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Review of the Recent Trends in Development Economics Research: With Experience from the Federal Region of Kurdistan

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ABSTRACT

Review of the Recent Trends in Development Economics Research: With Experience from the Federal Region of Kurdistan[*]

This study is a review of the recent trends in development economics research. The focus is on the development in the recent decades as a result of increased globalization of knowledge, technologies and economies. In particular I look at the development in a number area where similar trends are observed. The areas studied include globalization, in-sourcing and outsourcing activities, the increased flow of direct foreign investment and its heterogeneous regional distribution, the increased public investment in information and communication technologies as infrastructure for development, the importance of commercialization and transfer of technologies, and increased income inequality and concentration of severe poverty in certain regions. In addition I briefly elaborate on the role of education, research, and training to enhance development capability and capacity, the increased strategic importance of natural resources and the increased interregional trade flow. I also investigate the development in the Federal Region of Kurdistan since its gained self-governance in 1991 as a case study by referring to the above developments.

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CONTENTS

1. INTRODUCTION

In recent decades the global economy has gone through major changes and in particular within the area of development economics. An example of major changes in this area is the rapid development in several newly industrialized economies mainly in the South and East Asia region. Here I find a systematic patterns in the development process where the development of East Asian economies has proceeded in a number of waves, starting from Japan as a leading country and followed by the first tier of new industrialized economies (South Korea, Taiwan, Singapore, Hong Kong), then by the second tier (Thailand, Malaysia, Philippines), and, finally, by the third tier (China and Indochina as well as India in selected areas). The common development patterns in many of the countries has been a gradual shift in their specialization from labor-intensive industries such as textiles and footwear toward higher-technology sectors like electrical machinery and telecommunication equipment.

The newly industrialized economies, in addition to being competitors of the old industrialized countries through their successful development and despite their different initial conditions, policies and efforts, serve as a model for development to the developing countries. There has been a flow of investment, technology and management to these countries in their search for low cost, disciplined and skilled labor, rich natural resources and market access. The textile, shipbuilding, steel, mining, and electronics industries are among those that have migrated from industrialized to newly industrialized and developing countries. The process has generated research suggesting a number of trends in development economics research. The areas of development are several including information and telecommunication technology (ICT), globalization, economic growth, inequality, poverty and their linkages, direct foreign investment (FDI), in and outsourcing, spillover and transfer of technology and management, investment in education, training and research, increased strategic importance of natural resources, increased interregional trade and more.

This chapter is aimed at reviewing recent trends in economic development and development economics research having a great impact on welfare. First, information and telecommunication technology is one area where both old and newly industrialized economies have equally contributed to the industries development. Several countries see this new sector as a major contributor and significant infrastructure and enabler for countries to catch up with the development in the newly industrialized economies. A second area of consideration is the recent wave of globalization with great implications for free flow of labor, capital, goods, processes and services across borders. Third, economic growth is not equality distributed across industrial sectors, regions and the sub-groups of population. There is evidence that growth reduces poverty but it increases income inequality. This section investigates the economic growth, inequality, poverty and their linkages. Fourth, direct foreign investment is analyzed with respect to changes in views about its effects and contributions to economics development. Fifth, in and outsourcing is a new phenomenon in making operation of businesses effective and less costly. Sixth, spillover and transfer of technology and management is a positive outcome of relocation of production, contracting out activities, direct investments and joint ventures. Seventh, development in the Federal Region of Kurdistan in light of the above developments shows

potential and pitfalls in taking full advantages of the above factors in a small open economy with minimum of restrictions and in the presence of many incentives to attract direct foreign investment and production activities.

The rest of the chapter is organized as follows. In Section 2 I provide an introduction to the ICT, investment in ICT and its diffusion, and its effects on economic growth. Section 3 introduces to the globalization and its recent waves. I present a composite measure of globalization and suggest improvements in the index to quantify globalization. I also present results and variations in the impacts of globalization on economic development. The issues of openness, economic growth, inequality, poverty, their relationships and redistribution policies together with recent empirical evidence are discussed in Section 4. Section 5 is on the global and regional development of FDI and the focus is in particular on the South-South perspective on investment and I discuss the success of the Chinese FDI policy and review empirical research. In Section 6 I review measurement and causal relationship among key determinants of outsourcing and their impacts on economic growth. The issues of capability, incentives and technology transfer with emphasis on university-industry relationships, knowledge diffusion and technology transfer, technology valuation in the new era of globalization are discussed in Section 7. The development in the Federal Region of Kurdistan as an illustration of the development in a small open economy subjected to intensive changes is investigated in Chapter 8.The final Section 9 concludes this chapter.

2. INFORMATION AND COMMUNICATIONS TECHNOLOGY

2.1 An Introduction to the ICT

Information and communications technology (ICT) combines all technologies and devices that are used in managing and processing information systems. In contrast to the manufacturing industries that create values directly, ICT, in the form of computers, software, the internet, multimedia, and management of information services, creates value indirectly through provision of related services. Thus, ICT includes data for business use, voice communication, images, multimedia and other types of technologies for development and exchange of information.[2] The continuous increasing processing power of hardware together with the rapid development of software and telecommunications infrastructure have enhanced the ability to store, retrieve, analyze and communicate data and information within and between suppliers, organizations, their partners and the consumers. In general, an increasing use of capital and labor as important elements in the production and growth of an economy lead to decreasing returns to scale. Therefore, even though the factors of production may increase, the growth of an economy over a certain level cannot be expected. However, information and associated technologies may produce increasing returns to scale and become an important factor for sustainable economic growth.

In the literature, ICT is considered as one of the three—and the most recent—major technological breakthroughs (Edquist and Henrekson, 2007). The other two being steam

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[2] For definitions of the ICT sector applied by the USA and OECD see Lee and Heshmati (2007).

power and electricity. ICT includes some of the wider innovations and applications, and its commercialization and transfer to the most remote areas in this world has been more rapid than ever seen previously. In addition to communication between individuals, ICT enhances the communication of value-added information to workers, managers, planners and consumers, and thus reduces uncertainty and time use in conducting many types of communication, research, business and production activities. It is an important technology and production factor which has the potential to contribute to more rapid economic growth and productivity gains in the years to come.

There has been great interest among researchers to investigate how some old and newly industrialized countries were able to take advantage of ICT to accelerate their rates of economic growth and productivity. The focus in these studies has been on examining the contribution of ICT investment on economic growth. In particular, in recent years, ICT is considered not only as a development infrastructure variable but also as an input in the production of goods and services and a factor that affect total factor productivity growth (Shiu and Heshmati, 2006). Studies on the contribution of ICT on economic growth find that the returns on IT investment are positive while the studies also find evidence of underinvestment towards telecommunications infrastructure in many transitional countries. The result suggests that improving investment conditions may ultimately improve the channel between aggregate investment and growth, economy-wide. (See also Zhu, 1996; Madden and Savage, 1998).

2.2 Investment in ICT and its Diffusion

Existing limited evidence suggest that return on IT and non-IT capital inputs differs by the country's level of development. Results from inter-country studies suggest that for the developed countries returns from IT investments to GDP are positive, while returns from non-IT capital investments are lower than their relative shares. The situation is reversed for the developing countries, where returns from non-IT capital investments are quite substantial, but those from IT capital are not significant. Dewan and Kraemer (2000) and Pohjola (2001) in studies of the impacts of IT investment on economic growth show that the relative contribution of IT to GDP growth in developing counties between 1980 and 1995 was less than 2 percent compared to more than 10 percent in the developed countries.

The limited evidence on the role of ICT investment indicates that ICT has been a very dynamic area of investment. The steep decline in ICT prices has encouraged investment in ICT and expansion of production at the same time it has shifted investment opportunities making ICT an important driver of economic growth especially in newly industrialized economies. Thus, ICT as infrastructure and its role as an investment factor are of considerable interest in examining growth performance in many countries. The pace of investment in ICT differs widely by country and their level of development. The lowest levels of the share of investment in ICT are found in low income countries, while the highest is in the high income industrialized nations. Part of the difference is explained by the fact that, generally, products like telephones, e-mail, the Internet, computer hardware and software have distinct features like network effect, critical mass, and path dependency

which affect their diffusion rate. A positive direct network effect means a positive utility gain for consumers when the number of users increases. Since the introduction of e-mail in 1969, the internet traffic has doubled every year.

The diffusion of key ICT services such as the Internet, mobile phones, fixed phones and personal computers are shown in Figures 1.A to 1.D. The graphs show that countries with a high income show a high level of diffusion. The gap between high-income and low-income countries, measured in the share of internet users, increases over time. The gap which is labelled as "digital divide" measures the socioeconomic difference associated with access to computers and the internet between communities. At the micro level, it refers to the gap between individuals, households and business with regard to their opportunities and abilities to access and to use ICT services. The gap is often due to differing literacy, technical skills and in availability of digital content. At the international level digital divide is discussed when the gap between the developed and the developing nations is discussed concerning the access and the use of digital communication technologies. The developed countries are far better equipped than developing countries to take advantage of the internet technology. The rapid rate of internet technology development and diffusion increases the quality-of-life differences between developed and developing countries. Given the productivity, connectivity and other positive effects associated with the ICT, a widening international digital divide has become a serious issue of concern. See Table 1 on diffusion of different telecommunication technologies.

2.3 The Effects of ICT on Economic Growth

Jorgenson (2001) in his research pays much attention to how much IT affects the growth of an economy. The focus is on the role of IT in transformation of our economic system by increasing productivity and provoking economic growth. At the firm level, there are four mechanisms or channels recognized through which IT investment affects the growth of an economy. The first channel is that the IT industry itself grows dramatically, and the industrialized nations where the IT industry occupies a leading technology position may have more than one leading growth sector. For example, in China, with 8% annual growth rate during the last decade, the growth of IT sectors has been faster than the overall economic growth. Accordingly, the expansion of IT sectors affects the growth of the overall economy positively. As the second channel, IT can facilitate the catch-up process by enhancing the diffusion process of non-IT related technologies. According to Antonelli (1990), developing countries can take advantage of the opportunity by overcoming disequilibrium of information. The third relation between IT and economic growth is the market integration effect in which IT affects the integration and efficiency of markets. In the final mechanism, IT improves the management and decision making process of corporations. At the firm level the effects IT include to gain market share, to raise overall productivity, to expand a firm's product range, to customize the services offered, to respond better to client demand and to reduce production and management inefficiency.

A successful implementation of ICT investment might have enabled economies to overcome barriers that have held them back in their participation in the rapidly developing

global trade. The recent decades of rapid spread of the internet has opened up the possibility of accessing commercial and political information that was previously not possible. In particular, ICT has reduced the transaction costs of participating in sub-contracting and it is facilitating the operations of suppliers of IT services based in developing countries with low cost skilled labor. Thus, IT increases the total production through decreasing cost of information and reduced transaction costs. Due to insufficient infrastructure and capability, the cost of information is higher and the market efficiency is lower in the less developing countries. Different complementary policies for IT investment must be introduced to enhance the conditions for development. Provision of necessary infrastructure, prohibition of monopoly power, elimination of entry barriers, efficient laws, regulations and education system correspond to complementary policies to ICT investments. Edquist and Henrekson (2007) examined productivity growth following the major technological breakthroughs. In distinguishing between sectors producing and sectors using the new technology, they found the highest productivity growth rates and declining prices in the ICT-producing industries.

The US economy experienced an extraordinary performance in the late 1990s which is referred to as the 'new economy'. It was labeled as a new economy because it was unlike the mainstream economists' theoretical models while inflation and unemployment were low at the same time, sustained growth and a booming stock market prevailed. Several factors are used to explain the emergence of the new economy phenomenon. Firstly, increased efficiency in firms' management by ICT adoption affected productivity growth at the firm level and connected productivity growth in each industry through spillover effects which led to increased aggregate productivity in the economy. Secondly, productivity gains led to a low inflation rate, a low interest rate and an increased investment rate. Thus, productivity growth and sustained economic growth are linked in an interconnected cycle of investment, productivity improvement and economic growth. Thirdly, the wide-ranging and rapid diffusion of IT and internet use made it possible for the new economy to evolve. The spread of IT and the internet due to price reductions affected the network effect and it induced sustained economic growth by utilizing increasing returns to scale in the economy.

In disagreement with the widespread view about productivity gain by ICT adoption, Robert Solow commented on the IT productivity paradox, which means that the productivity of the work force due to office automation has not risen as IT has extended through industrial countries. The causes of the productivity paradox are found to be the following. Firstly, a portion of the benefit from a high rate of investment in ICT in service sector like financial sector, insurance, business and health services is not included in productivity statistics. Secondly, there may be a lag in productivity improvements, because computers did not show their productivity until things like software and the internet became prevalent. It takes a long time for a new technology to be accommodated by companies. Thirdly, previously much of the research with the purpose of identifying the effect of ICT at the company level was based on small samples. Thus, research in the early stage will not properly capture the contribution of ICT. In the search for explanations of the productivity paradox, Oliner and Sichel (2000) deny the significance of the IT-sector by arguing that IT accounted for no more than two percent of the capital stock in most countries.

2.4 Concluding Summary of the Impact of ICT on the Economy

The OECD (2004) report on the impact of ICT provides two important messages. First, ICT continues to have strong impacts on performance. Productivity growth in the US, the main example of ICT-led growth and productivity improvements, has continued to be strong. The release of increasingly powerful microprocessors is projected to continue and it will encourage ICT investment and support further productivity growth. Second, the diffusion and impacts of ICT differ markedly across OECD economies. It is expected that the largest economic benefits of ICT will be observed in countries with high levels of ICT diffusion. However, having the equipment or network is not sufficient to derive the full economic benefits. Other factors, such as the regulatory environment, skills, ability to change organizational set-ups as well as the strength of innovations in ICT applications, affect the ability of firms to seize the benefits of ICT technology. Consequently, countries with equal ICT diffusion will have heterogeneous impacts on their economic growth and performance.

IT has a positive although small contribution to economic growth, but its impact is positively related to the level of development. Studies of the relationships between IT and economic performance suggest that the impacts of IT diffusion can differ even among developed countries with similar level of development. The limited existing empirical evidence shows that developing counties which did not adopt complementary policies have gained less effect from IT investment. In general, for the developing countries, it is rather difficult to catch any systematic evidence about such relationships. While the evidence suggests that IT contributes to the growth of developed countries, this relationship is rather weak in the case of developing countries. In order to link IT investment to economic growth and to establish causal relationship between the two a longer time period is required. In particular, for IT to be effective, it should be spread such that it reaches the critical point. For developing countries to obtain high returns from IT investment, active complementary policies must be employed. These polices are to fulfil conditions for economic development including building up the basic infrastructure, competitive telecommunications market, market opening, introduction of effective laws, regulations, law enforcement and the educational system.

3. GLOBALIZATION

3.1 An Introduction to Globalization

Globalization is defined by economists as the free movement of goods, services, labour and capital across borders. However, the free movement is often restricted for various political and economic reasons both over time and across national borders. Globalization is a process and it is viewed as a means of integration of markets, economies and technologies in a way that is enabling individuals and corporations to reach around the world faster, deeper and more economically than ever before. Despite its advantages, some groups view globalization as an ideological project of economic liberalization which subjects states and individuals to more intense market forces. As a result, the anti-globalization movement has been growing both in size and in their opposition. Globalization causes rapid changes in

trade relations, financial flows and labor mobility. It has brought the developed economies closer together. However, there is a large heterogeneity in the degree of the process of globalization over time and across countries and regions. This heterogeneity cause or be a base for disparity in development among countries. See Heshmati (2006b).

The process of globalization during the period 1870-1913 is classified as the first wave of globalization: the years 1913-50 is called the de-globalization period; the period 1950-73 is called the golden age of globalization; and the period after 1973 is called the second wave of globalization (see O'Rourke and Williamson, 2000; O'Rourke, 2001; Maddison, 2001; and Williamson, 2002). In recent years, research on the link between globalization and world inequality and poverty has been intensive (Cornia and Court, 2001; Lindert and Williamson, 2001; Talbot, 2002; Babones, 2002; Beer and Boswell, 2002; Bornschier, 2002; Bergesen and Bata, 2002; and Heshmati, 2006b). Globalization has other dimensions and can be looked at from different perspectives. For instance, James (2002) analyses the causes of globalization in terms of transaction costs. Bhagwati (2000) focuses on trade and FDI and suggests appropriate governance to manage globalization. Milanovic (2002) finds that the effect of openness on income distribution depends on a country's initial income level. Seshanna and Decornez (2003) focus on the inequality and polarization of the world economy. Mahler (2001) finds little evidence of a systematic relationship between the main modes of economic globalization and the distribution of household income in developed countries.

3.2 The Recent Wave of Globalization

The literature on various aspects of the recent wave of globalization is developing. Several special issues of journals have been published. Editorial introductions to these special issues are provided by Woods (1998), Manning (1999), Bata and Bergesen (2002a, 2002b) and Bevan and Fosu (2003). In addition, a number of books on the issue have been published. For instance, Nissanke and Thorbecke (2006) present a collection of studies evaluating the impact of globalization on the world's poor. Dollar and Collier (2001) and the World Bank (2002) explore the relationships between globalization, growth and poverty; James (2002) analyses technology, globalization and poverty; Aghion and Williamson (1998) examine the relationships among globalization, growth and inequality; and Khan and Riskin (2001) study the development in China and focus on the effects of history and policies. Tausch and Herrmann (2002) analyse globalization and European integration. Agénor (2003) examines the extent to which globalization affects the poor in developing countries. Collier and Dollar (2001) estimate the decline in poverty in developing countries. Collier and Dollar (2002) find that the level of poverty and the quality of policies do matter. Yusuf (2003) lists a number of factors that are relevant as a source of growth to both poor and rich countries. Mussa (2003) gives an overview of the challenges faced by the international community because of globalization. Heshmati and Tausch (2006) discuss the EU's Lisbon development strategy, globalization and the structures of global inequality.

Despite the great importance placed on the globalization process, its sources and consequences still remain poorly understood. Thus the construction of an index of globalization is an important tool to enable quantification of its sources and impacts. Kearney (2002, 2003) computed a simple composite globalization index. The index is composed of economic, personal contact, technology and political components. Using a smaller set of countries, Lockwood (2004) finds the ranking of countries to be sensitive to the way the indicators of an index are measured, normalized and weighted. There are two alternative approaches to the Kearney index for computing an index of globalization; using principal component analysis (Heshmati, 2006b) or factor analysis (Andersen and Herbertsson, 2003). Agénor (2003) used trade and financial openness to compute a simple economic globalization index. Recently Lockwood and Redoano (2005) presented an index of globalization that measures the economic, social and political dimensions. Heshmati (2006b) investigate the usefulness of the Kearney database in the development of a multidimensional index of globalization. The index has a number of features. First, it is comparable to the one introduced by Kearney. Second, an alternative but less restrictive and decomposable index is obtained using principal component analysis. Third, countries are compared by their integration in the world economy. Fourth, the indices are used to study the development over time. Finally, Heshmati provides guidelines for the creation of a globalization database and the computation of a modified index that incorporates more relevant determinant factors.

3.3 A Composite Index of Globalization

Kearney (2002, 2003) is the first to attempt to construct a database and to compute a composite globalization index. The index is a simple combination of several forces driving the worldwide integration of ideas, people, technology and economies. It is composed of four major components: economic integration, personal contact, internet technology, and political engagement, each being generated from a number of determinants. The data contains information from 62 countries—each observed during the years, 1995-2000. The total number of variables is 13. Heshmati (2006b) used the same data to compute the following composite indices of globalization:

$$(1) \qquad GINDEX_{it} = \sum_{j=1}^{J} \omega_j \left(\sum_{m=1}^{M} \omega_m \left(\frac{X_{jmit} - X_{jmt}^{\min}}{X_{jmt}^{\max} - X_{jmt}^{\min}} \right) \right)$$

where i and t indicate country and time periods; m and j are within and between major component variables; ω_m are the weights attached to each contributing X-variable within a component; ω_j are weights attached to each of the four component; and min and max are minimum and maximum values of respective variables across countries in a given year. The index quantifies economic integration by combining data on trade, foreign direct investment, portfolio capital flows, and income payments and receipts. It gauges technological connection by accounting for Internet users, Internet hosts, and number of secure servers. The index assesses political engagement by using the number of

international organizations and UN Security Council missions in which each country participates and the number of foreign embassies that each country hosts. Finally, personal contact is computed by looking at international travel and tourism, international telephone traffic, and across-borders money transfers.

The Kearney index is a non-parametric index. In calculation of the index, the component's weights were chosen on an ad hoc basis. In Heshmati (2006b) this index is considered as a benchmark index where each of the 13 determinants of the index given equal weights. In an alternative case, a number of variables are given double weights. In the parametric approach principal component (PC) is used for examining relationships among the variables. The two globalization indices that were computed, Kearney and PC Analysis, indicate which countries have become most globalised, and they quantify the state of inequality in globalization among countries. They show how globalization has developed for different countries and regions over time. A breakdown of the index into four major components provides possibilities to identify sources of globalization. This information can be associated with economic policy measures to bring about desirable changes in relations. The indices can also be used to study the causal relationship between different dimensions of globalization, inequality, poverty, growth, openness and wages.

There is a growing literature on the link between globalization and a number of indicators such as income inequality, poverty and growth. However, with a few exceptions like Mahler (2001), Agénor (2003) and Heshmati (2006a) who looked at the relationship between inequality, poverty and globalization, the lack of a properly defined globalization index has not allowed statistical estimation and testing of the relationship. The globalization index is so far defined as the unweighted and weighted Kearney-based indices and the PC index. These indices serve as a major first step forward to measure a composite index of globalization. There exist similar indices introduced by Andersen and Herbertsson (2003), Dreher (2005) and Lockwood and Redoano (2005). Andersen and Herbertsson use factor analysis to measure a globalization index based on trade for OECD countries. The index is based on nine indicators related to exchange, FDI, trade and capital flows. The Dreher and the Lockwood and Redoano indices cover economic, social and political integration. Dreher's results suggest that globalization promotes growth. Lockwood and Redoano obtained results that suggest the ranking of the countries is sensitive to the way the indicators are measured, normalized, and weighted. The composite index in Heshmati (2006a) is based on a large number of indicators and it conducted sensitivity analysis.

3.4 Improvements in the Measurement of Globalization

Despite progress made in construction of a simple but composite globalization index, several essential improvements are still necessary and have been suggested by Heshmati (2006a). It is desired that the index takes an axiomatic approach that sets out its desirable properties. Other improvements should involve identification of the key dimensions of globalization. In its current form it is just a partial index, but a better index should fully quantify globalization. In addition to the four components listed above it should incorporate several other relevant components. These additional components could include some

measure of cost-benefit analysis of integration, separation of micro and macro aspects of globalization effects, its impacts on standards of living, environmental, wage inequality, skill biased technological change, foreign trade volume and its direction, democracy and conflict, financial markets, access to information and flows of information, the direction of movement of skilled labor, female labor participation, issues of child labour, business concentration, power of multinational corporations, and finally shift in power and cultural uniformity.

Investment in technology along with education, management and planning capacity are strong determinants of capability and participation in the globalization process. In the Kearney's index there is a complete reliance on Internet technology. It does not reflect technology in a broad meaning. Technology is an important component and a complement to the economic integration. Non-internet technology factors such as the role of inward foreign investment, fees on foreign-owned patents, numbers of engineers and scientists, investment in R&D, innovations, patents registered, technological capability and spillover effects should be accounted for in the measurement of the technology component. Among other relevant factors are the capital intensity per worker, population growth and skill requirements. The later makes the efficiency of the educational system very important to development. A pooling of the data and application of regression analysis require grouping countries by globalization levels. Industrialized countries dominate the existing sample. The over-weighting of the industrialized countries may result in biased inferences about development of globalization. One should perform various sensitivity analyses of the composite index. These are important issues in the understanding of how globalization functions and also serves as a guide to policy formulation and evaluation.

The identification of major determinants of globalization and how these affect the ranking of countries are key issues forming the basis on which policy options can be provided. Since rich countries benefit most from the globalization, developing countries need advantageous and non-protectionist policies to be able to effectively compete in the international markets. Analysis will help in identifying ways for a fair treatment of products, services and people that enables poor countries to benefit from globalization to a greater extent than they do currently. To reduce the negative effects on inequality and the poor from increased openness and globalization, these ways need to be accompanied by effective redistributive policies and an improvement in social protection in developing countries. The World Bank and the UN should create a comprehensive database. It could serve as a source for researchers conducting empirical research on globalization and its relation with other macro variables. The composite globalization index based on such database would differ from the one above by incorporating more components like financial markets, institutions, environment, democracy, conflict, labor market, public policy and cultural differences and modeled more flexibly.

3.5 Variations in the Impacts of Globalization

Variations in the globalization indices and their components presented in Heshmati (2006a) can be reported in the form of differences among counties and changes over time (see

Figure 2). The information is used in analysis of country heterogeneity in globalization and its development over time. The results based on an index with same weight given to each indicator showed that Iran, Taiwan, Peru, Ukraine, Colombia and Uganda are ranked as the least globalized countries, compared with Ireland, Singapore, Switzerland, Sweden and Canada, ranked as the most globalized countries. The low rank is due to political and personal factors with limited possibilities for the country to affect, while the high ranked countries share similar patterns in the distributions of the various components. Several exceptions are found where some countries enjoy a high or low rank in a certain factor which affects their position such as low political factor in the case of Singapore and Taiwan and a high political factor in the case of Russia and France. The rank of countries by degree of globalization and their transition in position over time differ somewhat depending on the method of measurement or the weighting system applied.

The mean globalization index by regions show that the South Asian region as the least globalized region. The position is very much determined by the low level of the technology factor. The regions of East Europe, Middle East and North Africa, and Latin America, are ranked as at a medium level of globalization, but they differ by individual index components. For instance, Latin America is advantageous in economic integration, while the Middle East, North Africa and sub-Saharan Africa enjoy better personal contacts. The East Asian region shows relatively higher technology diffusion. The East European region is showing progress in all four components, but the countries have failed to benefits from the relocation of West European plants or from increased production that could be a result of their low wages despite their relatively highly educated labor force. As expected, the West European and North American regions take the positions of the highest globalized economic and geographic regions. The technology and political components are higher for North America, while Western Europe enjoys a higher economic integration and personal contacts. The Southeast Asian countries differ by the degree of globalization. The index for Singapore is four times that of Thailand. A similar large dispersion is found among countries in the Western European region, where Ireland's score is 10 times higher than that of Greece.

Ideally, the mean overall index and its components for each year should be weighted by the countries' share of aggregate GDP or population of the world to provide a more accurate picture of the temporal changes in the globalization process. Despite the weighting limitation, the study provides a partial picture of the development and distribution of the globalization process. In terms of total GDP produced, size of population and total trade, the included countries provide a satisfactory coverage of globalization. Major economies and highly populated countries are included in the data. The time pattern of the index is largely influenced by economic integration. The economic integration component has increased during 1995 to 1997 but it declined in 1998 and remained constant until 2000. The economic integration consists of variables that are largely defined by trade and capital flows. The decline is a consequence of the East Asian financial crisis of 1997/98 and crisis in the emerging Russian and Brazilian markets in 1998. These crises resulted in major decline in the capital flows to the emerging markets and they caused high volatility in the East Asian financial markets.

3.6 Concluding Summary of Globalization and its Development and Impacts

There are a few studies that attempt to quantify the level and development of the globalization with the purpose to rank countries. The indices are in general composed of four main components: economic integration, personal contact, internet technology diffusion, and political engagements, each developing differently over time. Some of the indices are nonparametric while others parametric. In the former, weights are assigned on an ad hoc basis to each indicator, while in the latter they are estimated. The results in Heshmati (2006b) show that internal and external conflicts seem to effectively reduce the globalization prospects of the developing countries. The low rank of countries is often associated with political and technology factors that several developing countries are unable to address. The high-ranked countries share similar patterns in various index components distribution. The mean value of globalization index by region shows that economic and technology factors play an important role in the ranking of the geographic and economic regions of the world.

Although the current version of the index quantifies the level of globalization relatively well, it has certain limitations and it should be considered as a partial measure. Heshmati addresses a number of extensions to overcome the shortcomings. These concerns are the use of an axiomatic approach to set out the desirable properties of the index, identification and incorporation of more relevant dimensions or components and the use of alternative estimation methods to avoid an add hoc choice of components weights. A decomposition of the total variation in globalization into between and within country components is important. For data limitation reasons, the existing studies have mainly focused on only the between country variation. The within-country factors might explain much of the variance and, in particular, it can provide useful information about the distributional shifts within different population groups, sectors and regions. Globalization is considered a possible source and deriving force of inequality differences across countries and over time. Identification and quantification of its effects will benefit the allocation of resources and redistribution policies. Thus, research on the measurement of globalization gives guidelines on how empirically to link globalization to inequality, poverty and economic growth.

4. THE LINK BETWEEN GROWTH, INEQUALITY AND POVERTY

4.1 Introduction to the Inequality and Poverty Reduction Impacts of Growth

The world economy is growing constantly but the growth pattern and its distribution differs over time and among countries and regions. This growth is due to technological change, increased efficiency, productivity and capacity in the use of resource and creation of wealth. Economic growth can also be negative as a result of mismanagement, economic downturn and crisis. There is a comprehensive literature investigating the relationship between openness, growth, inequality and poverty (Dollar and Kraay, 2001a; Deininger and Squire, 1998; Goudie and Ladd, 1999; van der Hoeven and Shorrocks, 2003). In general they find a positive relationship between openness and growth but the impacts of growth on the poor can be different. Therefore, in recent years the research and debate in the area has

focused on the extent to which the poor benefit from economic growth (Ravallion, 1998 and 2001; Ravallion and Chen, 2003; Ravallion and Datt, 2000; Quah, 2001). Empirical results suggest that the outcomes of policy measures are heterogeneous in their impacts and effective redistribution policies are needed to make economic growth pro-poor. There are disagreements about the impacts of growth. One extreme of the debate argues that the potential benefits of economic growth to the poor are undermined or offset by the inadequate redistributive policies and by increases in inequality that accompany economic growth. The second extreme argues that despite increased inequality, growth raise incomes of everyone in the society inclusive the poor which reduce the incidence of poverty.

A significant portion of the previous work in the growth area has used econometric methods to test the hypothesis of income per capita convergence across countries. Convergence can be absolute or conditional (Barro and Sala-i-Martin, 1995; Quah, 1996c; Barro, 1997; Dowrick and DeLong, 2003; and Jones, 2002). When the absolute convergence holds a negative relationship between GDP levels and growth rates is observed, implying that the poorer economies are growing faster than the richer countries. Conditional convergence refers to the convergence after differences in the steady state across countries are controlled. Here in addition to the GDP (initial income) level one control for other determinants of growth including population growth, education and investment (Mankiew et al., 1992). However, there are still disagreements about the concepts, modeling and estimation of growth and convergence models. The proponents of conditional convergence (Mankiew et al., 1992; Barro, 1997) find evidence of convergence at the annual 2-5 percent rates. To overcome the problems of losing the year-to-year growth rate variations, Islam (1995) uses a dynamic panel data approach and different estimators for studying growth convergence producing different results. Nerlove (2000) also found that the conditional convergence rate sensitive to the choice of estimation techniques. Lee et al. (1997) in their examination of the beta and sigma convergence observed substantial biases in the rate of convergence due to the ignorance of growth heterogeneity.

Quah (1996a) sees the empirical finding of convergence in the growth literature a contrary to the evidence of global divergence in the inequality literature. In Solimano's (2001) view the strong assumptions of equality of determinant of convergence whose differences are the core of differential growth performance across countries limits the usefulness of conditional convergence. The heterogeneous development has given rise to uneven and complex regional convergence and divergence in GDP per capita and growth rates increases the world inequality driven by between country inequalities. The contribution from the between country growth have more impacts on the world distribution of income inequality than the within country component. This is also confirmed by Bourguignon and Morrisson (2002) who find evidence of a convergence process among European countries but also divergence among regions and an increasing concentration of world poverty in some regions. The empirical findings indicate presence of convergence at least among countries with more homogenous development or sharing same regional location, but also significant divergence in income inequality. For instance, there is evidence of strong convergence among more homogenous and integrated European countries and a weak convergence among Indian states and divergence among Chinese regions.

4.2 Openness, Growth and Inequality Relationships and Redistribution Policies

A number of cross-country studies investigate the relationship between openness and growth (see e.g. Edwards 1998; Sachs and Werner 1995; Rodriguez and Rodrik 1999; and Dollar and Kraay 2001a and 2001b). In general they find a positive correlation between openness and growth but the effect declines over time and it is less beneficial to the poor countries. On the other hand the results do not indicate the presence of systematic relationship between changes in trade and changes in inequality. Trade does not redistribute income among different income groups. Fast growth reduces poverty, but countries and regions who are not participating in the integration are falling farther behind reducing their prospects of growing out of poverty. Researchers also face methodological difficulties in the measurement and in establishing the causal relationship from openness and integration to growth, inequality and poverty. A number of other studies analyse the relationship between inequality and growth (Person and Tabellini, 1994; Alesia and Rodirk, 1994; Ravallion, 1995; and Peroti, 1996). A negative relationship between initial inequality in distribution of income and growth is found.

Sylwester (2000) investigate how the change in government policies can lower the negative impact of income inequality on economics growth. In particular, he explores how income inequality affects spending on public education and how education affects growth. Results show that current education expenditures have a negative impact upon contemporaneous growth, but previous expenditures have a positive impact on growth. The negative impact of inequality on growth is found to be only a short-run cost and it is offset by the long-run positive effects of education. One major shortcoming of the literature described above is that the causal relationship between these variables has often been neglected. Application of co-integration test and establishment of linkage and direction of causality among the key variables will determine whether these relations must be estimated using single equation, recursive or as a system of equations. Unavailability of time series data limits application of this approach. In recent studies, Addison and Heshmati (2004) and Gholami et al. (2006) tested for causality between FDI, GDP growth, openness and ICT. Empirical results based on countries with different development levels suggests that ICT infrastructure and ICT investment increases inflow of FDI to developing countries with implications for their economic growth.

The interaction between growth and inequality is examined by Deininger and Squire (1998) where they investigate how those two factors in turn affect efforts to reduce poverty in the course of economic development. The robustness of the inequality-growth relationship is tested by estimation of growth as function of inequality conditioning on a number of variables like initial GDP, investment, black market premium, education and asset represented by land. The Kuznets hypothesis is tested which postulates an inverted-U relationship between income and inequality according to which the degree of inequality would increase first and than decrease with level of economic growth. Three main results emerge from the study by Deininger and Squire. First, there is a strong negative relationship between initial inequality in assets distribution and long-term growth. Second, inequality reduces income growth for the poor but not for the rich. Third, the available data

provide little support for the Kuznets hypothesis. The heterogeneous relationship between income inequality and economic development is investigated by Savvides and Stegnos (2000). The empirical results based on threshold regression provide weak evidence on the existence of negative inequality-development relationship, but the relationship is described by a two-regime split of the sample based on per-capita income measure of development.

An establishment of the link between economic growth, inequality and poverty is not the ultimate goal, but the redistribution that it follows. In this respect Ravallion (2001) prefers the investigations based on micro data to identify effective growth oriented policies. Outcomes of policy measure are heterogeneous in their impacts on different income groups. Depending on the initial position of the poor and diversity of impacts the poor might gain more from redistribution, but also suffer more from economic contraction compared to the rich. In regards with heterogeneity in impacts in an earlier study Ravallion (1998) showed that aggregation can bias conventional tests of negative relationship between inequality and growth. Bigsten and Levin (2000) in their review of the literature did not find any systematic patterns of changes in income distribution during recent decades or any links from fast growth to increasing inequality. However, recent evidence tended to confirm the negative impact of inequality on growth. In two recent collections of essays (van der Hoeven and Shorrocks, 2003; Shorrocks and van der Hoeven, 2004) aggregate growth is seen as both necessary and sufficient for reducing poverty, but the concern is that benefits of growth is not evenly distributed at the national level. Thus in the analysis the consequences of growth for poverty, the level and distributional impacts of growth needs to be taken into account. There is need for diverse strategies, where initial conditions, institutions, specific country structures, and time horizons all should play role in the creation of national solutions to the problem of poverty reduction.

4.3 Other Factors Contributing to Inequality

Several studies focus on the impact of globalization, economic openness, import competition from low-wage countries, and technical change biased to skilled labor on wage inequality in industrialized countries. The results indicate a widening of wage differentials in favor of skilled labor and high-income earners in USA and UK during recent two decades. This suggests a positive association between openness and wage inequality in industrialized economies. However, wage inequality patterns can differ among industrialized countries suggesting that policy matter. With regards to the above wage explanations to inequality Atkinson (1999) shows that the world is working in a more complex ways than this simple explanation of inequality. He refers to changes in social norms away from redistributive pay norm to one where market forces dominate the wage settings. Progressive income taxation and social transfers can offset rising income inequality arisen from the market place wage settings and unemployment (Atkinson 2000). The critics of globalization point to the fact that growth may have an anti-poor effect, emphasizing the role of policy and institutions to promote pro-poor distribution of growth. It has increased less in Europe than in USA and UK for the same period (Linder and Williamson, 2001). Aghion (2002) argues that Schumpeterian Growth Theory, in which

growth is driven by innovations, can provide explanations to the observed increases in between educational groups wage inequality.

Several other factors, than those discussed above, affect the inequality both at the national and global levels. Acemoglu and Ventura (2002) offer an alternative framework to the new classical growth model for analyzing the world income distribution. They show that international trade based on specialization leads to a stable world income distribution. The dispersion of the world income distribution is determined by the forces that shape the degree of openness to international trade and the extent of production specialization. Calderon and Chong (2001) show that the intensity of capital controls, the exchange rate, the type of exports, and the volume of trade affect the long-run distribution of income. The result shows a link between trade and wage inequality. The export of primary goods from developing countries increases their inequality, while manufacturing exports from developed countries decreases their inequality. Al-Marhubi (1997) finds that developing countries with greater inequality have higher mean inflation. Inflation is found to be lower in countries that are more open to trade and stable. Microdata based studies show evidence of presence of permanent and transitory wage inequality. They find a positive relationship between initial earnings and subsequent earnings growth indicating increasing divergence in earnings over the working career. Education, gender, marital status and race are the main factors contributing to earnings inequality.

4.4 Recent Empirical Evidence

In a recent study Heshmati (2006a) investigates trends in inequality and presence of relationship between growth and inequality and also test the Kuznets inverted-U hypothesis. Modified versions of the two frequently used linear and reciprocal specifications of the inequality growth relationship are specified and estimated:

$$
(2) \quad GINI_{it} = \alpha_0 + \alpha_1 INC_{it} + \alpha_2 (1/INC_{it}) + \sum_j \alpha_j X_{jit} + \sum_m \alpha_m Z_{mit} + \lambda_t + \mu_r + \varepsilon_{it}
$$

$$
(3) \quad GINI_{it} = \beta_0 + \beta_1 \ln INC_{it} + \beta_2 (\ln INC_{it})^2 + \sum_j \beta_j \ln X_{jit} + \sum_m \beta_m Z_{mit} + \lambda_t + \mu_r + \varepsilon_{it}
$$

where *GINI* is the average income inequality represented by Gini coefficient. The specification here is conditional, where *INC* is the real per capita GDP, X_{jit} is a vector of j other determinant variables like education, openness and population for country i in period t, Z is m vector of data characteristics, and λ_t and μ_r are unobservable time-specific and regional-specific effects. The conditional versus unconditional versions of the model can jointly or individually be tested, $H_0 : \alpha_j = 0$ and $H_0 : \beta_j = 0$, using F-test based on residual sum of squares.

The data used in the empirical part are obtained from several sources. One main source is the WIDER's World Income Inequality Database (WIID) which contains information on

income inequality, income shares, and a number of variables indicating the source of data for 146 industrialized, developing, and transition countries observed mainly from 1950 until 1998. The Gini coefficient as in an inequality measure is measured in percentage points. Several alternative models based on the equations above are estimated assuming a fixed effects model. The estimated results shows that the relative explanatory power of the macro variables compared to the regional and time heterogeneity effects is small. Depending on the way the income variable is given (non-logarithmic, logarithmic or reciprocal) six models are estimated. The test results suggest that models incorporating macro variables, data characteristic variables, and controlling for time and regional effects are the preferred model specifications. The null hypothesis of a simple linear specification versus Kuznets (added square of income or alternatively reciprocal of income) is obtained by testing the hypothesis $H_0 : \alpha_2 = \beta_2 = 0$.

Conditional empirical results provide evidences on the existence of negative and significant inequality-development relationship. The effect is stronger when development is defined as inverse of real GDP per capita or transformed to logarithms. The Kuznets hypothesis represents a global U-shape relationship. All six models produce uniform indications. The weakness is however, the few brief times with frequent interruptions each country is observed. Several developing countries are observed during only one single period. Wan (2002) estimates unconditional inequality growth relationship using transitional countries data. The Kuznets hypothesis is rejected by the data, but a first half U-pattern is found to be adequate for describing the growth-inequality relationship among the transition countries.

4.5 Concluding Summary to the Growth-Inequality Relationships

There exists a comprehensive body of literature investigating the relationship between openness, growth, inequality and poverty. In general there exists a positive relationship between openness and growth but the effect declines over time and is different in its impact on distribution of income. One major shortcoming of the literature is that the simultaneous and direction of causal relationship between these key variables has empirically been neglected. The empirical findings indicate presence of convergence in per capita income but divergence in income inequality. There is evidence of strong convergence among more homogenous and integrated advanced countries but also divergence among less developed countries or geographic regions. The between country contribution is much higher than within country contribution to the world inequality. Different regions have differently managed to couple growth and inequality.

The existing empirical results on the relationship between growth, inequality and poverty, show that outcomes of policy measures are heterogeneous. Depending on the initial position of the poor and diversity of impacts, the poor might gain more from growth and redistribution, but may also suffer more from economic contraction. Results based on micro data indicate that asset inequality affects negatively consumption growth and the effect usually vanishes in the aggregate growth models. In general it is rather difficult to measure the effects of inequality and growth on the efforts to reduce poverty in the course of economic development. In sum, economic growth benefits the poor but at the absence of

effective redistribution policies it might initially deteriorate the income distribution. Initial conditions, institutions, specific country and demographic structures, and time horizons each play a significant role in targeting policies to make economic growth pro-poor. Globalization, openness and technical change have been biased to skilled labor in industrialized countries widening their wage differentials. Regression results based on the WIID database suggest that income inequality is declining over time. There is significant regional heterogeneity in the levels and development over time. The Kuznets hypothesis represents a global U-shape relationship between inequality and growth. A possible solution to the Kuznets hypothesis at the country level would be to aggregate the data to the world level by using population shares as weights. However, entry and exit of countries with large population or GDP affects stability of the inequality and development series and regression results.

5. FOREIGN DIRECT INVESTMENT

5.1 Introduction to FDI

Foreign direct investment (FDI) plays an increasingly important role to the developing countries in their efforts to achieve a higher level of economic development. In addition to foreign exchange and investment capital, FDI supplies the developing countries with advanced management, skills and technology. Combined with abundant low-cost labor, FDI contributes to competitiveness of multinational corporations (MNC) and their local subcontractors. In 2000 developing countries as a group received US$266.8 billion in FDI inflows, while the outflow amount to $143.8 billion. The corresponding numbers for 2005 were $334.3 billion and $117.5 billion. The share of developing countries in FDI inflows has also increased from 18.9% in 2000 to 36.5% in 2005, and the corresponding shares of outflow have increased from 11.6% to 15.1% (UNCTAD 2006). The scale and character of FDI flows to developing countries have been affected by new inventions and adoption of new technologies. The revolution in ICT is facilitating a global shift in the service industries and expanded in- and outsourcing activities, in which MNC are increasingly relocating service production activities to low-cost developing countries. This follows the earlier shift in manufacturing production and global political change that also affected FDI flow patterns. The democratization and the opening up of political systems has also been a catalyst for economic reforms that have favored foreign investors (Addison and Heshmati, 2004).

In the World Investment Reports (WIR, 1991-2005), the main forces of flow of FDI between 1991 and 2005 are associated with transnational corporations (TNC). TNCs are seen as engines of growth because of factors including their employment, competitiveness, market structure, competition policy, cross-border mergers and acquisitions (M&A), export competitiveness, internationalization of R&D, development challenge, and linkages and the shift towards services. The new global forces of ICT and democratization must be seen alongside the longstanding and traditional determinants of FDI flows to developing countries. The traditional determinants include natural-resource endowments, geographical characteristics, human capital, infrastructure and public and private institutions. Differences

in these factors have also contributed to a highly skewed distribution of FDI across countries. FDI to the less developed countries (LDC) has been concentrated in natural resource sectors of mining, oil and gas with limited effects on output and employment in the rest of the economy. Economic reform and other policy measures that improve the investment climate and availability of ICT infrastructure and capability have become increasingly important in the location decisions of foreign investors. Thus, any empirical assessment of the determinants of FDI flows must take account of new developments alongside the more traditional determinants. Aside from a supportive policy framework, human capital and its ability and cost influences FDI flows and the associated technology transfer (Saggi, 2002).

From a receivers perspective growth impact of FDI is important. However, there is no clear consensus on the presence of a positive relationship between FDI and economic growth, but there has been a growing view in recent years that FDI is positively correlated with economic growth. This view has been supported by recent developments in growth theory which highlight the importance of improvements in ability, technology, efficiency, and productivity in stimulating economic growth. In this regard, FDI's contribution to growth comes through its role as a channel for transferring advanced technology and management practices by foreign firms from industrialized to developing economies. This knowledge diffusion or spillover leads to improvements in productivity and efficiency in local and subcontracting firms. Thus, FDI provides a better access to technologies for the local economy and it also leads to indirect productivity gains through spillover effects. Empirically, there is sufficient evidence that FDI efficiency spillovers exist. For developed countries, the evidence indicates that the productivity of domestic firms is positively related to the presence of foreign firms (Globerman et al., 2000). For developing countries, the results are also generally positive, although somewhat mixed (Kokko, 1994; Kokko et al., 1996; and Sjoholm, 1999). There is also evidence that economic growth in turn is a crucial determinant of attracting FDI (Cheng and Kwan, 1999; Coughlin and Segev 2000; Fung et al., 2002).

Several studies analyze the causal relationship between FDI and economic growth. Nair-Reichert and Weinhold (2001) find that the relationship between investment and economic growth in developing countries is highly heterogeneous and stronger in more open economies. Kumar and Pradhan (2002) find a positive effect of FDI on economic growth, but the direction of causation is unclear. Chowdhury and Mavrotas (2005) in examining the causal relationship between FDI and economic growth find both uni-directional and bi-directional causality between the two variables. Gholami et al. (2006) examine the relationship between FDI and ICT where the causality test indicates that there is a significant short-run causal relationship between the two variables. However, the results differ according to the country's level of development. In developed countries, existing ICT infrastructure attracts FDI, but in developing countries the direction of causality instead goes from FDI to ICT, which means that ICT capacity must be built up first in order to attract more FDI inflows. The studies described above were at the aggregate country level. Shiu and Heshmati (2006) estimate at the disaggregate level the rate of technical change and total factor productivity (TFP) growth of 30 Chinese provinces. FDI and ICT and other

infrastructure investments are found to be significant factors contributing to the TFP growth and its differences among the provinces.

5.2 Global and Regional Development of FDI Flows[3]

A. Global Development of FDI

In the World Investment Report (WIR) it is stated that FDI in 2005 grew for the second consecutive year and it was a worldwide phenomenon (see WIR 2006, Table 1). Inflows of FDI in 2004 and 2005 rose by 27% and 29%, respectively, to reach $916 billion in 2005, but far below the peak of $1,400 billion in 2000. UK and USA were the largest recipients of inward FDI among developed nations, while China and Hong Kong China, Singapore, Mexico and Brazil were the largest recipients among the developing countries. The EU remained the favorite FDI destination. Global FDI outflows reached $779 billion. It should be noted that, the gap between inflows and outflows is due to differences in the data reporting and collection methods of the member countries. Developed countries mainly the Netherlands, France, UK and US remained the leading sources of FDI outflows. There were also significant outflows from several developing countries led by Hong Kong, China.

The recent boom in cross-border M&A and increasing deals undertaken by collective investment funds especially those involving companies in developed countries, have spurred the increase in FDI. The value of cross-border M&A rose by 88% over 2004 and reached $716 billion. A new feature of the M&A boom is increasing investment by collective investment funds, $135 billion in 2005. Direct investment abroad seems to be influenced by low interest rates and increasing financial integration. Services, particularly finance, telecommunication and real estate, gained from the surge of M&A and FDI flows. Most private TNCs undertake FDI, as do many state-owned enterprises from developing countries by expanding abroad. According to UNCTAD, the universe of TNCs spans some 77,000 parent companies with 770,000 foreign affiliates. It is dominated by the triad of EU, Japan and the US, home to 85 of the world's top 100 TNCs. France, Germany, UK, US and Japan account for 73 of the 100 top firms, while only 5 were from developing countries, namely Hong Kong (China), Malaysia, Singapore, Korea and mainland China. The trend of liberalization in the form of regulatory changes to facilitate FDI continues, but some protectionist tendencies are also emerging. Such negative tendencies are a result of growing security concerns in the US and EU about foreign acquisitions in certain areas. On the other hand, the positive changes involve simplified administrative procedures, enhanced incentives, reduced taxes and greater openness to foreign investors.

B. Regional Development of FDI

Africa faced difficulties in the past in attracting FDI outside natural resource areas. Asiedu (2002) in her study of the determinants of FDI in developing countries found Africa different. In 2005 Africa attracted much higher levels of FDI but these went mainly into

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[3] The source of statistics in this section is WIR (2006) unless stated.

natural resources, especially oil, as well as services, e.g., banking and cross-border M&A. In addition to the EU and US as dominant investors, India, China and Malaysia invested $15 billion in six African oil producing countries. African manufacturing has not been successful in attracting FDI although some countries like South Africa attracted export-oriented production. The fragmented markets, poor infrastructure, lack of skilled labor, quotas, and weak linkages between export sectors and the rest of the economy by building and fostering domestic capabilities in areas of physical infrastructure, production capacity and supportive institutions cause divestments. In recent years, positive developments in regulatory regimes, bilateral agreements related to investment and taxation are observed. However, these improvements are not sufficient to enhance competitive production capacity, and thus, better market access is required to increase the inflow of FDI.

The South, East and South-East Asia are still the main magnet for FDI inflows into developing countries. The FDI inflow reached $165 billion in 2005 which is 18% of the world inflows. India received the highest level ($7 billion), particularly into services. Manufacturing, especially, automotive, electronics, steel and petrochemical industries, attracted most FDI to the region. Chinese FDI outflows increased and seem to rise further over time. West Asia received an unprecedented level of FDI inflows ($34 billion), which soared by 85%. High oil prices, the liberalization of regulatory regime, and the privatization in power, water, transport, banking and telecommunication services caused the increased FDI inflows. West Asia by tradition has been a significant outward direct investor. Instead of bank deposits and portfolio purchases, most of the region's petrodollars, unlike in previous years, went into services in developed and developing countries as a result of stronger economic ties with China and India. Latin America and the Caribbean continued to receive substantial FDI ($104 billion). High economic growth and high commodity prices were contributory factors. However, the development was not similar among the countries. The outflows from Latin America and Caribbean increased by 19% (to $33 billion), mainly acquiring assets in telecommunication and heavy industries.

FDI flows to South-East Europe and the Commonwealth of Independent States (CIS) remained relatively high (at $40 billion). The inflow was mainly concentrated on the Russian Federation, Ukraine and Romania. The outflow from CIS increased, reaching $15 billion. There was an upturn in FDI (37%) to developed countries and it reached $542 billion or 59% of the world total. The UK ($165 billion), France ($116), the US ($99), the Netherlands ($44) and Canada ($34) emerged as the main recipients. FDI into all three sectors of primary, manufacturing and services increased. In sum, the development in the first half of 2006 suggests that FDI should continue to grow further in the short term. This prediction is based on continued economic growth, increased corporate profits, and increase in stock prices, the boosted value of M&A and a continued liberalization policy.

C. South-South perspective on investment

TNCs from developed countries account for the bulk of global FDI and private and state owned firms from developing and transition economies have emerged as significant outward investors, generating considerable South-South investment flows. To some of the

recipient countries the new source of capital represents new competition. Data on cross-border M&A show an increasing share of greenfield and expansion projects invested in business, finance, trade and manufacturing activities as well as in the primary sectors. The geographical composition of FDI from developing countries has shifted from Latin American to Asian countries. The largest stock of outward FDI was in Hong Kong, the British Virgin Islands, the Russian Federation, Singapore and Taiwan. Based on the UNCTAD outward FDI performance index, Hong Kong's index was 10 times larger than expected. Other economies with high values were Bahrain, Malaysia, Panama and Singapore, while Brazil, China, India and Mexico showed the lowest values. It should be noted that, the bulk of South-South FDI is interregional in nature. New global and regional players are emerging, especially firms from Asia.

The majority of TNCs from the South are small, but several large ones with global ambitions have also appeared. There is high concentration in some countries, e.g., South Africa, Mexico and Brazil, Russian Federation, but less concentration among Asian countries. The number of companies from developing and transition economies listed in the Fortune 500 increased from 19 in 1990 to 47 in 2005. The industrial distribution differs by region and is dominated by the primary sector, financial services and infrastructure services. The cluster of automotives, electronics, garment and IT services are most exposed to global competition. In the WIR 2006 types of pull and push factors and other factors that help to explain the drive for internationalization by developing countries TNCs are presented. Firstly, market related factors pushes the corporations out of their home countries and pulls them into host countries. Secondly, rising costs of production in the home country are a particular concern. Thirdly, competitive pressures are pushing them to expand overseas. Fourthly, home and host government policies influence their outward FDI decisions. The first major development factor is the rapid growth of many large developing countries (India and China), while the second factor is behavioral change among the TNCs. UNCTAD in a survey show that the four main motives influence investment decisions by TNCs are their seeking for market, efficiency, resources and asset creation.

Increased competitiveness is one of the prime benefits that developing country TNCs can derive from their outward FDI activities. Undertaking outward FDI is a complex and risky process requiring the upgrading of technology, building bands, learning new management skills, facing cultural, social and institutional differences, organizational and environmental complexities, and linking up with advanced global value chains. The overall economic and non-economic effects of overseas investment depend on the long-term motivation for the investment. Developing host countries may also gain from the rise in South-South FDI in the form of a broad range of capital, technology and management skills. In addition to an increased FDI inflow, it is an additional channel for further South-South economic cooperation. There is a better fit of the technology and business model of developing countries from FDI inflow easing the technology absorption process. In comparison with FDI by developed countries' TNCs, the FDI from developing countries' TNCs has greater employment generation potential by being more oriented towards labor intensive industries. The expansion of outward FDI from developing countries is paralleled by important changes in policies in home countries governing FDI and related matters. Various policy

responses in host countries are adopted to influence the behavior of foreign affiliates and in the design of strategies to attract desired kinds of inward FDI.

D. The Success of the Chinese FDI Policy

One important part of the Chinese economic reform has been to promote FDI inflows. The economic reform and its FDI policy have made China one of the most important destinations for foreign direct investment. The evolution of the Chinese FDI is divided into initial, development and high growth phases. The initial phase involves the period 1979-1985. The Sino-foreign joint ventures investment law of 1979 opened up the market to the worlds corporations. The law provided the legal framework for foreign investors to form equity joint ventures with Chinese partners. A number of related laws and regulations with regard to labor management, taxation, registration and foreign exchange followed. In 1979, Guangdong and Fujian were granted autonomy in dealing with foreign trade and investment and in 1980 four special economic zones (SEZ) were established within the two provinces. The SEZs were established with the objectives of attracting foreign capital and advanced technology, promoting export-led growth, creating employment, generating foreign exchange, serving as policy laboratories and enhancing the link between Hong Kong, Macao and Taiwan with mainland China. In 1984, 14 coastal port cities open to foreign trade and development were announced, with the autonomy to plan the legal framework and regulations for foreign investment (Fu, 2000).

The development phase in China covers the period 1986 to 1991. In 1986, the state promulgated two important laws, namely the "Law on Enterprises Operated Exclusively with Foreign Capital" and the "Provision on Encouraging Foreign Investment." These laws were introduced to lift the existing restrictions on foreign ownership and new incentives were implemented to remove uncertainties for foreign investors. The policies dramatically increased FDI and tax revenues from exports. In December 2001, China became a member of the World Trade Organization (WTO) and committed itself to a wide range of reforms such as enhancing transparency, improving intellectual property protection and reducing tariffs. As a result of improved investors' confidence, from 2002 to 2005 the annual realized FDI inflows grew to US$50-60 billion. China is currently the largest FDI recipient among developing countries by attracting 25-30% of total FDI inflow to developing countries. The MNCs invest principally in the manufacturing sector, where foreign equity capital mainly consists of fixed assets. Foreign capital has played a positive role in China's economic development during the reform period. It has generated more benefits in the form of spillover growth effect by improvement of efficiency and productivity of domestic firms in addition to helping to solve China's capital shortage. Wang (2007) finds that FDI fluctuates more than economic growth. The growing FDI has been accompanied by China's progress in foreign trade and economic growth. The average annual rate of GDP growth in China during 1978-2003 was around 9%.

The number of studies investigating the effects of inward FDI on economic growth in China is increasing. Some are descriptive while others use more advanced methods. Liu and Song (1997) argue that FDI promotes China's economic growth via its influence on the

demand and supply conditions, business strategies and competition. Dayal-Gulati and Husain (2000) attempted to identify possible structural variations over three sub-periods and find that FDI had a much more positive and significant impact on China's economic growth during the period of 1993-97. Zhang (2001) found that the impact of FDI on growth increased with growth in FDI. Liu (2002), by using manufacturing data in the Shenzhen SEZ, finds FDI to have significant spillover effects by raising the level and growth rate of productivity. Shan et al. (1997) in testing the causal link between the inflow FDI and real output growth find a two-way causality suggesting that FDI and growth reinforce each other. While Liu et al. (2002) find bi-directional causality between economic growth, FDI and export, Wang (2007) uses provincial level data and captures regional heterogeneity in FDI inflows and its impacts on economic growth. Heterogeneity is a major source of regional inequality in development and welfare in China. It is desirable that the policy of attracting FDI should focus more attention on promoting technology spillover and inflow of FDI in particular than to less developed regions.

5.3 Empirical Research on FDI Flows

The data used in studies of FDI are at different levels of aggregation. The most frequent used dataset is the World Bank's World Development Indicators (WDI). WDI is a time series of cross sections consisting of a sample of 207 countries observed from 1960 onwards. It is often complemented by other data sets such as Penn World Tables and International Financial Statistics. These datasets are mostly unbalanced and each suffers from missing information on the key variables which reduces the effective sample size used in the empirical studies. The variables used are classified as dependent, independent, and country characteristic variables. The independent variables include those perceived to be determinants of FDI such as: tax incentives, wage subsidy, demand poll, export support, openness, GDP growth, government consumption, wages, inflation, education, returns on savings and investment, ICT investment and infrastructure variables. The country characteristic variables include the degree of industrialization, investment risk, natural resources, political instability, and a number of dummy variables associated with regional location, income groups, the degree of indebtedness and democratization.

In order to identify and to estimate the impacts of determinants of FDI on its flows, following the empirical literature, some measure of FDI is regressed on a number of variables identified as determinants of FDI. The model is written as:

$$(4) \quad FDI_{it} = \alpha_0 + \sum_j \alpha_j X_{jit} + \sum_k \gamma_k Z_{kit} + \sum_g \delta_g M_{gi} + u_{it}$$

where FDI is for example the FDI share of GDP of country i ($i = 1,2,\ldots,N$) in period t ($t = 1,2,\ldots,T$), α, γ and δ are vectors of unknown parameters measuring the impacts of the determinants on FDI flows that are to be estimated, X is vector of exogenous determinants of FDI, Z is a vector of country-characteristic variables, M is a vector of variables that vary by country but are constant over time, and u is the error term. The error term follows a two-way error component structure and it can be broken down into the components: an

unobservable country-specific effect (μ_i), a time-specific effect (λ_t) and a random error term (v_{it}). The model is estimated using panel data econometrics methods.

Empirical results based on estimation of the above model by using a large sample of countries in Addison and Heshmati (2004) is summarized as follows. In sum, the results support many of the findings of previous research in this area. In particular, there is a positive relationship between the flow of FDI and economic growth; openness to trade has a positive impact on FDI flows; and the level of risk affects FDI negatively. For a recipient country being highly in debt is a significant deterrent to FDI. In addition the results indicate the presence of regional and income group heterogeneity in FDI flows, which is to be expected since the motives for FDI vary considerably across regions. Regarding the main hypothesis about recent global developments, they find that both democracy and ICT have significant positive effects on FDI. The results indicate that the international community needs to step up its assistance to the creation of ICT infrastructure and necessary training in poor countries. Poor countries have insufficient public resources to fund ICT and many are unable to attract private funding for ICT. This is because they are viewed as largely unattractive investment possibilities and left in a low-level ICT equilibrium trap. If such assistance is provided, it will help them to attract FDI which, in turn, will lead to further cumulative ICT investment and economic growth.

5.4 A Concluding Summary to the FDI Flows and their Impacts

The global flow of foreign direct investment has increased dramatically in the last two decades. However, the distribution of FDI is highly unequal and countries are involved in a fierce competition to attract foreign investors. FDI is increasingly important to developing countries in their efforts to develop their economies. In addition to increased export revenues and investment capital, it supplies the receiving countries with advanced management and technology. Thus, FDI is considered as a viable development factor for capital scarce but labor abundant developing countries. The scale and character of FDI flows to developing countries have been affected by a number of successive waves in the invention and adoption of new technologies. ICT has facilitated a global shift in the service industries and MNC now increasingly relocate their production activities to developing countries. The longstanding determinants of FDI flows to developing countries are their natural-resource endowments, geographical characteristics and low-cost human capital. Existing investments are often concentrated in natural resource sectors, particularly in minerals, oil and gas and these in general have had limited multiplier effects on output, employment and spillover effects in the rest of the economy.

Currently, there is no clear consensus on the presence of a positive relationship between FDI and economic growth, but there is a growing view that FDI is positively correlated with economic growth. Recent developments in the literature highlight the importance of improvements in labor's ability, technology spillover, efficiency and productivity in stimulating economic growth. The FDI's contribution to economic growth comes through a transfer of advanced technology and management practices by MNCs. This knowledge diffusion leads to improvements in the productivity and efficiency of local firms which

gradually in turn increases the rate of technical progress in host countries. FDI provides better access to technologies for the local economy and it leads to indirect productivity gains through spillover effects. Empirically, there is sufficient evidence on the FDI efficiency spillover effects. The feedback from economic growth is found to be a crucial determinant in attracting FDI.

The WIR predicts global FDI growth. The UK and the USA are the largest recipients of inward FDI among developed nations, while China and Hong Kong, Singapore, Mexico and Brazil are the largest recipients among developing nations. The EU remained the favorite FDI destination and developed countries as a result of shifts in technology remained the leading source of FDI outflows. There were also significant outflows from developing countries. A recent boom in cross-border M&A and increasing investment by collective investment funds has spurred the increase in FDI. Finance, telecommunications and real estate gained most from the surge of M&A and FDI flows. The share of manufacturing declined while the share of FDI into the primary and in particular energy sector increased. The number of TNCs from developing countries is increasing slowly enhancing South-South FDI flows. The trend of liberalization in the form of regulatory changes to facilitate FDI continues, but some protectionist tendencies in developed countries are also emerging as a result of growing security concerns around M&A, Positive changes observed involve simplified procedures, incentives, reduced taxes and greater openness to foreign investors.

At the regional level, Africa faced difficulties in the past in attracting FDI outside natural resource extraction areas. In 2005 Africa attracted much higher levels of FDI but these went mainly into natural resources and services. Positive developments in regulatory regimes, bilateral agreements related to investment and taxation were observed, but a better market access and infrastructure is required. South Asia, East Asia and South-East Asia are still the main magnets for FDI inflows into developing countries. China remained as one of the main recipients of FDI. India received significant FDI, particularly into services. Manufacturing, especially, automotive, electronics, steel and petrochemical industries, attracts most FDI to the region. Chinese FDI outflows increased and seemed to rise further over time. West Asia received an unprecedented level of FDI inflows. High oil prices, the liberalization of the regulatory regime and the privatization of utilities and services caused the increased FDI inflows. Latin America and the Caribbean continued to receive substantial FDI. High economic growth and high commodity prices were the main contributing factors. However, the development was not similar among the countries. FDI flows to South-East Europe remained relatively high.

Private and state owned firms from developing and transition economies have emerged as significant outward investors generating considerable South-South investment flows. Data on cross-border M&A show increasing investment in business, finance, trade and manufacturing activities as well as in the primary sector. Developing host countries gain much from the rise in South-South FDI in the form of capital, technology and management skills, as well as developed South-South economic cooperation. There is a better fit of the technology and business models of developing countries from FDI inflow easing the technology absorption process. FDI from developing countries has greater employment

generation potential by being more oriented towards labor intensive industries. One important aspect of the Chinese economic reform has been to promote both within and between regional FDI flows. The economic reform and FDI policy have made China one of the most important destinations for direct investment. Through a new investment law China provided the legal framework for foreign investors to form equity joint ventures with Chinese partners. A number of related laws and regulations followed. The establishment of special economic zones helped the local government in these zones to draw up and implement established FDI friendly development plans.

6. INSOURCING AND OUTSOURCING

6.1 Introduction to Outsourcing

In recent decades production, research as well as technology outsourcing has expanded rapidly. The empirical evidence very often is based on aggregate country or industry level data and originating from industrial countries. The growing importance of the service sector has induced increasing concern about its performance. Different methods have intensively been used in the evaluation performance of private and public services foremost in provision of health care, banking and education (Balk, 1998; Griliches, 1992; Griliches and Mairesse, 1993; Heshmati, 2003). Despite the comprehensive literature on the issues of growth, productivity, efficiency, competition and outsourcing on each subject separately, very little can be found on their linkages and causal relationships. Heshmati and Pietola (2007) contributes to the literature by empirically investigating such multi-dimensional causal relationships among the above variables, and thus attempts to fill in the gap by investigating the relationship between corporate competitiveness strategy, efficiency, productivity growth, innovation and outsourcing.

Among factors leading to implement outsourcing are contracting out production of goods and services to a firm with competitive advantages in terms of reliability, quality and cost (Perry, 1997), managing reasons (Young and Macneil, 2000), improving strategic focus, achieving numerical functional flexibility, changing the organizational structure, enhancing inter-firm co-operations in outsourcing (Suarez-Villa, 1998), measuring allocated capacity (De Kok, 2000) and increasing flexibility for the freed up human and capital resources (Benson, 1999). Outsourcing is used to describe all the subcontracting relationships between firms (Eggert and Falkingner, 2003; Fixler and Siegel, 1999; Gilley and Rasheed, 2000). Glass and Saggi (2001) investigate the issues of innovation and the wage effects of international outsourcing. They find reductions in the costs of adopting technologies for production in low-wage countries, increases in production taxes in high-wage countries, and increases in production subsidies or subsidies to adopt technologies in low-wage countries as main forces explaining an increasing extent of international outsourcing. The next section aims to overview the recent development of the literature on outsourcing and the causal relationship between outsourcing and its impacts on the performance of firms.

6.2 Review of the Outsourcing Literature and Measurement of Outsourcing

The recent developments in the industrial, communication and technology areas have resulted in major changes in the ways products and services are planned, produced and distributed. As a measure to improve efficiency, firms allocate their resources to activities for which they enjoy comparative advantage, while other activities are increasingly outsourced to domestic or foreign external suppliers. Outsourcing is expected to reduce production cost relative to internal production because outside suppliers benefit from economies of scale, smoother production schedules and centralization of expertise (Chalos, 1995; Roodhooft and Warlop, 1999; Williamson, 1989). However, the choice between internal or external production requires more considerations than pure production cost differences. For instance, according to the transaction cost economics, outsourcing is desirable only when the cost of asset specific investments is lower than the production cost advantage of outsourcing. This is a result of the fact that outsourcing makes previous investments a sunk cost to the firms.

Arnold (2000) in studying the design and management of outsourcing finds the transaction cost and core competencies approach to complement each other. The decision to invest in internal knowledge or to consume external knowledge is affected by a multiple of factors. Gavious and Rabinowitz (2003) in determining optimal knowledge outsourcing policy find that the lower the ability to develop internal knowledge, the more favorable external knowledge becomes. Barthelemy (2003) in analyzing the contracts and the trust in the relationship with IT outsourcing management finds that both factors are keys to the success of outsourcing. Eggert and Falkinger (2003) in examining the distributional effects of international outsourcing find that the interplay of the cost-saving and substitution effects determines the nature of the outsourcing equilibrium and its distributional consequences. Despite the internationalization of outsourcing and its frequent utilization by multinational companies, in an international survey of outsourcing contracts Kakabadse and Kakabadse (2002) find significant differences in behavior between the European and USA companies. The American companies undertake more value added sourcing strategies, while Europeans focus more on gaining economies of scale through outsourcing.

In discussing globalization the focus has been on increased trade in goods and services and mobility of labor and financial assets. Declining prices of international services, knowledge of potential supplier and awareness of legal systems increase the role played by separate and smaller firms connected only by the rules of the international market place (Jones and Kierzkowski, 2000). Grossman and Helpman (2002b) investigated the extent of outsourcing and FDI in an industry in which producers need specialized components that can be produced by external suppliers across national markets. In such situations a consideration of how various cost factors affect the organization of industry production is needed (Grossman and Helpman, 2002a). The trend in outsourcing activities during recent decades has been globally and continuously increasing. These activities enhance competitiveness and efficiency of firms within countries and across borders. Despite the remarkable increase in outsourcing, empirical studies of the subject are still rare. Previous research is mainly theoretical in nature. Feenstra (1998) finds an increasing trend in the integration of the global economy through trade, but also disintegration in production processes. Holmström and Roberts (1998) analyzed the boundaries of firms and how agency issues can affect the boundaries of an organization.

Despite increase number of studies on outsourcing, there is limited literature on the measurement of outsourcing and there is disagreement about how it is defined. Gilley and Rasheed (2000) identified three definition of outsourcing in the management literature. One definition sees outsourcing as the contribution in the physical and human resources by external vendors to the IT infrastructure in the user organization (Loh and Venkatraman, 1992). Another is the products supplied to multinational firms by independent suppliers (Kotabe, 1992). The third is reliance on external sources for value-adding activities (Lei and Hitt, 1995). Gilley and Rasheed conclude that outsourcing is not simply a purchasing decision, but it represents the decision to reject the internalization of activities. They propose that outsourcing may arise in two ways: through the substitution of external purchases for internal activities, and through abstention when a firm purchases goods and services that have not been completed in-house in the past. Temporary help supply employment, as a flexible arrangement in avoiding the costly adjustment of labor to changes in economic conditions and the need of expertise, is seen as one way to measure insourcing as an alternative to outsourcing.

6.3 Outsourcing Impacts

As discussed above, outsourcing can be related to production of intermediate goods or hiring temporary labor. According to a two-sector model, during recent decades the service sector has grown much faster than the goods sector with negative impacts on economic growth (Baumol, 1967; Baumol et al., 1985). In this model, manufacturing is the progressive and technologically advanced sector, while the service sector is stagnant. The negative effect is due to the high labor intensity in the service sector and its low incentives to introduce technological change. However, technology that is specific for use in the service sector is advancing and eliminating previous gaps. There are a number of studies that focus on explaining the difference in productivity growth rates in the two sectors. Abraham and Taylor (1996) found that firms contracting out services with the objectives of smoothening production cycles, benefited from specialization and realized potential labor cost savings. Siegel and Griliches (1992) in reviewing selected services find weak evidence that outsourcing leads to overstatement of manufacturing productivity growth. Estevão and Lach (1999) estimate the extent to which the manufacturing sector is outsourcing temporary labor from the service sector. The results show increasing intensity in the use of temporary labor, which explains the flatness of manufacturing employment. Ten Raa and Wolff (1996) found a positive association between outsourcing and productivity growth in the goods sector.

More recently Fixler and Siegel (1999) focus on the internal generation, the buy or outsourcing decision for selected services, and the effects of outsourcing on manufacturing services productivity growth. The propensity of the firm to outsource is a function of the difference between the marginal cost of the external suppliers and the marginal cost of in-house production. A firm will outsource if the marginal cost of internal production is higher (Inman 1985). Jacobson et al. (1993) in their analysis of the wages following a shift of workers from manufacturing to services found that wages declined and outsourcing resulted in increased productivity differential between manufacturing and services. Fixler and Siegel

(1999) present five testable hypotheses in their empirical results. They investigated the productivity growth of service and manufacturing industries in the US. The results are consistent with the hypothesis indicate that a positive correlation between wage growth and growth in outsourcing in manufacturing industries, a positive correlation between growth in manufacturing productivity and the rate of outsourcing, and growth in real output in service industry is positively correlated with manufacturing outsourcing.

I have already mentioned several factors with strong implications for outsourcing. A number of studies (Dritna, 1994 and Lacity et al., 1996) suggest that decision makers in general overestimate the production cost advantages of outsourcing and underestimate the role of transaction costs. Furthermore, Feenstra and Hanson (1996) argue that outsourcing, defined as the share of import of intermediate inputs in the total purchased materials by domestic firms, has contributed to an increase in the relative demand for skilled labor in the US. Outsourcing was the firms' response to import competition by moving non-skilled intensive activities abroad. Falk and Koebel (2000) examined the effects of outsourcing of services and imported materials on demand for labor in German manufacturing. The results showed little effects on labor demand for unskilled labor, but the shift in demand towards skilled labor can be explained by capital-skill complementarities and skill-biased technological change. Sharpe (1997) argues that outsourcing arose to reduce the adjustment costs of responding to economic changes. It has been argued that outsourcing has resulted in falling wages of the less-skilled workers in relation to the more-skilled US workers, causing wage inequality (see also Feenstra and Hanson, 1995 and 1996).

The issue of competitive strategy is important in strategic management. Porter (1980) defined three generic competitive strategies: cost leadership, differentiation, and focus. Nayyar (1993) reviewed studies measuring Porter's competitive strategies when firms emphasize various competitive dimensions. The top five reasons for outsourcing based on a large survey of companies were identified by Deavers (1997) as: (1) to improve company focus, (2) to gain access to world-class capabilities, (3) to accelerate benefits from reengineering, (4) to share risks and (5) to free resources for other purposes. However, Chen et al. (2003) show that trade liberalization may create incentive for strategic international outsourcing. Unlike the outsourcing motivated by cost savings, strategic outsourcing can have a collusive effect and raise prices in both the intermediate-good and final-good markets. Quelin and Duhamel (2003) view outsourcing as a choice that lies in the corporate policy, not just business strategy. They review different elements characterizing strategic outsourcing, examine motives and risks associated with outsourcing and provide key points in implementation of strategic outsourcing operations. The results from a number of large surveys suggest that outsourcing is seen more as a corporate competitiveness strategy that leads to major improvements in the performance of the company (Deavers, 1997). Sharpe (1997) finds that outsourcing as a management tool addresses organizational competitiveness in an efficient way by moving towards business strategies based on core competencies and outsourcing other non-core activities and services.

6.4 The Causal Relationships among the Key Variables

Heshmati and Pietola (2007), using the Swedish community innovation survey data and the framework introduced by Griliches (1990) that was further developed by Crepon et al. (1998) in which one accounts for selectivity and simultaneity biases, investigate the effects of outsourcing, efficiency and competitive strategy on innovation and productivity of firms. The model is a system of equations consisting of four equations. The first two equations which represent innovativeness and innovation inputs are estimated separately as a generalized tobit model where observations on both innovative and non-innovative firms are included. The last two equations are estimated as a system using three stages least squares (3SLS) method. The endogenous innovation output variable is limited to innovative sample with strictly positive innovation output. The four-equation model is written as:

$$(15) \quad IN_i^* = \beta_0^1 + \sum_n \beta_n^1 \ln X_{ni}^1 + \beta_{OUTS1} OUTS1_i + \varepsilon_i^1$$

$$(16) \quad \ln II_i = \beta_0^2 + \sum_m \beta_m^2 \ln X_{mi}^2 + \varepsilon_i^2$$

$$(17) \quad \ln IO_i = \beta_0^3 + \sum_l \beta_l^3 \ln X_{li}^3 + \beta_{RD} II_i + \beta_{MR} MR_i + \beta_{EFF} EFF_i + \beta_Q \ln Q_i \\ + \beta_{COM} COMP_i + \beta_{OUTS2} OUTS2_i + \varepsilon_i^3$$

$$(18) \quad \ln Q_i = \beta_0^4 + \sum_j \beta_j^4 \ln X_{ji}^4 + \beta_{IO} IO_i + \beta_{EFF} EFF_i + \beta_{OUTS1} OUTS1_i + \varepsilon_i^4$$

where IN^* is a latent innovation decision variable, the observable counterpart $IN = 1$ when $IN^* > 0$; i.e. if the firm is engaged in innovation, else zero, II represents innovation input, IO innovation output, Q productivity, and MR inverted Mill's ratio introduced to correct for possible sample selection bias, X is an explanatory variable including employment, physical capital, human capital and various indicators, EFF, $COMP$, $OUTS1$ and $OUTS2$ are variables representing productive efficiency, competitiveness and outsourcing, respectively, and the $\beta:s$ are unknown parameters to be estimated. $OUTS1$ is outsourcing based on hiring temporary labor while $OUTS2$ is outsourcing defined as purchase of external innovations related services.

The dependent variables include log innovation input per employee, II, log innovation sales per employee, IO, and log productivity, Q. Productivity is measured as the growth rate in turnover between 1996 and 1998. The determinants of innovation input labeled as the x^1 vector consist of growth in employment, profitability, capital stock intensity, capital and knowledge intensive technologies and firm size. The x^2 variables in the selection equation consist of hired temporary supply labor, profitability, capital investment intensity, indebtedness, export share of turnover, capital and knowledge intensive technologies and firm size classes based on the number of employees. The determinants of innovation output labeled as the x^3 vector consist of predicted value of innovation input, inverted Mill's ratio, predicted value of firm performance, logarithm of R&D intensity, growth in employment, purchase of innovation related outsourcing services, efficiency in production and firm size. In addition the set of variables is including a number of composite indices on hampered project and hampering factors, sources of product and process innovations, competitive strategy, the importance of innovation cooperation and importance of location of innovation

cooperation partners. The x^4 vector entering the productivity equation contains information on predicted value of innovation output, the temporary hired share of labor, efficiency in production, R&D intensity, capital investment intensity, capital stock intensity, profitability, indebtedness and size. All equations include industrial sector dummy variables.

Empirical results show that there is a negative relationship, and at an increasing rate, between inefficiency in production and size of the firm. Profitability and investment intensity per employee, outsourcing defined as share of temporary hired labor and R&D investment intensity enhances efficiency in production. The mean technical efficiency is 0.834 indicating that on the average, there is potential that for given level of capital and other factors the firms could produce 16.4 per cent more output by using the best practice production technology. Efficiency in production is positively correlated with innovations input, innovations output, productivity growth and temporarily hired labor. The hired labor measure is positively correlated with innovation output and growth in value added and efficiency, while the expenditure measure is positively correlated with both innovations input and output but not with growth in value added or efficiency in production. The industries differ by degree of outsourcing. Outsourcing of products, services and processes is more intensive than in-sourcing or hiring labor on temporarily basis. The expenditure share of outsourcing is an increasing function of the size of firm. Outsourcing is also found to be positively associated with the degree of innovativeness.

6.5 Summary of the Key Results

In this part I summarized the methods used and empirical results obtained from studies of the link between corporate competitive strategy, efficiency, outsourcing, innovation and productivity growth at the firm level. A new method with a view of dealing with the issues of sample selection and simultaneity biases in innovation studies was employed to Swedish firm level innovation data.

The empirical results from estimation of a stochastic frontier production function suggest that firms are relatively efficient, although the output can further be increased by using the best practice technology. Efficiency in production is positively correlated with innovation input, innovation output and productivity growth. There is positive association between size of firm, profitability, investment, outsourcing and efficiency in production. It is rather difficult to represent corporate competitiveness strategy in a proper way. A simple composite competitive strategy index was estimated using principal component analysis. It indicates the level and state of competitiveness among the firms. I identified a number of determinants of decisions of investment in innovation activities, how much to invest, innovation output and productivity growth. The systems of four equations estimated in a multi-step procedure accounting for both sample selection and simultaneity biases is found to be superior to alternative simpler methods. Internal financial sources, knowledge intensive production technology and size of firms are major determinants of investment in innovations. Variation in innovation output is to a large extent explained by variations in innovation input. The interactive positive and significant coefficients of innovation output

and productivity equations indicate the presence of a two-way causality relationship between innovation output and productivity growth among innovative firms.

7. TRANSFER OF TECHNOLOGY AND MANAGEMENT

7.1 Introduction to Capability, Incentives and Technology Transfer

This section focuses on the management practices and strategies toward technology transfer and evaluation of their outcomes. In addition I deal with issues such as the internal organization and external environment that affects these practices and strategies including public policy developments, incentives, regulatory and legal issues, and development of global trends. In reviewing the literature I briefly present their major findings.

It is widely believed that the potential for developing countries to grow by using technology already developed by the industrialized countries is considerable (Goh, 2005). Some of these knowledge spillovers that take place in various forms of exchanges are passive and can occur at relatively low costs through trade in intermediate goods embodying the technology, while the rest are active in the sense that agents from the developed countries need to incur resource costs to access and transfer the technology. In addition the agents need also to make efforts to adapt and gain mastery over the technology received (Pack and Westphal, 1986; Mansfield and Romeo, 1980). Thus, different countries can grow at very different rates depending on their capabilities and institutional barriers and the incentive measures that the countries provide for the transfer and mastery of technology through trade, licensing, FDI, joint ventures, subcontracting activities, and capability enhancing research and training activities.

In discussing how to build up the right incentive systems for encouraging greater transfer and mastery of foreign technology Goh (2005) suggests that policy makers need to have a good understanding of what determines foreign firms' willingness to transfer their technology and the domestic firms' investment in mastery of imported technology. Two factors are widely cited as important in affecting the incentives for technology transfer. These are the ease of knowledge diffusion/imitation and the level of absorptive capacity in the recipient country. Both of these factors can be influenced by active public technology policies. Several factors including tied intellectual property rights, labor market regulations, trade relations and location of industries ease the diffusion of knowledge. The absorptive capacity and capability in modification for local needs can also be enhanced by investment in education, public R&D subsidy and training of labor and management.

7.2 The University-Industry Relationship and Technology Transfer

One main area of research on technology is the university-industry relationship. The research in this area emphasize on the university-industry collaboration and heterogeneity in university incomes generated from transfer and commercialization of technology. Several studies investigate how to couple technology finance and technology transfer activities in private-to-private transfer cases. Here the financial institution of the innovation system like venture capital acts as searcher, investor and an assistant for innovative

companies. The effectiveness of public innovation policies to stimulate private R&D investment is another related area of interest. The presence of possible trade offs between public and private investments are examined. In a recent study Bercovitz and Feldman (2006) offer a framework to illuminate the role of universities in systems of innovation and in the creation of a knowledge-based innovation system. Organization structure has been found to have strong impacts on technology transfer outcomes. The influences of university organizational structure and the technology transfer offices on their technology transfer performance are examined by Bercovitz et al. (2001). Empirical results provide evidence of the existence of alternative organizational structures and impacts where organizational capabilities result in differences in technology transfer outcomes. Caloghirou et al. (2001) investigate the characteristics of university-industry collaboration in a large set of European research joint ventures. Firms involved report that the most important benefit from such collaboration has been the positive impact on their knowledge base.

In a university-industry related study Meyer (2006) places the academic start-up phenomenon in the broader context. Based on Finnish academic inventions data, a considerable share of university-related patents are utilized in start up companies, but still most academic patents are utilized in established and large enterprises. Differences in utilization patterns are also found in different fields of science and technology. Thursby et al. (2001) describes results of a survey of licensing at a large sample of research universities. They consider a number of attributes in their study including ownership, incomes, stage of development, marketing, license policies, and the role of the inventor in licensing. They analyze the relationship between licensing outcomes and both the objectives of the technology transfer offices and the characteristics of the technologies transferred. Results show that: patent applications grow with disclosures, sponsored research grows with licenses executed, royalties are positively related to the quality of the faculty, additional disclosures generate smaller percentage increases in licenses and these generate smaller percentage increases in royalties. In their introduction to the special issues on regional development in the knowledge-based economy Cooke and Leydesdorff (2005) seek to clarify two key concepts: the idea that knowledge is an economic factor and a system of reference for knowledge-based economic development. Here the university-industry-state relations at various levels are considered linked to industry organization with respect to patents and licensing.

7.3 FDI, Knowledge Diffusion and Technology Transfer

Analysis of the impact of knowledge diffusion on technology transfer via FDI or licensing has been the focus of great attention in the technology literature. There has been great interest for instance in studying the impact of knowledge diffusion on technology transfer (Radosevic, 1999) and international fragmentation of production (Hummels et al. 2001). Flow of FDI into developing countries, upstream and downstream type of technology diffusion with different implications for technology transfer process are considered in Saggi (2002). Giroud (2003) reviews the theory of vertical integration and the literature on TNCs' investments in the Asian nations. Giroud studies how alternative government policies affect economic outcomes. Governments in these countries actively seek to encourage foreign and

domestic investment to promote economic growth and development. FDI has a number benefits beyond domestic investment for the reasons related to balance of payments, spill-over benefits, technology transfer and labor force training. In practice, a liberalization of the direct investment has changed the ownerships structure of corporations in the aftermath of the Asian crisis.

Davis and Sun (2006) view business development as a corporate entrepreneurial capability that has emerged in the IT industry to support the industry in the practice of creation of value process with its external environment. Empirically the authors examine business development functions in SMEs in the IT industry in Canada. Results show that the principal local business development functions are finding profitable opportunities in business in recognizing and responding to customer needs. However, the non-local regional and export markets require different business development capabilities. In a related study Ivarsson and Alvstam (2005), study use firm-level data from the heavy truck and bus plants of AB Volvo and its local component suppliers in Brazil, China, India, and Mexico. They investigate the extent to which domestic suppliers are able to compete with international suppliers, and improve their operations through technological assistance from their TNC customer. The finding shows that technology transfers from industrialized to developing economies are to a large extent based on local inter-firm linkages arising from regular production activities. Results show that long-term relationships are more important in inter-firm learning than short-term relationships for domestic suppliers.

7.4 Innovation Research and Technology Valuation and Transfer

In the literature there are different perspectives on technology transfer to developing countries. In the evolutionary perspective, foreign TNC are contributors to technology transfer and upgrading of technology among their local suppliers. Lall (2000) views one reason for different perspectives on technology transfer is that most developing countries have none or only a limited capacity to generate new indigenous technology. Thus, external technology transfer is a major source of imports of technology (UNCTAD, 1999). In several studies (Dunning, 2000; Narula and Dunning, 2000; World Bank, 1998) the countries and their local firms capacity to identify, to absorb, to generate, and to disperse technological competence are found crucial to the transfer of technology. Two broad types of theories are identified in this respect (Nelson and Pack, 1999). These are the neoclassical accumulation and the evolutionary perspective of technology assimilation theories. The first stresses the role of physical and capital investments, while the latter focuses on learning in identifying, adapting and operating imported technologies. The locally developed elements are important to the success of investments (Nelson, 1990; Lall, 1992; Bell and Pavitt, 1993). Learning and development of routines are incremental and requires a collective learning of technology.

In a different way technology transfer can also be distinguished by internalized or externalized characteristics of the process. Internalized transfers from TNC to their foreign affiliate are often part of the FDI package providing access to the ranges of technological, management, organizational and knowledge assets. Externalized technology transfers, are

made to firms outside direct ownership and or control, in form of licenses and subcontracting. Externalized technology transfers have a stronger long-term effect (UNCTAD, 1999), but measurement of impact of technology is a rather difficult task. In particular there is a positive relationship between the soft natures of technology embodied in people and the difficulties to measure the impact of technology transfer in such cases. Through the backward linkages between foreign affiliates and local suppliers, TNCs can improve technological development in host countries by complementing domestic investments and by undertaking transfers of knowledge, skills, and technology (see also Lall and Montimore, 2000; UNCTAD, 2001). Foreign TNCs provide their suppliers with extensive product and process related and technological assistance to meet the requirements of the home market. Due to growing demand for technological capabilities, reduced production costs, and increased delivery precision, domestic suppliers face competition from follow-source suppliers.

In general, technology transfer and innovation takes place most effectively when they are carried out within dynamic networks and conditional on effective public-private partnerships. The role and management of intellectual property and innovation can be handled through licensing techniques. Understanding technology assets and their acquisition based on consideration of capabilities, competencies and strategies for global competition are key issues. Managers play a key role in a company's success in the technology market. In addition to R&D and acquisition of new equipment, the manager must account for the dominant role of human, technology, information and organization factors during different phases of development. The influential factors that determine the economic value of a technology must be identified and the underlying properties of technology valuation to be examined. In doing so one must account for technology risk premium in the estimation of risk-adjusted discount rate for the technology valuation. The objective is to estimate the cost of debt and equity for different sized classes of firms.

7.5 The New Era of Globalization and Technology Transfer

China and its technology capability development is a good example of the new era of globalization of technology. In the last two decades China's foreign trade and its industrially manufactured exports have diversified and expanded rapidly. Lemoine and Unal-Kesenci (2004) reported that China achieved an exceptional performance thanks to its strong involvement in international segmentation of production processes. A key factor contributing to the success was that China's specialization in assembly trade has given rise to a highly competitive and internationalized manufacturing sector, which has been the main channel of technology transfers. Their analysis of trade by stages of production and by technology contents shows that intermediate goods have played a crucial part in the technological upgrading of China's foreign trade. A negative development in their view is that the outward-oriented sector has had relatively limited linkage or spillover effects with the rest of industry. They find a systematic patterns in the development process where the development of East Asian economies has proceeded in waves, starting from Japan and followed by the first tier of new industrialized economies (South Korea, Taiwan, Singapore, Hong Kong), then by the second tier (Thailand, Malaysia, Philippines), and, finally, by the

third tier (China and Indochina). Each of the countries has gradually shifted its specialization from labor-intensive industries such as textiles and footwear toward higher-technology sectors like electrical machinery and telecommunication equipment. See also ESCAP (1991), UNCTAD (1996) and Kojima (2000) for more details.

The recent wave of globalization process has enhanced the reorganization of production. Production processes have become highly internationally fragmented and participating firms take part in the production at different stages of the value-added chain, which is split-up across countries and firms. Countries and participating firms comparative advantages determine the in and outsourcing activities and countries involvement in stages of production. China and India provide two important case studies which highlight how latecomers can enter globalization and especially how China can carve out its place in the international division of labor. China has experienced innovation in the development of its technology market and employed strategic technology transfer policy combined with supporting innovation elements to build up its technology market. The technology market development needs to accelerate and to improve to correspond to the need and the rapid expansion of China's foreign trade and on-going reorganization of production in the region. Factors contributing to the fact that China has become a production base for Asian industrial firms include a rapid rise in exports, the development of an electrical and electronic industry based on foreign technology, and an accelerated economic growth of Southern coastal provinces (Wu, 1999; Lardy, 2002). Lemoine and Unal-Kesenci (2004) provide evidence that at the end of the 1990s, China's foreign trade was still highly dualistic where processing trade and ordinary trade display quite different patterns. Processing trade has been the engine of the rapid upgrading of China's foreign trade but domestic firms' foreign trade is still lagging behind. This suggests that the internationalized and competitive sector has not helped the modernization of the rest of the economy. China's entry in the WTO might serve as an important step towards the unification of the foreign trade regime and even a better access to foreign technology.

7.6 Summary of Key Conclusions and Policy Implications

The collected volume by Heshmati et al. (2007) is a recent contribution to the existing literature on commercialization and transfer of technology. A significant part of the collection focuses on the university-industry collaborations to promote commercialization and transfer of technology with the aim to create knowledge based development. The case studied show that university cooperation has a positive influence on the innovative activity of large firms. The cooperation also affects the firms' ability to exploit market innovations originating in the university laboratories and it improves firms' internal innovative capacity and innovation efficiency by reducing the costs and risks associated with internal research. However, results show that universities in their research and innovation cooperation gain differently. The differences in financial gains for research universities in relation with technology transfer are attributed to differences in internal and external and research infrastructure factors. For a harmonization of technology finance, the financial organization, especially venture capital, is found to be the critical partner for private-to-private technology transfer system by concluding the agreement between the two parts as

well as by investment in risky technology transfer activities. An investigation of the effectiveness of public innovation policy to stimulate private investment show that public fund contribute positively to an increase in the firms' total R&D efforts and its rejects the crowding out effects hypothesis.

In relation with business licensing of a patent portfolio, significant preparation is required to successfully transform the information and technology supported strongly by intellectual property. Real Option Analysis in licensing negotiations is found to be a useful tool in the preparation for negotiated deals. The important steps in the preparation do involve financial analysis using technology valuation management system to determine the value of the technology and to use quantitative measuring tools to identify competitive commercial products in the market. The objective is to create win-win scenarios for the negotiating parties of technology transfer. The approach is in particular important for business licensing technology valuation in cases where public financial support to universities is reduced or abolished. In general, creative measures that strengthen collaboration between university, government and enterprises to promote research activities and to accelerate the transfer of technology outcomes from the university to the industrialization of technology are encouraged. Estimation of discount rate for the technology valuation indicates that reliability of the technology valuation in parts depends on the reliability of the discount rate estimates. Accounting for technology risk premium is suggested to improve the estimation of the risk-adjusted discount rate and crucial to venture capital firms.

Firm level analyses of the extent of international intra-firm transfer of management by Japanese MNCs suggest that top management has not been transferred to MNCs affiliates, but labor management has. Management technology has been transferred at European affiliates but not much at their Asian affiliates. The length of operation, provision of FDI friendly environment and improving labor quality has positively impacted the transfer of management technology. In addition, the strategies of the parent firm, their affiliates, the host countries, resources and development capability are all important determinants of the extent of technology transfer. In particular, policy and mechanics for technology transfer to SMEs is important for their survival, growth and performance, as well as subsidiaries and infrastructure for large corporations and the process of industrial development. Intellectual property as a barrier plays an important role in R&D innovation and technology transfer to the developing countries. Thus, management of intellectual technology is critically important for the survival and growth of all enterprises in the new competitive and increasingly interdependent world economy. Analyzes of the development of technology market and technology transfer to China shows a good picture of the temporal patterns of recent waves of globalization of technology. The role of technology, capital, personnel, culture, policy, and intellectual property protection environments are key determinants of a successful technology transfer to create favorable circumstances for enterprises to participate in the international competition.

8. RECENT DEVELOPMENT IN THE FEDERAL REGION OF KURDISTAN

This chapter aimed at reviewing recent trends in economic development and development economics research. The areas of development considered includes information and

telecommunication technology, globalization, economic growth, inequality, poverty and their linkages, direct foreign investment, in and outsourcing, spillover and transfer of technology and management. Here I investigate the development conditions and outcomes with reference to the areas listed above in the Federal Region of Kurdistan (FRK) from the beginning of the 1990s and onwards. There is lack of statistics and research in each area. Thus, the analysis is reflecting my personal observations of the current state of the region.

8.1 Introduction

Kurdistan names the land that prior to the withdrawal of the British and French colonial forces from Middle East was divided between Iran, Iraq, Syria and Turkey. Kurds are the people who populate the land.[4] The total size of population of Kurds is estimated to be around 40 millions of which more than 2 millions live in Europe and North America. There are no statistics on the Kurdish population and its structure as such statistics in each country is not collected or reported. For centuries and in particular in 19th and 20th centuries the Kurds like others in the Middle East have been struggling to gain independence. The Kurds in the Northern Iraq suffered heavily from oppression imposed by the regime of Saddam Hussein. The Iraqi army and security police among others destroyed 4000 of 4500 villages, displaced more than 1.5 million out of a total of 5 millions Kurds in the region, used chemical and biological weapons on the Kurds, mined the farmland and killed as part of a campaign called Anfal in 1988 and 1989 more than 180,000 mainly Kurdish males.

As a result of international pressure to stop the Iraqi government's inhuman treatment of the Kurds, the USA and UK in 1990 established a no-fly zone in the North of Iraq. Enforcement of the zone was maintained by the USA and UK as part of the efforts by the international community led by USA with the objective to disarm Iraq and to prevent the country from developing weapons of mass destruction. Establishment of the no-fly zone facilitated a full withdrawal of Iraqi arm and security forces from the Kurdistan Region and the region gained some form of independence from the central government. There is a desire and legal support through the 2005 election outcome that Iraq is to be cast as a Federal system. However, in practice some forces in self-interest are opposing such type of governance. Despite being land-locked and undergoing active and persistent hostility from the neighboring countries, the Kurdistan Region has managed to build up necessary institutions and infrastructure and it has remained self-ruled. The region has a President, Prime Minister, regional parliament, regional government, regional ministries and many traditional and modern public service institutions.

8.2 Development in the area of ICT connectivity

The Kurdistan Region's communications with outside world were cut off in 1988. The postal and telephone services ceased to operate. Lack of communication resulted in the intensive use of satellite services in the media, broadcasting and telecommunication. The presence of many non-governmental organizations (NGOs), the implementation of the oil for food program and comprehensive regional development programs, together with the large number of Kurds living abroad and advancement in communication technology, led to

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[4] Minorities populating the Southern part of the region include Arabs, Asyrians, Armenians, Yazidies and Turkemans.

42

unique and profitable business opportunities to facilitate intensive use of information and telecommunication technologies in the region. Unlike fixed phones, the connectivity in form of computers and cell phones is relatively high. All connections are satellite based and the use of broadband for lack of cooperation with neighboring countries is underdeveloped. Currently there are three providers of cell phone services[5] providing services to isolated areas of Hawler (Erbil), Sulymania, Kirkuk and other Kurdish cities. However, these are operating as pure regional monopolies and not providing services across their regions of operation. The condition has been very ineffective resulting in loss of welfare and quite harmful to the regional development cooperation. Computer connectivity rate is high and despite efforts made by the Korean development forces, NGOs, public sector efforts the use of computers in public services is quite low. Universities are also not using their computer capacity fully. In general the development of the ICT sector is attributed to the satisfaction of the needs of NGOs to operate in the region. Similar to other countries, the Kurdistan Region sees this new sector as a major contributor and significant infrastructure and enabler to economic development.

8.3 Inflow of foreign direct investment

The KRG has made serious efforts to provide official guidelines for investment activities in the region by introducing an Investment Law (KRG, 2006) which is aimed at creation of good conditions for promoting investment in the Kurdistan Region. The Law refers indiscriminately to both national and foreign capital sources and it removes key legal obstacles to investment activities. Various incentive measures in the form of land plots and other facilities and tax and duties exemptions and also regulations are introduced to promote investment activities. The Law covers general provisions, exemptions and obligations, the investment hierarchy, and licensing and arbitration.

From the investor's point of view, there are a number of factors positively attributed to the Law (see also Heshmati and Davis, 2007). The first important issue is the selection of areas of investment which cover the main economic and priority sectors including agriculture, manufacturing, services and various utilities and infrastructures. A second factor of strength is the non-discriminative treatment of capital by its source. Allocation of plots of land is the third and most important factor. The fourth key incentive factor is tax and customs duty exemptions for duration of ten years. The fifth strength factor is the provision of legal guarantees which account for insurance, employment, repatriation of profits, money transfers, and issues of security. Clarification of the investor's obligations and legal procedures in the case of contravention are to be considered as a sixth positive factor. The organizational structure and tasks of various agencies involved are to be seen as a seventh positive factor. The outlined procedures for licensing and risk of arbitration and finally provision of the transfer of duplicated investment laws to a unified one are among the eighth and ninth positive factors, respectively.

From the receiver's point of view, there are also several weaknesses in the law that gradually should be resolved. The first weakness is the lack of a strong emphasis on the transfer of technology, skills and management as basic conditions for the provision of

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[5] Korek, Asia and Sanatel are the three cell phone regional monopoly operators in the Kurdistan Region.

investment incentives. The possibility of misuse of land plot allocation is a second weakness of the law. The lack of a patent register and non-existence of law enforcement and protection of intellectual property rights is a third key factor negatively affecting the flow of production-oriented FDI to the region. In order to attract technology-embodied investment, protection of intellectual properties is a factor that must be emphasized and the region's law enforcement capacity strengthened. Flow of oil revenues to the region inflated by recent years of high oil prices has raised the public and private income levels and consumption power and have, as a fourth factor, affected the trade balance negatively. In particular, development has been not only unfavorable but also destructive to local production. KRG should promote local production through the imposition of duties on products and services that are or can be made available locally, while promoting only the import of technology-embodied capital. Thus, differentiated incentives and policy measures should be applied to capital by accounting for the nature of products and local production possibilities.

8.4 Development of infrastructures

Education plays an important rule to development in the Kurdistan Region. Alongside the previous public institutions several new institutions are established in the Region. The governmental ministries of lower and higher educations plan and implement the region's educational policy. The Region has five universities located in the main cities of Hawler, Sulaymania, Dohuk, Koya and Kirkuk.[6] The policy of the universities organized under the umbrella of the regional Ministry of Higher Education and Scientific Research are old and inconsistent with a modern system of education and management. The quality of education has remained low, the system is highly bureaucratic, ineffective and not able to produce graduates with ability to be creative. They are unable to produce education of high quality that corresponds to the needs of a modern society with development in the perspective. The difficulties to reform the highly politicized higher education has led to establishment of new universities that are managed differently and with more autonomy in their operation. The public University of Kurdistan Hawler and the recently established private American University at Sulaymania are two such examples. The needed labor market oriented vocational education has not yet developed well.

A number of infrastructures are a prerequisite to the inflow of FDI and effective use of capital investments. The Financial Market and its functions are crucial to the success of the FDI policy. The financial policy of the KRG and its instruments is to be carefully determined. Another important infrastructure for inward FDI is the size and potential of small and medium enterprises (SME) and start-ups policies. SMEs serve as infrastructure for large enterprises. The focus should be on the optimal size of SME businesses, design of policies, to build up support institutions and guidelines to support the establishment of SMEs. The labor market policy options and a number of measures to promote the development programs of the region are the third category of infrastructure measures. The

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[6] The majority of residents of the oil rich city of Kirkuk are Kurds but the city was located outside the fly-free zone and subsequently not under the control of the Kurdistan Regional Government. A referendum is planned in the late 2007 to bring clarity to the issue of integration of Kirkuk into the Federal Region of Kurdistan and its status as the new capital city of the Federal Region of Kurdistan.

factors of interest include: mismatch of education and skills required; low quality education and creation of new job opportunities; high wage rate, low labor productivity and competitiveness; relatively high capital investment risk; high profitability of import compared to local production; and finally the absence of well-functioning labor market institutions and policy measures to promote production and employment creation. The fourth infrastructure factor is formulation of a model for industrial development in the FRK (see Heshmati, 2007). The focus should initially be on the current policy and institutions, the conditions, potential and pitfalls and quantification of the resources available and needed, industrial policy instruments to improve security and self-sufficiency as well as infrastructure organizations. The establishment of Science Parks as a fifth factor is a necessary condition for the region's economic development. Science Parks are found to have a positive effect on productivity growth, technology, management and skill transfer.

8.5 Reconstruction capacity building

Iraq has been subjected to years of sanctions, war and destruction. The Kurdistan region has, however, enjoyed relative peace in recent years. The shared oil revenues after 2003 have allowed the region to start its reconstruction and development programs much earlier than other regions. KRG should take advantage of the existing peaceful conditions to build up capacity, not only to rebuild the Kurdistan region, but also to undertake reconstruction of the cities of Kirkuk and Mosul. An assessment of the past and current conditions in Iraq is vital to post-conflict rehabilitation and reconstruction of the country. Kurdistan, emerging from decades of conflict, needs to build up the capacity to recover itself and also actively participate in the recovery of the neighboring regions, in particular the Kirkuk region. FRK participation in the reconstruction of Kirkuk will help the FRK's manufacturing and service sectors to develop and become a player in Iraq's reconstruction program. It is important to evaluate the failure and success of the Investment Law. One motivation for developing countries to attract FDI is by obtaining advanced technology to enhance its domestic capability. Kurdistan is different and policies successful in other countries may not be as successful in Kurdistan. The result above suggests that the KRG should identify local specific factors that are determinants of inward FDI to the region and promote investment by national investors.

The increasing rate of inflation and devaluation of the domestic currency are identified as two key factors negatively affecting the inflow of FDI to developing countries. The FRK is using dual currencies: the US dollar and the Iraqi dinar. Since all transactions can be made entirely in US dollars, the risk of losing invested capital due to devaluation and transactions cost are minimized. So far, the currency factor has not been fully emphasized in the KRG arguments to attract inward FDI to the region. The security situation in Iraq is such that TNCs with an interest in participation in the Iraqi reconstruction program steer clear of the region. The regions capital city of Hawler [7] with its location and existing peaceful conditions can serve as the headquarters for many TNCs expecting participation in Iraq's reconstruction process. The KRG should attract these firms to boost the region's economy. It will help in building up the manufacturing and service sectors and their capacity, as well

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[7] For more information see the Kurdistan Regional Government official website at: http://www.krg.org/

as technology, skill and management transfer. For instance the KRG should take advantage of the presence of Korean peace-keeping troops to facilitate the transfer of Korean technology to the region. Korea is a good partner for cooperation, in particular with their advanced oil, agriculture, communications, manufacturing, governance and institutional technologies. The Korean model of industrialization has shown in practice to be superior and a realistic way of development.

The inflow of private capital by repatriated Kurds and other private investors from the neighboring countries into the service sectors have been impressive. The regional government also has made comprehensive investment programs in building up development infrastructures in forms of international airports, universities, hospitals, public institutions, recreation, roads, job training, security, information and communication, banking and pubic utilities like energy and water. In recent years the economy has been booming and a large number of businesses have accumulated significant capital. In parallel with the accumulation process the businessmen have gained experience from doing business and have also been informed about investment opportunities elsewhere. Several Gulf countries also have established financial markets which attract interregional investors. Thus, the businessmen's expectations are high and the KRG must change its policy in response to changes in the environment and the financial markets. It is argued that a country's economic performance is to a great extent determined by its political, institutional and legal environment. Institutions and policies are referred to as governance infrastructure defining its investment environment. The KRG should adopt its institutions and governance to a higher and international standard by intensive training of its civil servants.

As a final checklist and in order for the FRK to encourage inward FDI and simultaneously to discourage outward FDI, the KRG should undertake a number of proactive policy measures to strengthen the necessary infrastructures and to affect investment behavior in the region. The region is rich in natural resources - a vital development factor, but the issue of the authority to use them is not settled yet. A clarification of this issue is an important agenda for the KRG. There is an Investment Law, but its strengths and weakness have not been investigated or tested. The newly developed banking system, in addition to being an FDI attraction factor, might have led to an increasing trend in outward FDI. Governance is weakly operated and most institutions are in place but are running ineffectively. Many new development infrastructure components are under construction. Currently there are no vocational training programs manifested in lacking skilled labor in the region. More important than the factors of governance, institutions and their operations are the low work morale, work discipline and respect for authority, a weak sense for national interest in work and decision patterns, and finally there is no economic development plan that integrates different activities. Construction of such a plan is underway under the supervision of the Ministry of Planning. Among other negative economic factors important to the inflow of FDI and the competitiveness of business and service sectors are high wages and low labor productivity. Efforts should be made to standardize wages to reflect the level of education and skills of the labor force. This will provide necessary tools for the government to support certain sectors in the form of wage subsidies to enhance self-sufficiency. Among other economic factors to emphasize strongly are the provisions of guarantees and securities and the dual currency conditions that are quite favorable to investors.

8.6 Globalization, outsourcing and local production

The Kurdistan Region is an active participant of the new wave of globalization. The participation is in respect with international politics, migration, movement of skilled labor, information and communication technology and openness to trade relations. The society is opened to the outside world through its many free media channels. The capital city of Hawler is a gateway to northern Iraq and it provides a safe environment for businesses, NGOs, tourism and refugees. I have already mentioned above the significant progress and investments made in the areas of education, infrastructures and information and communication. The regional government has made significant efforts to invest in building up a modern governance institutional structure. It has facilitated recognition of Kurds as a power in the region and changing view about Kurds and their existence and legitimate rights and demands. The interest and literacy rate for the English language has opened new opportunities and participation in the globalization process. However, the unstable and post conflict conditions in Iraq have made the personal interactions with outside world remain rather difficult. The living conditions for the majority of the population – the females in general has improved and they occupy a significant share of the regional parliament, education and labor market. Despite the progress made there is yet space for much improvement in their demands for equality and equal opportunities in all aspects of life.

Among the negative aspects of the globalization to mention are the foreign cultural dominance and the unbalanced development in the urban and rural areas. The booming construction sector have absorbed unskilled worker from the rural areas causing the low productive agriculture difficulties to compute and to produce goods with high capacity to meet the increasing consumption demand. Lack of collection, transportation and storage facilities for agricultural products and investment in modern production technologies to produce and to supply round the year agricultural goods has made imported goods and services a significant part of the trade harming the agriculture. Absence of supportive agriculture and trade policy to promote domestic production and to limit import of locally producible products and services has limited the development of the agricultural sector. In particular the openness and trade relations have undermined the local production to such extent that it endangers the self-sufficiency and security of the region.

The rapid development has not resulted in sufficient level of technology, skill and management transfer rather than a high dependency of imported skilled and unskilled workers to build up and to maintain the existing infrastructure. In-sourcing of labor has been significant in form of imported labor in the construction and service areas, while most production previously produced domestically are outsourced to neighboring countries and countries in the East Asia. The rapid development not combined with taxation and redistributions has generated inequality among sub-groups of the population and it has raised poverty and its concentration among certain groups with low ability to adapt to the new conditions and to take advantages of the economic development. The direction of policy should change such that it encourages globalization to gain from it but at the same time to use in and outsourcing only to make operation of businesses effective and less costly and to increase the rate of spillover and transfer of technology and management and to benefit from relocation of production, contracting out activities, direct investments and

joint ventures. The FRK in its policy should account for the potential and pitfalls in taking full advantages of the above factors in a small open economy with minimum of restrictions and in the presence of many incentives to attract direct foreign investment and local production activities.

9. SUMMARY AND CONCLUSIONS

In this study I have provided a comprehensive review of the recent trends in development economics and related developments economics research. The focus has been on the development in the recent decades as a result of increased globalization of knowledge, technologies and economies. In particular I looked at the development in a number important areas including in-sourcing and outsourcing of production and services, the increased flow of direct foreign investment and its heterogeneous regional and sector distributions, the increased public investment in ICT as infrastructure for development, the importance of commercialization and transfer of technology, and increased income inequality and concentration of severe poverty in certain regions and among population sub-groups. In addition I investigated the development in the Federal Region of Kurdistan since its gained self-governance in 1991 as a small open economy case study with reference to the above developments.

In conclusion to the ICT as investment in infrastructure for development, this review suggests that ICT will continue to have an impact on performance for two reasons. First, productivity growth in the ICT-led areas and productivity improvements has continued to be strong: the ICT technology development will further encourage ICT investment and support further productivity growth. Second, the diffusion and impacts of ICT differ across economies. The largest economic benefits of ICT will be observed in countries with high levels of ICT diffusion. In order to derive the full economic benefits of ICT, other factors such as the regulatory environment, skills, ability to change organizational set-ups as well as innovations in ICT applications affect the ability of firms to seize the benefits of ICT technology. The contribution of ICT to economic growth is positively related to the level of development and adoption of complementary policies. These polices include basic infrastructure, competitive market, market opening, effective laws, regulations, law enforcement and the educational system. In general, for the developing countries, it is rather difficult to catch any systematic evidence about such relationships. A longer period is required to establish a link between IT investment and economic growth and in particular, for ICT to be effective, it should be spread such that it reaches the critical mass point.

There are few studies that quantify the level and development of the globalization. The indices computed are related to four main components: economic integration, personal contact, internet technology, and political engagements, each developing differently over time. Some of the indices are nonparametric while others are parametric in estimating the components weights. The results show that internal and external conflicts reduce the globalization prospects of the developing countries. The low rank of countries is often associated with political and technology factors, while the high-ranked countries share similar patterns in various index components distribution. The economic and technology

factors play an important role in the ranking of the geographic and economic regions. The current versions of the index are only partial measures. A number of extensions to overcome the shortcomings are proposed. These concern the methodology and identification and incorporation of more relevant dimensions. A decomposition of the total variation in globalization into between and within country components is important. The within-country factors can provide useful information about the distributional shifts within different population groups, sectors and regions. Globalization is considered a possible source of inequality differences across countries and over time.

One major shortcoming of the literature on the relationship between growth, inequality, poverty and openness is that the simultaneous and direction of causal relationship between these key variables has empirically been neglected. In general there exists a positive relationship between openness and growth, but its impact on distribution of income differs. There is evidence of strong convergence in per capita income and among more homogenous and integrated advanced economies but also divergence in income inequality and among less-developed countries or geographic regions. The between country contribution is much higher than within country contribution to the world inequality. Different regions have differently managed to couple growth and inequality. The empirical results on the above relationships show that outcomes of policy measures are heterogeneous. Depending on the initial position, the poor might gain more from growth and redistribution, but they may also suffer more from economic contraction. In general it is rather difficult to measure the effects of inequality and growth on poverty reduction in the course of economic development. In sum, economic growth benefits the poor but at the absence of effective redistribution policies it might initially deteriorate the income distribution. Initial conditions, institutions, specific country and demographic structures, and time horizons each play a significant role to make economic growth pro-poor.

The global flow of foreign direct investment has increased dramatically but its distribution is highly unequal and countries fiercely compete to attract foreign investors. The positive changes involve simplified procedures, incentives, reduced taxes and greater openness to foreign investors. FDI is important to developing countries as it increases export revenues and investment capital, it supplies with advanced management and technology and it is a viable development factor for capital scarce but labor abundant countries. The scale and character of FDI flows to developing countries have been affected by the invention and adoption of new technologies. ICT has facilitated a global shift in the service industries and relocation of many production activities. The determinants of FDI to developing countries are their natural-resource endowments and low-cost labor. However, the existing investments are often concentrated in natural resource sectors with limited multiplier effects on output and employment in the rest of the economies. There is a growing view that FDI is positively correlated with economic growth. It improves efficiency and productivity through transfer of advanced technology and management practices. A recent boom in cross-border mergers and acquisitions, increasing investment by investment funds, increasing number of TNC from developing countries, regulatory changes has spurred the increase in FDI enhancing South-South investment flows. Developing host countries gain much from the rise in South-South FDI and economic cooperation. There is a better fit of the technology and business models of developing countries from FDI inflow easing the

technology absorption process. FDI from developing countries has being more oriented towards labor intensive industries. The economic reform, FDI policy and establishment of special economic zones have made China one of the most important destinations for FDI.

In this paper I provided a review of the methods used and empirical results obtained from studies of the link between corporate competitive strategy, efficiency, outsourcing, innovation and productivity growth. Results from a new method with a view of dealing with the issues of sample selection and simultaneity biases in innovation studies based on firm level innovation data was also presented. Results suggested that firms are relatively efficient, although the output can further be increased if firms use the best practice technology. Efficiency in production is positively correlated with innovation and productivity growth. Furthermore, there was a positive association between size of firm, profitability, investment, outsourcing and efficiency in production. A simple composite competitive strategy index was estimated which indicate the level and state of competitiveness among the firms. I also identified a number of determinants of decisions of investment in innovation activities, innovation output and productivity growth. The systems of equations estimated accounting for both sample selection and simultaneity biases is found to be superior to alternative simpler estimation methods. Internal financial sources, knowledge intensive production technology and size of firms are major determinants of investment in innovations. There was a positive and two-way causality relationship between innovation output and productivity growth.

The university-industry collaboration is important to promote commercialization and transfer of technology. It has a positive influence on the innovative activity of large firms and it affects the firms' ability to exploit market innovations originating in the university laboratories and as well as firms' internal innovative capacity. Universities in their research and innovation cooperation gain differently. The differences in financial gains are attributed to differences in their research infrastructure factors. Venture capital is found to be the critical partner for technology transfer system by investment in risky technology transfer activities. Public innovation policy is found to stimulate private investment in R&D with no crowding out effects. In relation with business licensing of a patent portfolio, Real Option Analysis is found to be a useful tool in the preparation for negotiated deals to create win-win scenarios for the negotiating parties. Estimation of discount rate for the technology valuation indicates that reliability of the technology valuation in parts depends on the reliability of the discount rate estimates. Accounting for technology risk premium improves the estimation of the risk-adjusted discount rate. Firm level analyses show that labor management is easier to be transferred than top management to MNCs affiliates and the degree of transfer differ by the countries origin. The length of operation, provision of FDI friendly environment and improving labor quality has positively impacted the transfer of management technology. In addition, the strategies of the parent firm, their affiliates, the host countries resources and development capability are all important determinants of the extent of technology transfer. Analyzes of the development of technology market and technology transfer to China shows that the role of technology, capital, personnel, culture, policy, and intellectual property protection are key determinants of technology transfer.

This chapter also aimed at investigating the development conditions and outcomes with reference to the areas listed above in the Federal Region of Kurdistan. The Kurdistan Region was in 1988 cut off in communication with outside world and it gained its independent governance in 1991. Intensive use of satellite services, broadcasting and telecommunication, presence of many NGOs, comprehensive regional development programs together with technology advancement led to unique and profitable business opportunities to transfer new communication technologies to the region. The connectivity in form of computers and cell phones is relatively high, but lack of cooperation among service providers and ineffective public institutions has led to underutilization of the resources. In similarity with other countries the Kurdistan Region sees this new sector as a major contributor and significant infrastructure and enabler to economic development.

The KRG has made serious efforts to provide official guidelines on investment activities in the region by introducing a new Investment Law. Various incentive measures in the form of land plots, tax and duties exemptions and also regulations are introduced to promote investment activities. From the investor's point of view, the factors positively attributed to the Law are: the broad selection of areas of investment, the non-discriminative treatment of capital by its source, allocation of plots of land, tax and customs duty exemptions, provision of legal guidance, clarification of the investor's obligations and legal procedures, the organization and tasks of various agencies involved. From the receiver's point of view, the weaknesses of the law are: the lack of a strong emphasis on the transfer of technology, skills and management and local employment as basic conditions for provision of investment incentives, the possibility of misuse of land plot allocation, the lack law enforcement and protection of intellectual property rights and the raised public and private income levels and consumption that has affected negatively the trade balance and local production. KRG should promote local production through the imposition of duties on products and services that can be produced locally, while promoting only the import of technology-embodied capital.

Education plays an important rule to development in the Kurdistan Region. The ministries of education are and should plan and implement a new educational policy consistent with a modern system of education and management. The universities are unable to produce education of high quality that corresponds to the needs of a modern society. In parallel with the reform of existing universities new public and private universities are established that are managed differently. The labor market oriented vocational education has not yet been developed. A number of infrastructures are a prerequisite to the inflow of FDI and effective use of capital investments. These include financial Market and its functions, the size and potential of SMEs, the start-ups and labor market policies, measures to promote development in the region, formulation of a model for industrial development and establishment of Science Parks and economic free zones.

The Kurdistan region has enjoyed relative peace in recent years and high oil prices. The shared oil revenues after 2003 have allowed the region to start its reconstruction and development programs much earlier than expected. KRG should take advantage of the existing peaceful conditions to build up capacity to rebuild both Kurdistan region and also undertake reconstruction of the neighboring cities. KRG should identify local specific

factors that are determinants of inward FDI to the region and promote investment by national investors. The increasing rate of inflation and devaluation of the domestic currency are identified as two common key factors negatively affecting the inflow of FDI. The FRK is using dual currencies: the US dollar and the Iraqi dinar but the advantages of currency factor in reducing investment risk have not been fully emphasized. The regions capital city of Hawler with its location and existing peaceful conditions can serve as the headquarters for many TNCs expecting participation in Iraq's reconstruction process. The KRG should take advantage of the presence of Korean peace-keeping troops to facilitate the transfer of Korean technology to the region. Korea is a good partner for cooperation, in particular with their advanced petrochemical, agriculture, communications, manufacturing, governance and institutional technologies. The Korean model of industrialization has shown in practice to be a realistic way of development.

The regional government also has made comprehensive investment programs in building up development infrastructures. It is argued that a country's economic performance is to a great extent determined by its political, institutional and legal environment. Thus, the KRG should adopt its institutions and governance to a higher and international standard by intensive training of its civil servants. In order for the region to encourage inward FDI and simultaneously to discourage outward FDI, it should undertake a number of proactive policy measures to strengthen the infrastructures and to affect investment behavior. These include: a clarification of authority to use natural resources, evaluation of the strengths and weakness of the investment Law, improvement in function of the financial market, vocational training, governance and institutions, the low work morale, work discipline, the weak sense for national interest, economic development plan, the high wages and low labor productivity, provisions of guarantees and securities and improvement in equality.

Among the negative aspects of the globalization to mention are the foreign cultural dominance, the unbalanced development in the urban and rural areas, high dependency on imported labor, difficulties facing agriculture to compete in the absence of supportive agriculture and trade policy and openness and trade relations have undermined the local production to such extent that it endangers the self-sufficiency and security of the region. The rapid development has not resulted in sufficient level of technology, skill and management transfer rather than a high dependency of imported labor to build up and to maintain the existing infrastructure. In-sourcing of labor has been significant in the construction and service areas, while most production previously produced domestically are now outsourced. The rapid development not combined with taxation and redistributions has also generated inequality among sub-groups of the population and it has raised poverty and its concentration among certain sub-groups with low ability to adapt to the new conditions.

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Table 1. Internet users, Phones and Computers connectivity per 100 people by the countries level of income.

Year	2000	2001	2002	2003	2004	2005
A. Internet users:						
High Income	23.67	28.76	32.91	37.47	41.82	46.39
Upper Middle Income	6.66	8.75	12.83	16.09	20.14	23.39
Lower Middle Income	1.61	2.45	4.04	5.28	6.85	8.93
Low Income	0.38	0.58	0.92	1.51	2.10	2.80
B. Mobile phone subscribers:						
High Income	45.41	56.78	65.46	72.07	81.36	92.91
Upper Middle Income	14.54	21.97	29.01	38.10	48.34	64.28
Lower Middle Income	4.12	7.28	10.85	15.55	21.69	30.86
Low Income	0.57	1.03	1.70	2.76	4.30	6.91
C. Telephone mainlines:						
High Income	50.09	49.70	49.11	47.81	47.03	45.86
Upper Middle Income	23.86	24.17	23.78	22.65	24.04	23.03
Lower Middle Income	9.87	10.49	11.08	11.67	12.33	11.90
Low Income	1.37	1.49	1.61	1.74	1.74	1.95
D. Personal computers:						
High Income	31.10	33.53	35.13	37.71	43.81	44.84
Upper Middle Income	8.94	9.99	11.23	13.27	14.90	16.24
Lower Middle Income	2.18	2.61	3.00	3.82	4.57	5.06
Law income	0.70	0.79	1.00	1.22	1.48	2.56

Sources of data: OECD, UNCTAD, US Department of Commerce and World Bank .

Table 2. FDI inflows, by region and selected countries, 2000-2005, (Billions of dollars and %)

Region/country	2000	2001	2002	2003	2004	2005
Developed economies	1133.7	599.3	441.2	358.5	396.1	542.3
Europe	721.6	393.1	314.2	274.1	217.7	433.6
European Union	696.1	382.0	307.1	253.7	213.7	421.9
Japan	8.3	6.2	9.2	6.3	7.8	2.8
United States	314.0	159.5	74.5	53.1	122.4	99.4
Other developed countries	89.7	40.4	43.4	25.0	48.3	6.5
Developing economies	266.8	221.4	163.6	175.1	275.0	334.3
Africa	9.6	19.9	13.0	18.5	17.2	30.7
Latin America and the Caribbean	109.0	89.4	54.3	46.1	100.5	103.7
Asia and Oceania	148.3	112.2	96.2	110.5	157.3	200.0
Asia	148.0	112.0	96.1	110.1	156.6	199.6
West Asia	3.5	7.2	6.0	12.3	18.6	34.5
East Asia	116.3	78.8	67.4	72.2	105.1	118.2
China	40.7	46.9	52.7	53.5	60.6	72.4
South Asia	4.7	6.4	7.0	5.7	7.3	9.8
South-East Asia	23.5	19.6	15.8	19.9	25.7	37.1
Oceania	0.3	0.1	0.1	0.4	0.7	0.4
South-East Europe and the CIS	9.1	11.5	12.9	24.2	39.6	39.7
South-East Europe	3.6	4.2	3.9	8.5	13.3	12.4
CIS	5.4	7.3	9.0	15.7	26.3	27.2
World	1409.6	832.2	617.7	557.9	710.8	916.3
Memorandum: percentage share in world FDI inflows						
Developed economies	80.4	72.0	71.4	64.3	55.7	59.2
Developing economies	18.9	26.6	26.5	31.4	38.7	36.5
South-East Europe and the CIS	0.6	1.4	2.1	4.3	5.6	4.3

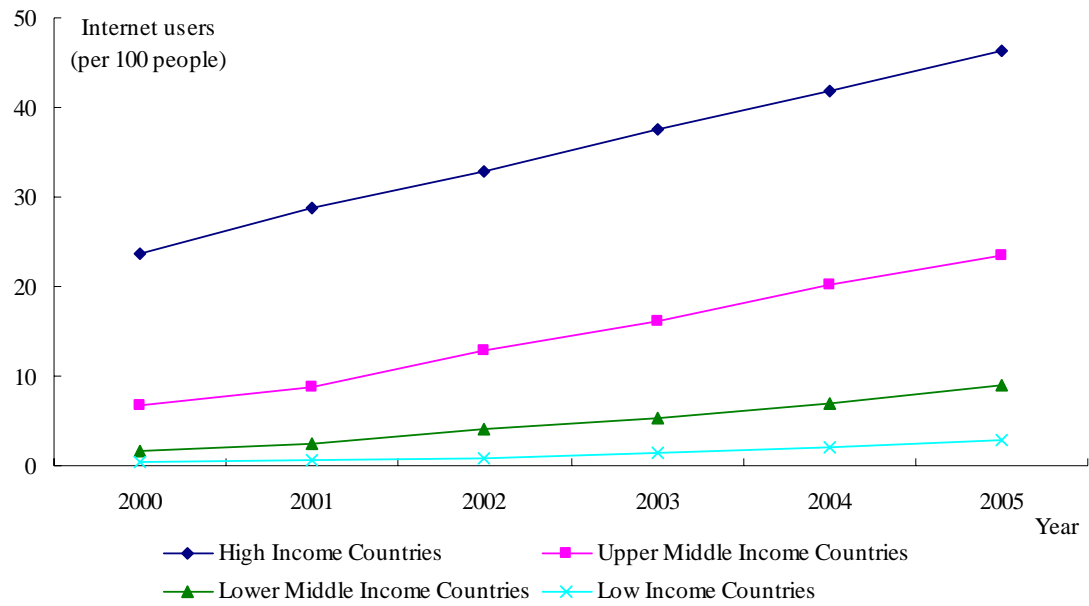*Source*: UNCTAD, *World Investment Report 2006, Overview,* Table 1.

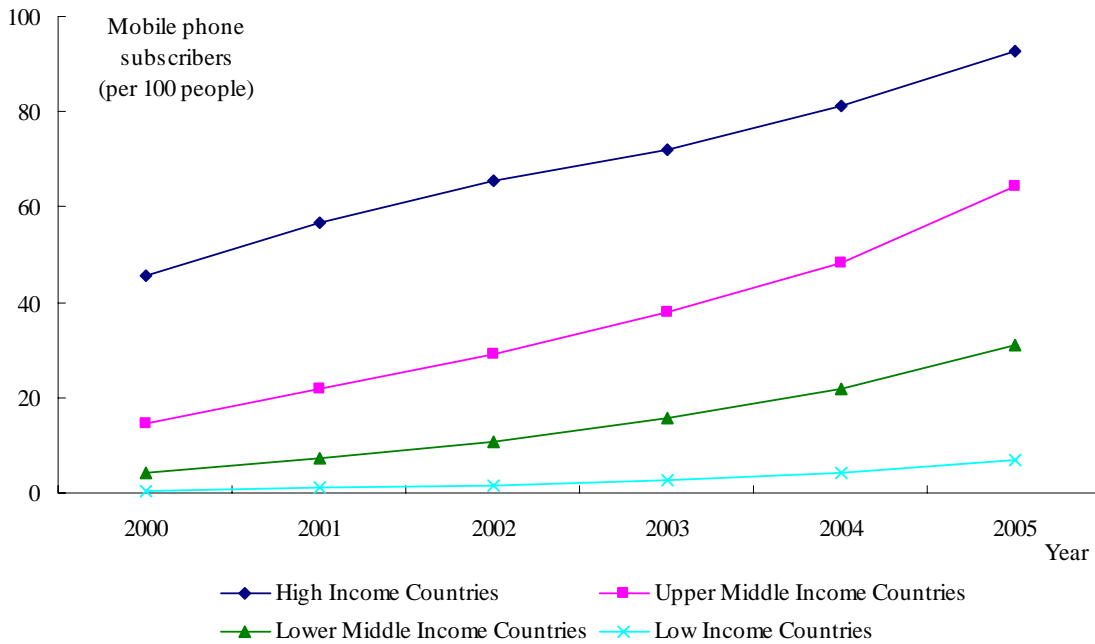Figure 1.A The diffusion of Internet to countries grouped by level of income.

Figure 1.B The diffusion of mobile phones to countries grouped by level of income.
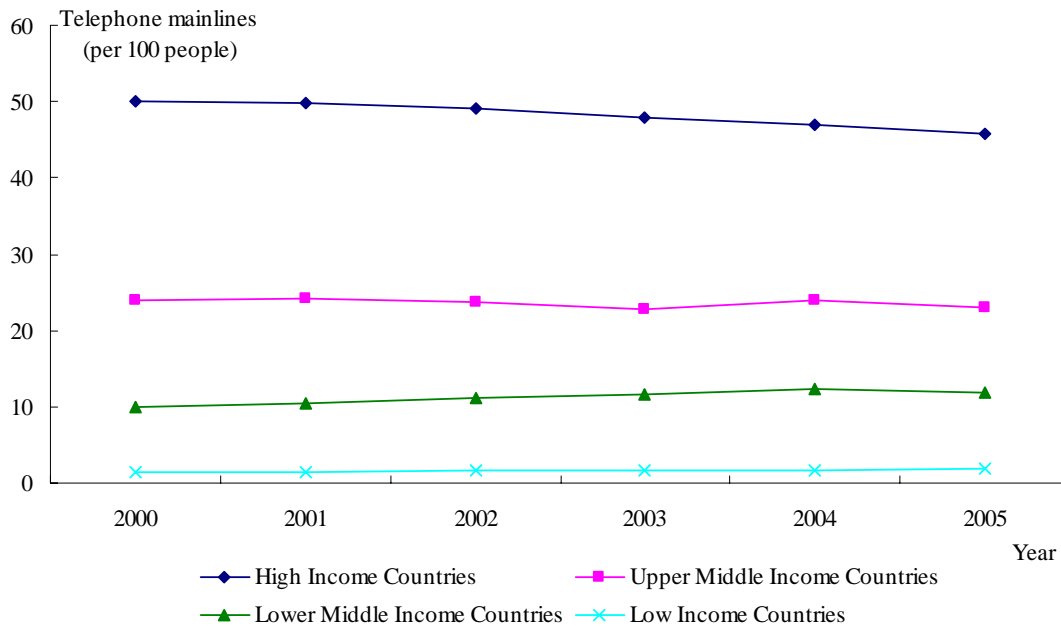
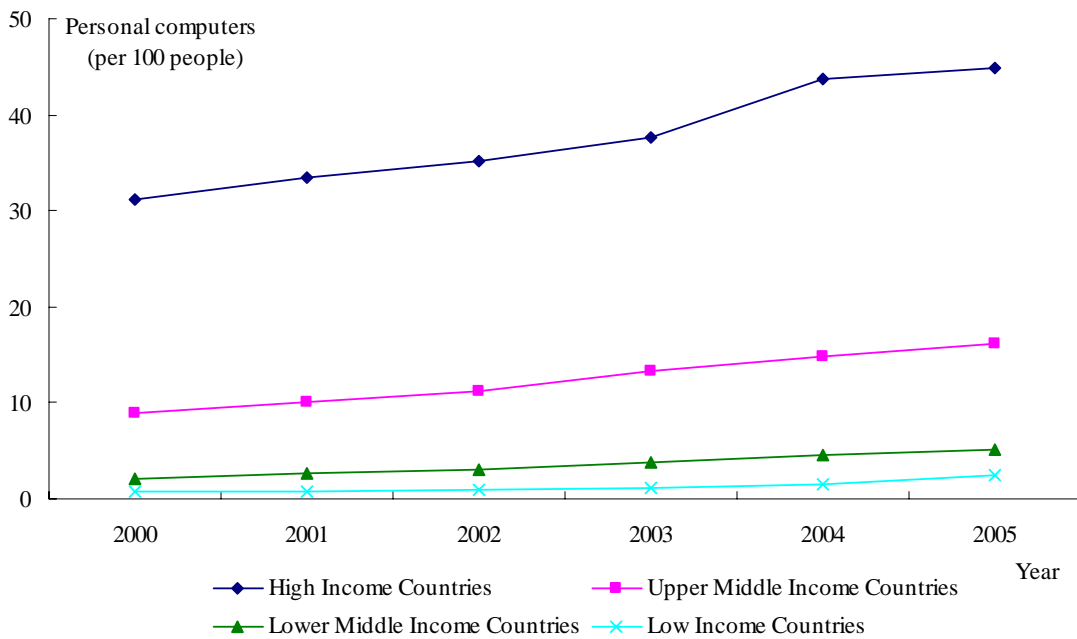Figure 1.C. The diffusion of fixed telephones to countries grouped by level of income.

Figure 1.D. The diffusion of personal computers to countries grouped by level of income.

Figure 2. Weighted globalization index and its decomposition by sub-components, 1995-2000.