that there is a net

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<sup>8</sup> This view is only valid with regard to public research. Research conducted in private enterprises mainly profits the enterprise itself (remark by the author).

cost resulting from brain drain to the sending country and that the best policy measure is to try to keep the skilled workers in the sending countries. As restricting out-migration is seen to be a difficult task, Godfrey suggests that the sending countries would have to decrease the number of students who study abroad and increase the number of students who study in their home country. In addition, domestic education should be specific enough so that it would be completely unacceptable to foreign employers, preventing highly educated persons from migrating after their graduation.

The externalities related to human capital can also contribute to redistribution effects where income between the sending and the receiving countries diverge. This polarisation concept with fast growing centres and slowly growing peripheries, was introduced by Myrdal (1956, 1957). The centres have an advantageous position due to capital and knowledge intensive production. Individuals there can become more productive than in the peripheries by accumulating knowledge and benefiting from more learning by doing opportunities. As a result, a cycle of increasing income differentials and, thus, increasing migration incentives takes place. Krugman (1991a,b) arrives at similar conclusions by modelling the emergence of a (income) diverging centre-periphery pattern through migration. As the production function exhibits increasing returns to scale in the centre, migration from the periphery to the centre is likely to occur and will clearly benefit the centre and leave the remaining immobile factors of production in the periphery worse off.

Externalities occurring as spill-over effects such as economies of scale and externalities related to human capital and which are not internalised by the market in the form of price changes are termed non-pecuniary externalities (Straubhaar, 2000). Pecuniary externalities occur when the market internalises the externalities in its pricing of the goods. For the sending country, this could mean that the resulting scarcity of skilled labour following out-migration might lead to increased wages for the skilled labour and hence to reduced returns to capital holders. In addition to that, it might also lead to a reduction in the wages of unskilled labour, if unskilled labour is complementary to skilled labour as the ratio of unskilled to skilled labour increases.

Financial externalities (Layard et al., 1992) occur when the investments of the sending countries are lost due to the out-migration of individuals in whom this

investment was made. This cost can increase considering the selective nature of migration, which leads to the out-migration of the most skilled persons in the society. Further more, if as above described, the skilled labour is complementary to unskilled labour and enhances its productivity, out-migration of skilled labour leads to an overall loss in productivity in the sending country. The quality of services, i.e. health care and education may suffer due to the out-migration of human capital (Lucas, 1994). Therefore, out-migration would have an adverse impact on the productivity of those left behind.

To counter all these negative effects in the sending countries, a migration tax was proposed (Bhagwati and Dallalgar, 1973). This tax would be levied in the receiving country and transferred to the sending country. The problem with this tax, is that the receiving countries have no incentive to sign such an agreement with the receiving countries. The issue is revived in the context of a more comprehensive "general agreement on movements of people" where Straubhaar (2000) suggests an arrangement, whereby the sending and the receiving countries profit. Sending countries would collect an exit fee from educated persons emigrating and tax all their citizens living abroad in addition to the taxes levied by the receiving country. This way a compensation for brain drain would be achieved. At the same time receiving countries would collect an entrance fee from all unskilled workers, who potentially could crowd out local labour. The net result would be an increasing cost of migration and, in effect a reduction of movement of skilled and unskilled labour across borders.

The 1980s marked a turning point in the brain drain debate. According to Blomqvist (1986), the stocks of educated manpower expanded in many low-income countries. The earlier shortage of university graduates to fill key positions turned into a situation where graduates faced increased difficulties in finding jobs. The view, that out-migration of human capital would not adversely affect the sending country, if there were an excess supply of educated persons is discussed by de Tinguy, and de Wenden (1993) and Lucas (1994) in the case of East European states.

Reichling (2001) states, that in the presence of brain drain, individuals have greater incentives to become educated because they have the opportunity to receive employment at higher than domestic wages abroad. When considering restrictions on the number of individuals that are able to migrate, e.g. due to visa restrictions,

his theoretical model shows that levels of education will be higher with a positive probability of migration than with no probability of migration. He assumes that levels of education play a crucial role in economic development and, therefore, the increase of the supply of educated persons supports development.

Even studying abroad, which in the early brain drain literature was synonymous with the loss to the sending countries finds empirical evidence to the contrary. Rogers (1999) finds that countries with relatively high numbers of students studying science or engineering abroad experience faster subsequent growth. However, he also indicates that the significance of coefficients varies across specifications and samples, suggesting caution in focusing on individual results.

Ladame (1970 as cited by Hunger, 2003) remarks, that a conclusive assessment of the brain drain in the 1950s and 1960s would only be possible at a later point in time. Only then would it be possible to judge whether the migrations of the elites would not return one day and contribute to a brain gain to the sending countries similar to the gain of the receiving countries. To allow this possibility, he introduced the term „circulation des élites“, which is now established as “brain circulation”. Another alternative, is the term “brain exchange, which expresses a “balance between the number of qualified persons emigrating from and returning to the sending countries and suggesting possible positive impacts from the migration of these elites (Hunger, 2003).

An increasing number of studies state that the build up of diaspora networks and return migration or a combination of both are beneficiary to the sending countries (Meyer 2001, Iredale/Guo 2000 as cited by Hunger 2003, Hunger 2003). These networks can be scientific in nature and contribute to the transfer of knowledge and technology either virtually (e.g. through the internet) or physically through forums and exchange programmes for scientists between the sending and the receiving countries. The other form of networks is commercial and involves the investments of firms in the sending countries (India: Fromhold-Eisebith, 2002; Hunger, 2003; Khadria, 1999; China and Taiwan: Chang, 1992; Saxenian, 2002; Gill et al., 2002, as cited by Hunger, 2003). The aim of these studies is to analyse the influence of emigrants who returned and founded firms, thereby, utilising the knowledge gained in the receiving countries and the cost advantage of labour in the sending countries.

Based on data from around 1.500 Egyptian returnees, McCormick and Wahba (2001) found that foreign employment played a significant role in determining whether individuals became entrepreneurs after returning home. This results from both the influence of total savings overseas, which may help avoid liquidity constraints, and from the length of overseas employment, which may reflect skill and ideas acquisition. According to the study, the migrants on average saved 40% of their income earned abroad.

Although the brain drain literature delivers numerous insights as to where costs and benefits incur to the sending countries, according to Beine et al. (2002) the debate has remained almost exclusively theoretical. The main reason for this is thought to stem from the lack of harmonised international data on migration flows by origin country and education.

There have, however, been attempts to quantify the cost of labour out-migration. One study by Reddy, Mohanty and Naidu (2004) attempts to measure the cost of “human capital loss” from Fiji Islands between 1994 and 2001 by adding the expenditure on health and education<sup>9</sup>, the net present value of forgone income over the period in which the person was not replaced (income was proxied by the per capita income) and the transfer of the migrant’s savings out of the country. The loss adds to 35 million US\$ or roughly 6.500 US\$ per person.

## **2.4 Implications from the theory for the present study**

This section presents the impact of labour migration on the sending country using different theoretical approaches. From the migration of (homogenous) labour two conclusions are drawn: The first conclusion is that the employment situation plays an important role in determining the loss to the sending country. In the presented models, under unemployment conditions, the sending country suffers no cost from out-migration as members of the unemployed labour force replace out-migrating labour. The second conclusion is that the income of the sending country increases by the inflow of remittances. The impact of these remittances also depends on the utilisation of the factors of production. When labour is idle and remittances are not

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<sup>9</sup> Per capita expenditure on health and education was used. For professionals it was assumed that the cost of tertiary education was 5.900 US\$ per person.

entirely spent on imports, national income increases and depending on the marginal propensity to consume, multiplier effects can take place. Under full employment conditions, increased remittance income results in inflation.

Although many studies question, whether education always leads to economic growth and whether income increases result from formal education or other factors, there is ample evidence of private and social returns from education. Hence, from the economics of education the conclusion is drawn that education has a cost, the effectiveness of which can be measured by increasing future income. This on the other hand implies that forgone income to the sending country is higher from the out-migration of its educated than from its uneducated labour force. The magnitude of this loss, however, has to be determined by the cost of education and by the skilled labour market situation. The impact of phenomena, such as the education puzzle and the job competition model on the return of education and migration will, therefore, be incorporated in the results. As these phenomena are related to education in general and not to migration specifically, no attempt will be made to isolate their impact.

The brain drain discussion lends insight 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 income distribution is raised by many authors and almost always yielded a loss to the sending countries and a gain to the receiving countries. Later literature, however, raises three important issues leading to gains to the sending countries. The first is that an increasing number of individuals invest in education so as to increase their chances in acquiring high paying jobs abroad. As not all out-migrate, the educational attainment of the remaining labour force remaining behind increases. The second issue is, that while migrants are abroad, communication and networks with the sending country result in a flow back of information that potentially leads to increased entrepreneurial activities and, thus resulting in increased income. The third issue involves benefits to the sending country through remittances and by the physical return of the migrants after acquiring new skills which they apply to increase productivity.

Finally, any empirical model trying to assess the economic impact of human capital migration has at least to take a theoretical account of the externalities involved in

the process. Whether these externalities can be practically measured is determined by the quality of the collected data. The implication of the theory results in the formulating of the model used in this study and presented in the next chapter.

## **3 Methodology**

The hypothesis set up in this study is, that the migration of human capital involves net economic benefits to the sending country. The output of significantly more educated persons than the local labour market absorbs may be interpreted as a successful "export" strategy, supplying a stream of remittance income and a back-flow of migrants' experiences gained abroad and resulting in enhanced productivity. This chapter is concerned with the choice of methodology and the construction of a model to support the hypothesis.

### **3.1 Methodology choice**

According to the World Migration Report 2005 (IOM, 2005), empirical studies in migration literature abounds. However, they have generally been designed as micro projects. Moreover, micro-level studies involving interviews in migrant households or village surveys have been the basis for assessing the impact of out-migration on the sending countries (Knerr, 1996). The deducted macro economic reactions from the observed households involve limitations as no second round and multiplier effects are included. To assess the macro economic impact of out-migration and remittances, Knerr suggested cost benefit analysis, regression analysis, social accounting matrices and general equilibrium models as possible methodologies. However, these methodologies require macro economic data, which is not available for many countries.

The present study is faced with the challenge of measuring the impact of a subgroup of out-migrants, namely, persons with higher education also termed skilled workers or human capital. Needed macro economic data for such an analysis are not even available in advanced economies. Therefore, a micro economic approach, i.e. data collection and the analysis of the economic impact of single persons on the economy presents a practical solution to the problem at hand.

A person who invests in his/her higher education and then out-migrates, influences the economy of the sending country over a longer period of time. During this "life cycle" the economy has costs and incomes from a number of factors. To arrive at

the net result for the economy, cost benefit approach is applied on the individual level. This methodology enables a systematic cataloguing of pros (benefits) and cons (costs), valuing in monetary terms (assigning weights) and then determining the net benefits relative to the status quo (Boardman et al., 2001).

The cost benefit approach is termed “social”. According to Campbell and Brown (2003) social cost benefit analysis is used to appraise a project or a programme from the point of view of the society as a whole. Thereby, the Kaldor-Hicks criterion is adopted, which states that a net benefit results when gainers in the society can fully compensate the losers and still be better off. Therefore, net social benefits (*NSB*) are the difference between social benefits (*B*) and social costs (*C*):

$$NSB = B - C \quad (3.1)$$

Besides the definition of the “referent group”, two further issues have to be considered in the course of a cost benefit analysis. The first is the implication of the time frame and the second is the weighing of different costs and benefits to arrive at the net results. These are discussed in the following for the present study.

The “referent group” of the underlying study is considered to be the population of the sending country i.e. the study follows the “national” approach, as it excludes the welfare of the population residing outside the country. An emigrant’s income abroad in this study, thus, has a private impact on his/her personal welfare but is of no significance to the sending country as far as it is consumed in the receiving country. If, however, a part of this income is remitted and spent in the sending country, the welfare of the country would be positively impacted as national income increases. The increase may even be larger than the remitted amount if multiplier effects can take place<sup>10</sup>. A returning migrant is again included in the referent group. His/her contribution to the welfare of the country results from spending his/her repatriated savings, and from increased productivity due to skills and knowledge gained abroad.

The impact of human capital out-migration that is to be assessed extends over a longer period of time. Therefore, discounted cash flow analysis (DCF) is

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<sup>10</sup> Multiplier effects take place when the economy is working below its potential output which is the case in many sending countries (e.g. high unemployment rates).

necessarily a part of the analysis, whereby costs and benefits weigh less the further in future they occur. DCF either calculates a net present value by using a “social rate of return” or an internal rate of return by setting the net present value equal to zero.

$$NPV = \sum_{t=1}^{t=n} \frac{NSB_t}{(1+r)^t} \quad (3.2)$$

Where

- $t$  time in years
- $n$  time frame of the project or programme in years
- $r$  rate of return

The internal rate of return can be used to express the benefit when there is only one alternative to the status quo (Boardman et al., 2001), which is the case in this study.

Campbell and Brown (2003) present the discussion on whether the social discount rate should be lower or equal to the market rate. The proponents of a lower discount rate argue that the absence of future generations in the capital markets consists a market failure. This market failure leads to a higher interest rate as the present generation is less inclined to allocate resources to the future. Future generations on the other hand would execute more projects yielding future returns by setting a lower discount rate. The opponents of a lower social rate of return argue that there is plenty of evidence that individuals do take the needs of future generations into account as people regularly bequest funds in excess of their personal needs in their lifetimes to their children. Boardman et al. (2001) present two alternative approaches to arrive at an appropriate rate of return. The first is using the marginal social rate of time preference method, which is the rate at which individuals in the society are willing to postpone a small amount of current consumption in exchange for additional future consumption.

This rate is best represented by the real after tax return on savings:

$$r_p = r_m - f - t \quad (3.3)$$

Where

$r_p$	marginal social time preference rate of return
$r_m$	market rate of return
$f$	inflation
$t$	tax rate

The second approach is using the weighted social opportunity cost of capital (WSOC). This approach is based on the assumption that government investments not wholly compete with private investments but partially use resources formerly used for consumption or are borrowed from abroad. WSOC is therefore valued as follows:

$$WSOC = ar_m + bi + (1 - a - b)r_p \quad (3.4)$$

Where

$a$	proportion of resources displacing private investment
$r_m$	the market rate of return
$b$	proportion of resources borrowed from abroad
$i$	the governments long-term borrowing rate
$(1-a-b)$	proportion of resources displacing private consumption
$r_p$	marginal social time preference rate of return

From the above discussion it becomes obvious that all discount rates used to evaluate programmes or projects have lower discount rates than the market rate for investments. As the present study uses the internal rate of return approach, it benchmarks the findings with the market rate of return, thereby arriving at a “conservative” evaluation of the outcomes.

The second important issue in a cost benefit analysis is assigning weights to costs and benefits to allow their aggregation. Market prices are the first approach to such an evaluation. However, market prices may not always be available or distorted due to market failure. An alternative approach to measure benefit is to assign a

value represented by the willingness of the society to pay for this benefit (Knerr, 1996; Boardman et al. 2001). Costs include losses that result from using the resources in alternative projects, the so called “opportunity costs”.

Benefits as well as costs may be amplified by second round effects, which are treated in the following section, where multiplier effects in the economy are discussed.

Besides the choice of an adequate interest rate, the main uncertainty of a cost benefit analysis lies in the inclusion of the accurate costs and benefits of the project or programme to be analysed. According to Boardman et al. (2001) two types of circumstances constitute limits to a cost benefit analysis. First, technical limitations may prevent the quantification of all costs and benefits and second goals other than efficiency are relevant to the policy. To overcome such difficulties, sensitivity analysis can be introduced to establish possible variations in one or more factors. External effects and tangibles often represent such limitations. In the case of out-migration, for example, the sending country may become more dependent on the receiving country or may profit by the outflow of dissatisfied unemployed labour. Likewise, social hardships on the migrants and their families or the erosion of values in the sending countries by the introduction of the host countries' life styles can be regarded as aspects relevant for a cost benefit analysis. According to Knerr (1996) such effects should be accounted for, at least on a qualitative basis. Risk and uncertainty lead to a decreased tendency to out-migrate and could, therefore, have an impact on the economy of the sending country. This issue, however, was not incorporated in the present considerations.

## **3.2 The human capital migration model**

### **3.2.1 Underlying assumptions**

This section introduces the model on which the evaluation of human capital migration is based. In applying this model it is assumed that the individual migrant's behaviour does not have any impact on the economy's price vector. A further assumption is that the labour market has perfect competition and income matches the marginal product of the labour force.

Additional income to the economy, such as remittances and repatriated savings may result in multiplier effects if there are unemployed resources in the economy. When some resources are unemployed, recipients of additional income will spend some of this income on additional goods and services produced within the economy. The recipients of this income would in turn also spend a part of this income on locally produced goods and services. The total increase in income is, therefore, greater than the initial increase caused by migrants' expenditures. The ratio between the total increase to initial increase is the so called "Keynesian income multiplier", which is calculated according to equation 3.5 (Lewis, 1988):

$$m = \frac{1}{1 - c(1 - imp)} \quad (3.5)$$

Where

- $m$  Keynesian income multiplier
- $c$  marginal propensity to consume out of disposable income
- $imp$  marginal propensity to import out of consumption expenditure

The multiplier in equation 3.5 increases the more is consumed and the less is saved ( $1 - c$ ). It decreases, however, the more consumption expenditures is directed towards imports.

Multiplier effects stemming from remittances can be calculated via regression analysis. The model for the regression analysis is based on the assumption of a demand-constrained economy where growth of output (GDP) is determined by demand from external sources (Knerr, 1996). In this analysis these have been remittances ( $R$ ), foreign aid ( $Fa$ ), exports of goods and services ( $Ex$ ) and change in total debt ( $Dt$ ) according to the following equation:

$$dY = A + \varepsilon_1 dR + \varepsilon_2 dFa + \varepsilon_3 dEx + \varepsilon_4 dDt \quad (3.6)$$

Where

- $A$  a constant term
- $\varepsilon_i$  the elasticities of the variables

The calculations are performed additionally with annual time lags of one and two years in order to accommodate delayed adaptations, which should be particularly

relevant for industry, where project realisation generally extends over such periods of time.

The absence of students and migrants from the labour market is regarded an opportunity cost resulting from forgone production. According to Davis (1993) the opportunity cost of unemployed labour is nil, since no production is forgone by their use. There are, however, some concerns with this approach. Since the study covers a period of more than one year, the level of unemployment may vary and at some time, out-migration may draw resources from the labour market. This concern is taken care of in this study by sensitivity analysis where the calculations are performed for unemployment and full employment<sup>11</sup>. Further more, placing no opportunity costs on unemployed labour assumes that there are no psychic benefits of labour or unemployment benefits. This study neglects both on the grounds that in many low-income countries, the unemployment problem is to a negligible extent caused by leisure considerations and unemployment benefits are virtually non-existent. Where out-migrants or students are replaced by formerly unemployed labour, costs for training may arise (Knerr, 1996). This issue is also handled by the sensitivity analysis.

The question arises, whether these opportunity costs have to consider income multiplier effects i.e. unproductive labour during education or migration leads to a contraction of the economy that is larger than the loss of this labours' production. To clarify this question it is assumed that the opportunity costs consider the multiplier effects according to equation 3.7:

$$C_{op} = mY \tag{3.7}$$

Where

- $C_{op}$  opportunity cost of forgone income
- $m$  Keynesian income multiplier
- $Y$  individual's income, which is assumed to equal to marginal production

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<sup>11</sup> Full employment and unemployment represent the extreme positions of the calculations. In reality, „absolute unemployment“ where anybody can be replaced, seldom prevails. The sensitivity analysis, therefore, yields the range in which results are probable.

In calculating forgone production, and assuming a homogenous labour market, the employment situation has to be taken into account. In the case of full employment, the economy is operating at its potential output and multiplier effects do not take place. The loss to the country by out-migration is, therefore, limited to the forgone income itself. In the case of unemployment, out-migrating labour is assumed to be replaced by formerly unemployed labour and no loss occurs to the economy. To capture this consideration, equation 3.7 is extended by the variable  $p$ , which assumes the values 0 for unemployment in the economy and the value 1 for full employment:

$$C_{op} = pYm^{(1-p)} \quad (3.8)$$

Equation 3.8 shows that  $C_{op}$  can only assume the values  $Y$  or 0. Therefore, multiplier effects cannot be assumed for forgone income in homogenous labour markets.

In the case of human capital, labour markets have to be differentiated according to skill levels and professions. This study differentiates between two skill levels, where skilled workers have invested in higher education while unskilled workers have not. Even though there may be significant unemployment in the unskilled labour market, the skilled labour market could experience a “full employment” situation. The following equations, which describe the costs and benefits to the sending country during the migration life cycle, are set so that different employment scenarios in the skilled and unskilled labour markets can be calculated. In the case of full employment in the labour markets, opportunity costs have to be considered. In the case of unemployment in the labour markets, they diminish. As the unskilled labour market is larger than the skilled labour market, it is assumed that in the case of unemployment in the unskilled market, the economy is demand constrained and multiplier effects can take place.

A demand constrained economy resulting from unemployment in the unskilled labour market, also necessitates considering multiplier effects for remittances. The accelerator effect of invested remittances, however, is neglected as investments in many developing economies are significantly lower than remittances and it is not clear whether remittances are a significant cause for investments or not. In the case of Jordan, larger industries were initially established by the government and

their execution often involved foreign aid. For this reason, negative accelerator effects from forgone investments by out-migrants are also neglected.

An educated person usually conveys benefits to the society by communicating his/her knowledge and experience to his/her environment, independently of whether this person were employed or not. The scope of possible negative and positive externalities was discussed in chapter 2. Evidence that enables a quantification of such externalities is missing in the literature, therefore, in this study it was assumed that negative and positive externalities are equal and therefore, neglected in the further scope of this study. Should the assumption of equality not hold, the magnitude of net externalities is still insignificant to alter the results of the model.

### **3.2.2 The migration cycle**

The model used in this study subdivides the migration cycle of a migrant with higher education into three periods: Higher education, migration and return. In reality multiple migratory movements with more or less extended periods of residency in the sending country, with or without employment, are common. The model can be expanded to accommodate such cases. The relevant costs and benefits as well as their indicators and data sources are presented in Tab. 3.1.

Due to the limited available data, a survey was designed and conducted to close the gap necessary to perform the calculations to be derived in this section.

**Table 3.1 Costs and benefits in the human capital migration cycle**

<b>Period</b>	<b>Costs/Benefits</b>	<b>Indicators</b>	<b>Data Sources</b>
<b>1. Higher education</b>	Cost of education	University expenditures. In the case of foreign education additionally: The net cost of living abroad	Annual reports of education ministries and universities, published data on tuition fees and the cost of studying abroad.
	Opportunity cost of forgone Production	Average wages of labour without higher education	Statistical yearbooks
<b>2. Migration</b>	Opportunity cost of forgone Production	Average wages of labour with higher education	Survey, statistical yearbooks
	Transaction costs	Cost of travel and relocation	Estimations based on flight ticket costs
	Remittances (benefit)		Survey
	Externalities (cost)	Neglected	
<b>3. Return</b>	Repatriated savings (benefit)		Estimations
	Higher productivity (benefit)	Income after return	Survey
	Externalities (benefit)	Neglected	

Source: Author

### 3.2.2.1 The period of higher education

During the period of higher education, the potential migrant receives his/her higher education. The acquirement of higher education is regarded as an investment whose return stems from higher productivity in the years following this higher education period. To the sending country, this investment consists of the resources devoted to educating the migrant and his/her forgone production during that period.

The calculation of the cost of higher education requires the application of marginal analysis, i.e. the relevant cost of higher education to the sending country is the cost of educating one more person:

$$C_E = C_E^n - C_E^{n-1} \quad (3.9)$$

Where

$C_E$  marginal cost of education for one student

$C_E^n$  total cost of education for n students

$C_E^{n-1}$  total cost of education for n-1 students

During higher education, the economy of the sending country may bear opportunity costs, which result from the migrant's absence from the labour market. In the case of full employment in the unskilled labour market, the opportunity costs have to be considered. In the case of unemployment in the unskilled labour market they diminish as migrants are replaced by formerly unemployed workers. According to equation 3.8 no multiplier effects need be considered. The situation in the unskilled labour market is accounted for by a variable  $u$ , which assumes the value of 0 for unemployment and the value of 1 for full employment there. Under the assumptions that perfect competition prevails and that income reflects marginal productivity, this cost is equal to the income of labour without higher education ( $C_{OPE}$ ).

Hence, the total cost of investment in higher education for one individual is:

$$I_E = C_E + C_{OPE} \quad (3.10)$$

Where

- $I_E$  investment in education
- $C_E$  marginal cost of higher education
- $C_{OPE}$  opportunity cost of labour moving into higher education

Replacing the opportunity cost according to equation 3.7 and expressing the investment in education as the sum of the education years results in equation 3.11:

$$I_E = - \sum_{t=1}^k (C_{Et} + uY_{Et}) \quad (3.11)$$

Where

- $C_{Et}$  marginal cost of higher education in the year t
- $Y_{Et}$  average income of an unskilled worker in the year t
- $k$  total years spent receiving higher education
- $u$  variable assuming the value 0 for unemployment and 1 for full employment in the unskilled labour market

Since the student would have worked as an unskilled worker had he/she not received a higher education  $Y_{Et}$  is the income of an unskilled worker.

If the educational institutions in the sending country have excess capacities, the marginal cost may be significantly lower than the average cost of higher education, which consists of the depreciation of capital investments such as the equipment and buildings of educational institutions as well as the running costs such as the cost of educational staff and maintenance divided by the number of students.

The average cost of education for one student is expressed as:

$$C_{\bar{E}} = \frac{C_E^n}{n} \quad (3.12)$$

Where

- $C_{\bar{E}}$  average cost of education for one student
- $C_E^n$  total cost of education for n students
- $n$  total number of students

The total cost of higher education is usually split between the government and the person (or his/her family) seeking to invest in his/her higher education. Both components, if spent on potential migrants, represent a cost to the sending country, as these funds are no more available to consumption or investment in other sectors of the economy.

### 3.2.2.2 The period of out-migration

According to the model, the person who finishes his/her higher education out-migrates to a foreign country for work. This step involves one-time transaction costs, which at least include travel expenses. These costs may increase with the distance between the sending and the receiving country or if multiple journeys have to be undertaken to find and negotiate potential work contracts. These costs may also include the cost of moving the whole household to the foreign country if the employer there does not compensate the migrant for these expenses.

In the period of out-migration, the economy of the sending country may experience further opportunity costs from the migrant's absence from the labour market. The existence of opportunity costs depends on the employment situation in the skilled labour market. In the case of full employment in the skilled labour market the

opportunity costs have to be considered. In the case of unemployment in this market the opportunity costs diminish. The situation in the skilled labour market is accounted for by a variable  $z$ , which assumes the value 0 for unemployment and 1 for full employment there. In this period, the opportunity costs are higher than in the period of education as the migrant's potential productivity was enhanced due to his/her higher education. Under the assumption that perfect competition prevails and that income reflects marginal productivity, opportunity costs are equal to the income of skilled labour. Whether multiplier effects take place or not depends on the employment situation in the unskilled labour market. When unemployment prevails in the unskilled labour market the economy is assumed to be demand constrained and multiplier effects can take place.

During his/her residency abroad, the migrant regularly sends remittances to the sending country. Multiplier effects of remittances on the sending country may have to be considered if the economy is demand constrained (unemployment in the unskilled labour market). If the economy is supply constrained, no resources are available in the short run to meet the additional demand and inflation will result (see also 2.1.2).

Costs and benefits during this period are then summarised by equation 3.13:

$$NSB_M = -C_t + \sum_{t=k+1}^q (m_R R_t - z m Y_{Mt}) \quad (3.13)$$

Where

- $NSB_M$  net social benefit of migration
- $C_t$  transaction costs of migration
- $m_R$  remittance multiplier
- $R_t$  remittances in the year  $t$
- $m$  income multiplier
- $Y_{Mt}$  average income of a skilled worker in the year  $t$
- $k+1$  the first year of out-migration
- $q$  the last year of out-migration
- $z$  variable assuming the value 0 for unemployment and 1 for full employment in the skilled labour market

### 3.2.2.3 The period of return

After having spent some years abroad, many migrants choose to return to their country. This period extends over the rest of the migrant's economically active time span after his/her return home and ends with his/her retirement. This period is assumed to contain benefits resulting from repatriating and spending accumulated savings and from implementing improved skills and experience leading to increased productivity (as compared to the productivity of non migrants with the same formal qualifications) in the sending country. Benefits to the sending countries result either from the additional production of skilled workers when skilled workers are short in supply, or from improved productivity when existing labour is replaced by better skilled returnees.

The model assumes, that in the year of his/her return, the migrant repatriates and spends savings  $S$ , which are treated the same way as income spent in the sending country including its possible multiplier effect. Again, whether multiplier effects take place or not depends on the employment situation in the unskilled labour market (see period of migration). In the model, possible pension payments are neglected, as in many Middle Eastern countries, it is customary that employees receive a lump sum payment at the termination of their employment.

The production of a returnee is assumed to be higher than the average production of a skilled worker in the sending country. Since income is assumed to reflect marginal productivity, the returnee acquires a higher paying job than an average skilled worker. The returnee either replaces a former skilled worker when there is unemployment in the skilled labour market or increases the number of skilled workers when there is full employment in the skilled labour market. Whether multiplier effects take place or not depends on the employment situation in the unskilled labour market. In the case of unemployment in the skilled labour market the benefit to the sending country is the income difference between the returnee's income and the average income of a skilled worker. In the case of full employment in the skilled labour market, the sending country profits from the full income of the returnee. As in the period of out-migration, the employment situation in the skilled labour market is accounted for by the variable  $z$ . According to the model, the benefit to the sending country extends between the time of the migrant's return to the time of his retirement.

The net social benefit of return is, therefore, represented by equation. 3.14:

$$NSB_R = mS + \sum_{t=q+1}^u m(Y_{Rt} - zY_{Mt}) \quad (3.14)$$

Where

- $NSB_R$  net social benefit of return
- $S$  repatriated and spent savings in the year of return
- $m$  income multiplier
- $Y_{Rt}$  income after return in the year t
- $Y_{Mt}$  average income of a skilled worker in the year t
- $q+1$  the first year of return
- $u$  the year of retirement
- $z$  variable assuming the value 0 for unemployment and 1 for full employment in the skilled labour market

In the assumed scenario of a demand constrained economy and supply constrained human capital, productivity increases occur, as employers replace existing staff with better skilled returnees.

### 3.2.3 Total human capital migration cycle

In the previous section the net social benefit of an education investment was derived on the basis of the introduced migration cycle. The findings can be summarised as:

$$NSB = I_E + NSB_M + NSB_R \quad (3.15)$$

Where

- $NSB$  net social benefit from the education and migration of human capital
- $I_E$  investment in education
- $NSB_M$  net social benefit of migration
- $NSB_R$  net social benefit of return

By inserting the equations 3.11, 3.13 and 3.14 NSB is expressed as follows:

$$NSB = -\sum_{t=0}^k (C_{Et} + uY_{Et}) - C_t + \sum_{t=k+1}^q (mR_t - zY_{Mt}) + mS + \sum_{t=q+1}^u m(Y_{Rt} - zY_{Mt}) \quad (3.16)$$

As this process extends over a long period of time, discounting is necessary (Boardman et al., 2001). NSB can be calculated as the net present value of all costs and benefits in equation (3.16):

$$\begin{aligned} NPV_s = & \quad (3.17) \\ & -\sum_{t=0}^k \frac{C_{Et} - uY_{Et}}{(1+r)^t} \quad \text{(Education)} \\ & -\frac{C_t}{(1+r)^{k+1}} + \sum_{t=k+1}^q \frac{(mR_t - zY_{Mt})}{(1+r)^t} \quad \text{(Migration)} \\ & + \frac{mS}{(1+r)^{q+1}} + \sum_{i=q+1}^u m \frac{(Y_{Rt} - zY_{Mt})}{(1+r)^i} \quad \text{(Return)} \end{aligned}$$

Where

- $NPV_s$  Social net present value of human capital migration
- $r$  discount rate

### 3.3 The migration survey

The main obstacle faced by this study was the collection of sufficient data, which is representative for all persons with higher education (skilled workers) migrating from Jordan to other countries. The survey was directed at the four most typical professions requiring higher education and involved in out-migration. The professions chosen were teachers, engineers, physicians and IT-specialists. These professions represent a significant share of the Jordanian human capital as students pursuing the courses of pedagogic, engineering, medicine and computer science composed around 40% of total Jordanian students in 2002. Education, health services and construction are also important contributors to the Jordanian economy and information technology is a potential export industry that the government is attempting to develop and, which is experiencing a high rate of growth. Thus, the sample is assumed to be representative for Jordanian human

capital. By analysing the results according to gender, age and receiving country, biases resulting from these variables could be quantified and analysed.

To collect the data needed for the analysis, survey forms were designed for three different groups of persons: non-migrants, migrants abroad and returnees. Persons of the relevant profession not involved in migration were included as a reference group. Assuming perfect competition and wages equalling to marginal productivity, their average income was a measure for forgone production to the sending country and as a benchmark to determine whether returnees on average had a higher income and thus a higher productivity. The second group, migrants residing abroad, yielded information on their remittances, which is the main benefit during the period of out-migration. The third group, the returnees, yielded information on the duration of their absence, the remittances they sent during that absence and their income after return. Members of the same profession within each group were assumed to be homogenous.

The survey did not include a question relating to the absolute amount of repatriated savings. However this variable was important for the model and, therefore, had to be estimated later. It was assumed that the savings of Jordanians abroad was comparable to other migrants. McCormick and Wahba (2001) found that Egyptian workers abroad saved 40% of their income. DeSipio (2000) who surveyed Latin American migrants in the United States found that they roughly saved the same amount remitted monthly to their country. DeSipio also found that the amount brought back home by the migrants was on average equal to 6 months remittances suggesting that a significant part of migrants' savings remain abroad.

The design of the surveys was an adapted form of migration surveys published by Bilsborrow et al. (1997). The survey forms, which are presented in the annex also included questions related to the education investment and the spending behaviour to establish whether there was a significant difference between non-migrants and returnees and to establish the fields in which remittances were spent.

In co-operation with the institute of social science/social work programme at the University of Jordan the survey forms were refined and between mid 2002 and mid 2003 the survey was executed. The fieldwork was overseen by the head of the social work programme, Dr. M. Maani and conducted by the students in his department. To collect a large set of data on this outlined group of persons,

snowball sampling was used (Monette et al., 1998). This method involves starting with a few persons fulfilling the criteria needed for the survey and asking them to guide the researchers to more persons with the same criteria. The students conducting the survey identified the persons of the relevant professions among their relatives, acquaintances and in their neighbourhood and handed them 500 questionnaires. This sampling method was imperative in the case of the migrants abroad, who proved to be hard to access. A previous attempt to collect data from this group via an internet questionnaire only yielded 25 participants in a period of 18 Months, while the snow ball sampling led to 266 participants in 12 months.

Snowball sampling implies limitations on the representativeness of the results as there is bias towards the social background of the initial persons involved in the survey, in this case the students who distributed the questionnaires within persons in their social vicinity. However, this bias is seen as acceptable as the social background of the surveyed persons is assumed to be significantly more determined by their professions than by students who distributed and collected the questionnaire. Further biases could result from the fact, that the sample may only include employed persons. Unemployed migrants have no income and can, therefore, send no remittances. This finding would suggest that possible benefits to the sending country are less than those calculated from a sample comprising of employed persons. Possible biases due to other reasons, such as ethnicity is regarded to be even less significant, due to the far reaching integration within the Jordanian society between Jordanians of Palestinian origin and Jordanians originating from the east bank.

The analysis of the survey data involved finding average values and standard deviations for the income before migration and after return, remittances, repatriated savings and duration of residency abroad. This data was fed into equation 3.17 and the return on education and migration was calculated.

## 4 Jordan: The background to human capital migration

The historic events in the Middle East in the previous century have played an important role in shaping Jordan. They had a significant impact on the political, social and economic development of the country and their understanding is essential in explaining human capital investment and its migration, which started in the 1950s and accelerated after the oil boom in 1973.

### 4.1 A brief history

In 1916, the Shraif Hussein of Mecca, waged the Arab revolution against the Ottoman Empire with the goal of establishing an Arab national entity in the Arabian Peninsula and the Fertile Crescent<sup>12</sup>. With the support of Britain, his son Faisal succeeded in ending the Ottoman occupation and proclaimed the Arab Kingdom of Syria in 1918. Contrary to the British correspondence with Sharif Hussein, Britain and France had in the Sykes-Picot agreement of 1916, divided the area between the Mediterranean and Persia into two zones of influence: British and French. The occupation of Damascus by French forces in 1921, ended Faisal's Arab Kingdom.

Britain, assuming control in Palestine and Iraq, left the area east of the river Jordan neglected, since the territory was mostly arid and was regarded as being virtually ungovernable. When Sharif Hussein's other son, Abdallah came to the area in 1921, his mission was to re-establish the Arab Kingdom of Syria, which his younger brother lost a few months before. Having few resources and being a realist, he negotiated a claim to Transjordan provided that he desisted from calling for the liberation of all Syria and renounced his claim to Iraq in favour of Faisal (Salibi, 1993).

As Transjordan moved toward nationhood, Britain gradually relinquished control of the area, limiting its supervision to financial and foreign policy and continuing its subsidy to the Arab Legion, a military force established in 1923 to maintain security

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<sup>12</sup> The Fertile Crescent is the description of the present area of Iraq, Syria, Lebanon, Jordan and Palestine.

in the country. In March 1946, under the Treaty of London, Transjordan became a kingdom. In accordance with the “Balfour-Declaration”, Britain allowed mass Jewish immigration to Palestine during its mandate.

When the British forces left Palestine in 1948 the first Arab-Israeli war took place and resulted in the establishment of Israel while turning around 800.000 Palestinians into refugees. The refugees fled mostly to Lebanon, the Gaza Strip, the West Bank and Transjordan. The Arab Legion gained control of the West Bank, including East Jerusalem. The war added about 450,000 Palestinian refugees and approximately 450,000 Palestinians of the West Bank to the population of the East Bank of Jordan, which roughly counted 340,000 at that time (Metz, 1989).

The British mandate policy and the withdrawal from Palestine resulted in a political vacuum in the areas left to the Palestinians. In conferences in 1948 and 1949, King Abdallah, exerted political pressure to be authorised to solve the Palestinian problem (Abu Odeh, 1999). In 1950, elections were held to constitute the new parliament consisting of 20 deputies for the east and the west banks. The newly elected parliament approved the unification of the West Bank with Transjordan, which in April 1949 was renamed as the Hashemite Kingdom of Jordan.

After King Abdallah’s assassination in 1951, the process of integrating Transjordanians and Palestinians proceeded under Abdallah’s successor, his son Talal. Talal’s ill health obliged him to abdicate in favour of his son, Hussein, in 1952.

Hussein’s era as King of Jordan represents one of the longest rules in the Arab world, forty-eight years. His rule was characterised by skilful diplomacy, both domestically and regionally. Domestically, this involved achieving a balance between Jordanians of Palestinian origins and Jordanians originating from the East Bank, particularly the loyal Bedouin tribes. Regionally, Hussein established a place for Jordan among the Arab nationalist regimes of Egypt, Syria and Iraq and the conservative rulers of Saudi Arabia and the Persian Gulf states, the latter constituting a major source of financial aid.

In the third<sup>13</sup> Arab-Israeli conflict, the June 1967 War, Jordan lost the West Bank and East Jerusalem to Israel, which now occupied the whole of Palestine besides the Golan Heights of Syria and the Sinai Peninsula of Egypt. Armed Palestinian resistance against Israel from Jordan intensified in the following years. In 1970, however, the Hashemite rule was threatened by the Palestine Liberation Organisation (PLO) guerrilla groups (Fedayeen), who became almost a state within a state. As the Fedayeen, increasingly directed their efforts against the Jordanian government rather than against Israel, in September 1970 a civil war broke out and continued through mid 1971, when the Jordanian Army destroyed the last fedayeen stronghold in the north of the country. Many Fedayeen were killed and about 2.000 surrendered and were allowed to leave to Syria (Salibi, 1993).

The expulsion of the PLO resulted in the isolation of Jordan in the Arab World. Regional relations, however, were gradually repaired. The use of an oil-embargo as a political weapon in the fourth Arab-Israeli conflict in 1973 resulted in soaring oil prices and an economic boom in the Arab oil producing countries. These countries gained massive financial resources in a short time but lacked the human resources to execute their ambitious development plans. As a result there was a significant migration flow, initially from the poorer surrounding Arab countries to Saudi Arabia and the Gulf states. Increased aid from the oil exporting countries and remittances from Jordanians working there, led to a rapid improvement in the standard living and contributed to social and political stability in Jordan. For the first time, the country experienced a shortage in labour and labour in-migration from Syria and Egypt began to take place.

As a result of the 1979 Iranian Islamic Revolution's destabilising influence on the area, Jordan supported Iraq in the first Gulf war against Iran between 1980 and 1988. The war made it difficult for Iraq to maintain a secure and reliable port on the Gulf and Iraqi imports increasingly took the route via the Jordanian Port of Aqaba. Transit trade and transport services became an important source of income to Jordan. The end of the war and the resulting downturn of oil prices had a double impact on the country as economic slowdown coincided with reduced foreign aid

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<sup>13</sup> The war of 1948 is referred to as the first Arab-Israeli-Conflict. The second emerged in 1956, when Israel, with the support of Britain and France, occupied Sinai but withdrew shortly afterwards due to US pressure.

and remittances. Furthermore, rising unemployment resulted from the return of many Jordanians from the Gulf States. The government attempted to sustain growth by increasing borrowing, but by 1988 soaring debt and diminishing currency reserves led to a crisis and a significant devaluation of the Jordanian Dinar. Austerity measures had to be enforced to secure further IMF loans. With continuing high population growth, the standard of living declined and income inequality increased, causing discontent among elements of the population traditionally loyal to the monarchy: the Bedouins and the Jordanians originating from the East Bank.

Because of Jordan's large proportion of population of Palestinian origin, a major aspect of its external relations concerned its dealings with the PLO. Following the 1970-71 civil war, relations between Jordan and the PLO were strained, but in 1975 Jordan and the PLO agreed to end recriminations. The restrictions on the military and political presence of the PLO in Jordan, however, remained and were only relaxed after the PLO was expelled from Lebanon in 1982.

The West Bank, was still considered to be a part of Jordan. The uprising against the Israeli occupation - the Intifada - in 1987, however, showed that the Palestinians were clearly in favour of their own national entity. As a result, Jordan formally abandoned its claim to the West Bank at the Arab summit conference in Algiers in 1988.

Iraq's invasion of Kuwait in 1990 and the United States' response in sending forces to the Gulf put the Jordanian government in a dilemma. Although it refused to recognise Iraq's annexation of Kuwait, it expressed reservations towards foreign military intervention. The Jordanian government shared the view of the majority of the Arab population that the West, led by the United States, was using a double standard in denouncing Iraq's invasion of Kuwait to the point that it was willing to go to war, while ignoring Palestinian grievances over Israel's occupation policies in the West Bank. There was also fear that Israel has plans to make Jordan the substitute Palestinian state<sup>14</sup>. The Gulf crisis was seen as a focus that would divert attention from the Israeli-Palestinian question and allow Israel greater freedom to pursue such a course of action.

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<sup>14</sup> This aim had been stated on numerous occasions by prominent members of Prime Minister Shamir's Likud Block such as the later prime minister Sharon.

The war caused the return of another 300.000<sup>15</sup> (Al-Akel et al., 1991) Jordanians from the Gulf Region and the sanctions against Iraq cut the trade to Jordan's principal export market and its major source of cheap oil, while Kuwait had been Jordan's second largest market. As a consequence of Jordan's refusal to support the military action against Iraq, Saudi Arabia, which had provided substantial economic support to Jordan in the past, cut off oil exports to Jordan. The crisis also resulted in a dramatic drop in tourism income, another major component of Jordan's GDP. Jordan's position in the midst of this regional dilemma rendered it more precarious than it had been for many years.

After the Gulf war, the USA managed to initiate peace talks between Israel and its Arab neighbours. The Arab countries including representatives of the Palestinians initially negotiated with the joint aim of achieving a comprehensive solution for the conflict. To ensure the continuation of its influence in the occupied West Bank and Gaza Strip, the PLO in 1993, signed a separate peace treaty with Israel. However, a comprehensive solution could not be achieved and since Jordan had less substantial disputes with Israel, both countries signed a bilateral peace treaty in 1994.

In 1999 King Hussein died and was succeeded by his son Abdallah II. Abdallah inherited a country that was in a state of economic crisis for more than a decade. The continuing sanctions on Iraq and the following war there, the stumbling peace process between the Palestinian Authority and Israel as well as structural problems in Jordan resulted in a continuing decline in the standard of living. While Jordan's political structure and its dependence on foreign aid made foreign policy the first priority in Hussein's era, Abdallah turned his focus on Jordan's internal policy, especially concerning the economy.

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<sup>15</sup> This number represents the official position of the Jordanian government. Statistics from the inner security directorate, however, show that the net return to Jordan was only around 180.000. This discrepancy can be explained by the bearers of Jordanian passports who returned to the West Bank as well as by re-migrants.

## 4.2 A description of the society

Tribalism was the dominant socio-political order in the pre-1948 East Bank. This order was not restricted to the Bedouin nomads, but also characterised the inhabitants of villages and towns (Metz, 1989).

In 1948 the population of the East Bank of Jordan counted around 340,000. The 1950 unification of Transjordan and the West Bank increased the population of the country by about 900,000, half of which were Palestinian refugees<sup>16</sup>. Similar to the Transjordanian, the Palestinian social system was patriarchal but less tribal as the individuals' loyalty was to the extended family, the *hamula*<sup>17</sup>. Palestinian communities usually had more and smaller competing social units. As a result, the most important factor determining influence was wealth in capital and land rather than the number of individuals (Abu Odeh, 1999). Palestinians also contrasted to the Transjordanians by the level of skills and education, since many Palestinians emerged from urban societies.

By upgrading education since the 1950s, the gap between Jordanians from different origins narrowed considerably. Increasing levels of literacy led to a gradual replacement of agriculture and nomadic life to economic activity based on skilled labour (Metz, 1989).

Due to the demographic change, sedentarisation and education, the impact of tribal affiliation on the individual's sense of identity, declined (Jureidini, McLaurin, 1984). Smaller groups, such as the extended family and clan, became the primary reference groups. The older generation's control of the economic resources necessary for contracting marriage, participating in politics, and even earning a livelihood became more contested as the younger generation had access to employment and possession of land, two factors diluting lineage solidarity and cohesion (Hiatt, 1981). Nevertheless, the individual still remained enmeshed in a

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<sup>16</sup> In 1999, the UNRWA registered 1,8 million refugees in Jordan of which 280.000 lived in camps. (Source: BADIL Resource Center for Palestinian Residency and Refugee Rights).

<sup>17</sup> Several intermediate kin groups exist below the level of the tribe and above that of the household; A **hamula** (clan) consists of the descendants of a common, relatively distant ancestor. The **nusub** (lineages or branches), is a group of closely related households and descendants of a relative closer than the founder of the hamula. A still smaller unit is the **luzum**, a close consultation group, usually composed of several brothers and their families. This group had the most significance for everyday life. Kin groups, even at the level of lineages, are not homogenous in terms of class; some members could be quite well off and others rather poor (Metz, 1989).

network of family relations and obligations. The young deferred less frequently to their elders in decisions about life choices than had been the custom, but respect for parents and elders remained evident. Financial support, the access to social connections as well as support in cases of conflict are some of the practical reasons<sup>18</sup> for the continued individual's loyalty to the extended family.

The state encouraged traditional forms of mediation sometimes as an alternative and sometimes as an accompaniment to processing the case through the official legal system.

Class polarisation was fuelled by remittances from those working abroad. Remittances were invested in residential property, thus driving up the cost of land and housing. New urban areas were established with stone dwellings clearly contrasting to the crowded traditional urban areas the lower-middle class and the poor housed (Metz, 1989).

The decline in the standard of living since the late 1980s and the growing number of the unemployed increased the dependence of the younger generation on the savings of their parents or left them with few options other than out-migration, which would apply mainly to those with higher education to fill the demand for skilled labour and professionals abroad.

The discontent of many Jordanians with the social and economic conditions, results from widespread nepotism, favouritism, cronyism, and corruption, which is referred to by the Arabic expression "wasta". This phenomenon has its roots in the tribal influence in society and originally was associated with positive aspects as a form of conflict resolution and the humanising of the bureaucracy (Cunningham, Sarayrah, 1993). This role, however, changed as "wasta" became the use of connections for personal gains ( Kilani, Sakijha, 2002) and serves as an "affirmative action for the advantaged, which has the effect of entrenching the haves and excluding the have-nots" as well as making life miserable for conscientious officials trying to live by the law but called on by family obligations to help their own (Cunningham, Sarayrah, 1993).

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<sup>18</sup> Also job information; access to strategic resources; marital partners; arrangements, protection; child care and domestic services; and emotional sustenance.

According to Kilani and Sakijha (2002) “people have no confidence in state institutions” when it comes to effectively eradicating corruption, “but at the same time everyone is willing to fight corruption, if there is a serious plan” on how to do it. Their study is largely based on an opinion poll showing that, 87 per cent of respondents stressed the need to eradicate “wasta”. While 75 percent of the respondents use “wasta” to facilitate procedure, trying to avoid the waste of time and money when going through routine administrative procedures, more than 90 per cent believe they will be using it at some point in their lives. Another significant outcome of the poll was that more than 60 per cent of respondents felt subjected to social pressure as a result of “wasta”.

#### **4.3 The political structure and the division of powers**

Due to its social and political development, Jordan shows the characteristics of a rentier state<sup>19</sup>. The state as the largest employer in the country, with nearly 50% of the active labour force on its payroll, plays an interventionist role as it distributes money collected from outside donors through expanding the bureaucracy, developing the military and security service, and building its infrastructure. By cultivating the tribes through state employment, the state gained the loyalty of half of the population and in the process reinforced tribal ties as the key lines to state influence and support (Brand, 1995). Rent seeking behaviour corresponds closely with the phenomenon of “wasta”. Its social and economic effects are a distortion of the structure of social and economic incentives, which leads to a misallocation of resources, welfare losses and social cost<sup>20</sup> (Renger, Wolff, 2000).

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<sup>19</sup> Rent refers to financial income that is not matched by corresponding labour or investment in the market sense. Rent in this sense arises from manipulation of economic environment (e.g. monopolies, import and trading restrictions, subsidies). As resources are consumed in rent seeking which are then no longer available for productive activities, rent seeking involves heavy social costs. Rent seeking requires that it be possible and advantageous for the relevant actor to do something, which is not advantageous for the system as a whole. As a rule of thumb, this requirement is more likely to be met under bureaucracies remote from the market than in competitive systems of organisation. The difference to profit seeking arises in a competitive, market-oriented process whose goal is to invest resources in productive activity (Renger, Wolff, 2000).

<sup>20</sup> In practice, political leaders trade material advancement in turn for political loyalty and support from their appointed and dependent bureaucrats, which results in an economic policy which is primarily redistributive in emphasis. To enable them to pursue this policy, they need to retail all options for action in terms of assigning rights of use or disposal or transfer payments, and to make a personal matter of all the related decisions. Principles of the rule of law, such as the division of

The oil-boom after 1973 reduced the attractiveness of employment in public services as many Jordanians, especially the groups in society who were excluded from the patrimonial system preferred to out-migrate to the Gulf States. As oil prices declined and foreign aid to Jordan was reduced, Jordanians loyal to the King expected their government to maintain their standard of living and continue providing jobs for their increasing number. The government, however, could only meet these expectations for a while by increasing borrowing, which ultimately led to the financial crisis of 1988/1989. The following austerity measures imposed by the IMF became a major factor for civil discontent that culminated in open riots in April 1989. This crisis is believed to be a major reason for holding elections again in 1989, as it was primarily the loyal Transjordanians who participated in the open riots in that year.

The liberalisation process in Jordan was based on the readiness of the regime to grant certain freedoms; the freedom to organise, to vote, to express opinion and to engage in electoral competition. However, without power gained by parliaments and by political parties liberalisation has yielded, in addition to the Prime Minister and the Government, elected representatives responsible for shouldering the blame for mistaken policies and the unpopular measures, which must be adopted to implement them (Jayyusi, 1998).

Jayyusi concluded that the politics of containment have proved more successful than the politics of repression and that the experiment of guided democracy in Jordan remained firmly in the hands of the King. "The narrowing or widening of the democratic margin remains a prerogative of a highly interventionist State, which is determined not to relinquish its right to manage the democratic process in its very own interests...".

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state authority, legal security or responsibility in office are difficult to reconcile with rent seeking which is the reason why rent seeking is linked to corruption. Politicians and bureaucrats turn the institutional arrangement into an instrument for their own purposes which also explains why they generally oppose changes in the institutional status quo. The political leadership finds it easier to exploit groups in segmented societies through their competition with each other for rents. In the long term, no group will be able to avoid rent seeking, as they otherwise risk economic and political oblivion. Once established, rent-seeking systems tend to become autonomous and intensify (Renger, Wolff, 2000).

#### **4.4 The Jordanian economy**

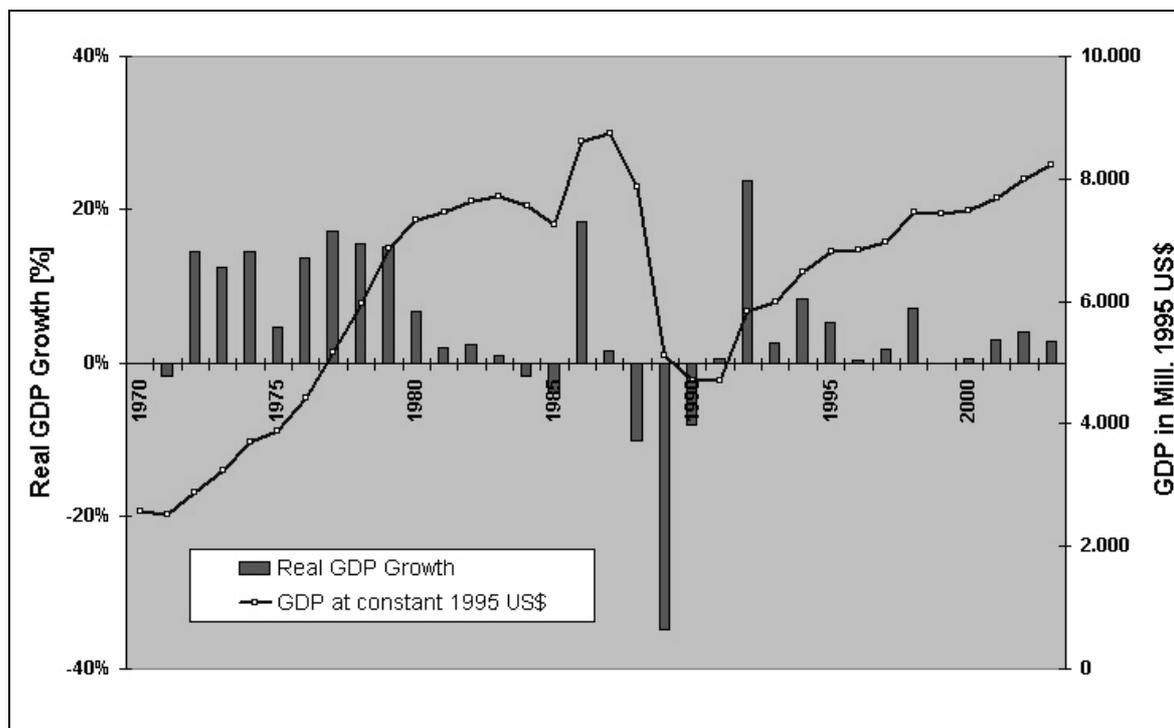
Jordan's modest endowment with natural and financial resources and its limited domestic market have made it hard to achieve an independent and sustainable development of its economy. The country was and still is to a great extent dependent on foreign sources of income. In the period relevant for this study, the Jordanian economy experienced different phases of development (Al-Akel, 1999). The first phase between 1970 and 1974 was characterised by stagnation due to the occupation of the West Bank by Israel in 1967, and the civil war of 1970/1971. These crises marked a turning point in the Jordanian economic development and were followed by a long period of stability.

In the second phase, high economic growth was triggered by the oil-boom after 1973 and extended to 1982 (Fig. 4.1). The country's prosperity rested on three primary bases: Jordan's status as a large producer of phosphates and later potash ensured a steady - if relatively modest - flow of export income that offset a part of its high import bills. The other bases were external and included foreign aid and remittances from expatriates who were leaving Jordan to work in the booming Gulf States. Jordan developed into a provider of skilled manpower and trade related services for the neighbouring Arab countries and its private and public institutions appeared to function as training centres catering for the gulf labour market (Maciejewski, Mansur, 1995). Foreign aid was utilised to build a comprehensive system of education, which allowed Jordan to meet the demand for skilled technical and professional manpower in the oil exporting countries of the Gulf. Remittances and aid from abroad allowed Jordan to maintain income and consumption at levels that exceeded those that could be expected from the available production capacity of the domestic economy. These inflows also allowed Jordan to maintain a low current account deficit; in some years it even registered a current account surplus. An expanding aggregate demand combined with a temporary shortage of labour in the late 1970s, however, induced inflationary pressures in that phase.

By the mid eighties about one third of Jordan's labour force was working abroad, and Jordan achieved full employment. Out-migration helped in avoiding political instability and social tension, which would have resulted from high rates of unemployment and poverty (Abu Jaber, 1997). The migrant's remittances

increased the level of welfare in the country; consequently, Jordan has been described by some observers as being “an oil economy without oil” (Jayyusi, 1998).

**Figure 4.1 Real GDP and its growth in constant 1995 US\$**



Sources: IMF (2000), CBJ (2003), the author’s calculations

When the oil price declined after 1982, the third phase started. The flow of foreign grants from the Gulf States and the inflows of remittances from expatriates started to decline. Between 1982 and 1987, the average growth rate decelerated, but Jordan’s economy was able to sustain economic growth at a time when other regional economies, such as those of the oil-producers, were actually contracting. The boom in transit trade to and from Iraq accounted for much of the growth. The immunity of the large service sector to demand slowdown also postponed the effects of the regional recession. The government, however, constituted a large component of the service sector and in its role as a major customer and employer; it sustained an artificial level of growth through continued deficit spending. By the late 1980s, the standard of living in Jordan had visibly improved relative to many non-oil exporting Arab countries.

As the world wide plunge in oil prices persisted, Jordan had to face increasing economic problems. Foreign aid was cut, remittances declined further, and regional trade and transit activity were suppressed after the end of the Irak-Iran war. The Jordanian government had increasingly turned to borrowing to counter the increasing deficit. By 1988 Jordan had become one of the most heavily indebted countries in the world<sup>21</sup>. This eventually led to the depletion of the Central Bank's foreign reserves and, subsequently, to the devaluation of the Jordanian Dinar, which lost around 47% of its value between 1988 and 1989.

The fourth phase started as Jordan turned to the World Bank and the International Monetary Fund (IMF) for help in solving its economic problems. In addition to the application of austerity measures such as the removal of subsidies, the IMF pushed for greater liberalisation in the economy, privatisation, and a reform of the tax system. The first economic structural readjustment program, imposed by the World Bank and the IMF, however, was suspended due to the Gulf war and its disadvantageous economic effect on the country (Al-Akel, 1999). Aided by the expansion in aggregate demand and consumption brought about by the savings of the Jordanian returnees from the Gulf States, GDP growth accelerated again after 1991. In 1992, a new economic readjustment program had mixed results. Jordan's submission to IMF recommendations gained the country a respite, and it was able to successfully reschedule its debt with its major creditors. As a results of its enrolment in the peace process significant debt relief was granted, mostly by the United States. However, the weight of the IMF induced reforms hit the poorer sections of the population particularly hard. It is estimated that during the period 1986-1992 food prices increased by 78% as a result of the devaluation of the Jordanian Dinar and the reduction or elimination of many food subsidies. Income inequality, especially in the rural areas and the share of the population below the poverty line increased (Maciejewski, Mansur, 1995).

The period after 1996 was characterised by the application of tight monetary and fiscal policies aimed at curbing inflation and maintaining the stability of the Jordanian Dinar. A high interest rate policy was applied by the monetary authorities to suppress consumption, encourage domestic savings and investment. These

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<sup>21</sup> In 1988 Jordan's total external debt had climbed to more than 190% of GDP.

measures were successful as they resulted in a containment of inflation and the build up of foreign reserves. They were, however, not sufficient to foster confidence in the Jordanian economy, which has been continuously suffering from capital flight abroad. One decade earlier, the Jordanian capital invested abroad was estimated between 4 and 40 billion US\$ (Metz, 1989). Owing to the partial loss of the Iraqi market, the relapse of the peace process with Israel and the continuing heavy debt burden still over around 100% of GDP, the first years of the 21st century have been dominated by a climate of uncertainty and, accordingly, the pace of local and foreign investments has been low and real economic growth has, at best, matched the population growth.

#### **4.4.1 Demand structure of the economy**

The Jordanian economy is characterised by its dependence on external sources of income. These are foreign aid and remittances. These sources not only offset budget and trade deficits but also provide the funds for investments.

The share of fixed capital investment of GDP varied significantly between 1970 and 2000. Between 1975 and 1985 it was highest almost reaching 40% of GDP. Traditionally residential buildings account for a large share of this investment, around 50% between 1999 and 2001. After deducting replacement investment, little is left for increasing the production utilities. Rao and Asher (2001) estimated the Jordanian wealth in production assets to be 7.000 US\$ per capita, which is low compared to the Gulf States and industrialised countries where this figure ranges between 20.000 US\$ per capita and 70.000 US\$ per capita.

The distribution of GDP among the sectors of the economy is presented in Tab. 4.2. Although agriculture declined significantly, this sector still provides employment for around 10% of the labour force. The development of this sector will continue to be constrained due to the shortage of water (British Bank ME, 1998).

**Table 4.1 Jordanian GDP in constant 1995 US\$**

<i>million 1995 US\$ (Percent of GDP)</i>								
GDP by demand								
	Con- sum- ption	Gross fixed capital for- mation	Exports of goods and services	Imports of goods and services	Change in stocks, errors	GDP	Foreign aid	Remit- tances
<b>1970</b>	<b>2.369</b>	<b>282</b>	<b>197</b>	<b>860</b>	<b>571</b>	<b>2.559</b>	<b>397</b>	<b>62</b>
	92,6%	11,0%	7,7%	33,6%	22,3%	100%	15,5%	2,4%
<b>1980</b>	<b>7.446</b>	<b>2.808</b>	<b>2.778</b>	<b>5.963</b>	<b>249</b>	<b>7.318</b>	<b>1.298</b>	<b>1.468</b>
	101,8%	38,4%	38,0%	81,5%	3,4%	100%	17,7%	20,1%
<b>1990</b>	<b>4.643</b>	<b>1.220</b>	<b>2.905</b>	<b>4.351</b>	<b>274</b>	<b>4.692</b>	<b>289</b>	<b>583</b>
	99,0%	26,0%	61,9%	92,7%	5,9%	100%	6,2%	12,4%
<b>2000</b>	<b>7.819</b>	<b>1.577</b>	<b>3.129</b>	<b>5.129</b>	<b>80</b>	<b>7.475</b>	<b>300</b>	<b>1.633</b>
	104,6%	21,1%	41,9%	68,6%	1,1%	100%	4,0%	21,8%
<b>2002</b>	<b>8.056</b>	<b>1.547</b>	<b>3.629</b>	<b>5.288</b>	<b>63</b>	<b>8.007</b>	<b>319</b>	<b>1.809</b>
	100,6%	19,3%	45,3%	66,0%	0,8%	100%	4,0%	22,6%

*Source: HKJ/DoS (2002), CBJ (2003).*

The combined industry and mining sectors expanded from 13% in 1970 to over 18% of GDP in 2000. These sectors employ approximately 10% of the labour force, and account for nearly 70% of domestic exports. The small size of the domestic market has led Jordan's manufacturing sector to become export-oriented despite the high external value of the local currency. Due to the inflow of foreign labour, mainly from Egypt, the cost of labour remained relatively low.

The construction sector peaked in 1982 and 1993 to reach 10,2% and 7,3% respectively. This was a result of increasing worker's remittances in the late 1970s and early 1980s and the investment in housing by many Jordanians who returned after the Gulf war.

The contribution of the service sector – including government services – to GDP remained unchanged between 1970 and 2000. The large contribution of the service sector to GDP has been a cause of concern to economic planners as this sector was seen to contain unproductive surplus labour. The lack of economic growth emphasised these concerns even though some segments, such as banking and engineering, relied on advanced and sophisticated skills (Metz, 1989).

**Table 4.2 Sectors of the Jordanian economy in constant 1995 US\$**

	<i>million 1995 US\$ (Percent of GDP)</i>							
	Agri- culture	Mining	Industry	Construc- -tion	Services	Govern- ment services	Indirect taxes less subsidies	GDP
<b>1970</b>	<b>276</b> 10,8%	<b>43</b> 1,7%	<b>289</b> 11,3%	<b>118</b> 4,6%	<b>1.192</b> 46,6%	<b>450</b> 17,6%	<b>192</b> 7,5%	<b>2.559</b> 100%
<b>1980</b>	<b>515</b> 7,0%	<b>249</b> 3,4%	<b>933</b> 12,8%	<b>645</b> 8,8%	<b>3.021</b> 41,3%	<b>1.156</b> 15,8%	<b>799</b> 10,9%	<b>7.318</b> 100%
<b>1990</b>	<b>330</b> 7,0%	<b>262</b> 5,6%	<b>702</b> 15,0%	<b>186</b> 4,0%	<b>1.818</b> 38,8%	<b>790</b> 16,8%	<b>605</b> 12,9%	<b>4.692</b> 100%
<b>2000</b>	<b>151</b> 2,0%	<b>214</b> 2,9%	<b>1.164</b> 15,6%	<b>254</b> 3,4%	<b>3.338</b> 44,6%	<b>1.301</b> 17,4%	<b>1.055</b> 14,1%	<b>7.475</b> 100%
<b>2002</b>	<b>161</b> 2,0%	<b>226</b> 2,8%	<b>1.290</b> 16,1%	<b>301</b> 3,8%	<b>3.544</b> 44,3%	<b>1.357</b> 17,0%	<b>1.129</b> 14,1%	<b>8.007</b> 100%

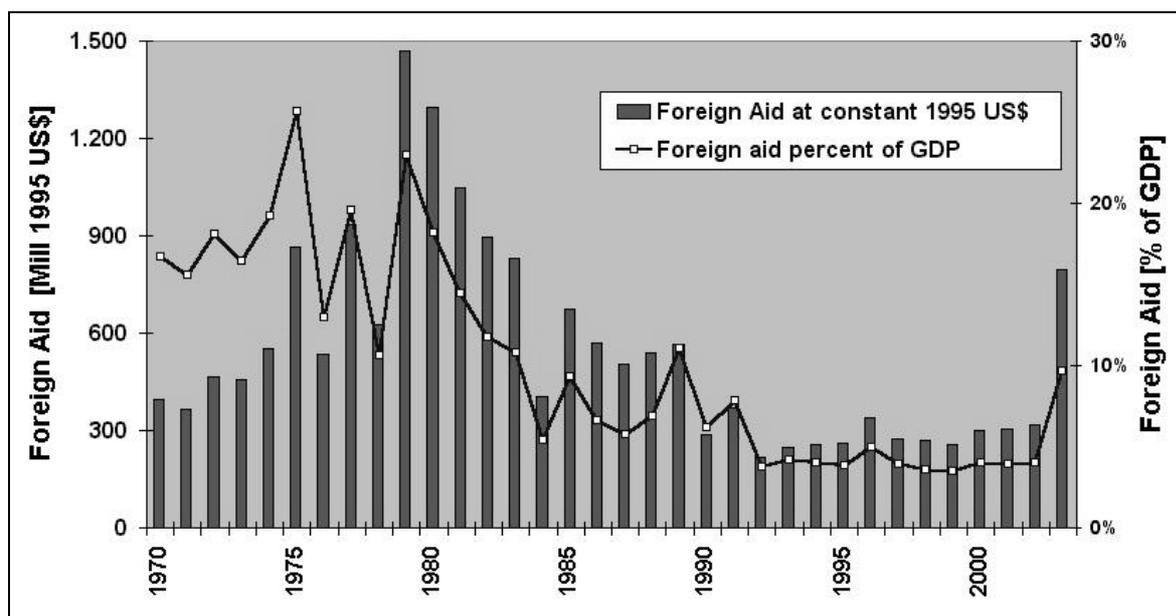
Source: HKJ/DoS (2002), CBJ (2003).

#### 4.4.2 The public sector

Although the Jordanian economic system is regarded as liberal and market-oriented, the government continues to play a large economic role in development planning and as a financier. The government of Jordan has consistently run budget deficits and depended on unpredictable amounts of aid from foreign donors. One of the most obvious signs of ripening statehood, however, is the declining importance of this foreign aid (Fig. 4.2) although this decline may have resulted in a reduction of government capital investment (Tab. 4.3).

In Tab. 4.3, the share of government expenditure on health and education is compared to the outlays for defence and inner security. The increasing dedication of funds for education show that this field enjoyed a special attention throughout the three decades in focus. Expenditures on health appear to have increased significantly between 1990 and 2000. This increase is, however, accounted for by the separation of the budget of the Royal Medical Services (the army medical care) from the defence budget, which also explains the reduction of the share of defence expenditure.

**Figure 4.2 Foreign aid to Jordan in constant 1995 US\$**



Sources: 1970-1995: IMF (2000), 1996-2003: CBJ (2002, 2003)

**Table 4.3 Government spending 1970-2003 in constant 1995 US\$**

	<i>million 1995 US\$ (Percent of total expenditure)</i>									
	1970		1980		1990		2000		2003	
<b>Domestic revenues</b>	<b>336</b>	37,0%	<b>1.401</b>	41,9%	<b>1.309</b>	72,1%	<b>2.013</b>	78,4%	<b>2.030</b>	66,8%
<b>Current exp.</b>	-	-	<b>2.083</b>	62,3%	<b>1.480</b>	81,5%	<b>2.148</b>	83,7%	<b>2.459</b>	80,9%
<b>Capital exp.</b>	-	-	<b>1.259</b>	37,7%	<b>336</b>	18,5%	<b>420</b>	16,3%	<b>580</b>	19,1%
<b>Total expenditure</b>	<b>907</b>	100%	<b>3.342</b>	100%	<b>1.816</b>	100%	<b>2.568</b>	100%	<b>3.039</b>	100%
<b>Foreign aid</b>	<b>396</b>	43,7%	<b>1.298</b>	38,8%	<b>289</b>	15,9%	<b>300</b>	11,7%	<b>816</b>	26,8%
<b>Government deficit</b>	<b>175</b>	19,3%	<b>643</b>	19,2%	<b>218</b>	12,0%	<b>255</b>	9,9%	<b>193</b>	6,3%
<b>Expenditure/Budgets on/for:</b>										
• <b>Health</b>	<b>24</b>	2,6%	<b>71</b>	2,1%	<b>40</b>	2,2%	<b>214</b>	8,3%	<b>173</b>	5,7%
• <b>Education</b>	<b>69</b>	7,7%	<b>242</b>	7,3%	<b>196</b>	10,8%	<b>279</b>	10,9%	<b>342</b>	11,3%
• <b>Defence</b>	<b>371</b>	40,9%	<b>733</b>	21,9%	<b>361</b>	19,9%	<b>433</b>	16,9%	<b>453</b>	14,9%
• <b>Inner security</b>	<b>48</b>	5,3%	<b>109</b>	3,3%	<b>102</b>	5,6%	<b>190</b>	7,4%	<b>336</b>	11,0%

Sources: HKJ/DoS (1970, 1980, 1990), CBJ (2000, 2003).

#### 4.4.3 Employment

One of the main characteristics of the Jordanian labour market is its low participation and high unemployment rates. In the period between 1970 and 1992, the participation rate averaged little above 20%, which is low compared to the

world's average of 42% (Talafha, Fahdawi, 1998). This is accounted for by the demographic structure, below world average female labour and above world average educational enrolment. After 1993, the participation rates increased to around 25% (Talafha, Fahdawi, 1998). Low unemployment rates (as compared to the long year average) prevailed only between the mid 1970s and mid 1980s as a result of the oil boom and its impact on labour migration and economic growth. In that period, out-migration caused a domestic scarcity of certain skills. At the same time, wages for unskilled labour were bid up as Jordanian employers competed for manual workers. Progress on major infrastructure development projects, such as the irrigation canal in the Jordan valley, was hampered (Metz, 1989). Jordan was eventually obliged to import "replacement labour" - usually low-skilled workers from Egypt and Asia.

In the mid 1980s the share of foreign labour surpassed 20% of total labour force in the country. In 1990, the number of foreign workers<sup>22</sup> officially reached 180.000 in 1990 and decreased afterwards. After the economic slow down, which started in the late 1980s, the government attempted to reduce the number of foreign workers by closing employment opportunities, which were in demand by Jordanians. Due to the free movement of persons between Jordan, Egypt and Syria, the number of guest workers without a work permit is estimated to be at least as high as those with a work permit (Al-Akel, Shachatreh, 1995).

There are different opinions on whether a "crowding out" effect took place by the in-migration of foreign labour to Jordan. Talafha and Fahdawi (1998) argue that the increasing numbers of foreign workers might be an indication that this was indeed the case. The measures implemented to restrict several occupations to Jordanian labour indicate that this is also the position of the government. A joint study by the ministry of planning and the UNDP (Al-Akel, Schachatreh, 1995) found that foreign labour could potentially be employed in most positions requiring semiskilled and skilled labour, thus, confirming the "crowd out effect", which would have been more intensive without regulation. The lower wages of foreign workers, however, creates diverging interests between employers on one side and the Jordanian labour and

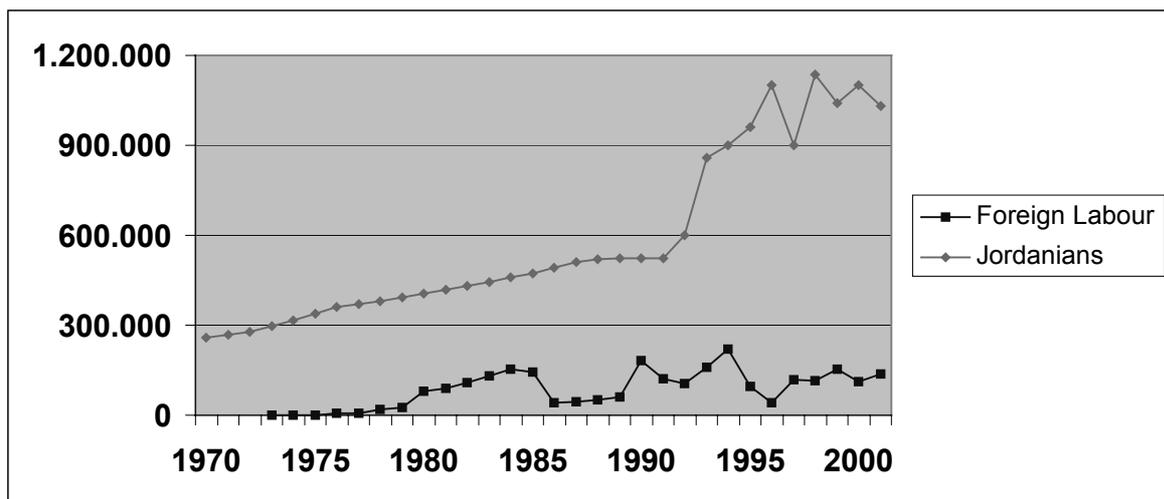
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<sup>22</sup> Source: HKJ/MoL (1980-1990): Issued work permits.

the government on the other, as the former's competitive position is negatively affected by these regulations.

According to Anderer (1991) the beginning of migration after 1973 was accompanied by high intersectoral labour mobility. The skilled and professional level positions that became free were occupied by lower level professionals while the less skilled and unskilled levels were increasingly occupied by in-migrants. Therefore, the Jordanians became accustomed to the higher incomes resulting from jobs abroad or on the higher level within Jordan, a situation that turned out to be irreversible, i.e. downwards mobility (occupying lower level positions) was not possible.

**Figure 4.3 The labour force in Jordan**



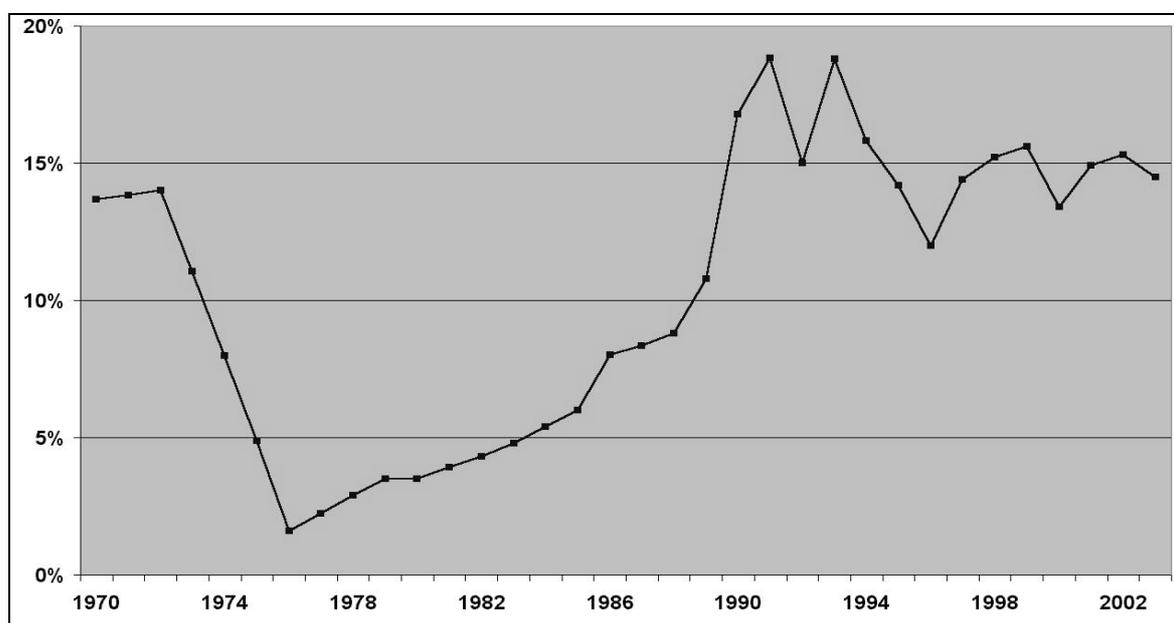
Sources: Talafhah, Fahdawi (1998), HKJ/MoL (1970-2001)

Therefore, the increasing unemployment after the mid 1980s cannot be fully blamed on the influx of foreign labour that at the same time made an important contribution to maintaining some competitiveness in the Jordanian economy.

As a result of out-migration, the Jordanian labour market experienced virtually full employment for almost 10 years. As the rate of labour force growth surpassed real economic growth unemployment returned slowly and soared as a result of the wave of return migration after the Gulf war in 1990 and 1991. Continued population growth and slow economic development kept unemployment rates high (Fig. 4.4).

According to Al-Akel and Schachatreh (1995), 77% of Jordanian work seekers are new entrants to the labour market. Almost 50% of the work seekers have a secondary education or higher and almost 36% have a post-secondary education. Most of the latter group are females and around two thirds are graduates of community colleges. This can be seen as confirmation that Jordan is producing human capital in excess of its demand and may directly or indirectly pursue a policy of human capital export.

**Figure 4.4 Unemployment rates in Jordan<sup>23</sup>**



Sources: 1970-1980: Ibrahim et al. (1989), 1981-1990: Al-Akel (1991), HKJ/DoS (1991-1996), HKJ/MoL (1997-2001), CBJ (2003).

#### 4.5 Evidence of out-migration from Jordan

The first population survey in Jordan in 1961 showed that 64,000<sup>24</sup> Jordanians were living abroad. In 1970, evidence from a number of Arab countries lead to an estimate of the number of Jordanian citizens abroad of 221,000 (Winckler, 1997)<sup>25</sup>.

<sup>23</sup> Unemployment rates are estimates resulting from known work seekers. There is no existing measuring mechanism for the determination of unemployment in Jordan. As the participation rate is relatively low, on average around 22% in the years between 1970 and 2000, unofficial estimates place the real unemployment rates higher than the official rates.

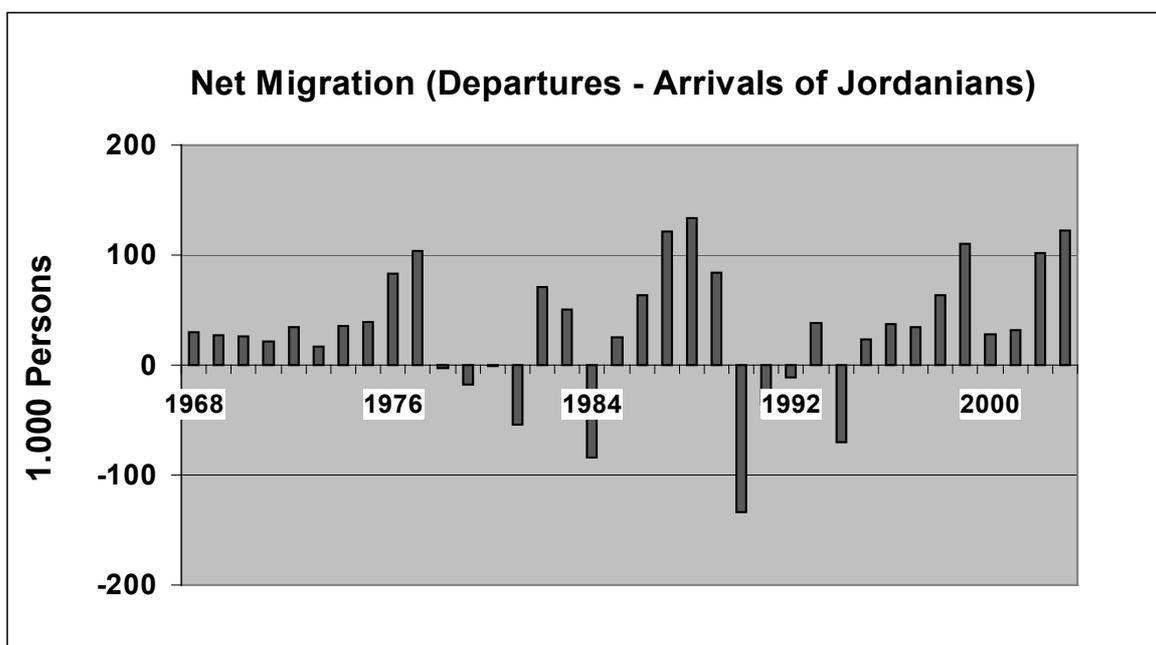
<sup>24</sup> 80% of the Jordanian migrants were from the East Bank and 20% from the West Bank (Findlay, Samha, 1986 cited by Czichowski, 1990).

<sup>25</sup> Kuwait 147,700, Saudi Arabia 50,000, Qatar 9,600, UAE 6,600, Libya 5,300, Bahrain 1,400.

This figure included Palestinians from the West Bank. The figures from Qatar at that time suggest that around 46% of these were migrants from Jordan. Birks and Sinclair (1980) estimated that in 1975 57% of the Jordanian/Palestinians community in other Arab countries were Jordanians.

The magnitude of migration increased significantly after the oil boom of 1973. The thinly populated Gulf States needed a large labour force to enable the execution of their ambitious infrastructural and industrial plans and to improve the social services, especially in the field of education and health care.

**Figure 4.5 Net population out-migration from Jordan 1968-2003**



*Source: Directorate of Inner Security as presented in the statistical yearbooks of the department of statistics (HKJ/DoS, 1968-2003)*

To assess the migratory movement of the Jordanian population, border-crossing data of Jordanian citizens are presented in Fig. 4.5. The data shows that between 1968 and 2003 over 1,1 million Jordanians left the country. In most of the years between 1968 and 2003, Jordan experienced a net out-migration of its population. Net return migration took place in the mid 1980s as a result of lower oil price and the consequent economic slow down in the Gulf Region. Between 1990 and 1992 the Gulf war necessitated the return of a large number of Jordanians.

**Table 4.4 The Stock of Jordanian population abroad**

1975	1980	1985	1990	1995	2001	2003
<b>333.000</b>	<b>499.000</b>	<b>507.000</b>	<b>776.000</b>	<b>720.000</b>	<b>1.027.000</b>	<b>1.251.000</b>

*Source: Fig. 4.5, calculations by the author*

Other estimations of the size of the Jordanian/Palestinian community in other Arab countries were cited by Winckler (1997). The community numbered 662.000 including 235.000 workers in 1985 and 761.000 in 1990.

Figures concerning Jordanians in Europe, Australia and in north America are available from the Migration Policy Institute (2004) and presented in Tab. 4.5.

**Table 4.5 Jordanian born population in non Arab countries**

	<b>1990</b>	<b>1995</b>	<b>2001</b>	<b>2003</b>
Australia	(2.100)	2.500	3.300	(3.500)
Austria	(300)	(400)	400	500
Canada	(2.200)	(3.300)	5.200	(5.500)
Denmark	600	700	900	1.000
Finland	(100)	(100)	(200)	(200)
Greece	(800)	(700)	700	(700)
Germany <sup>*)</sup>	(10.000)	12.800	14.400	(14.600)
Netherlands	(500)	(600)	800	900
Sweden	700	(900)	1.100	(1.200)
UK <sup>**)</sup>	1.900	3.000	4.400	(10.000)
USA	(30.000)	37.000	46.000	47.000
Rest of Europe <sup>***)</sup>	10.000	10.000	10.000	10.000
<b>Total</b>	<b>59.200</b>	<b>72.000</b>	<b>87.400</b>	<b>95.100</b>

<sup>\*)</sup> Stock of Jordanian citizens added to it the accumulated Jordanians granted German citizenship

<sup>\*\*)</sup> Only accumulated Jordanians granted British citizenship

<sup>\*\*\*)</sup> Estimates by the author

In parentheses: Interpolated or extrapolated by the author

*Source: Migration Policy Institute (2004)*

The typical Jordanian migrant is a married male between twenty and thirty-nine years of age. His education level is higher than the average of the East Bank population (Metz, 1989). According to Talafhah and Fahdawi (1998), more than 33

percent of the Jordanians working abroad are university graduates, and 36 percent are in professional positions. The average residency abroad ranged from 4.5 years to 8 years and the attraction of work abroad is the higher income. Jordanian migrants have a tendency to take their families with them to their place of employment than other Arab migrants (Metz, 1989). Surveys performed among the Jordanian returnees after the Gulf war, show that the share of labour was 23,5% and the rest were their dependants (Shachatreh, Billeh, 1991; HKJ/DoS, 1993).

#### **4.5.1 Quantifying the migration of Jordanian labour**

Cross border figures only measure the net out-migration of the total population. Figures on labour out-migration are available from sources, which were partly contradictory. One of the most reliable sources on population and labour migration in the 1970s is the work of Birks and Sinclair (1980), who collected data in the receiving countries. Czichowski (1990) summarised the data available in the 1980s. The last known references to the author are Winckler (1997) and Wudian et al. (1998).

Based on the available sources and the cross border figures, the number of Jordanian labour was assessed to the year 2003. It was thereby assumed that the percentage of labour among the total number of out-migrants remained constant at 23,5% (Tab. 4.6).

**Table 4.6 Destination regions of Jordanian Labour abroad**

	1975 <sup>*)</sup>	1980 <sup>*)</sup>	1985 <sup>*)</sup>	1990	1995	2001	2003
<b>Arab Countries</b>	<b>264.700</b>	<b>261.500</b>	<b>276.000</b>	-	<b>200.000</b>	<b>215.200</b>	<b>265.500</b>
Saudi Arabia	175.000	140.000	160.000	-	158.000	-	-
Kuwait	47.700	75.000	81.500	-	7.000	-	-
Other Arab countries	42.000	46.500	34.500	-	35.000	-	-
<b>Non Arab Countries</b>	<b>39.500</b>	<b>43.900</b>	<b>52.000</b>	<b>17.900</b>	<b>21.700</b>	<b>26.100</b>	<b>28.500</b>
European Countries	-	10.000	10.000	5.900	6.900	7.700	9.200
USA/Canada	-	28.000	29.250	7.600	9.500	12.000	12.300
ROW	-	5.900	12.750	4.400	5.300	6.400	7.000
<b>Total</b>	<b>304.200</b>	<b>305.400</b>	<b>328.000</b>	-	<b>221.700</b>	<b>241.300</b>	<b>294.000</b>

<sup>\*)</sup> Jordanians and Palestinians

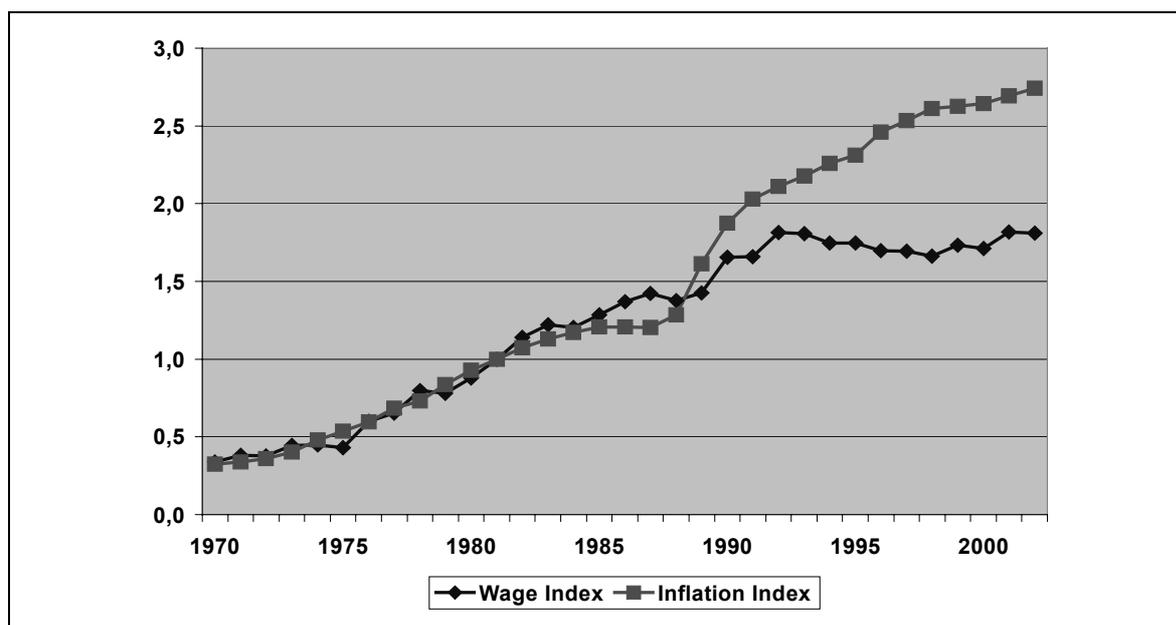
*Sources: 1975-Arab countries: Birks, Sinclair (1980); 1975-Total: Anani, Jaber (1980, cited by Czichowski, 1990); 1980, 1985: Al-Akel (1986, cited by Czichowski (1990); 1990-Non Arab countries: Fig. 4.5, whereby 23,5% of the population were assumed to belong to the labour force. ROW: Share of ROW in Non Arab countries 1985 was assumed to have remained unchanged. 1995-Arab countries: Wudian et al. (1998); 1995, 2001, 2003-Non Arab countries: Same source and calculation procedure as 1990. 2001, 2003 Total Jordanian labour abroad: Fig. 4.5, assuming 23,5% of the population belong to the labour force. 2001, 2003 Arab countries: difference between total Jordanians abroad to Jordanians in Non-Arab countries.*

#### 4.5.2 Factors influencing the out-migration from Jordan

Higher income in receiving countries constituted the most significant pull factor leading to out-migration from Jordan. Additionally, a number of push factors sustained out-migration after the initial oil-boom in 1973. The in-migration of foreign labour into Jordan and the return of many Jordanians in the late 1980s and after the Gulf war created high levels of unemployment (Fig. 4.4), which persist to the present. Excess labour supply also lead to an erosion of wages (Fig. 4.6).

The oil-boom based economic growth in the Arab region in the 1970s was a decisive factor in accumulating a modest wealth for many families in Jordan. This expanding middle class was able to finance a higher education for their children. However, after finishing their education, the younger generation was faced with the problem of low wages and unemployment and could not sustain the standard of living they were accustomed to. As a result many remained dependant on the older generation or attempted to find employment abroad.

**Figure 4.6 Development of nominal wages and inflation in Jordan**



Sources: Macroeconomic data: IMF (2000), CBJ (2003). Employment: 1970-1987 Ibrahim et al. (1989); 1988-1993: HKJ/DoS (1992, 1993); 1994-2002: HKJ/MoL (1996, 1997, 1998, 2000, 2002) ; Foreign Labour: HKJ/MoL (1980, 1983, 1984, 1985, 1988, 1990); HKJ/DoS (1988-1993); Ibrahim et al. (1989); CBJ (2003); Extrapolation by the author for the years 2001 and 2002. The wage index is calculated from consumption, tax and savings less remittances divided by the number of the employed work force in Jordan (Jordanians and foreigners).

Lower wages apparently did not lead to a level of investment capable of creating sufficient new jobs. External factors such as political uncertainty and meagre inter Arab trade are some of the reasons behind the caution over new investments. However, Jordanian policy making also appears to be a factor in this regard. A joint study made by the Jordan Investment Board, the World Bank and USAID in 1998 showed that the government attempts to improve the investment environment were not adequate and that the existing regulations were significant obstacles in the way of creating new jobs in the country.

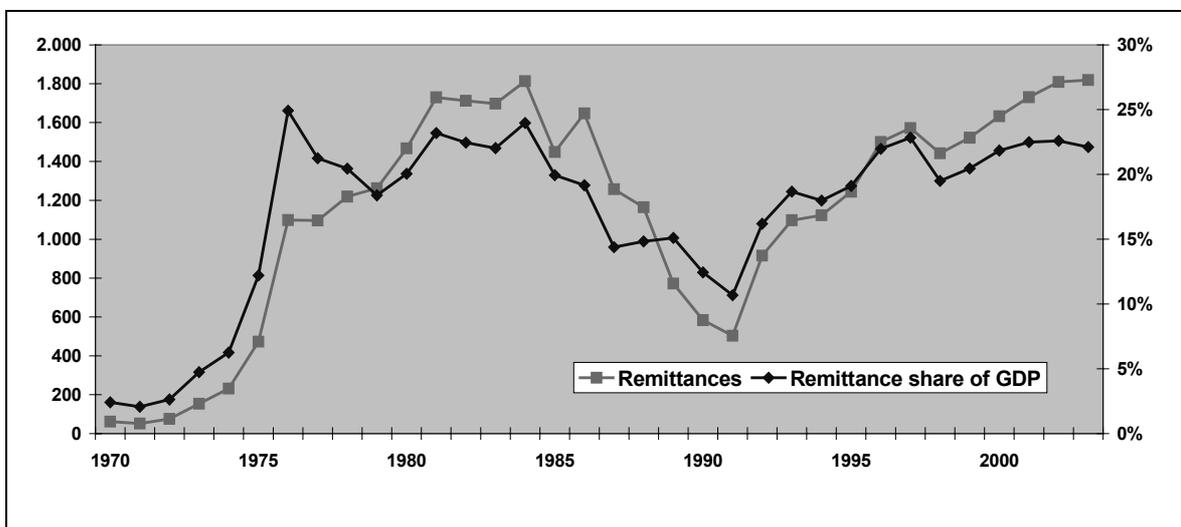
Social factors leading to out-migration are less pronounced and their impact is direct as well as indirect. These factors refer to corruption and nepotism the title of which in the Arab world is "wasta". Wasta is the deeply rooted culture of using personal connections for economic ends (see e.g. Farrag, 1997, Anderer 1991). The direct impact of wasta is the migration decision of persons who are negatively affected by or do not conform to the system. The more significant impact, however,

is indirect and results from the adaptation of “wasta” by whole organisations. Thereby, productivity is traded for favours<sup>26</sup> and the return to labour decreases.

#### 4.5.3 The development of migrants remittances

With large-scale out-migration, the inflow of remittances increased to reach a substantial part of GDP. The development of remittances since 1970 is presented in Fig. 4.6 and Tab. 4.7.

**Figure 4.7 Remittances in constant 1995 US\$ and their share of GDP**



Sources: 1970-1998: IMF (2000), 1999-2003: CBJ (2003).

<sup>26</sup> One of the leading manufacturing companies in Jordan, the Jordanian Phosphate Mines Company (JPMC), which is partly privatised has publicly complained that it suffers from over staffing due to pressure from the government.

**Table 4.7 Remittances per Jordanian migrant in constant 1995 US\$**

	1975	1980	1985	1995	2001	2003
<b>Total remittances (million 1995 US\$)</b>	473	1.468	1.448	1.244	1.731	1.819
<b>Jordanian labour abroad</b>	304.200	305.400	328.000	221.700	241.300	294.000
<b>Remittances per migrant and year (1995 US\$)</b>	1.600	4.800	4.400	5.600	7.200	6.200

*Sources: Fig. 4.7 and Tab. 4.6*

#### **4.6 Human capital formation in Jordan**

Health and Education have traditionally received a high priority among the goals of the successive Jordanian governments. As a result, Jordan has become one of only two Arab countries whose HDI ranking is higher than its per capita income ranking. According to the Jordan Human Development Report 2000 (JHDR, 2000), this is an indication of a relatively efficient investment of scarce resources.

The impact of the pursued education policy has not only resulted in an above average endowment of educated persons, but also in the development of the education sector. The recognition of individuals, that higher education is an important determinant of income, especially in combination with migration, led to a significant increase of demand for this kind of education. Until the late 1980s, the government was the sole supplier of higher education. Private initiative was restricted to primary and secondary education. The high increase of demand, especially after 1973 could not be matched by an adequate increase of higher education capacity and led many Jordanians to study abroad. By 1979, Jordanian students abroad numbered 66.000 (HKJ/DoS, 1979).

The subsequent public investments in the expansion of community colleges and universities in the late 1970s and early 1980s resulted in a decrease of Jordanian students abroad. The government, however, realised that it could not satisfy the increasing demand for higher education on its own and issued policies allowing the participation of the private sector in providing higher education. Despite the continuing population growth and the high secondary education participation rates,

the public and private higher education institutions were able to absorb the increasing number of secondary school graduates from the 1990s onwards and the number of Jordanian students abroad stabilised at around 30.000. Additionally, the Jordanian institutions developed a favourable regional reputation and started to attract students from other Arab and Islamic countries. Foreign students in Jordan counted almost 20.000 in 2004 and the number is growing in double digit-rates. Therefore, the education sector is not only contributing to job creation and economic growth but is also developing into a source for foreign currency and is providing an investment field for Jordanian capital.

The positive picture so far, however, should not blur the overall poor economic development of the country over the past two decades. The expansion of higher education was not matched by adequate economic growth and resulted, therefore, in an excess supply of educated persons who, became unemployed and had to take lower skilled jobs or migrate (Zacchia, 2002).

#### **4.6.1 Higher education in Jordan**

Post-secondary education was introduced to Jordan when the first institutions to train the increasingly needed numbers of teachers opened in 1952. The term college was used to define this kind of post-secondary education extending over 2 to 3 years. In the 1960s and 1970s more colleges offered specialisation 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, the government's teacher training and all other private and public training institutes were united under the common concept of the community college. Community colleges granted associates degrees<sup>27</sup> based on two-year study programs. Upon graduation students were eligible to apply for transfer to the university system if they wished. Tab. 4.8 shows the development in the number of students at community colleges.

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<sup>27</sup> Community college diploma.

**Table 4.8 Students in Jordanian community colleges**

	Controlling Authority			Total	% Females
	Private	UNRWA	Public		
1952/53	-	-	29	29	0%
1962/63	-	243	768	1.011	14%
1973/74	540	525	1.828	2.893	35%
1984/85**)	15.600	878	10.626	27.205	48%
1992/93	17.317	866	13.739	31.976	62%
1996/97	10.155	661	13.133	23.949	65%
2000/01	15.588	584	11.572	27.744	68%
2003/04	12.454	673	10.793	23.920	61%

\*\*) inclusion of public teacher training and other private and public institutions

*Source: 1952-1993: Al-Tall (1998); 1996/97: HKJ/Council of Higher Education (1997); 2000/01 and 2003/04: HKJ/Ministry of Higher Education (2002a, 2004a).*

Community colleges absorbed the increasing numbers of secondary school graduates who couldn't get a place in a Jordanian public University or afford to study in a private university or abroad. The high share of females in community colleges has cultural reasons, which place a higher priority on male university education and discourage females to leave their families before marriage to study abroad.

In 1980, private community colleges were allowed (Hamouri, 1992). This caused an increase in the number of institutions and students, especially in technical disciplines. The decline in the number of students in community colleges after 1990 was caused by the introduction of private university education.

In the 1970s, around 2.500 Jordanians pursued an intermediate higher education outside Jordan. This number dropped to less than 400 in 2000.

Before the establishment of the university of Jordan in 1962, Jordanians could only pursue higher education abroad. Between 1954 and 1969 an estimated number of 36.500 Jordanian Students received their higher education in foreign institutions<sup>28</sup> (Goichon, 1972). The beginnings of higher education in Jordan were modest. In 1972, ten years after its establishment, the university of Jordan had only around

<sup>28</sup> 10.000 in Egypt, 10.000 in Syria, 7.000 in Lebanon, 2.500 in Iraq, 2.500 in Yugoslavia, 1.700 in Spain, 1.000 in the USA, 1.000 in Germany and 800 in Great Britain.

3.000 Students while almost 30.000 Jordanians were studying abroad. The subjects offered, concentrated on social and human sciences as well as economics and were geared towards supplying the country with teachers and civil servants.

In the 1970s and 1980s, the government subsequently increased the higher education capacity by expanding the university of Jordan and establishing more universities in the north (University of Yarmuk, University of Science and Technology) and in the south of the country (University of Mu'tah). Available subjects were also expanded by introducing medicine (1972), agriculture (1974), engineering (1976) and law (1980). These efforts resulted in a decrease of the number of Jordanian students abroad to 27.700 by 1990 when the first private university was inaugurated<sup>29</sup>. By 2003 there were 8 public universities, 2 public university colleges and 12 private universities with a total 160.200 students (Tab. 4.9). The number of Jordanian students abroad stabilised at around 30.000 after 1990.

Tab. 4.10 highlights the regional distribution of Jordanian students abroad. Arab countries still attract the largest share of Jordanian students abroad although this share has continuously declined from 66% in 1975 to 32% in 2002. This decline is mainly caused by the introduction of tuition fees in Egypt in 1980 and the civil war in Lebanon, as these countries attracted most students until the early 1980s. After that period Syria and at times Iraq led the statistics. The relative importance of West Europe, North America and Asia declined in favour of East Europe, where in 2002 the countries of the former Soviet Union hosted around 5.500 Jordanian students.

According to the HKJ/DoS (statistical yearbooks 1980, 1984), the share of females among Jordanians studying abroad was 9,8% in 1974, 10,7% in 1980 and 7,6% in 1984 where this year being the most recent year from which this figure is available. The social attitude towards females living alone and the increasing number of female students in Jordanian universities and community colleges leads to the conclusion that the share of females studying abroad remains low.

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<sup>29</sup> The first private university was funded by Jordanian migrants, who wanted their children to receive their higher education in Jordan (Al-Tall, 1998).

**Table 4.9 Jordanian students enrolled in university level education**

	Jordanian Students in							Total Jord. Students
	Jordanian Universities					Foreign Universities		
	Private Universities	Public Universities	Total	% Females	% Post Grad.	Total	% Post Grad.	
1950/51	-	-	-	-	-	200 <sup>†)</sup>	-	200
1961/62	-	-	-	-	-	6.000	-	6.000
1970/71	-	2.700	2.700			23.000 <sup>†)</sup>	-	25.700
1975/76	-	5.200	5.200	32%	3%	39.400	-	44.600
1980/81	-	15.800	15.800	-	6%	66.100	-	81.900
1985/86	-	26.700	26.700	39%	8%	35.800	-	62.500
1990/91	1.700	38.000	39.700	43%	12%	27.700	7%	67.400
1995/96	27.800	55.700	83.500	44%	7%	29.600	13%	113.100
2000/01	39.300	86.500	125.800	51%	6%	31.000	16%	156.800
2003/04	40.400	119.800	160.200	52%	7%	27.200 <sup>**)</sup>	19%	187.400

\* ) estimates by the author<sup>30</sup>

\*\* ) 2002/2003

*Sources: 1961/62: Badr (1994); 1970/71 students abroad: Al-Tall (1998); 1970-1996: HKJ/DoS (1971, 1976, 1981, 1986, 1991, 1996); 2000-2004: HKJ/Ministry of Higher Education (2002a,b; 2004a,b).*

**Table 4.10 Jordanian students in foreign universities**

	Distribution of Jordanian university students abroad						
	Arab Countries	West Europe	East Europe	North America	Asia	Unspecified	Total
1972/73	24.300	3.300		800	600		29.000
1975/76	27.400	6.200	2.700	1.000	2.100		39.400
1980/81	41.100	6.300	10.500	6.100	2.100		66.100
1985/86	8.300	4.200	5.800	6.600	1.000	9.900	35.800
1990/91	7.200	4.500	4.400	4.300	7.300		27.700
1995/96	10.300	2.500	3.200	2.500	3.100	8.000	29.600
2000/01	12.000	1.700	6.100	1.900	1.300	8.000	31.000
2002/03	8.600	1.600	5.900	1.900	1.300	8.000	27.300

*Sources: 1972-1996: HKJ/DoS (1973, 1976, 1981, 1986, 1996); 2000/2001: HKJ/Ministry of Higher Education (2002(b)). The figures for North America in 1985/86 and 1990/91: National Centre for Education Statistics (2002). 2002/2003 HKJ/Ministry of Higher Education (2004(b)).*

Students studying in Jordan tend to study human and social sciences, while those studying abroad focus on engineering and medicine (Tab. 4.11 and 4.12). However, this distinction is probably a result of the limited capacity of the Jordanian universities for engineering and medicine. Therefore, entry barriers to study medicine or engineering in Jordan are high, and can only be achieved by few secondary school graduates.

**Table 4.11 Distribution of students in Jordanian universities according to discipline (Absolute Numbers and percent of total)**

	1970/71	1975/76	1980/81	1985/86	1990/91	1995/96	2000/01
<b>Pedagogic</b>	<b>100</b> 3,7%	<b>700</b> 13,2%	<b>1.500</b> 9,4%	<b>1.800</b> 6,7%	<b>3.700</b> 9,7%	<b>8.600</b> 15,4%	<b>16.400</b> 19,0%
<b>HSSR*)</b>	<b>1.000</b> 37,0%	<b>1.700</b> 32,1%	<b>4.200</b> 26,2%	<b>7.000</b> 26,2%	<b>9.400</b> 24,7%	<b>16.200</b> 29,0%	<b>21.200</b> 24,5%
<b>Law</b>			<b>300</b> 1,9%	<b>500</b> 1,9%	<b>1.800</b> 4,7%	<b>2.900</b> 5,2%	<b>3.400</b> 3,9%
<b>Economics and BA**)</b>	<b>1.100</b> 40,7%	<b>1.100</b> 20,8%	<b>3.300</b> 20,6%	<b>4.700</b> 17,6%	<b>6.200</b> 16,3%	<b>6.200</b> 11,1%	<b>9.300</b> 10,8%
<b>Natural Sciences</b>	<b>300</b> 11,1%	<b>700</b> 13,2%	<b>2.200</b> 13,7%	<b>2.900</b> 10,9%	<b>3.900</b> 10,3%	<b>4.400</b> 7,9%	<b>6.600</b> 7,6%
<b>Mathematics &amp; IT</b>	<b>200</b> 7,4%	<b>400</b> 7,5%	<b>1.200</b> 7,5%	<b>1.600</b> 6,0%	<b>2.100</b> 5,5%	<b>2.500</b> 4,5%	<b>6.900</b> 8,0%
<b>Medicine &amp; Dentistry</b>		<b>200</b> 3,8%	<b>500</b> 3,1%	<b>600</b> 2,2%	<b>1.400</b> 3,7%	<b>1.900</b> 3,4%	<b>3.000</b> 3,5%
<b>Other Medical Sciences</b>		<b>200</b> 3,8%	<b>200</b> 1,2%	<b>1.600</b> 6,0%	<b>1.900</b> 5,0%	<b>2.500</b> 4,5%	<b>4.500</b> 5,2%
<b>Engineering</b>		<b>100</b> 1,9%	<b>1.200</b> 7,5%	<b>3.100</b> 11,6%	<b>4.700</b> 12,4%	<b>6.800</b> 12,2%	<b>9.200</b> 10,6%
<b>Agriculture</b>		<b>200</b> 3,8%	<b>500</b> 3,1%	<b>1.100</b> 4,1%	<b>1.600</b> 4,2%	<b>2.100</b> 3,8%	<b>3.300</b> 3,8%
<b>Other</b>			<b>900</b> 5,6%	<b>1.800</b> 6,7%	<b>1.300</b> 3,4%	<b>1.800</b> 3,2%	<b>2.700</b> 3,1%
<b>Total</b>	<b>2.700</b>	<b>5.300</b>	<b>16.000</b>	<b>26.700</b>	<b>38.000</b>	<b>55.900</b>	<b>86.500</b>

\*) Human-, Social Sciences and Religion

\*\*\*) Business Administration

Source: 1970-1996: HKJ/DoS (1971, 1976, 1981, 1986, 1991, 1996); 2000/2001: HKJ/Ministry of Higher Education (2002a).

<sup>30</sup> The figure for 1950/51 was estimated as being 10% of the number of secondary education students.

**Table 4.12 Distribution of students in foreign universities according to discipline (Absolute Numbers and percent of total specified)**

	1972/73	1975/76	1980/81	1985/86	1990/91	1995/96	2000/01
<b>Pedagogic</b>	<b>600</b>	<b>1.000</b>	<b>1.600</b>	<b>100</b>	<b>200</b>	<b>300</b>	<b>100</b>
	2,2%	2,7%	2,7%	0,6%	0,9%	2,0%	0,8%
<b>HSSR*)</b>	<b>14.700</b>	<b>17.000</b>	<b>13.200</b>	<b>1.500</b>	<b>4.500</b>	<b>2.900</b>	<b>2.300</b>
	53,3%	45,9%	22,7%	9,1%	21,1%	19,0%	17,8%
<b>Law</b>	<b>1.800</b>	<b>2.700</b>	<b>4.500</b>	<b>1.200</b>	<b>1.600</b>	<b>1.800</b>	<b>1.000</b>
	6,5%	7,3%	7,7%	7,3%	7,5%	11,8%	7,8%
<b>Economics and BA**)</b>			<b>9.300</b>	<b>1.300</b>	<b>2.800</b>	<b>2.100</b>	<b>1.200</b>
	0,0%	0,0%	16,0%	7,9%	13,1%	13,7%	9,3%
<b>Natural Sciences</b>	<b>1.800</b>	<b>2.100</b>	<b>3.400</b>	<b>1.200</b>	<b>1.300</b>	<b>1.200</b>	<b>600</b>
	6,5%	5,7%	5,8%	7,3%	6,1%	7,8%	4,7%
<b>Mathematics &amp; IT</b>				<b>400</b>	<b>500</b>	<b>500</b>	<b>300</b>
	0,0%	0,0%	0,0%	2,4%	2,3%	3,3%	2,3%
<b>Medicine &amp; Dentistry</b>	<b>5.100</b>	<b>7.500</b>	<b>8.400</b>	<b>4.100</b>	<b>4.000</b>	<b>2.700</b>	<b>3.900</b>
	18,5%	20,3%	14,4%	24,8%	18,8%	17,6%	30,2%
<b>Other Medical Sciences</b>						<b>200</b>	<b>200</b>
	0,0%	0,0%	0,0%	0,0%	0,0%	1,3%	1,6%
<b>Engineering</b>	<b>2.500</b>	<b>5.600</b>	<b>14.800</b>	<b>6.200</b>	<b>5.800</b>	<b>3.200</b>	<b>2.900</b>
	9,1%	15,1%	25,4%	37,6%	27,2%	20,9%	22,5%
<b>Agriculture</b>	<b>1.100</b>	<b>1.100</b>	<b>3.000</b>	<b>500</b>	<b>600</b>	<b>400</b>	<b>400</b>
	4,0%	3,0%	5,2%	3,0%	2,8%	2,6%	3,1%
<b>Total Specified</b>	<b>27.600</b>	<b>37.000</b>	<b>58.200</b>	<b>16.500</b>	<b>21.300</b>	<b>15.300</b>	<b>12.900</b>
****)	95,2%	93,9%	88,0%	48,8%	76,9%	51,7%	41,6%
<b>Other/Unspecified</b>	<b>1.400</b>	<b>2.400</b>	<b>7.900</b>	<b>17.300</b>	<b>6.400</b>	<b>14.300</b>	<b>18.100</b>
****)	4,8%	6,1%	12,0%	51,2%	23,1%	48,3%	58,4%
<b>Total</b>	<b>29.000</b>	<b>39.400</b>	<b>66.100</b>	<b>33.800</b>	<b>27.700</b>	<b>29.600</b>	<b>31.000</b>

\*) Human-, Social Sciences and Religion

\*\*) Business Administration

\*\*\*) 1972 to 1991 include other medical sciences and 1995 to 2001 include pharmacology

\*\*\*\*) percent of total

*Source: 1972-1996: HKJ/DoS (1973, 1976, 1981, 1986, 1996); 2000/2001: HKJ/Ministry of Higher Education (2002(b)).*

Studying abroad is an important factor contributing to migration. The World Bank Report from 1991 stated, that between 1962 and 1976, 49% of the Jordanian students remained in the US after completing their education there.

#### 4.6.2 The cost of higher education

The cost of education is considered as of equal value regardless of whether it is paid by the government or by private households. The following quantification of the cost of education relates only to direct public and private costs, whereas the cost of forgone income during the education period is analysed in the following chapter.

Tab. 4.13 shows that the budgets of the ministries of education and higher education rose from 7,4% of GDP in 1970 to 13,8% of GDP in 2003. These budgets also increased as a percentage of GDP until 1990 but then declined in line with the share of government spending in GDP.

**Table 4.13 The budgets of the ministries of education and higher education as percentages of government budget and GDP**

	% of Total Government Spending	% of GDP
1970	7,4%	2,7%
1975	6,8%	3,3%
1980	7,2%	3,3%
1986	9,4%	3,6%
1990	10,8%	4,2%
1995	11,1%	4,1%
2000	11,2%	3,7%
2003	13,8%	3,9%

*Sources: Budgets of the Ministries of Education and Higher Education related to total government Budgets and GDP in HKJ/DoS (1970, 1975, 1980, 1986, 1990, 1995, 2000, 2003).*

Badr et al. (1994) calculated the share of private and public educational expenditures to be 11,3% of GDP in 1992, whereas 5,1 % were private and 6,2% were public (Tab. 4.14). In calculating the private costs, the authors took into account all spending on books, uniforms, writing material and tuition fees. Additionally they incorporated spending on higher education abroad for which they cited a study about the expenditures of Jordanian families performed by the DoS for the year 1992. This study stated that the private expenditures for studying

abroad were 0,74% of GDP. These figures were divided by the number of students in each category, thereby, arriving at the cost per student.

**Table 4.14 Private and public spending on education 1992 in const. 1995 US\$**

	Private Spending (mill. US\$)	Public Spending (mill. US\$)	Total Spending (mill. US\$)	Students (thousands)	Spending per Student US\$	Total Spending (% of GDP)
Kindergarten	13,9	0,0	13,9	50,3	275,5	0,3%
Basic Education	125,0	195,3	320,2	982,7	325,8	6,3%
Secondary Education	20,5	21,3	41,6	83,3	499,2	0,8%
Vocational Education	6,0	20,0	26,0	26,2	993,4	0,5%
Higher Education						
- in Jordan	57,8	75,5	133,4	94,0	1.418,8	2,6%
- abroad	37,9	6,5**)	44,4	31,9	1.390,3	0,9%
<b>Total</b>	<b>260,9</b>	<b>318,3</b>	<b>579,3</b>	<b>1.268,4</b>	<b>456,8</b>	<b>11,3%</b>

\*\*\*) Estimate by the author based on the number of government grants to foreign universities

Source: Source: Badr et al. (1994) and calculations by the author.

Expenditures on higher education were also calculated using published data on the budgets of the Jordanian public universities. The results of this calculation are presented in Tab. 4.15 and show significantly higher costs than the approach of Badr et al., which can partly be attributed to the fact that community colleges were included in their study and that these colleges have a lower cost per student than universities.

A third method for quantifying the cost of higher education is to rely on published figures concerning tuition fees of private universities. The rapid spread of these universities after 1990 allows the conclusion that sufficient competition exists and that this competition leads to prices reflecting the real cost of education. Tab. 4.16 shows the private cost of higher education to be paid to public and private universities and for different subjects. The data is calculated from published tuition and other fees and accounting for the required credit hours to earn a BSc in each subject. The cost of studying in private universities and for non-Jordanians in public universities are similar whereas the fees for Jordanians in public universities are subsidised to various levels according to the subject of study.

**Table 4.15 The cost of higher education in Jordanian public universities**

	1992	1995	1999	2001
Government expenditure on universities (mill. const. 1995 US\$ p.a.)	66	94	93	83
Government expenditure as % of total universities' budgets	39%	54%	48%	36%
Universities' budgets (mill. const. 1995 US\$ p.a.)	169	176	192	232
Students in public universities	49.500	54.500	65.700	85.400
Average total cost per student (const. 1995 US\$ p.a.)	3.400	3.200	2.900	2.700

Source: 1992, 1995: Al-Tall (1998), HKJ/Council of Higher Education 1999, HKJ/Ministry of Higher Education (2002a).

**Table 4.16 Private cost of attaining a BSc degree in constant 1995 US\$**

	University of Jordan*)		Al-Al Beyt University*)		Philadelphia University	Zarqa Private University	Average ***)
	Jordan-ians	non Jordan-ians	Jordan-ians	non Jordan-ians			
Human Sciences	1.430	6.930	1.980	10.230	7.810	6.050	7.700
Economics	1.430	6.930	1.980	10.230	8.690	7.590	8.360
Engineering	2.970	15.510			14.190		14.850
Medicine	4.950	25.740					25.740
Computer Science	7.260	12.760	2.310	11.880	12.650	11.550	12.210

\*)public universities

\*\*)medicine is currently only available in public universities

\*\*\*)Average refers to private universities and non-Jordanians in public universities

Source: University of Jordan (2003); Al Al-Bayt University (2003); Philadelphia University (2003); Zarqa Private University (2003).

According to Tab. 4.16, the average university fees for studying human sciences, economics, engineering and computer science varied between 7.700 and 14.850 const. 1995 US\$. This figure is close to the cost of education calculated from Tab.

4.15 if it were to be multiplied by four, which is the average number of years to obtain a BSc degree.

The cost of higher education abroad varies significantly according to the location. The students and their families pursued two different strategies when choosing to attain higher education abroad. The “low cost” strategy is pursued by families with limited incomes and involves studying in countries where low or no tuition fees are required and where the cost of living is lower than in Jordan. Syria, Irak, Egypt<sup>31</sup>, the countries of the former Soviet Union, India and Pakistan are examples of this group of countries. According to the ministry of planning (2002) a Jordanian student in Syria has living costs of only 1.600 const. 1995 US\$ p.a. and no tuition fees. This figure represents the minimum level of cost of foreign higher education. The “high return” strategy involves studying in universities, which have a perceived high value of their education. This significantly improves the chances of graduates to attain higher paying jobs. These universities are predominantly located in Western Europe and in the USA and only accessible to families with higher incomes or to students who receive grants from the Jordanian government or from foreign sources. The ministry of planning (2002) quotes a bank manager stating: “For certain vacancies, I prefer to hire Jordanian graduates from either the United States or the United Kingdom”. Higher education abroad implies a significant transfer of foreign currency out of Jordan. According to the survey conducted in this study, the average cost of higher education abroad amounted to 5.000 const. 1995 US\$ p.a. in other Arab countries and 17.000 const. 1995 US\$ p.a. in Europe and North America. Information is also available from Germany, where the cost of higher education can be derived from the financial support, which students receive from the government amounting to a maximum of approximately 9.000 const. 1995 US\$ p.a.<sup>32</sup>. Foreign education was more attractive to Jordanians before the devaluation of the Jordanian currency in 1988.

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<sup>31</sup> Until the introduction of tuition fees in 1980/81

<sup>32</sup> Measured by the BAFÖG-rate of approx. 500€/month in 2003 and 1 € = 1,1 US\$ or 1,33 const. 1995 US\$.

### **4.6.3 An assessment of the quality of formal education in Jordan**

The educational systems in the Arab world inculcate the notion in school children that a university education is the summit and ultimate goal of education. Furthermore, there is strong emphasis on the literary aspect of education, reflecting the respect in the Arab world for the written word. The courses are repetitive as the same themes are studied in each educational level but at a higher standard and an emphasis is put on rote learning rather than on initiative or creativity (Birks, Sinclair, 1980).

As the university degree is the ultimate goal of education, a high value is related to courses enabling the students to pursue this path. Alternative paths, such as vocational training, are considered to be of lesser value and are left to those who “drop out” from the academic path. The perceived gap between university education and other kinds of education is further widened by the behaviour of Arab governments, who offer priority employment opportunities to university graduates. As a result, an unusually large number of students enrol in universities and school leavers tend to have qualifications that are more applicable to clerical and administrative work than to technical or scientific jobs. The larger the public sector is, the more pronounced this outcome is (Birks, Sinclair, 1980).

Although the achievements of the educational system in Jordan are significant as measured by the reduction of illiteracy and gender equality, the shortcomings described for the Arab educational system in general also apply to Jordan. Criticism concerning the quality of education has been increasing since the 1990s and is directed at school and higher education alike. In essence it is pointing at poor performance and at an increasing gap between the education output and the requirements of the labour market.

In a discussion chaired by the former minister of education (Hindawi, 1997), politicians and experts have voiced their concern about the education system. A former minister (Sharaf) saw some “dangerous signs” of education output in Jordan: “The graduates don’t have a good command of the Arabic language, which is apparent in the numerous misspellings in daily newspapers. Students also have a poor command of the English language and show a lack of analytical thinking and deduction abilities. Their language is emotional, not scientific and often they

cannot follow lectures. The use of libraries and the search for sources is poorly developed. Graduates lack initiative, imagination and creativity because the educational system is mainly based on the curriculum, which is learnt by “heart”. Another expert (Mahaftha) puts the above issue to the point by provocatively asking: “How do you ask a student to think when you do not allow him to discuss?”.

Al-Tall (1992) lists the shortcomings of the school education system and states that the linkages between curricula and the actual problems of the society are often weak and that the values, which are aimed to be conveyed to the students are vague, rigid and sometimes contradicting. The curricula concentrates on knowledge, neglects learning methods and skills and poorly adapts the developments of the information technology. Furthermore it is unable to demonstrate the applied side of knowledge. Finally, teaching by “circles”, which increase knowledge around the same subjects from year to year leads to repetition and to the boredom of students.

International comparisons confirm the strengths and weaknesses of the educational system as Jordanian primary students fare well compared to their international colleagues in knowledge areas, but rank lower in cognitive skills. The weaknesses also become apparent after introducing analytical questions to the general secondary examination (tawjihi): the pass rate decreased from 60% in 1988 to 48% in 1998 (JHDR<sup>33</sup> 2000).

According to the JHDR 2000, school education in Jordan is still characterised by an emphasis on memorisation and does not tend to promote analytical thinking and problem-solving abilities. Most teachers tend to revert to old teaching methods and discipline habits that are paternalistic and lack critical analysis and debate in the classroom. Although new, more dynamic and participatory teaching methods are being introduced in public schools, the traditional habits are proving slow to change.

Another issue being discussed publicly in Jordan is the quality of education in private universities, which is summarised by Al-Tall (1998). Those in favour of private university education state that these universities have an important economic role as they offer an alternative to Jordanian students who would

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<sup>33</sup> Jordan Human Development Report 2000.

otherwise have sought higher education abroad and possibly in universities with poor reputation and without adequate quality assurance, as is the case in many universities located in developing countries. Additionally students abroad can be subject to social and political pressure, negatively impacting their values and attitudes. The educational capacity in Jordan also enables the offspring of Jordanian migrants to receive their higher education in Jordan, thus maintaining the social and economic ties of this group to the country and increasing the probability of profit from this human capital. Educational capacity also attracts foreign students, who improve the balance of payments and increase the foreign exchange reserves. Private universities play an important role in providing many academics, technicians and labourers<sup>34</sup>. Finally the profit nature of education is not new, and traditionally there have always been private kindergartens, schools and community colleges. To have private universities is a natural continuation of this development.

Reservations towards private education are mainly concerned with lower quality resulting from short-term profit maximising behaviour on the behalf of the university owners. Owners might also mingle in the academic administration of the university and assert decision-making based purely on economic viewpoints. An example of this is the neglect of costly research and the focusing only on teaching. Students who are accepted in private universities are usually those turned down by public universities, which would adversely impact the standard and the view of the society towards those universities and their graduates. Students are usually from wealthy families, which might create the perception that paying guarantees success without effort. Critique is also directed at the academic staff of private universities. Many are not appointed in public universities and others are non-Jordanians, who only reside in Jordan due to an adverse political situation in their countries and would return as soon as the situation in their respective countries improved (Al-Tall, 1998).

To overcome these problems, Al-Tall suggests policies aimed at removing structural problems resulting from contradictions between the law of firms and university laws, thereby defusing conflicts between the commercial and academic

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<sup>34</sup> Investment in private higher education amounted to 200 mill. US\$ (equalling 206 mill. const. 1995 US\$) by 1996 (Al-Tall, 1998).

administration of the universities. Additionally, standards for higher education should be implemented to ensure quality. These standards would also ensure commitment to personnel appointment traditions and basics developed by the public universities. The policies should commit private universities to dedicate funds for research.

But work is also required to raise the level of education of applicants with low grades in the general secondary examination. This could include acceptance tests supervised by committees with public university participation and, when necessary, introducing a preparatory year before university education.

The owners of private universities, however, will strive to maximise their profit in the long run and have, therefore, a self interest in ensuring a good reputation and quality compared to their private and public competitors and to keep attracting students in the future. The critique of private universities on grounds of insufficient research funds cannot be taken seriously as the research and conference budget of public universities is less than 1% of their total budget.

In its competitiveness studies presentations, the ministry of planning (2002) recommends the implementation of a university evaluation centre, which ranks the universities according to the number of PhD graduates, job opportunities for graduates, university R&D expenditure and successful and creative businessmen Alumni. Incentives for teaching staff should not be based on the number of researches but on the ability to link students with private and public sectors needs. Furthermore, publications should be released more quickly than the current average of 2 to 3 years.

The JHDR 2000 recommends that priorities and policy implications be set for enhancing skills, attitudes and entrepreneurial capabilities. The education and training system should provide factual information and knowledge, personal values and attitudes, and intellectual modes of thinking and analysis.

If education is to continue being a field in which Jordan enjoys a comparative advantage, the system has to keep up with the developments elsewhere and reforms have to be made on all levels of education to ensure the employability of Jordanian graduates in the country and abroad.

#### **4.6.4 Education, training and the local labour market requirements**

Jordan has traditionally suffered from mismatches between the educational system and the labour market. The government has attempted for years to make education more relevant to the needs of the labour market, yet the education system remains largely non-market driven (JHDR 2000). Experts feel that this is due to several social and technical factors. The social factors include pressure by parents who want their children to become physicians or engineers<sup>35</sup> and reluctance among young educated Jordanians to take manual labour jobs. The technical factors include a lack of career counselling at schools, poor linkages between the marketplace and the education system and the fact that many young Jordanian graduates find work at home or in the oil-producing Arab states and do not suffer from mismatches between their educational qualifications and the demands of the local labour market (JHDR 2000).

The state has traditionally played an important role in providing employment as it expanded its public institutions and developed a few larger scale industries around the extraction and processing of available raw materials such as phosphates and potash. This dominant role of the state and its preference for university degree holders, however, has contributed to an increased striving for credentials enabling a secure public employment. On the other hand, the development of industrialisation in Jordan has been slow and characterised by small-scale industries supplying the basic needs of the local and regional market. The labour demand of this sector is focused on the skilled worker level, which to a significant extent is supplied by foreign labour, exerting downward pressure on wages. Therefore, the attractiveness of vocational training remains limited compared to academic degrees.

The relatively small industrial basis also limits the opportunities for professional development through training and probably causes a large write off of the technical skills of many Jordanians returning after their higher education or work residency abroad.

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<sup>35</sup> HKJ/MoP 2000 (Competitiveness studies of the ministry of planning): 70% of specialisations are chosen by the student's parents.

Qariuti (1996) criticises graduates from the Jordanian educational system as being unprepared and unmotivated to embark on the challenges of the job market. There is a general lack of entrepreneurial spirit and little preparedness to accept jobs outside the specialisation field and a tendency to seek public employment. He concludes that the values, which are focused on in the society and in the curriculum need reconsidering and reevaluation.

In numbers, the graduates are sufficient to satisfy the demand of the local economy. However, some specialisations are still lacking. The competitiveness study of the ministry of planning for example draws to attention the fact that expanding health services in the region require increasing numbers of nursing personnel. Generally, the education system needs to generate graduates with creative, entrepreneurial, and problem-solving abilities and with the technical and managerial skills required by the economy (JHDR 2000). Most of all it needs to produce more job creators and less job seekers (HKJ/MoP 2002).

#### **4.7 The migration of human capital from Jordan**

Many researchers note that the Jordanian labourers, on average, have a higher level of education than migrants from other Asian regions (see e.g. Birks, Sinclair (1980), Winckler (1997) and Wudian et al. (1998)). During the 1980s Jordanians turned to higher qualified jobs for three main reasons. First, labour from Asia, predominantly from the Indian subcontinent competed successfully for lower skilled jobs. Lower wages in the Gulf States and inflation in Jordan made migration in pursuit of lower skilled jobs unattractive. Second, running the huge stock of capital and especially the extensive public services in the Gulf States, required Arabic speaking labour and a post-secondary level of education. Third, the expansion of higher education in Jordan created a supply of skilled persons, overtaking the local demand in Jordan. Although wages were also eroding for skilled labour in the Gulf region, the investment in higher education was still worthwhile.

##### **4.7.1 The relationship between higher education and migration**

The limited capacity for higher education in the country has for a long time been a cause for many Jordanians to study abroad. Despite the cost, this kind of migration

was initially related to significant benefits to the country as it lacked the sufficient human capital that would enable a proper administration and a provision of essential services.

By the 1990s, the expansion of higher education capacity had significantly reduced the dependence on foreign institutions and turned higher education into an important sector of the economy. At the same time, the supply of higher educated persons was exceeding demand thereby raising serious doubts about whether the expansion of education was justified in view of the increasing number of unemployed graduates. Jordanian students graduating from local universities increasingly sought employment abroad as did those who studied abroad previously. The World Bank development report (1991) states that between 1962 and 1976, 49% of Jordanian students in the US remained there after finishing their studies. BuBtanah (1988) as quoted in Al-Tall (1998) also states that 40% of Jordanian students remained abroad after finishing their studies.

Al-Tall (1998) analyses the out-migration of academic university staff, which he considers as a brain drain. In his view it prevents the development of the country and the build up of its own technological capacity. He offers a range of causes for the migration of this group of persons. The first reason is the “retardedness” of educational institutions, which in his view are unsuitable to promote social improvements and provide conditions to increase knowledge. There is also a lack of acceptance for new ideas, especially new educational concepts. The atmosphere fails to promote R&D, the research priorities are set wrongly and scientists have to endure intensive bureaucracy. The basis for promotion are not academic and Al-Tall criticises the style in which younger scientists are treated, which results in a negligence of their abilities. Limited academic freedom and general freedom of thought, the spread of corruption and nepotism, insecure scientific jobs and the comparatively low income related to scientific work, add to the causes making out-migration a viable alternative for scientists.

Bubtanah quoted by Al-Tall states that limitations of scientific research is a reason for out-migration. The proportion of research - the creative part of academic work - comprises only 5% of the total in Arabic universities as compared to 33% in industrialised countries. According to Al-Tall, this situation is brought on by the separation between universities and the economy, thereby, restricting the research

funds to the budgets provided by the universities and the state and those are low in international comparisons. In Jordan total R&D spending is in the magnitude of 0,5% of GDP compared to 2,5% – 3,0% in industrialised countries (UNDP/Arab Human Development Report/AHDR 2002).

Another point mentioned by both Al-Tall and the AHDR 2002 is the limited Arabisation of scientific literature and curricula. Scientists and academics willing to migrate, tend to look for opportunities in the countries the language of which they have studied. So English language preference – a result of British imperialism – for example used in technical subjects, promotes out-migration to the UK and the US.

The Jordan Human Development report JHRD (UNDP, 2000) draws attention to the imbalance between the supply of BSc and MSc/PhD graduates where there is an excess supply of the former and a deficit in the latter. The limited spread of post BSc education is a result of the high cost, especially in applied technology. The excess supply of BSc graduates creates unemployment and an incentive to consider out-migration.

To summarise the points above; on the positive side, the expansion of higher education capacity in Jordan has significantly reduced the dependence on foreign institutions and enlarged the education as a sector of the economy offering jobs. On the other side, there are many indications that there is a need for reform and that many problems within the sector motivate academic staff to search for employment abroad.

#### **4.7.2 Quantifying the migration of human capital**

The magnitude of human capital migration was estimated in this study by deducting the number of Jordanians who had a higher education and residing in Jordan from the accumulated number of Jordanians who graduated from higher education institutions in Jordan and abroad. The former figure is obtained from the population census (HKJ/DoS, 1994) and unemployment surveys (HKJ/DoS, 1998, 2000, 2003, 2004<sup>36</sup>) while the latter figure is obtained from graduates' statistics published by the ministries of education and higher education. The obtained figure

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<sup>36</sup> These surveys depicted the percentage of the population with post-secondary education.

is corrected by deaths of Jordanians who had had a higher education, which was calculated by assuming a crude death rate equalling 50% of the total population<sup>37</sup>. This calculation is sensitive to inaccuracies of the unemployment data and the assumption of the crude death rate. According to these calculations 83.600 or 17% of all Jordanian graduates were residing abroad until 1994. Between 1994 and 2003, 46.300 or 17% of all the graduates in that period out-migrated (Tab. 4.17).

The above estimates for 1994 approximately resemble the figures from Wudian et al. (1998) who stated that 82.500 persons or 30% of the 275.000 Jordanians working abroad in 1993 had a post-secondary education.

**Table 4.17 Migration of Jordanian Labour with higher education**

	1969	1979	1994	2001	2003
<b>Accumulated graduates from foreign HE-Institutions</b>	36.500	96.400	231.400	269.000	281.100
<b>Accumulated graduates from Jordanian HE-Institutions</b>	4.800	39.400	261.400	411.100	479.300
<b>Total accumulated Jordanian graduates</b>	41.300	135.800	492.800	680.100	760.400
<b>Jordanian residents with HE</b>	-	-	394.400	531.400	603.000
<b>Estimated accumulated deaths of Jordanians with HE *)</b>	600	2.900	14.800	23.800	27.500
<b>Jordanian migrants with HE</b>	-	-	83.600	124.900	129.900

\*) This figure was calculated by assuming a crude death rate of 2,5, which was half the average crude death rate of the population after 1990.

*Sources: Graduates from foreign HE-Institutions: 1969: Goichon (1972), 1979-2003: Calculations by the author based on HKJ/DoS (Yearbooks 1960-2003); Jordanian HE-Graduates: Calculations by the author based on HKJ/DoS (Yearbooks 1960-2003); Jordanian Residents with HE, 1994: HKJ/DoS (1994); 2001, 2003: Employment and unemployment surveys (2004).*

A quantification of Jordanian migrants abroad according to their educational level was performed, thereby differentiating between intermediate higher education (community college graduates) and university education (Tab. 4.18). This distinction is based on the characteristics of the returnees, which were surveyed

<sup>37</sup> This assumption accounts for the low proportion of elder persons among Jordanians who have had a higher education, since the majority have received their education after 1990 (see tab. 4.9).

after the return from the Gulf States between 1991 and 1992 (Schachatreh, Billeh, 1991; HKJ/DoS, 1993) and on the data provided by Wudian et al. (1998). After the year 2000 the proportion of university graduates is assumed to have increased reflecting the shrinking role of intermediate higher education.

**Table 4.18 Educational background of Jordanian Labour abroad**

	1981*)	1986*)	1995	2001	2003
<b>Less than Secondary Education</b>	<b>82.000</b> 26,2%	<b>89.500</b> 26,0%	<b>76.200</b> 34,4%	<b>60.200</b> 24,9%	<b>79.100</b> 26,9%
<b>Secondary Education</b>	<b>168.000</b> 53,8%	<b>171.000</b> 49,8%	<b>61.900</b> 27,9%	<b>56.200</b> 23,3%	<b>85.000</b> 28,9%
<b>Intermediate higher Education</b>	<b>19.700</b> 6,3%	<b>30.900</b> 9,0%	<b>31.400</b> 14,2%	<b>45.400</b> 18,8%	<b>45.100</b> 15,3%
<b>University Education</b>	<b>42.600</b> 13,7%	<b>51.900</b> 15,2%	<b>52.200</b> 23,5%	<b>79.500</b> 32,9%	<b>84.800</b> 28,8%
<b>Total</b>	<b>312.300</b>	<b>343.300</b>	<b>221.700</b>	<b>241.300</b>	<b>294.000</b>

\*) Jordanians and Palestinians

*Sources: 1981, 1986: Wudian et al. (1998); 1995, 2001, 2003: Calculations by the author.*

### 4.7.3 Return migration

Issues of return migration have been largely neglected in research, policy and administration in Jordan and therefore, information about the composition of the group of returnees and their behaviour after return is scanty.

In the mid-1980s more than half of the returnees were reported to have been younger than 36 and 7% were older than 55 (information by HKJ/DoS, cit. from Czichowski 1990). Thus, almost all of the returnees were of working age and hence increased the domestic labour supply upon their return. The share of those who had worked in the service sector is larger among the returnees than among the out-migrants, while the reverse applies to those employed in the secondary sector (Czichowski 1990, citing data from Findlay and Samha, 1986; The Royal Scientific Society, 1983 and HKJ/DoS).

Through the 1980s, many of those who migrated abroad from the West Bank, moved to the East Bank after termination of their work abroad. For example, 72.7% of the returnees to Jordan interviewed by Findlay and Samha (1986) said that they were born on the West Bank or in Palestine.

Within Czichowski's investigation in the 1980s, almost 90% of the migrants returning to Jordan report that their work in the oil-producing countries of the Middle East did not bring them any additional skills (Czichowski 1990). In 1980, 17.1% of the returnees looking for work upon their return remained unemployed for six months or more; in 1986 this share increased to 75% (Czichowski 1990)<sup>38</sup>. Among those returning, 38% planned to open their own business (Findlay and Samha 1986, cit. from Czichowski 1990).

The Gulf war caused the return of around 300.000 Jordanians from the Gulf States between 1990 and 1992 (HKJ/DoS, 1993). In this period, however, border-crossing data from the directorate of inner security shows that net in-migration was only at 180.000. This discrepancy can be due to two factors. The first is that some of the returnees were inhabitants of the West Bank who returned to Jordan to leave again to the West Bank and the second is that during this period many Jordanians out-migrated.

Rigorous surveys performed during this return wave brought new insights to the characteristics of Jordanian migrants. (Shachatreh, Billeh, 1991; HKJ/DoS, 1993).

Most of the surveyed returned from Kuwait and resided in the East Bank. Only 2% resided in the West Bank. 52% of the returnees were females and 62% were older than 15. The educational background of the returnees is presented in Tab. 4.19 according to the former country of residency.

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<sup>38</sup> The sample on which the 1986 results are based comprises only 60 persons.

**Table 4.19 Educational background of Jordanian returnees older than 15**

	Returnees 08/1991 – 12/1992					Returnees 08/1990 – 07/1991	
	Kuwait	Saudi Arabia	UAE	Other Arab Countries	Non Arab Countries	Total	Total
Less than Secondary Education	53,7%	27,9%	34,3%	28,9%	17,3%	50,6%	32,1%
Secondary Education	31,3%	34,6%	31,8%	23,6%	13,9%	30,7%	28,5%
Intermediate higher Education	6,9%	18,3%	17,2%	15,7%	8,5%	7,8%	16,3%
University Education (BSc)	7,3%	15,7%	14,3%	28,1%	45,9%	9,5%	18,9%
University Education (Higher Studies)	0,7%	3,6%	2,3%	3,8%	14,4%	1,4%	4,2%

*Source: Shachatreh, Billeh (1991), HKJ/DoS (1993).*

It is noticeable that the returnees from non-Arab countries have a significantly higher educational level than returnees from Arab countries, which may indicate that there is a higher preference for skilled Jordanian workers to out-migrate to these countries or a lower inclination for them to return from Arab countries.

## 5 The social return on human capital migration

In this chapter, the results of the survey conducted within the scope of this work will be presented and followed by the calculation of the social return on human capital migration according to the methodology presented in chapter 3 and on the basis of data collected and secondary data on migration and higher education, which were presented in chapter four.

To enable an evaluation of the human capital migration from a macro economic point of view, regression analysis and the examination of Dutch Disease symptoms was undertaken. Further more, total factor productivity indications were investigated to determine, whether Jordan utilised its growing human capital.

### 5.1 Survey results of the whole sample

#### 5.1.1 Composition of the participants and their background

The composition of the participants according to gender and profession is presented in Tab. 5.1.

**Table 5.1 Composition of the participants according to gender and profession**

	Residing Abroad		Returned to Jordan		Reference Group (never migrated)	
	males	Females	males	females	males	females
Teachers	34	5	28	8	22	39
Engineers	14	-	20	1	13	8
Physicians	9	1	2	-	16	3
IT-Specialists	11	2	8	1	13	8
<b>Total</b>	<b>68</b>	<b>8</b>	<b>58</b>	<b>10</b>	<b>64</b>	<b>58</b>

*Source: migration survey*

The age of the participants was between 22 and 70 with the average at 37 for those still abroad, 42 for those who returned and 32 for the reference group. The share of the married persons was 79% among the returnees, 83% among those residing abroad and 59% among the reference group, which had a lower average age. There was no significant difference in the involvement of the families of the participants in migration. In all groups between 5% and 10% of the participants' parents resided abroad and between 18% and 23% had brothers or sisters living abroad.

Those who returned spent on average 7 years abroad. 76% of the migrants still abroad were accompanied by their spouses (and children). 49% of the returned migrants and 27% of migrants still abroad did not work in Jordan prior to their migration and were first employed abroad.

90% of the participants abroad and 79% of the returned stated, that the purpose of their migration was to work. The main reason given for seeking work abroad was "unequal job opportunities" in Jordan, which was stated by 49% of those residing abroad and 37% of those who returned to Jordan.

Of those residing abroad 33%, stated that they had relatives in the country of destination. Within this group 88% stated that this was a reason for choosing that particular country. 20% of those received financial support from those relatives. The corresponding percentages of those who have returned were 44%, 56% and 11% respectively.

65% of those residing abroad are planning to return and 11% stated that they do not plan to do so. 61% of the participants planning to return are considering this step prior to their retirement.

The participants were asked to state whether they felt that they were better or worse off compared to the Jordanian population. They were given a score between 1 (much worse) and 5 (much better) while a score of 3 was average. The participants who did not migrate scored on average 3,2. Those residing abroad also scored 3,2 prior to their migration, while those who returned scored 2,8 prior to their migration and 3,6 after their return.

### 5.1.2 Education

The questionnaire used for the survey included a section concerned with the educational background and the cost involved in attaining their higher education.

The results concerned with the location of higher education are presented in Tab. 5.2. A majority of the participants received their higher education in Jordan. Among the surveyed persons, the percentage of Jordanians who received their higher education in Jordan is significantly higher among persons who never migrated than among persons who are still residing abroad or have returned. This result is in line with the statement that education abroad is often a first step to out-migration, since risk and uncertainty are reduced compared to a migration decision taken in the sending country.

**Table 5.2 Higher education: Countries of education**

	Residing abroad	Returned to Jordan	Non-Migrants (reference group)
Jordan	58,7%	59,7%	77,3%
Arab Countries	18,7%	19,4%	13,4%
North America, EU	17,3%	7,5%	4,2%
Other	2,6%	5,9%	5,1%

*Source: migration survey*

The degrees attained by the participants are displayed in Tab. 5.3, which also shows that the percentage of masters and PhD holders is significantly higher among the Jordanians who are residing abroad or returned after having worked abroad.

**Table 5.3 Higher education: Attained degrees of the sample**

	Residing abroad	Returned to Jordan	Non-Migrants (reference group)
BSc	58,7%	59,7%	80,7%
MSc	18,7%	19,4%	5,9%
PhD	17,3%	7,5%	3,4%
Community College Diploma	2,7%	7,5%	5,9%
Other/not specified	2,6%	5,9%	4,1%

*Source: migration survey*

The survey aimed to establish the cost of education, which was analysed according to the attained degree and presented in Tab. 5.4.

**Table 5.4 The private cost of Higher Education in constant 1995 US\$**

	Const. 1995 US\$ p.a.			
	BSc	MSc	PhD	Community College Diploma
Jordan	2.540	3.170	7.450	2.510
Arab Countries	3.240	3.240	10.500	n.A.
North America, EU	18.100	18.600	33.000	n. A.
Other	6.580	n. A.	n. A.	n. A.

*Source: migration survey*

The data concerning the cost of education has to be treated with caution, as the questionnaire did not clearly define whether the cost of education only included tuition fees or additionally the cost of living during the period of higher education. The education of around 50% of the participants was financed by their families.

### **5.1.3 Domestic economic impact**

As presented in the underlying model of this study, a part of the economic impact of migrants and returnees on the Jordanian economy is assumed to be resulting from spending their remittances in Jordan during their residency abroad and from the increased spending due to the repatriation of their savings as well as enhanced productivity after return.

#### **5.1.3.1 Remittances**

In the survey, 87% of the participants residing abroad and 82% participants who returned stated that they sent remittances, which averaged to 6.900 and 6.300 constant 1995 US\$ p.a. per year (Tab. 5.5). This roughly represents 20 to 25% of the migrant's income during their residency abroad.

Returnees on average sent remittances for almost 7 years, a figure, which is almost matched by the survey participants still residing abroad at the time of the survey. As it is improbable that these persons will all return to Jordan immediately, for further calculations it is assumed that this figure is the lower limit to the length of remittance sending period.

No significant difference could be observed between the spending pattern of the two groups. More than 50 % of the remittances were spent on the daily needs and consumption and the purchase of land and dwellings. The investment in trade, agriculture or industry was marginal. 5% of the remittances were spent on marriage and 10% to 15% on the education of other members of the family.

Savings constituted 11% of the remittances in the case of residents abroad and 10% in the case of the returnees. Therefore, around 90% of the remittances were injected directly into the economy. In the survey, around 15% of the participants only tagged the fields on which their remittances were spent on without giving percentages. In these cases it was assumed that the remittances were equally spent among these fields.

**Table 5.5 Income, remittances and spending pattern of migrants still abroad and returned migrants in const. 1995 US\$**

	<b>Migrants still abroad</b>	<b>Returned to Jordan</b>
<b>Percentage of migrants sending remittances</b>	<b>87%</b>	<b>82%</b>
<b>Average income abroad</b>	<b>26.400 US\$ p.a.</b>	<b>32.000 US\$ p.a.</b>
<b>Average remittances (including those who do not send)</b>	<b>6.900 US\$ p.a.</b>	<b>6.300 US\$ p.a.</b>
<b>Average years of sending remittances</b>	<b>6,7</b>	<b>6,8</b>
<b>Remittances spent on:</b>		
Consumption/Daily needs	20,7%	19,5%
Purchase of land	14,0%	11,3%
Purchase of dwelling	17,4%	18,1%
Investment in industry	0,8%	3,1%
Investment in agriculture	0,9%	1,4%
Investment in services	1,6%	0,8%
Investment in stocks	0,8%	1,2%
Savings	10,0%	7,4%
Marriage	5,5%	5,0%
Repayment of debts	11,1%	10,0%
Education of others	10,7%	14,7%
Other	6,7%	7,6%
<b>Percentage of remittances passing the official banking system</b>	<b>64%</b>	<b>68%</b>

*Source: migration survey*

The participants were asked about the persons and groups who benefited from their remittances. These were mainly other family members as shown in Tab. 5.6.

**Table 5.6 Who benefited from the remittances**

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	Residing abroad	Returned to Jordan
Parents	39,6%	50,7%
Brothers and sisters	26,4%	16,0%
Wife and children	18,9%	18,7%
Other relatives	4,7%	0,0%
Own account	10,4%	14,7%

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*Source: migration survey*

According to the survey between 64% and 68% of the remittances pass the official banking system. The average figure for remittances passing the official channels in the survey (migrants residing abroad and returnees) amounts to 4.400 constant 1995 US\$ p.a.. This figure is significantly lower than the average remittances of the whole labour force abroad after 1990 (Tab. 4.8). This indicates that persons with higher education do not send higher remittances than the average Jordanians abroad. This finding does not contradict other sources. For example Chandavarkar (1980) found that the remittances of the Pakistani work force abroad was reversibly related to their level of education. A possible explanation for this behaviour is that the participants were better off than the rest of the population and that most of them had their families with them and did not need to send them remittances.

### **5.1.3.2 Repatriated savings**

The participants of the survey who returned to Jordan after working abroad were asked what proportion of their savings abroad they had repatriated to Jordan and in which fields they had spent these savings. The results are displayed in Tab. 5.7.

**Table 5.7 Spending pattern <sup>\*)</sup> of repatriated savings (returned migrants)**

Consumption/Daily needs	16,6%
Purchase of land	10,4%
Purchase of dwelling	24,9%
Investment in industry	4,3%
Investment in agriculture	2,8%
Investment in services	2,8%
Investment in stocks	2,4%
Savings	11,2%
Marriage	6,7%
Repayment of debts	5,2%
Education of others	7,7%
Other	5,0%
<b>Estimate of average savings per migrant</b>	<b>48.500 const. 1995 US\$</b>
<b>Average percentage of repatriated savings</b>	<b>48%</b>

\*) Some of the participants only tagged the fields on which their remittances were spent on without giving percentages. In these cases it was assumed that the remittances were equally spent among these fields..

*Source: migration survey*

The amount of the savings was not included in the survey questionnaire but calculated from income, remittances and the period spent abroad. In the calculation it was assumed that 40% of the annual income abroad was saved (McCormick and Wahba 2001). Of this amount annual remittances were deducted and the result multiplied by the number of years abroad.

Comparing Tab. 5.5 and 5.7 shows that the spending pattern of savings and remittances was roughly similar. Savings were also mainly spent on daily needs, land and dwelling.

### **5.1.3.3 Increases in productivity**

One of the assumptions made earlier in this work was that income represents marginal productivity. To find out whether an increase in productivity took place as a result of migration, the incomes of returned migrants were compared to the incomes of persons not involved in migration.

Tab. 5.8 shows a higher average income for returnees. To reduce gender induced bias the comparison was restricted to males who constituted the larger proportion of the returnees. Another source of bias is age, where the average age of returnees in the sample is 42 compared to 33 for non-migrants. The survey data shows an increase of income with age and if the income of the non-migrants were to be adjusted accordingly the difference could be reduced or eliminated. For males, every year of age translates into an income increase of 190 const. US\$ p.a..

Based on the assumption of wages reflecting marginal productivity, it cannot be concluded that returned migrants have a higher productivity than non-migrants.

**Table 5.8 Income and spending pattern of male returnees and non-migrants**

	Returned to Jordan	Non-Migrants (reference group)
	Average	Average
<b>Income</b>	<b>6.660 US\$ p.a.</b>	<b>6.240 US\$ p.a.</b>
<b>Spending Pattern:</b>		
Food/Beverages	24,2%	24,3%
Dwelling	10,4%	11,4%
Clothing	9,7%	10,9%
Education	13,3%	10,2%
Transport	7,1%	9,4%
Vacations and travel	3,7%	3,2%
Health	4,4%	5,0%
Energy, Communications	6,4%	7,8%
Tax and social security	3,2%	5,2%
Savings	13,3%	7,9%
Other services	4,3%	4,6%
<b>Car owners</b>	<b>64%</b>	<b>55%</b>

*Source: migration survey*

There are, however, differences in the spending pattern of both groups. The returnees seem to spend more on education and save a higher proportion of their

income while spending less on consumer items and services. This difference in the spending pattern and the fact that a larger share of returnees own cars may be an indication of the larger wealth accumulated during migration.

## **5.2 Profession specific survey results**

The analysis of the survey results and the calculations until this point assumed, that the Jordanian migrants with higher education were homogenous. To avoid profession specific bias, the survey was focused on the 4 professions displayed in Tab. 5.1. The collected data in this section is used to analyse the differences between migrants and to explore the demand and supply situation of these professions in Jordan.

Information sources for data other than that from the survey included statistical year books, publications from the ministries of health and education, yearly reports of the syndicates of physicians and engineers, publications aiming at promoting IT as an export sector in Jordan and other references such as “The situation of teachers in the Arab Region” (Sara, Jurdaq, 1984) and “A statistical profile of the teaching profession” (Siniscalco, ILO, 2002).

### **5.2.1 Demand for and supply of profession specific human capital**

As described in chapter four, the tight supply of human capital in Jordan, which has existed since the founding of the Kingdom, started to abate by the 1980s. The expansion of higher education and the increase of graduates from Jordanian and foreign institutions appears to have lead to an excess supply of human capital on the labour market. The results of the excess supply were lower wages, higher unemployment rates and the necessity for graduates to work in fields other than those they had studied. Tab. 5.9 presents the results of a profession specific unemployment survey performed by the department of statistics in 1997, which shows these effects.

**Table 5.9 Percentage of graduates unemployed or working outside their field of specialisation (1997)**

	<u>Community college level</u>			<u>University level</u>		
	Working in their field of specialisation	Working in other fields	Unemployed	Working in their field of specialisation	Working in other fields	Unemployed
<b>Teaching/Pedagogic</b>	60,0%	12,3%	27,7%	76,8%	8,1%	15,1%
<b>HSR *)</b>	45,6%	23,2%	31,2%	69,5%	12,6%	17,9%
<b>Law</b>	40,0%	40,0%	20,0%	75,6%	8,3%	16,1%
<b>Economics &amp; BA</b>	68,1%	10,4%	21,5%	78,4%	8,1%	13,5%
<b>Natural Science</b>	68,0%	12,8%	19,2%	86,5%	1,6%	11,9%
<b>Mathematics &amp; IT</b>	46,6%	38,4%	15,0%	83,3%	9,5%	7,2%
<b>Medicine &amp; dentistry</b>				90,1%	1,7%	8,2%
<b>Other med. Sciences</b>	75,1%	12,8%	12,1%			
<b>Engineering</b>	66,6%	20,8%	12,5%	80,0%	5,6%	14,5%
<b>Agriculture</b>	58,6%	27,6%	13,8%	96,4%	3,6%	0,0%

\*) Human-, Social Science & Religion

*Source: HKJ/DoS Employment and Unemployment Survey (1997) as cited by Nahar (1999).*

Tab. 5.10 shows the increase in the number of teachers, engineers, physicians and IT-specialists between 1970 and 2000 and Tab. 5.11 shows the yearly number of graduates for the same professions. The development in the number of professionals, which took place between 1970 and 2000 shows a significant increase, which by far surpasses the growth of the population and a constant future supply of professionals is guaranteed by the graduates from higher education institutions in Jordan and abroad.

**Table 5.10 Endowment of professionals in Jordan**

	1970	1980	1990	2000
<b>Teachers</b> <sup>1)</sup>	12.200	29.100	49.600	70.800
<b>Engineers</b> <sup>2)</sup>	1.500	6.500	24.900	45.800
<b>Physicians</b> <sup>1)</sup>	700	2.200	4.200	12.700
<b>IT-Specialists</b> <sup>3)</sup>	n.A.	n.A.	n.A.	2.600

Sources: 1) Al-Tall (1992, 1998); HKJ/DoS: Statistical yearbooks (1991, 2001); HKJ/Ministry of Higher Education (2002a, 2002b). The figures include teachers in all private and public educational institutions. 2) Syndicate of Engineers Yearbook 2000. 3) Reach Initiative (2000) only staff employed in IT-companies and excluding IT-staff employed in other sectors.

**Table 5.11 Jordanian graduates in 2001**

	Jordanian Institutions		Foreign Institutions	Total	% of working professionals in the year 2000
	Community Colleges	Universities			
<b>Teachers</b> <sup>*)</sup>	240	8.640	450	9.320	13%
<b>Engineers</b>	800	1.920	580	3.300	7%
<b>Physicians</b>	-	250	590	830	7%
<b>IT-Specialists</b>	790	1.780	70	2.640	102%

\*) Including pedagogic, humanities & social sciences and natural science

Sources: Tab. 5.10; HKJ/Ministry of Higher Education (2002a, 2002b); calculations by the author.

### 5.2.1.1 Teachers

Until the end of the 1920s, most teachers in Jordan came from neighbouring countries (Al Tall, 1992). Jordanian teachers with a secondary education became available only after 1930. Due to the shortage of teachers with post-secondary qualifications, persons with varying educational background - at times with only basic education - were appointed as teachers. This shortage peaked after the unification of Jordan and the West Bank in 1950. Post-secondary intermediate

institutes or teacher training centres started training teachers in 1951<sup>39</sup>. In the following decades, the quantitative endowment of the country with teachers reached levels matching OECD countries (Tab. 5.12).

**Table 5.12 Pupil/teacher ratios in Jordan compared with other regions (based on head counts) 1990-1999**

	1990			1999		
	Jordan	Arab States	More developed regions *)	Jordan	Arab States	More developed regions *)
<b>Primary</b>	23,0	24,3	-	24,6	22,4	20,0
<b>Secondary</b>	14,2	-	-	13,3	-	14,6

\*) Unweighted average of UK, France, Germany, Japan and the US

*Sources: Jordan: Calculations by the author based on data from the statistical yearbooks of the HKJ/DoS 1991 and 2000; Arab States, more developed countries: OECD (2001) cited by Sinsiclaco (2002).*

Requirements for teachers' qualifications were gradually increased to improve the quality of education. According to the law of education in 1955, secondary education was the minimum requirement for schoolteachers. In 1964 the requirements were increased to a two-year post-secondary education for teachers in the basic education level. For secondary level teachers, the requirements were university level education and a one-year post university programme. This additional programme was covered by the diploma or MSc certificate available in Jordanian universities. In 1988, university level education was required for all teachers (Al Tall, 1992). The result of this policy was, that by 1999, 99% of teachers in the primary and lower secondary level and 96% of teachers at the upper secondary level had a tertiary education (OECD/UNESCO, 2001 cited by Sinsiclaco, 2002).

Demand for university education teaching staff started to develop after the establishment of the university of Jordan in 1962. By 2000 the academic staff in Jordanian universities reached 4.660 and in community colleges 1.380

<sup>39</sup> Teachers' training centres became community colleges in 1979 (Al Tall, 1992).

(HKJ/Ministry of Higher Education, 2002a). Together with the administrative staff in educational institutions, the number of workers in the education sector in the year 2000 totalled to approx. 90.000 representing 8,6% of the total employed work force in the country.

Judging by the pupil/teacher ratio in Jordan (Tab. 5.12), the country's supply of teachers was not negatively affected by out-migration. With reference to quality, Sinsicalco (2002) points out that for countries with a very young teaching force, questions related to experience, staff turnover and guidance arise. For countries with large numbers of teachers in their forties or fifties there are implications for future teacher shortages when this generation retires. Furthermore, questions of how to adapt the teacher qualifications to changes in demand arise, not least in the rapidly changing areas of information and communication technologies.

In the case of Jordan the share of young teachers is high<sup>40</sup>, indicating that the teachers might lack experience in their profession and implies a need for systems of guidance and supervision. This indication for quality is partly compensated by the high qualification of these teachers (see above).

**Table 5.13 Lower secondary teachers' salaries in Jordan in comparison with other countries in ppp US\$ and ratio of salary to GDP per capita**

	ppp US\$ p.a.			
	Jordan	UK	United States	Germany
<b>Starting salary</b>	8.100	20.000	25.160	33.200
<b>Salary after 15 years</b>	10.600	33.540	33.420	38.600
<b>Salary at top of scale</b>	27.300	33.540	44.400	43.950
<b>Ratio of Salary after 15 years to GDP per capita 1999</b>	2,87	1,50	0,99	1,63

*Source: OECD (2001) cited by Sinsiclaco (2002).*

<sup>40</sup> 38% of upper secondary teachers are under 30 years and 82% are under 40 years (OECD, 2001 cited by Sinsicalco 2002).

Jordan is a country with large increases in salaries during service. It should, however, be noted that the number of years required to reach the top of the salary scale from the starting salary is very long and exceeds 35 years (Sinsicalco, 2002). Tab. 5.13 compares teachers' salaries in Jordan with those in England, the US, Germany.

The comparison shows that although the absolute level of salaries in Jordan is lower than in the other countries, teachers have a significantly higher income than the average population in the country. The salaries paid in the Gulf states, where the majority of out-migrated Jordanian teachers reside can be expected to maximally reach those paid in the UK, the US or Germany.

After the oil boom in 1973, the Gulf States started recruiting teachers on a large scale. This demand is still high due to the high rate of population growth there and due to the fact that teachers from Arab countries have a comparative linguistic advantage over teachers from other Asian countries. Therefore, Asian labour could not replace Arab labour to the same degree as in other sectors of the economy in the Gulf States. Tab. 5.14 shows the income differentials for teachers between Jordan and Arab countries using data from 1980 and data from the survey of this work. The comparison shows that the income-ratio, especially in Saudi Arabia compared to Jordan decreased significantly.

**Table 5.14 Income of teachers in Jordan and other Arab countries**

	const. 1995 US\$ p.a.						
	Jordan	Saudi Arabia	Qatar	Bahrain	Kuwait	Oman	Emirates
<b>1980 (Source: Sara, Jurdaq, 1984)</b>							
Average Income	1.130	21.300	33.300	15.700	40.900	-	-
Teachers' income basic education	5.670	49.300	17.800	19.500	23.600	-	-
Teachers' income secondary education	7.330	69.900	22.600	22.100	27.400	-	-
<b>2002 (Source: migration survey)</b>							
Teachers' income	4.610	19.200	37.300	20.900 <sup>*)</sup>	54.200	10.600	14.000
*) only 2 samples							

Sources: Sara, Jurdaq (1984), migration survey.

### 5.2.1.2 Physicians

As with the case in education, health services in Jordan also experienced a rapid development over the last 40 years. This had a significant impact on the quality of life, which becomes apparent in the improvement of the health indicators presented in Tab. 5.15. Infant mortality was only reduced from 205 per thousand in 1929 to 151 in 1961 marking a relative slow progress in that period. In 1988 infant mortality declined to 35. Life Expectancy increased from 46 in 1961 to 70 in 2000 (WHO-Report 2001). In 2000, a wide range of medical services was available in Jordan such as artificial insemination or open-heart surgery. The quality of these services is high compared to the region's standard (Tab. 5.15). However, a qualitative and quantitative gap still appears to exist compared to the standards available in Western Europe and North America since many wealthy Jordanians still prefer to receive their treatment there.

**Table 5.15 Health indicators for Jordan compared to other countries**

	Jordan		Arab Countries	Norway <sup>*)</sup>
	1961	2000	1995-1999	1995-1999
Infant mortality	151	31	44	4
Life expectancy at birth	46	69	66	78
Physician per 100.000 population	18	190	133	413

<sup>\*)</sup> Norway is the country ranked 1<sup>st</sup> in the human development report 2001

*Sources: Ziadat (1993), HKJ/Ministry of Health (2002), UNDP (2002), WHO (2002).*

To achieve this development, a sufficient supply of physicians was essential. In the 1950s and the 1960s, medical qualification could only be obtained outside Jordan. The establishment of the medical faculty in the University of Jordan has made a local education possible since 1972. Many Jordanian medical graduates, however, still seek specialisation credentials abroad, which normally involves several years of work in the UK or the US. These are the main destination countries for medical specialisation due to the relatively low language barrier (medicine in Jordan is taught in English). Since the 1990s graduates were increasingly turning to the USA

because of its established reputation for advanced medical technology. Participants in specialisation programmes there can expect a well above average increase in income after return. Foreign physicians in the USA normally receive a 7 year VISA, which allows for specialisation and sub specialisation.

According to the syndicate of physicians, 12.686 physicians were registered in Jordan in the year 2000. This figure, however, does not necessarily mean that all these physicians are residing in Jordan. The fellowship involves an examination, which is mandatory for practising medicine in Jordan. Most graduates attain the fellowship despite considering out-migration in order to overcome that hurdle should they want to practice medicine in Jordan in the future. The fellowship also opens access to retirement benefits.

The expansion of employment in the medical sector appears to be constrained by limited demand due to the low purchasing power of the population rather than by the lack of health care personnel. The general impression won in Jordan is that the public health institutions are working at full capacity, while there is a visible excess capacity in private clinics.

Evans et al. (2001) measured the efficiency of the health systems of 191 countries. Their findings suggest that health systems cannot work well below an expenditure per capita of approximately 43 SDR p.a.. Jordan's expenditure is significantly higher than this minimum level and the score of its health service efficiency was 0,711 on a scale from 0 to 1 ranking the country in the middle range.

These indications do suggest, that Jordan has an adequate health service in place. According to Ziadat (1993), health services were available in 95% of the country. Concerning health personnel, the country had an excess capacity in physicians, dentists and pharmacists but lacked an adequate number of other trained medical personnel such as nurses (Ziadat, 1993). This shortage was partially compensated for by foreign labour.

The incomes of physicians in Jordan and abroad according to the survey are presented in Tab. 5.16.

**Table 5.16 Income of physicians in Jordan and other Arab countries**

	const. 1995 US\$ p.a.					
	Jordan	Saudi Arabia	Western Europe	United Arab Emirates *)	Oman *)	USA *)
<b>Income</b>	8.210	31.100	-	20.800	12.500	44.900

\*) 2 samples or less

*Source: migration survey*

### 5.2.1.3 Engineers

The most obvious signs of Jordan's development are its rapidly expanding cities and infrastructure. The greater part of this development took place after the oil boom in 1973, where the inflow of funds on the state and the private level increased significantly. In the second half of the 1970s, the country experienced double digit growth rates.

This development created a high demand for engineers, who at that time could only be educated abroad, mostly in the neighbouring countries, Egypt and Lebanon. By 1985, new applications to the syndicate for engineers reached around 2.000 per year and remained stable at that level until the year 2000 (Tab. 5.17).

**Table 5.17 Applications to the Jordanian syndicate of engineers**

	Civil & Architecture	Mechanical	Electrical	Other	Total
1960	24	4	4	3	35
1970	159	58	47	13	277
1975	205	102	111	50	468
1980	516	129	194	108	947
1985	1.244	382	423	127	2.176
1990	804	501	572	163	2.040
1995	583	504	542	479	2.108
2000	791	412	781	295	2.279

*Source: Syndicate of Engineers (2000)*

In the year 2000, 45.783 engineers were registered with the syndicate of which 33% graduated from Jordanian, 23% from Arab, 17% from East European, 10% from American, 9% from Asian, and 8% from West European Universities.

The incomes of engineers in Jordan and abroad are presented in Tab. 5.18.

**Table 5.18 Income of engineers in Jordan and other Arab countries**

	Const. 1995 US\$ p.a.					
	Jordan	Saudi Arabia	Western Europe <sup>*)</sup>	United Arab Emirates	Kuwait	USA
<b>Income</b>	5.960	29.600	52.800	18.400	86.200	41.100

\*) Samples from UK, Germany and Italy

*Source: migration survey*

#### 5.2.1.4 IT-Specialists

Information technology (IT) is a growing industry appealing to many Jordanians, who are pursuing this field in their higher education. Recently the Jordanian government realised that this field suits the Jordanian economic environment most as it is endowed with few natural resources and an excess of human capital. The relatively low barrier to entry is another major advantage enabling smaller firms or individuals to engage in this sector. The “Reach Initiative” was launched in 1999 to develop and implement a strategy for Jordan to bolster the IT-Services sector and maximise its ability to compete in local, regional and global markets. The strategy outlines an action plan to be implemented by the private and the public sectors. The government hopes to attract foreign investment and to have 30.000 persons employed in this sector<sup>41</sup>, which would create exports of US\$ 550 million by 2004. The interaction between this industry and the institutions of higher education should increase significantly (The Reach Initiative, 2000).

The interest of the Jordanians in IT related courses is high. In 1998, 8.045 students were enrolled in higher education programs in computer science, information systems, information technologies, computer engineering, and telecommunications engineering. Jordan’s public and private universities are currently producing more

<sup>41</sup> This goal was not achieved.

than 1.000 IT-discipline related graduates per year while approximately 1.500 graduates complete IT-programs at the nation's community colleges. This figure matches the number of labour employed in this sector in 2000.

The graduates either join the IT-Industry of other sectors in the economy in need of IT-specialists, such as financial institutions, or migrate to other countries. The aim of the Reach initiative is to capitalise on this talent and capture it in a growing Jordanian IT-industry.

Tab. 5.19 presents the typical wages for IT-specialists in Jordan. Tab. 5.20 presents the average wages of IT-specialists in Jordan and abroad from the survey.

**Table 5.19 Typical wages in IT-companies in Jordan**

	const. 1995 US\$ p.a.	
	Starting level	2 or more years experience
<b>Programmer</b>	3.330	5.870 - 8.540
<b>Technical Writer</b>	4.270	6.410 - 7.480
<b>Systems Analyst</b>	3.370	5.960 - 8.660
<b>Project Manager</b>	3.370	7.630 - 13.000
<b>General Manager</b>	16.780	21.360 - 27.080

*Source: The Reach Initiative (2000)*

**Table 5.20 Income of IT-specialists in Jordan and other Arab countries**

	const. 1995 US\$ p.a.					
	Jordan	Saudi Arabia	Oman <sup>*)</sup>	United Arab Emirates	Kuwait	USA <sup>*)</sup>
<b>Income</b>	5.180	20.900	39.200	17.300	97.300	101.700

<sup>\*)</sup> only 1 Sample

*Source: migration survey*

### **5.2.2 Professions: Education, remittances, savings and productivity**

The cost of higher education, the remittances and savings of Jordanian migrants according to profession are summarised in the Tab. 5.21 to 5.23. The figures

displaying the cost of education do not follow a consistent pattern as they vary significantly according to the country of higher education.

**Table 5.21 The cost of higher education according to survey group and profession**

	const. 1995 US\$ p.a.		
	Residing abroad	Returned migrants	Reference group
<b>Teachers</b>	5.700	5.200	2.300
<b>Engineers</b>	13.100	9.200	2.800
<b>Physicians</b>	2.700	3.200*)	4.800
<b>IT-Specialists</b>	2.200	6.100	3.900

\*) only 1 participant

*Source: migration survey*

**Table 5.22 The cost of higher education according to country of education and profession**

	const. 1995 US\$ p.a.			
	Teachers	Engineers	Physicians	IT-Specialists
Jordan	2.700	2.600	2.600	3.100
Arab Countries	4.100	3.800	3.000	7.400
North America, EU	37.600	12.400	7.400	11.800

*Source: migration survey*

**Table 5.23 Remittances, income abroad and savings according to profession of migrants abroad and returned migrants (const. 1995 US\$ p.a.)**

	Migrants Abroad				Migrants returned to Jordan			
	Teachers	Engineers	Physicians	IT-Specialists	Teachers	Engineers	Physicians	IT-Specialists
<b>Number of Samples</b>	32	14	10	13	36	21	2	9
<b>Percentage of migrants sending remittances</b>	94%	100%	70%	69%	88%	67%	-	89%
<b>Average income abroad / US\$ p.a.</b>	18.700	34.200	42.400	26.600	23.500	39.200	-	51.100
<b>Average remittances / US\$ p.a.</b>	6.600	6.900	9.500	5.800	6.200	6.200	-	7.200
<b>Average years of sending remittances (only remitters)</b>	6,9	6,9	3,8	8,3	7,0	6,7	-	6,0
<b>% of remittances passing the official banking system</b>	62%	58%	82%	63%	62%	72%	-	82%
<b>Estimate of average savings per migrant (US\$)</b>	6.400	110.000	68.700	29.500	34.900	56.000	-	47.200
<b>Average percentage of repatriated savings</b>	-	-	-	-	50%	32%	-	60%

*Source: migration survey*

### 5.3 Model application: Calculating the return

The survey provides most of the data for calculating the individual economic impact of out-migration. Education is considered as an investment whose return is calculated using the discounted cash flow method according to equation 3.17. Thereby, it is assumed that the sample surveyed is representative for the Jordanian human capital and, thus, the average values of the whole sample are utilised in the calculation. Forgone income due to the absence of human capital

during migration, for example, amounts to 6.240 const. US\$ p.a., which was the average income of the reference group in the survey (Tab. 5.8). The average remittances are the weighted average of migrants abroad and returnees amounting to 6.600 const. 1995 US\$ p.a. (Tab. 5.5).

The migrants are assumed to have received their higher education in four years and have afterwards left their country for seven years during which they regularly sent remittances. Out-migration requires one time costs of relocation, estimated at 1.800 1995 const. US\$ an amount considered to cover the cost of two return flights and the cost of residency in the receiving country during job search.

After their return it is assumed that the migrants repatriated a part of their savings. As the repatriation of savings does not necessarily mean that these savings were actually spent and had lead to an increase in aggregate demand, it has been assumed that returnees have on average spent 12.000 US\$ in the year of return to re-establish themselves in the country. This figure represents the author's estimation of the total cost of living for the year of return and takes into consideration, that many expenses, such as rent, furniture and other necessary household appliances have to be financed by savings even if the returnees had succeeded in finding a job immediately after their return. Productivity enhances due to experience gained abroad were not considered as there was no evidence to support their emergence.

The results of the calculation are presented in Tab. 5.24, which includes four typical higher education scenarios, which Jordanian students follow. The first scenario involves studying in Jordan where the only cost to be regarded is the marginal cost of higher education, which is assumed to be equal to the average total cost consisting of the private cost of education and the government subsidies. The annual cost of education in Jordan was presented in Tab. 4.15 of the previous chapter and amounted to 2.700 const. 1995 US\$ p.a. in the year 2001. The three following scenarios involve studying abroad at various expenses. In studying abroad, the social cost to the Jordanian economy includes all tuition fees, travel expenses and the cost of living, which the student or his/her family have to spend. The first of the foreign education scenarios involves the low cost strategy, where the students study in a foreign country at a minimum of cost. Syria is a typical example for this strategy where there are no tuition fees, where the travel

expenses are minimised and the cost of living is significantly below that of Jordan. According to the ministry of planning (2002), the total cost there amounts to 1.600 const. 1995 US\$ p.a.. Studying in some East European or Asian countries also involves a total cost lower than the cost of education in Jordan. The second case regards a student who chooses to study in an industrialised country with low or with no tuition fees. This can be achieved in some EU-countries like Germany, Austria and Italy. The total cost of this case were estimated to be 9.000 const. 1995 US\$ p.a., which mainly involve the cost of living and travel expenses to that country. This figure is oriented towards studying subsidies which students can get in Germany (BAFÖG). The third scenario involves studying in an industrialised country with high tuition fees such as the US or the UK. The total cost was estimated to be 19.200 const. 1995 US\$ p.a. and consists of the cost of living as well as tuition fees (Edupass, 2004). No cost of forgone income during education was considered as unemployment in the labour market for unskilled workers was assumed.

Unemployment in the unskilled labour market in this study is synonymous with a demand constrained economy where multiplier effects take place. Using equation 3.5 and table 5.8 an income multiplier of 3,2 was calculated<sup>42</sup>. Using equation 3.5 as well as tables 5.5 and 5.7, the multiplier effect of remittances was calculated to be 3,2 and 2,7 respectively. The outcome of the calculation is decisively dependent on the employment situation in the skilled labour market during the relevant period. In the case of unemployment, the opportunity cost of forgone income tends towards zero and the social return on education and migration is positive. In the case of full employment in the skilled market labour, the return is positive when higher education takes place in Jordan or a country with a low cost of living and negative when higher education takes place in an industrialised country. This result is in support of the hypothesis, that there is a positive social return on an investment in higher education even if the educated persons choose to out-migrate after finishing their studies. Negative returns from an education investment abroad

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<sup>42</sup> Table 5.8 shows a marginal propensity to save of 7,9%. A 25% total share of imports from other spending components was calculated by making estimating the import content of every field of spending (e.g. 30% of clothing was estimated to be imported).

imply that sending countries have to do their best to provide sufficient higher education capacities to meet the demand.

In the case of negative returns, the break-even conditions were calculated. Thereby it was assumed that the benchmark return on education investment was 6%. These calculations show that the outcome is more sensitive to remittances than to repatriated savings and productivity increases. For example in the case of higher education in the USA, an increase of 52% in the remittances is required to achieve a social return of zero while repatriated savings and productivity enhancements have to increase by 310% and 471% to achieve the same result.

**Table 5.24 Social return on the migration of skilled labour**

Education Scenario	Education in Jordan	Minimum cost (e.g. higher education in Syria)	Education in an industrialised country without tuition fees (e.g. Italy)	Education in an industrialised country with tuition fees (e.g. USA)
<b>Cost of education (const. 1995 US\$ p.a.)</b>	<b>2.700</b>	<b>1.600</b>	<b>9.000</b>	<b>19.200</b>
<b>Return on migration when labour market for skilled labour is at:</b>				
<b>Unemployment</b>	71,2%	92,0%	34,1%	17,0%
<b>Full employment</b>	12,4%	18,2%	-0,7%	-8,3%
<b>Required conditions to achieve a 6% return at full employment in the skilled labour market</b>				
<b>Repatriated Savings (US\$)</b>			<b>22.800</b> (+90%)	<b>49.200</b> (+310%)
<b>Remittances (US\$ p.a.)</b>			<b>7.800</b> (+15%)	<b>10.300</b> (+52%)
<b>Income after return (Increase in productivity)<sup>*)</sup></b>			<b>15.800</b> (+137%)	<b>38.000</b> (+471%)

\*) 5 years after return considered

*Source: Calculations by the author*

To understand the personal motivation of Jordanians who choose to invest in higher education, the private return to the individuals was calculated. This

calculation follows a similar methodology as in Tab. 5.24. However, only the private cost of education is to be considered as an investment in this case. The private cost of education in Jordan is lower than the total cost as the government covers approximately 36% of the cost of higher education (Tab. 4.15, year 2001). The foreign cost of education is the same as in Tab. 5.24 as it is assumed that the students and their families finance higher education privately. The private benefit is the difference between income after and before higher education. The income from work in Jordan is the average income of the reference group according to Tab. 5.8. Data on the income of Jordanians in the Gulf States and industrialised countries is available from the survey and amounted to 28.900 and 60.800 const. 1995 US\$ p.a. respectively. These figures, however, were discounted by 43% for the Gulf states and 56% for the industrialised countries to account for the higher cost of living there<sup>43</sup>. The time horizon of the calculations extends over the period of 14 years, which includes 4 years of education and 10 years of income generation.

The results are presented in Tab. 5.25 and show that the return on an education investment and subsequent work in Jordan is modest to negative depending on the cost. However, a person who studied in an industrialised country without tuition fees can achieve a break even after returning to Jordan if his/her income were 27% higher than the average income of higher educated persons in Jordan. In the case of education in an industrialised country, income has to be 109% higher than the average income in Jordan to achieve a break even. Even though such income increases are possible, the return from working in the country of education or in the Gulf States is significantly higher and therefore, these persons will probably choose to work abroad, at least for a limited period of time.

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<sup>43</sup> The purchasing power of the Jordanian currency, a selection of Gulf States (Saudi Arabia, Kuwait, Oman) and Industrialised countries (France, Germany, Italy, UK, USA) was calculated using the 2004 development indicators of the World Bank.

**Table 5.25 Private return on education and migration**

Education Scenario	Education in Jordan	Minimum cost (e.g. higher education in Syria)	Education in an industrialised country without tuition fees (e.g. Italy)	Education in an industrialised country with tuition fees (e.g. USA)
<b>Cost of education (const. 1995 US\$ p.a.)</b>	<b>1.700</b>	<b>1.600</b>	<b>9.000</b>	<b>19.200</b>
Return to migration in case of:				
<b>Return to Jordan</b>	<b>12,5%</b>	<b>13,0%</b>	<b>-5,7%</b>	<b>-14,7%</b>
<b>Migration to Gulf States</b>	<b>42,7%</b>	<b>43,4%</b>	<b>16,9%</b>	<b>4,4%</b>
<b>Migration to Industrialised countries</b>	<b>60,9%</b>	<b>61,8%</b>	<b>29,9%</b>	<b>15,1%</b>
Required income premium to achieve a break even when returning to Jordan				
<b>Income increase **</b>	<b>-</b>	<b>-</b>	<b>27%</b>	<b>109%</b>

*Source: Calculations by the author*

Concerning the social return on education and migration, there are some additional aspects that have to be considered:

- The full cost of education was assumed to be equal to the marginal cost and used to calculate the education investment in Jordan. The significant number of graduates who migrate justify this assumption. In considering some subjects, such as social sciences, this assumption might not be appropriate, as the marginal cost may tend to be zero. This would favourably impact the return on education.
- A lower marginal propensity to import can positively influence the social return by increasing the multiplier.

#### **5.4 Macroeconomic analysis: The aggregate level perspective**

To round up the findings from the above methodology based on sole microeconomic considerations an aggregate level analysis was performed. This

methodology includes regression analysis, the determination of possible Dutch Disease symptoms as introduced in the theoretical background and the analysis of total factor productivity.

An improvement of macroeconomic indicators in spite of human capital migration indicates that human capital migration was not harmful to the sending country.

#### **5.4.1 Regression analysis**

The aim of regression analysis is to determine the impact of remittances on economic growth and the multiplier effect resulting from spending the remittances.

The model for the regression analysis is based on the assumption of a demand-constrained economy where growth of output (GDP) is determined by demand from external sources (Knerr, 1996). In this analysis these have been remittances, foreign aid, exports of goods and services and change in total debt according to the following equation:

$$dY = A + \varepsilon_1 dR + \varepsilon_2 dFa + \varepsilon_3 dEx + \varepsilon_4 dDt \quad (5.1)$$

Using the same equation the hypothesised impact of remittances was also tested on industry<sup>44</sup>, construction and the import of goods and services. In order to accommodate delayed adaptations, which should be particularly relevant for industry, where project realisation generally extends over 2 years, the calculations were performed with two annual time-lags. The results are presented in Tab. 5.26.

Jordan has experienced 3 periods of economic development since the end of the civil war in 1970. Between 1970 and 1982, the oil boom caused large numbers of Jordanians to out-migrate in search of higher paying jobs in oil producing Arab countries, especially in the Gulf region. In that period GDP grew at double-digit rates but was also accompanied by high inflation and an increasing shortage of labour. In order to provide sufficient labour for the economy, in the late 1970s, the Jordanian government allowed in-migration of labour from other countries. This step, however, coincided with declining oil prices that led to a reduction in remittances and the return of many Jordanians. Between 1983 and 1988, the

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<sup>44</sup> manufacturing, mining, quarrying, electricity, gas and water and excluding construction.

economy stagnated. Due to population growth, return migration and the inflow of foreign labour, unemployment increased considerably. The government's attempts to counter the resulting problems by expanding the public sector necessitated increased foreign borrowing and resulted in an economic crisis and a drastic devaluation of the Jordanian currency in 1988. After this crisis - with exception to the political and economic turbulence as a result of the Gulf war in 1990 - the economy experienced modest growth rates again.

The regression analysis captures the period between 1970 and 2003, which witnessed two periods of economic expansion and one period of contraction and attempts to establish whether there was a significant impact of worker's remittances on major macro economic variables.

The data source is the international financial handbook (IMF, 2000) and the CBJ yearbook 2003. As with all other data in this study, the local currency values were adjusted to constant 1995 US\$ and the regression analysis is based on absolute values.

**Table 5.26 Impact of workers' remittances on the Jordanian economy - elasticities with respect to workers' remittances 1970-2000**

Time lag	GDP	Industry	Construction	Import of goods and services
0	1,776 *	0,127	0,223 *	0,990 **
	(1,66)	(0,71)	(1,91)	(1,58)
1	0,968 **	0,226	0,107	0,626 *
	(1,00)	(1,24)	(0,84)	(0,72)
2	1,556	0,104	0,073	0,622 *
	(1,28)	(0,54)	(0,52)	(0,68)

\*) significant at the 0,05 level

\*\* ) significant at the 0,01 level

Figures in parentheses indicate t-test results (t-value / critical t-value at the 0,05 level)

*Source: Calculations by the author*

The results indicate a significant impact of remittances on GDP. There is also an immediate significant impact on construction activity but no significant impact on

industry. This implies that there is little investment in long term productive capital, which would generate future income. The import of goods and services also correlates significantly to remittances immediately and with time lags, indicating a high propensity to import.

#### **5.4.2 Dutch Disease indications**

Using a two-sector Dutch Disease (DD) model it was demonstrated that out-migration has no impact on wages and demand as long as unemployment exists. If full employment was achieved, further out-migration would increase wages and thus, decrease international competitiveness. Remittance income leads to an increase in foreign reserves and to an appreciation of the local currency, which further decreases international competitiveness. This affects internationally tradable goods, which usually include manufactured and agrarian products, whose exports will decrease and imports increase. In the long run, the production of these goods would decline. Therefore, DD often leads to de-industrialisation, which subsequently reduces demand for human capital and exerts additional pressure on the existing human capital to out-migrate.

In countries where these symptoms emerge from a dominant sector such as the oil industry, the negative development of other production sectors (agriculture and manufacturing) relative to this industry is usually an appropriate indicator for these symptoms and was used to construct a DD-Index (Gelb, 1988).

The prevalence of DD-symptoms in the case of out-migration here is investigated empirically by analysing the development of imports, exports, the share of industry in the economy, the external value of the country's currency, inflation and unemployment in relation to remittances. The values are clustered in 4 year average values (except 2002-2003) and presented in Tab. 5.27.

In the 1970s a significant decrease in the unemployment rate was accompanied by surging inflation rates. This resulted from labour scarcity due to out-migration to the Gulf States, whose economies boomed after the oil-shock of 1973. The nominally stable value of the currency combined with high inflation rates represented a real appreciation of the currency. The decline in international competitiveness is highlighted by the decrease of the share of industry in GDP between 1974 and

1977. This situation altered after the Jordanian government's decision to allow immigration of foreign labour. After the mid 1980s unemployment rose again and inflation decreased (with exception of 1988/89, where the debt crisis resulted in a drastic devaluation of the JD). After 1990, inflation was gradually reduced and judging by the development of the share of industry, exports and imports, it can be concluded that DD symptoms were successfully curbed.

**Table 5.27 Impact of migration on the Jordanian economy – 4-year averages of selected macro economic data**

Period	Remit-	Imports	Exports	Share of industry in GDP	External value of the JD in SDRs	Inflation	Un- employ- ment
	tances						
	Mill. const. 1995 US\$ p.a.						
1970-1973	86	1.102	327	12,9%	2,62	7,2%	13,1%
1974-1977	725	3.021	1.306	10,1%	2,58	14,3%	4,2%
1978-1981	1.420	5.857	2.540	13,0%	2,57	10,0%	3,4%
1982-1985	1.668	6.075	2.839	13,2%	2,54	4,8%	5,1%
1986-1989	1.210	4.787	2.996	11,7%	1,94	8,0%	9,0%
1990-1993	775	4.446	2.897	13,7%	1,05	7,9%	17,4%
1994-1997	1.360	4.916	3.378	14,2%	0,99	3,9%	14,1%
1998-2001	1.582	4.909	3.232	15,4%	1,06	1,5%	14,8%
2002-2003	1.814	5.471	3.705	16,2%	1,07	2,1%	14,9%

*Sources: Macro economic data: IMF 2000; CBJ 2003; HKJ/DoS 2002; Unemployment: 1970-1993: Talafhah, Fahdawi (1998); 1994-1996: HKJ/MoL Annual Report 1996, 1997-2001: HKJ/MoL main indicators 2002; CBJ 2003.*

Although GDP growth was positively influenced by remittance income, the evidence suggests that a significant part of remittance income was spent on housing and on imports and did not contribute to a significant increase in the production potential of the country.

### 5.4.3 Total factor productivity indications

The analysis of total factor productivity (TFP) attempts to establish whether factors other than the increase in the quantity of labour and capital were the cause of economic growth. By “other factors” a number of quantitative and qualitative aspects are covered of which human capital is an important one. TFP-analysis implies that labour is not homogenous in nature and that education and skill can lead to additional economic growth.

By estimating the role of productivity in growth, this analysis attempts to identify the extent to which the Jordanian economy has so far profited from the growing number of its skilled labour. Should the improved education level of the labour force not have influenced the growth of the Jordanian economy, it can be concluded that no loss results from their out-migration.

TFP can be calculated using growth accounting, which was introduced by Denison (1962). In the implementation of growth accounting (see e.g. Abel and Bernanke, 2001: 206-208) it is assumed that the output of an economy ( $Y=GDP$ ) depends on the quantities of available inputs capital ( $K$ ) and labour ( $L$ ) and on the productivity<sup>45</sup> ( $A$ ) of these inputs. The relationship between output ( $Y$ ) and inputs is described by the production function (5.2):

$$Y = Af(K, L) \quad (5.2)$$

The growth of output requires a growth of inputs or a growth of productivity or the growth of both. The relationship between the rate of output growth and the rates of input growth and productivity growth is:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + a_K \frac{\Delta K}{K} + a_L \frac{\Delta L}{L} \quad (5.3)$$

where

$\Delta Y/Y$	rate of output growth
$\Delta A/A$	rate of productivity growth

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<sup>45</sup> The productivity term represents a multiple of factors (e.g. the degree of competition, increasing returns to scale, cultural incentives and attitudes toward work and punctuality, and the socio-economic structure of institutions in a society) of which the level of technology and the quality of labour (human capital) are considered to be the most significant. Many approaches have sought to explain more precisely the impact of these two inputs (OECD: 1998, p 65).

$\Delta K/K$	rate of capital growth
$\Delta L/L$	rate of labour growth
$a_K$	elasticity of output with respect to capital
$a_L$	elasticity of output with respect to labour

As it is assumed that all income is earned by capital and labour, the sum of the elasticities of capital and labour is 1. Literature reveals values for  $\alpha_L$  ranging from between 0,6 and 0,7 leaving 0,4 to 0,3 for  $\alpha_K$  for industrialised countries (Abel, Bernanke, 2001).

In applying this approach, real growth in income and in productive capital have to be sought. Information concerning productive capital investment is often inflated by investment for residential building, which has to be eliminated. Wolburg (2001) estimated the stock of capital by utilising and adapting the perpetual-inventory method outlined in Goto and Suzuki (1989). This approach yields the following equation to determine the growth in the capital stock:

$$\frac{\Delta K}{K} = \frac{K_{i,t} - K_{i,t-1}}{K_{i,t}} = I_{i,t} + (1 - \delta_{i,t})K_{i,t-1} \quad (5.4)$$

where

$K_{i,t}$	stock of physical capital in the period i
$K_{i,t-1}$	stock of physical capital in the period i-1
$I_{i,t}$	capital investment in the period i
$\delta_{i,t}$	rate of depreciation

The limitations of the TFP-approach are, first, that it is difficult to disentangle TFP and capital growth as separate sources of growth and second, that the share of human capital in TFP is also difficult to assess without more in depth analysis. Schultz (1961) calculated TFP for the U.S. between 1929 and 1956 and found that the contribution of improved education on TFP was between 29% and 56% depending on the social rate of return on education. Thereby, he assumed that the share of labour in GDP growth was 75%.

If it can be shown that despite an increasing endowment of a country with human capital, TFP is equal to 0 or negative, then the country in focus has not benefited

from the increased level of education and therefore, can have no loss by its out-migration.

Using regression analysis, the change in productivity and the elasticity of Jordanian GDP with respect to labour and physical capital were calculated. The period of analysis extended between 1970 and 2000. The sources of data were IMF (2000) and CBJ (2003) as well as Talafhah and Fahdawi (1998). The current monetary data concerning GDP and physical capital were adjusted to real values using the GDP deflator. The sources of labour data were Ibrahim et al. (1989) as well as HKJ/DoS (1992) and HKJ/MoL (1993, 1996, 1997, 1998, 2000) yearbooks. All employed Jordanians and foreigners were considered. The number of employed foreigners was estimated by deducting unemployed foreign workers from the official number of foreign workers in Jordan. The unemployment rate for foreign labour was assumed to be 10% between 1970 and 1988, 20% in 1989 and 30% in 1990 and afterwards. As no official numbers for foreign workers exist after 1997, it was further assumed that their number remained constant at 320.000 according to the estimation of the ministry of labour (HKJ/MoL, 1997).

The regression analysis showed that the dependence of GDP growth on changes in physical capital and labour was significant at the 1% level. The t-values were significant at the 10% level for physical capital and at the 1% level for labour. The GDP elasticity concerning capital  $\alpha_K$  amounted to 0,73 and concerning labour  $\alpha_L$  to 0,27 showing that physical capital was more important to the economy than labour. The value for factor productivity  $\Delta A/A$  was negative. This factor was also found to be negative for any pair of labour and capital elasticities. This indicates that all growth was attributed to the increase in physical capital and labour and that productivity declined during the relevant period.

Pissarides (2000) and Fattah et al. (2002) report similar results for Jordan and other Arab countries. It can, therefore, be concluded, that Jordan is not properly utilising its resident human capital to improve productivity and as a result, the country suffers no loss from its out-migration.

## 6 Summary and conclusions

### 6.1 Summary of major findings

Despite rising barriers to the movement of labour, international migration is increasing and with it the interdependency between the sending and receiving countries. The case study at hand shows that remittance income continues to be an important source of foreign exchange for many labour-sending countries. To these countries, labour export comprises a field in which they possess a comparative advantage. In the absence of other sources of income, these countries have to consider treating labour export as a permanent phenomenon and shape their policies towards achieving sustainable economic benefits from it.

The international supply of labour by far exceeds demand making labour markets highly competitive and limiting the opportunities of migration. To many individuals, investment in human capital has, therefore, become a decisive factor for determining the success of migration as some immigration countries reduce the entry barriers to skilled labour. From the point of view of the sending countries the question arises whether it is worth-while to invest in the higher education of persons who would later be productive elsewhere.

Data on the economic impact of labour migration has been scarce and on the specific impact of human capital migration hardly available. The availability and the constant monitoring of such data is essential for policy makers in labour exporting countries, as they provide the basis for their decisions.

The present study introduces a methodology to quantify the cost and benefit of human capital migration and applies it to the case study of Jordan. The necessary data was obtained from research literature, public sources and from a survey designed to collect the missing data. The survey provides data from three different groups: non-migrants, migrants residing abroad and returnees. It focuses on four professional groups who received higher education: teachers, engineers, physicians and IT-specialists and assumes that these professionals represent the human capital of the sending country.

The data is used to calculate the social and the private return on higher education investments when migration is involved. The results show that there is a positive

social return to the sending country if higher education was accomplished within the country itself. The magnitude of this return is dependent on the situation of the skilled labour market there. The social return is higher in the case of unemployment in the skilled labour market than in the case of full employment as the opportunity costs of forgone production diminish when migrants are replaced by formerly unemployed skilled workers. The social return on education and migration to the sending country is negative when higher education is accomplished in an industrialised country and full employment conditions prevail in the skilled labour market. Achieving a positive return in this case would require one or more of the three following conditions: higher remittances, repatriating of more migrant's savings or a better utilisation of the migrant's skills after their return to achieve productivity gains.

The achieved results are checked from a macroeconomic point of view. First, regression analysis confirmed a positive correlation between remittances and economic growth for Jordan. Second, Dutch Disease symptoms, which result in inflation and decreased international competitiveness were shown to have successfully been curbed after 1990. Finally, growth analysis showed that the country is not utilising its human capital to achieve growth and consequently, suffers no loss from its out-migration.

## **6.2 Future prospects for migration from Jordan**

After the oil boom in the 1970s, the Arab oil exporting countries such as Saudi Arabia, Kuwait, the United Arab Emirates, Bahrain, Qatar and Libya adopted a development strategy centering around the building up of the infrastructure and, in turn, creating a demand for unskilled labour especially in the construction sector. At the termination of this first phase of infrastructural projects and with the new emphasis on industrialisation, there has been a change in the structure of labour demand. Running the huge stock of capital and especially the extensive public services is requiring a continuous supply of skilled labour.

Arab oil exporting countries have been the traditional destinations for Jordanian labour. The migration flow has been highly dependant on the price of oil and regional political turbulences such as the Gulf war. Competition in the labour

market of these countries necessitated Jordanians to invest in their education and the share of migrants with higher education doubled between 1980 and 2003. Jordanians have a competitive advantage against workers from the Indian sub continent due to the mutual language and religion. Educated Jordanians are also seeking jobs in other regions such as Europe, Australia and North America as their good command of English language qualifies them for many skilled jobs there.

According to the World Migration Report 2005 (IOM, 2005), the number of migrants world wide has increased at a higher rate than population growth and this trend is likely to continue. Furthermore, the numbers and percentages of skilled migrants in many countries are increasing. The report states that "By 2001, skilled immigrants and their families constituted over half the immigrant intake in Australia, Canada and New Zealand and the trend appears to be continuing, indeed increasing".

The economic and demographic development in Europe and North America will keep the demand for human capital high for the foreseeable future. The governments of some of these countries have only just begun to react to this demand, which at the moment is focused on the technological side. As for the oil exporting countries, the rapidly increasing population and the improving standard of public services, especially in the fields of health and education, will increase demand for human capital, which these countries are still generating inadequately, despite all efforts at nationalising employment in the past. It can, therefore, be concluded that in the absence of major political disruptions, demand for Jordanian human capital is likely to continue.

On the supply side, the present economic performance is not likely to generate enough jobs to absorb the increasing number of Jordanians entering the labour market. The willingness to invest in education and the expansion of educational institutions, is therefore expected to continue producing skilled workers in excess of the country's needs. Therefore, migration issues will remain an important feature in the Jordanian society and will continue to shape its economy. As a result, policy makers have to consider migration as a long term phenomena and contain it in their decisions.

### **6.3 Policy analysis and recommendations**

The migration of human capital is primarily driven by the individual motivation to increase welfare. The fact that a positive individual development could have a negative social outcome poses a challenge to decision makers attempting to maintain a liberal political climate in the sending countries. Factors, that lead to negative social returns have been identified within the scope of this study. The following section reflects (on) Jordanian policies and derives appropriate economic and educational policy recommendations from the study findings.

According to economy text-books, economic efficiency mainly results from market mechanisms. The government's role is ideally restricted to handling areas where the market cannot perform efficiently such as environmental protection or security. Governments must also ensure that the domestic economy remains internationally competitive.

The impact of labour out-migration and the inflow of remittances was captured in the Dutch Disease discussion, which showed that labour shortages and the appreciation of the local currency reduce the international competitiveness of the sending country. The government has to monitor the labour market closely and in the case of foreseeable labour shortages it can maintain the labour demand and supply equilibrium by allowing in-migration. This policy, however, clashes with other considerations such as income distribution between labour and capital and social tension may result in the wake of increasing numbers of foreign labour in a country.

Jordan's experience underlines the above outcome. As a consequence of labour shortages and high inflation in the 1970s the in-migration of foreign labour was allowed. By the end of the 1980s, macroeconomic indicators showed no further decline in international competitiveness. Inflation was curbed but at the same time high unemployment rates emerged. To ease the impact on the population, this policy was flanked with regulations containing in-migration and reserving defined employment fields for Jordanians.

In-migration of labour can be a cure for labour shortages in all skill levels. However, in the case of skilled labour shortages, policy can choose between two alternatives: In-migration or upgrading the skills of the existing labour. Jordanian

policy concentrated on the second alternative by expanding its educational capacities.

Excess supply of skilled workers was shown to be an important factor in achieving high returns on education and migration due to diminishing opportunity costs. However, this does not imply that such returns are higher than they would have been if the skilled workers remained in the sending country and become productive there. To achieve returns from utilising skilled labour in the domestic economy, sending countries have to provide adequate jobs, where this labour can apply its enhanced productivity. Creating jobs for skilled workers requires capital, therefore, measures encouraging investments are an important pillar in any economic policy aimed at utilising skilled labour. Promoting investments includes a wide range of measures, starting from ensuring sustainable political stability in one extreme to focused actions towards establishing and supporting certain industries in the other.

Unnecessary regulations and red tape, unclear laws and corruption are problems facing many less industrialised countries and Jordan is no exception in this regard. Although much was accomplished in creating adequate institutions to support investments and assigning them the necessary competencies, Jordanian policy has so far failed to foster the level of private investors' confidence needed to achieve a sustainable rate of growth and job creation. Evidence from this study shows, that migrants' remittances and their savings are mainly spent on consumption and dwelling. Only a marginal part is invested in entrepreneurial activities. Although investments in residential buildings have a positive impact on the Jordanian economy, they have for example not brought forward an internationally competitive construction industry. Offering a favourable investment climate and investment opportunities comprises an essential condition to increase remittances and to direct them to fields that contribute to a sustainable economic growth.

Internal economic reforms require flanking by foreign policy elements as the attractiveness of investments is enhanced by low barriers for the movement of goods, labour and capital across the country's borders and good relationships with countries to which products can be exported. Joining the WTO and opening the US market for Jordanian goods were visible elements in this direction. However, this progress was not matched with (by) similar steps regionally as a joint Arab market

still is a future vision. Many references can be found referring to the poor inter-Arab trade volume and improving the situation needs concerted regional action.

The present study shows, that the social return on education and migration is negative for the sending country if higher education takes place in an industrialised country. Therefore, Jordan's policy to expand higher education can be regarded as a successful endeavour. Jordanians receiving higher education abroad declined not only in proportion but also in absolute numbers, thereby, significantly reducing the loss of the country's foreign reserves. Further more, Jordanian higher education institutions established a reputation enabling them to attract foreign students in the region, thus, "exporting" educational services instead of importing them. In 2004, 20.000 foreign students were receiving their higher education in Jordan.

When public funds became insufficient to meet the increasing educational demand, the decision to involve the private sector was correctly and timely made. However, the question had to be posed, whether this educational revolution translated into sustainable economic growth and macro economic evidence does not support this outcome (see section 5.4.3).

According to Lopez et al. (1999), the policy environment determines what people can do with their education. Policy reforms to open up trade and investment and reduce distorted prices can greatly increase the returns from formal education and enhance the impact of education on growth. Therefore, education policy has to be seen within the context of an overall economic policy which was outlined previously. The fact, that the expansion of education capacities in Jordan has only lead to an increased educational attainment of the population with no visible impact on economic growth allows the conclusion that educational policy can be seen as a measure to support human capital export, which is the second hypothesis set in this study. This is not a critique as it could be shown that the expansion of education was beneficial to the Jordanian economy. There is, however no evidence, that the Jordanian government deliberately expanded its educational institutions to meet the demand of foreign labour markets. Active policy in this regard was limited to bilateral agreements with some Gulf States to send Jordanian teachers to assist these countries in their educational institutions. Since economic policy is not expected to create sufficient jobs for skilled workers, pursuing

deliberate action to promote Jordanian skilled workers to other parts of the world can be considered as a viable option. Such a human capital export strategy requires the creation of institutions whose task is to monitor demand in receiving countries and to facilitate the out-migration of Jordanians as practised by the Philippines and Sri Lanka. Furthermore, educational policy has to set internationally competitive educational standards and negotiate the acceptance of formal educational certificates with major receiving countries. So far Jordanian credentials are only accepted in the Arab World.

The private returns on higher education in combination with migration have been shown to be higher than the public returns. Therefore, shifting the financial burden from the state to the individuals by increasing tuition fees in public higher education institutions and expanding private higher education institutions seems a logical move. Although demand for higher education has been high, students still prefer public universities due to the perceived higher quality of education and lower tuition fees. Setting educational standards would significantly help avoiding a two-class education quality and bolster the reputation of education in the country. Increasing the private burden, however, requires policy adaptations to ensure access to higher education for the poorer members of the society.

Students receiving their higher education in industrialised countries have been shown to produce a negative social return to the sending country unless they return and work at a significantly higher productivity, than the country's average. However, a total ban on higher education abroad should be avoided. Such a ban contradicts the principle of liberal politics, is practically difficult to enforce and may deprive the sending country from technologies not available in local or regional educational institutions. Training and experience on the job are also important contributors to human capital building and higher education with subsequent employment in industrialised countries, enables students of the sending countries to absorb new technologies available there.

The sending countries often suffer from a lack of advanced industries, the existence of which is a condition for a favourable co-operation between higher education institutions and the economy. The wish of many migrants to work in advanced environments is understandable and has to be taken as a fact by the societies of the sending countries. What can be done is to capitalise on this

situation by establishing networks between the migrants and their country of origin, thereby, facilitating the transfer of knowledge and improving the chances of the migrants' return. In his Diaspora model Bhagwati (1999) related to this subject by stating: "...having your own people in the rich countries works to your advantage in many different ways whereas holding on to your people against their wishes in conditions that are not conducive to their full development as scientists and professionals is not helpful".

#### **6.4 Further information and research requirements**

Regarding human capital export as a sector of the economy in need of support and promotion requires a different set of data than provided by traditional statistical institutions. Attaining basic migration data is in itself an elaborate task and researchers often express their frustration with the quantity and quality of available data. The challenge increases when research is focused on a sub group of migrants and their impact on a certain region. Questions relating to the representativeness of the inputs and outputs of the research become increasingly important. The present study introduces a methodology for the assessment of the migration impact on the sending country. The results which were arrived at, are based on data as well as on assumptions. Further research in this direction, therefore, has two main tasks. The first task is to reduce the share of assumptions and increase the share of data. The second task is to test and to improve the methodology in order to ensure that research leads to policies the outcomes of which are certain to lead to the desired results.

Assessing the impact of human capital migration on a country requires the periodic implementation of the measurement methodology. This way, changes can be better detected and errors are cancelled out. The periodic implementation of the measurement methodology requires careful preparations as the variables and their acquisition (e.g. micro-census) have to be defined. Human capital in the context of this study for example was represented by four professional groups. Other regions may have deviant characteristics and increasing the complexity of the definition may increase the representativeness of the results. Preliminary surveys among employers in the sending country can provide a frame for the definition of human capital. Education investments and the evaluation of opportunity costs of migration

should receive a high research priority as they have a significant contribution on the outcome for the sending country. Investments in education themselves represent a complex research field where possible positive externalities and the contribution in service exports through attraction of foreign students should be evaluated. The present study was faced with limited information concerning multiplier effects in the economy. Empirical research in this field is not only of significance for this study but for many other project evaluations.

The present study shows that the benefit from return migration is limited. Possible productivity increases from the skills the migrants acquired abroad are either limited or not utilised properly. Decision makers need to identify the true economic potential of returnees and attempt to capitalise on it. It would be worthwhile to find out to what extent returnees become entrepreneurs and contribute to creating jobs. Another aspect is identifying the conditions under which an increased repatriation of foreign savings can be achieved. Institutionalising the links between returnees and their former countries of destination may provide further benefits by fostering scientific and financial co-operation.

Migration research should receive high priority in countries, whose economies rely significantly on remittance income such as Jordan. However, the number of recent internationally available publications in this field suggests that this is not the case. Jordan is equipped with educational institutions which are in a good position to carry out this research. The Jordanian National Centre for Human Resources Development, whose mission is to enhance human resources development and improve relevance of outputs of education and training programs to the labour market needs, appears to be best equipped to co-ordinate this research in Jordan as the local labour market requirements have to be in harmony with the individuals' migrational aspirations.

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## **Appendix I: Numeric data used in figures**

**Fig. 4.1 Real GDP and its growth in constant 1995 US\$**

<b>Year</b>	<b>GDP in mill. US\$</b>	<b>Real GDP Growth</b>	<b>Year</b>	<b>GDP in mill. US\$</b>	<b>Real GDP Growth</b>
1970	2558		1987	8740	1,6%
1971	2512	-1,8%	1988	7854	-10,1%
1972	2878	14,6%	1989	5109	-35,0%
1973	3235	12,4%	1990	4692	-8,2%
1974	3704	14,5%	1991	4713	0,4%
1975	3877	4,7%	1992	5828	23,7%
1976	4409	13,7%	1993	5977	2,6%
1977	5162	17,1%	1994	6472	8,3%
1978	5960	15,5%	1995	6815	5,3%
1979	6863	15,1%	1996	6829	0,2%
1980	7318	6,6%	1997	6955	1,8%
1981	7456	1,9%	1998	7443	7,0%
1982	7628	2,3%	1999	7442	0,0%
1983	7703	1,0%	2000	7475	0,4%
1984	7564	-1,8%	2001	7695	2,9%
1985	7262	-4,0%	2002	8007	4,1%
1986	8601	18,4%	2003	8225	2,7%

Sources: HKJ/DoS (2002), CBJ (2003), the author's calculations

**Fig. 4.2 Foreign aid to Jordan in constant 1995 US**

<b>Year</b>	<b>Foreign aid in mill. US\$</b>	<b>Foreign aid in percent of GDP</b>	<b>Year</b>	<b>Foreign aid in mill. US\$</b>	<b>Foreign aid in percent of GDP</b>
1970	396,7	16,7%	1987	504,7	5,8%
1971	364,2	15,5%	1988	539,1	6,9%
1972	465,6	18,1%	1989	563,7	11,0%
1973	454,5	16,4%	1990	288,9	6,2%
1974	553,6	19,2%	1991	370,0	7,9%
1975	863,6	25,6%	1992	219,5	3,8%
1976	533,5	12,9%	1993	248,6	4,2%
1977	932,6	19,6%	1994	258,3	4,0%
1978	624,8	10,6%	1995	261,0	3,8%
1979	1.471,2	23,0%	1996	338,6	5,0%
1980	1.297,7	18,2%	1997	274,6	3,9%
1981	1.046,9	14,5%	1998	267,6	3,6%
1982	894,9	11,7%	1999	256,1	3,4%
1983	829,9	10,8%	2000	299,8	4,0%
1984	405,1	5,4%	2001	302,7	3,9%
1985	675,2	9,3%	2002	318,8	4,0%
1986	571,3	6,6%	2003	795,7	9,7%

Sources: 1970-1995: IMF (2000), 1996-2003: CBJ (2002, 2003)

**Fig. 4.3 The labour force in Jordan**

Year	Jordanian workers	Foreign workers	Year	Jordanian workers	Foreign workers
1970	258.900		1986	492.500	42.000
1971	267.800		1987	509.300	46.000
1972	276.900		1988	521.800	51.000
1973	296.000	376	1989	523.500	60.000
1974	316.400	519	1990	524.200	181.000
1975	338.100	803	1991	525.000	121.000
1976	361.300	4.790	1992	600.000	106.000
1977	371.000	7.778	1993	859.300	161.000
1978	380.900	18.785	1994	900.000	220.000
1979	391.100	26.415	1995	960.000	94.333
1980	405.300	79.566	1996	1.100.000	42.976
1981	418.400	90.000	1997	900.000	116.533
1982	431.800	110.000	1998	1.136.000	114.000
1983	445.200	130.000	1999	1.041.000	154.197
1984	458.500	154.000	2000	1.100.000	110.580
1985	472.200	143.000	2001	1.032.000	136.573

Sources: Talafhah, Fahdawi (1998), HKJ/MoL (1970-2001)

**Fig. 4.4 Unemployment rates in Jordan**

Year	Unemployment rate	Year	Unemployment rate
1970	13,67%	1987	8,35%
1971	13,84%	1988	8,81%
1972	14,01%	1989	10,80%
1973	11,06%	1990	16,79%
1974	8,00%	1991	18,82%
1975	4,87%	1992	15,01%
1976	1,61%	1993	18,80%
1977	2,24%	1994	15,80%
1978	2,88%	1995	14,20%
1979	3,50%	1996	12,00%
1980	3,50%	1997	14,40%
1981	3,90%	1998	15,20%
1982	4,30%	1999	15,60%
1983	4,79%	2000	13,40%
1984	5,41%	2001	14,90%
1985	5,99%	2002	15,30%
1986	8,01%	2003	14,50%

Sources: 1970-1980: Ibrahim et al. (1989), 1981-1990: Al-Akel (1991), HKJ/DoS (1991-1996), HKJ/MoL (1997-2001), CBJ (2003).

**Fig. 4.5 Net population out-migration from Jordan 1968-2003**

Year	Departures (persons)	Arrivals (persons)	Year	Departures (persons)	Arrivals (persons)
1968	374.500	344.200	1986	986.714	923.179
1969	386.000	358.500	1987	1.148.851	1.027.656
1970	394.500	368.600	1988	1.268.976	1.135.792
1971	362.705	341.210	1989	1.192.336	1.107.931
1972	379.655	345.232	1990	1.143.238	1.276.613
1973	464.468	448.112	1991	858.769	893.870
1974	583.409	547.929	1992	1.079.103	1.090.524
1975	655.061	615.551	1993	1.128.084	1.089.539
1976	715.805	633.008	1994	1.072.169	1.142.657
1977	770.791	666.657	1995	1.127.443	1.104.524
1978	704.369	707.334	1996	1.140.500	1.102.700
1979	719.879	737.200	1997	1.233.100	1.198.400
1980	642.886	643.717	1998	1.346.900	1.283.100
1981	695.672	749.729	1999	1.562.500	1.452.300
1982	719.561	648.389	2000	1.627.000	1.599.200
1983	731.508	680.621	2001	1.755.200	1.723.300
1984	598.936	683.362	2002	1.728.300	1.626.700
1985	812.227	787.114	2003	1.532.800	1.410.100

Source: Directorate of Inner Security as presented in the statistical yearbooks of the department of statistics (HKJ/DoS, 1968-2003)

**Figure 4.6 Development of nominal wages and inflation in Jordan**

Year	Wage index	Inflation index	Year	Wage index	Inflation index
1970	0,3249	0,3385	1987	1,2046	1,4217
1971	0,3397	0,3827	1988	1,2848	1,3780
1972	0,3586	0,3764	1989	1,6139	1,4269
1973	0,4008	0,4437	1990	1,8755	1,6538
1974	0,4789	0,4471	1991	2,0295	1,6583
1975	0,5359	0,4310	1992	2,1097	1,8156
1976	0,5970	0,6017	1993	2,1793	1,8059
1977	0,6835	0,6522	1994	2,2574	1,7478
1978	0,7321	0,7990	1995	2,3101	1,7484
1979	0,8354	0,7807	1996	2,4599	1,6960
1980	0,9283	0,8777	1997	2,5338	1,6958
1981	1,0000	1,0000	1998	2,6123	1,6624
1982	1,0738	1,1393	1999	2,6275	1,7327
1983	1,1287	1,2207	2000	2,6452	1,7118
1984	1,1709	1,2018	2001	2,6934	1,8172
1985	1,2068	1,2849	2002	2,7419	1,8092
1986	1,2068	1,3709	2003		

Sources: Macroeconomic data: IMF (2000), CBJ (2003). Employment: 1970-1987 Ibrahim et al. (1989); 1988-1993: HKJ/DoS (1992, 1993); 1994-2002: HKJ/MoL (1996, 1997, 1998, 2000, 2002) ; Foreign Labour: HKJ/MoL (1980, 1983, 1984, 1985, 1988, 1990); HKJ/DoS (1988-1993); Ibrahim et al. (1989); CBJ (2003); Extrapolation by the author for the years 2001 and 2002. The wage index is calculated from consumption, tax and savings less remittances divided by the number of the employed work force in Jordan (Jordanians and foreigners).

**Figure 4.7 Remittances in constant 1995 US\$ and their share of GDP**

Year	Remittances (1000 US\$)	Remittance share of GDP	Year	Remittances (1000 US\$)	Remittance share of GDP
1970	61,6	2,4%	1987	1.257,3	14,4%
1971	51,9	2,1%	1988	1.164,4	14,8%
1972	75,6	2,6%	1989	771,7	15,1%
1973	153,4	4,7%	1990	583,4	12,4%
1974	231,4	6,2%	1991	503,3	10,7%
1975	473,1	12,2%	1992	915,5	16,2%
1976	1.098,6	24,9%	1993	1.097,3	18,7%
1977	1.096,7	21,2%	1994	1.123,3	18,0%
1978	1.219,1	20,5%	1995	1.244,4	19,1%
1979	1.262,0	18,4%	1996	1.500,6	22,0%
1980	1.467,6	20,1%	1997	1.571,8	22,8%
1981	1.729,8	23,2%	1998	1.441,8	19,5%
1982	1.712,5	22,5%	1999	1.522,4	20,5%
1983	1.697,2	22,0%	2000	1.632,8	21,8%
1984	1.813,4	24,0%	2001	1.731,0	22,5%
1985	1.448,3	19,9%	2002	1.809,3	22,6%
1986	1.647,8	19,2%	2003	1.819,1	22,1%

Sources: 1970-1998: IMF (2000), 1999-2003: CBJ (2003).

## **Appendix II: Survey forms**

### **Survey for migrants abroad**

This survey is designed to study the cost and benefit of human capital migration from Jordan. Data will be anonymous and solely used for scientific analysis.

<b>Personal information</b>		
1.	Age	
2.	Gender	
3.	Marital Status	Not married, married, divorced, widow
4.	Profession	Teacher, engineer, physician, IT-Specialist
5.	Location of spouse & children	Spouse: Jordan, abroad (where?) Children: Jordan, abroad (where?)
6.	Location of Parents & Siblings	Parents: Jordan, abroad (where?) Brothers/Sisters: Jordan, abroad (where?)
7.	Before Migration, how did you consider your economic situation in relation to other people living in Jordan? (Chose most appropriate description)	worse than most below average average above average better than most

<b>8. Higher education CV</b>				
<b>Degree</b>	<b>Country of higher education</b>	<b>Duration of higher education (Period)</b>	<b>Cost of higher education (annual)</b>	<b>Who financed higher education</b>

<b>9. Profession and employment CV</b>					
<b>Job description</b>	<b>Country of residency</b>	<b>Duration of job (Period)</b>	<b>Annual income</b>	<b>Employed or self employed</b>	<b>If Self employed: Number of own employees</b>

<b>Migration related Questions</b>		
10.	Did you have relatives/friends in the country of destination?	Yes/no
11.	If yes, did they support you?	Yes/no
12.	If yes, how was their support? (More than one option possible)	Moral support, providing information, financial support
13.	Was this support important for choosing the country of destination?	Yes/no
14.	What was the cause of your migration?	Work, education, other (which?)
15.	Are you planning to return?	Yes/no/don't know
16.	If yes, when?	Before retirement, after retirement
17.	If no, why?	No demand for my experience, feeling unwelcome, other (which?)
18.	Did the following reasons influence your	Unequal opportunities among job seekers

	migration decision? (more than one option possible)	Unemployment High competition on the job market Other reasons (which?)
If you were employed/self employed prior to your migration,		
19.	- could you be replaced?	Yes, no, don't know, not applicable
20.	- were other jobs lost due to your migration?	Yes, no, don't know, not applicable
21.	- did replacing you lead to a loss in the productivity you provided?	Yes, no, don't know, not applicable

<b>Remittance related questions</b>			
22.	Do/did you send remittances to Jordan?	Yes/no	
23.	In which specific years/ period did you send remittances?		
24.	How much did you remit on average?		
25.	Who did you remit to?		
26.	What share of remittances was sent through financial institutions/banking system?	%	
27.	What were the remittances used for? (percentage of each category)	<b>Uses of Remittances</b>	<b>%</b>
		Daily needs, consumption	
		Purchase of land	
		Purchase of dwelling	
		Investment in industry	
		Investment in agriculture	
		Investment in trade/commerce	
		Investment in stock market	
		Saving account in Jordanian Bank	
		Marriage	
		Pay off debt	
Education of others			
	Other (which?)		

<b>Return related questions</b>		
28.	Do you think that your migration and work abroad will have a positive impact on the Jordanian economy when you return?	Yes/No/don't know
29.	Do you think that your migration had a negative impact on the Jordanian economy?	Yes/No/don't know

## Survey for returned migrants

This survey is designed to study the cost and benefit of human capital migration from Jordan. Data will be anonymous and solely used for scientific analysis.

Personal information		
1.	Age	
2.	Gender	Male, female
3.	Marital Status	Not married, married, divorced, widow
4.	Profession	Teacher, engineer, physician, IT-Specialist
5.	Location of Parents & Siblings	Parents: Jordan, abroad (where?) Brothers/Sisters: Jordan, abroad (where?)
6.	Before Migration, how did you consider your economic situation in relation to other people living in Jordan? (Chose most appropriate description)	worse than most below average average above average better than most
7.	After returning, how did you consider your economic situation in relation to other people living in Jordan? (Chose most appropriate description)	worse than most below average average above average better than most

8. Higher education CV				
Degree	Country of higher education	Duration of higher education (Period)	Cost of higher education (annual)	Who financed higher education

9. Profession and employment CV					
Job description	Country of residency	Duration of job (Period)	Annual income	Employed or self employed	If Self employed: Number of own employees

Migration related Questions		
10.	Did you have relatives/friends in the country of destination?	Yes/no
11.	If yes, did they support you?	Yes/no
12.	If yes, how was their support? (More than one option possible)	Moral support, providing information, financial support
13.	Was this support important for choosing the land of destination?	Yes/no
14.	What was the cause of your migration?	Work, education, other (Which?)
15.	Did the following reasons influence your migration decision? (more than one option possible)	Unequal opportunities among job seekers Unemployment, High competition on the job market, Other reasons

If you were employed/self employed prior to your migration,		
16.	- could you be replaced?	Yes, no, don't know, not applicable
17.	- were other jobs lost due to your migration?	Yes, no, don't know, not applicable
18.	- did replacing you lead to a loss in the productivity you provided?	Yes, no, don't know, not applicable

Remittance related questions			
19.	Did you send remittances to Jordan?	Yes/no	
20.	In which specific years/ period did you send remittances?		
21.	How much did you remit on average?		
22.	Who did you remit to?		
23.	What share of remittances was sent through financial institutions/banking system?	%	
24.	What were the remittances used for? (percentage of each category)	<b>Uses of Remittances</b>	<b>%</b>
		Daily needs, consumption	
		Purchase of land	
		Purchase of dwelling	
		Investment in industry	
		Investment in agriculture	
		Investment in trade/commerce	
		Investment in stock market	
		Saving account in Jordanian Bank	
		Marriage	
		Pay off debt	
		Education of others	
Other (which?)			

<b>Return related questions</b>			
25.	Do you think that your migration and work abroad will have a positive impact on the Jordanian economy when you return?	Yes/No/don't know	
26.	Do you think that your migration had a negative impact on the Jordanian economy?	Yes/No/don't know	
27.	Apart from the remittances sent during migration, did you bring your savings back to Jordan?	Savings remained abroad % of savings brought to Jordan All savings brought to Jordan	
28.	What were the savings brought back to Jordan used for? (more than one use possible, percentage of each category)	<b>Uses of Savings</b>	<b>%</b>
		Daily needs, consumption	
		Purchase of land	
		Purchase of dwelling	
		Investment in industry	
		Investment in agriculture	
		Investment in trade/commerce	
		Investment in stock market	
		Saving account in Jordanian Bank	
		Marriage	
		Pay off debt	
Education of others			
Other (which?)			

<b>Consumption related questions</b>			
29.	Please specify your spending pattern	<b>Income spent on</b>	<b>%</b>
		Food	
		Dwelling (rent, mortgage)	
		Clothing	
		Education	
		Transport	
		Travel, Leisure and Holidays	
		Medical Services	
		Energy and Communications	
		Other Services	
		Tax and Social Security	
Savings			
30.	Do you own a car?		

## Survey for reference group without migration

Personal information		
1.	Age	
2.	Gender	Male, female
3.	Marital Status	Not married, married, divorced, widow
4.	Profession	Teacher, engineer, physician, IT-Specialist
5.	Location of Parents & Siblings	Parents: Jordan, abroad (where?) Brothers/Sisters: Jordan, abroad (where?)
6.	How do you consider your economic situation in relation to other people living in Jordan? (Chose most appropriate description)	worse than most below average average above average better than most

7. Higher education CV				
Degree	Country of higher education	Duration of higher education (Period)	Cost of higher education (annual)	Who financed higher education

8. Profession and employment					
Job description	Country of residency	Duration of job (Period)	Annual income	Employed or self employed	If Self employed: Number of own employees

Consumption related questions			
9.	Please specify your spending pattern	<b>Income spent on</b>	<b>%</b>
		Food	
		Dwelling (rent, mortgage)	
		Clothing	
		Education	
		Transport	
		Travel, Leisure and Holidays	
		Medical Services	
		Energy and Communications	
		Other Services	
		Tax and Social Security	
		Savings	
10.	Do you own a car?		