



JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

Shock-Therapy vs. Gradualism

The Effectiveness of Foreign Direct Investment in Transitioning Economies

Bachelor Thesis in Economics

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Jönköping January, 2010

“The large-scale institutional changes involved in transition are among the most complex economic and social processes one can imagine” (Roland, 2000, p. xviii).

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Abstract

Throughout the latter half of the 20th century, many developing economies adopted a set of economic policies in order to transition to market economy. Reforms were introduced either simultaneously or gradually, fuelling the debate over whether the so-called shock-therapy reforms were more beneficial or less beneficial to growth than gradual reforms. This study focuses on the role of the mode of transition in determining the effectiveness of Foreign Direct Investment (FDI) on the growth of the Gross Domestic Product (GDP). FDI is valuable for development in transition economies since it has often been a main source of investment for these types of economies. An empirical analysis was conducted using sixty transitioning countries, examining the growth up to sixteen years after the initial reform. The results indicate that there is some evidence of a difference in the effects of FDI inflows on GDP growth between the shock-therapy and gradual reformers.

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1 Introduction

1.1 Background and Purpose

Foreign Direct Investment (FDI) is valuable for development in transition economies, such as those moving from socialism to capitalism, and it has been the main source of investment for these types of economies (Lokar & Bajzikova, 2008; Lipsey & Weiss, 2000). FDI has been promoted by international organizations such as the United Nations (UN) as a means to foster growth in developing countries, since it “is a crucial channel for developing countries to generate technology spillovers” and managerial know-how (UN General Assembly, 2005; Merlevede & Schoors, 2007, p. 32; Tsai, 1994). Governments are advised to create environments that are conducive to foreign investments, however studies have shown that FDI is not always positive for the economy; on the contrary it can also have negative effects, such as a country becoming entirely dependent on FDI for development (NEPAD, 2001; Haddad & Harrison, 1993; Lokar & Bajzikova, 2008).

Countries that have benefited largely from the effects of FDI on growth, such as China and many of the South and East Asian economies, leave room for many questions on why FDI has not been as successful in other regions, such as in many of the Latin American and African countries. Some globalization theories argue that the more advanced a developing country, the more it will benefit from FDI. However, if this were the case Latin America would have profited more than developing Asian economies when its average per capita income in the 1980s was almost six times as large. Latin America’s GDP during this time generally consisted of only ten percent agriculture and twenty-five percent manufacturing, which was comparable to developed nations such as the United States and France, and it was receiving almost seventy percent of FDI inflows to developing countries (Fodors & Feldsieper, 2000). However, between 1983 and 1993, East and Southeast Asia doubled its manufacturing value added and by 1993 it was receiving sixty percent of FDI inflows to developing countries. This contradicted the theories that trade openness influences the amount of FDI flowing into developing countries since in comparison to Latin America, Asian developing countries were regarded as more closed (Fodors & Feldsieper, 2000). In just five years, Argentina, Bolivia, and Mexico undertook “more trade and financial liberalization and privatization... than the East Asian countries have managed in three decades” (Rodrik, 1996, p. 18).

So what accounts for the large differences in the effects of FDI in these regions? Merlevede and Schoors (2007) question the absence of literature on the interactions of FDI with reform and growth. Transitioning economies in various regions have confronted the problem of choosing a mode of transition when reforming. In the shock-therapy approach the country’s institutional, legal, and economic reforms are all introduced simultaneously (Marangos, 2002). In the gradual approach the reforms are implemented at a slower pace, taking into consideration the value of current institutional arrangements in the transformation process. Which of these two approaches is used is thought to have significance in determining the future growth in the country, and may have potential explanatory power for the effectiveness of the FDI coming into the economy after transition.

Thus the purpose of this study is to analyze if the mode of transition, gradual or shock-therapy, determines the effects of FDI on output growth.

1.2 Method and Disposition

The empirical portion of this study is limited to sixty developing and transition countries. Due to time constraints it was not possible to identify and classify all developing and transition countries, however the authors regard the list of countries examined to be sufficiently representative of different transitioning regions in different time periods between the 1960s and 1990s. No index exists for the classification of countries into the categories shock-therapy reformer or gradual reformer, so the authors classified the countries by their mode of transition and identified the years of economic reform according to literature from various secondary sources¹. A multiple regression analysis using Ordinary Least Squares (OLS) was performed using aggregate secondary data on FDI inflows and GDP growth.

The next section of this thesis is the theoretical background, focusing on previous research and theoretical framework on the modes of transition discussion, foreign direct investment, and the differences in the effectiveness of FDI in the two modes of transition. Section 3 focuses on the empirics of the study, beginning with a graphical and descriptive analysis of the data and then continuing with the regression model specification and results. More information according to the empirical methodology can also be found in Section 3. The analysis section evaluates the results of the regression with respect to the theoretical assumptions and background research. The last section offers concluding remarks and suggestions for further research.

¹ See Appendix A for the full list of the countries classified, the year of economic reform, and the sources used.

2 Theoretical Background

2.1 Modes of Transition

The process of transition denotes the change from a centrally planned economic system to a market based economic system. The economy moves from a relatively closed state to being more open and integrated with the world economic system. The change in economic institutions and practices means a change in economic conditions for the transitioning countries (Round, 2009).

Traditionally, the term transition has been used to describe the transition from socialism to capitalism after the fall of the Soviet Union. However, similar processes were also underway in Asia, Africa, and Latin America between the 1960s and 1990s. Large scale economic reforms occurred in Latin America, sometimes in conjunction with dictatorships and usually with the implementation of the Washington Consensus, which was the common free-market policy advice to Latin America offered by Washington-based institutions (Marangos, 2007). Several African nations transitioned from socialist economies throughout these decades and in Asia the transition process included both countries transitioning from communism as well as countries with no communist history. Differing terminology for transition has been used in previous research, depending on the region of the world in focus and the political transition that may or may not have accompanied the economic transition². However, the similarities in economic transitions patterns are notable and therefore, for the purpose of this study, transition is used as a collective term to describe a very substantial change in economic policy towards a market economy. This includes countries from all areas of the world that are or were in different stages of transition from a planned to a free market.

2.1.1 Two Main Approaches

Two general scenarios for the transition process have emerged, namely shock-therapy and gradualism. Both gradualism and shock-therapy broadly agree upon certain objectives of the transition. The creation of competitive markets, as well as the creation of incentives for firms to respond to market signals, including privatization, entrepreneurship, and encouragement to create new private firms, are important for both. The introduction of relatively flexible prices through the stabilization of the macro-economy is also important. Institutions that make sure stability exists in the transition are a necessity and should protect property rights and prevent rent-seeking from pressure groups (Roland, 2000).

The gradual and shock-therapy approaches do not differ in that they each have their own set of prescribed policies for reform, rather they differ on a more fundamental and philosophical level. According to Murrell (1992) it is “the contrast between viewing society as an information processing device and viewing society as a resource allocation device” (p. 86). This philosophical difference is reflected and most noticeable in the speed of the reforms enacted.

Shock-Therapy

Shock-therapy, orthodox reform, the big-bang, or radical reform are all labels used for the view of transition rooted in neo-classical economic price-theory, standard macroeconomics, and belief in stabilization policies’ surefire efficiency gains (Roland,

² For a discussion on these differences see Papava (2005).

2000). The Washington Consensus is also associated with shock-therapy reform and it “forms the basis of the IMF approach to transformational developments” (Papava, 2005, p. 82). Economic growth is ensured through simultaneous reforms that would be a “leap to a market economy” (Lipton and Sachs, 1990, p. 48). The core reforms of the shock therapy approach are: macroeconomic stabilization, price liberalization, and privatization. The strategy is to make the most radical transformations in the shortest period of time (Papava, 2005). The complementarity and interdependence of the reforms and restructuring to be enacted, including opening the economy to international competition, the creation of an effective price system and a convertible currency, warrants the quick introduction and implementation of the reforms, in order to ensure long run economic growth (Marangos, 2003).

This view argues that the fundamentals of economics are well-understood and applicable, and there is a strong faith that societal engineering of reforms will bring about efficiency gains. In fact, the speed of the transition process is used in order to create irreversibility of reforms as this is thought to break up the existing structure in the economy. Partial reforms would only create incentives for oppositional groups to hinder further reform. Therefore the introduction of economic reforms will simultaneously and speedily jump start the economy. This includes the fast privatization of state assets, a closing down of other state owned enterprises, and a weakening of government intervention (Roland, 2000).

The existing institutions in a transition country are not relevant in this view. The emphasis is rather on the adoption of laws to secure property rights and other steps to ensure a functioning market. Therefore the institutions of an old system need to be destroyed in the transition process in order to ensure that new institutions can be set into place that encourage the free market to flourish. Knowledge of the old system in the shock-therapy approach is treated as a liability. It needs to be replaced by an understanding of the new system (Roland, 2000).

Gradual

Gradualism, evolutionary, or institutionalist reform are all names for the view of transition that is based on evolutionary economics, the institutional perspective, and uncertainty about the collective knowledge on economic and societal systems and their transformation (Roland, 2000). The gradual approach to economic reform rests on the assumption that the steps to reforming the economic system should be taken at a slower pace, although the ultimate goal of a more open and market based economy is shared with the shock-therapy approach to reform.

Gradual reform highlights that there is an uncertainty about transition economies that needs to be taken into account and huge societal changes will not necessarily bring about efficiency gains. In fact there are many possible outcomes and the selection of a shock-therapy reform can cause irreversibility. Continuous political support for reforms, the possibility to reverse reforms, flexibility in implementation and experimentation are all key aspects of the gradual approach. Partial reforms can also stall the reform process; however, initial reforms can also create a momentum to enact future reform (Roland, 2000; Papava, 2005).

Existing institutions, in this view, cannot be simply destroyed and replaced by new institutions. The gradual approach “combines a policy of the gradual phasing out of the old institutional framework, an active program to promote new private sector activity and the institutions that this sector requires, and gradual privatization using market processes” (Murrell, 1992, p. 82). Existing institutions in a country provide security in a time of

transition. Institutional conditions need to be comprehensive and include “legal and financial change, law enforcement, reform of organization of government, development of self-enforcing social norms” in order for positive reform progress to be made (Roland, 2000, p. 330). However, this does not mean that reforms need to wait until the perfect institutions are in place. Instead, a basic institutional framework needs to exist and over time institutions will change in a process that reflects the new capitalistic and more open system. The gradual view does not believe that the market system will begin to function instantaneously after reform or spontaneously; rather “institutional underpinnings are needed to enhance market growth” (Roland, 2000, p. 331).

Deviating from neo-classical assumptions of *homo economicus*, in a world where rationality is bounded and social arrangements are complex, the importance of the knowledge that society has accumulated of their socioeconomic processes is extremely important. The gradual approach stresses that this knowledge will disappear entirely in a speedy reform that destroys old institutions and patterns immediately. The reform process should be enacted in such a way that replacement information is generated at the same pace as the reforms break down current institutional structures (Murrell, 1992). This would ensure that the people within the economic system can continue to function with the knowledge they possess of the old institutions while the simultaneous process to reform the system begins. Roland (2000) argues that complementarities and interactions between the different reforms that are enacted during a transition process justify gradualism.

2.1.2 Mode of Transition and Growth

Several studies on economic growth in transition economies have been conducted, finding varying importance of economic reform as a determinant for growth. De Melo, Denizer, and Gelb (1996) find that the speed of the economic reforms and the degree to which the economy was liberalized accounts for cross-country differences in output performance. The importance of structural reform and stabilization is emphasized as determinants to growth (Havrylyshyn, Izvorski, & van Rooden, 1998; Fischer & Sahay, 2000).

Neo-classical economic growth theory would suggest that economic reforms undertaken in the transition from a planned economy to a market economy would invariably bring about efficiency improvements and growth. Many policy makers and international economic institutions predicted that by enacting shock-therapy economic reform, countries would experience a slight fall in output, followed by increases. However, advocates of the shock-therapy approach never predicted the large fall in output and deep transitional recession that followed the enactment of reforms. This has partly been blamed on the failure of certain countries to fully enact all reforms, however, the policies advocated led not only to the surprising fall in output, but also other unexpected surprises such as asset-stripping after mass-privatization and the emergence of the Mafia and hidden economy in Russia (Roland, 2000).

The philosophical basis for the gradual approach on aggregate uncertainty certainly presents a convincing argument when posited against the unexpected outcomes of certain shock-therapy reforms. Uzbekistan, a gradual reformer, had the slowest fall of GDP growth rate among all post-Soviet countries (Papava, 2005). Under conditions where uncertainty about potential reform reversals exists, Merlevede & Schoors (2007) estimate higher growth for gradual transition countries.

Conversely, de Melo, Denizer, Gelb, and Tenev (2001) find that initial conditions are important determinants for both economic performance and the speed of liberalization. Beyer and Wiegohls (2001) also argue that initial conditions and size of the economy are

more important for the effects on growth than the choice of the transition mode. In the first four years of transition, Heybey and Murrell (1999) argue that initial conditions have more to say about economic growth than the speed of liberalization; however they also make explicitly clear that the results do not indicate that choice of liberalization policy has no affect on economic growth. Berg, Borensztein, Sahay, and Zettelmeyer (1999) refute that initial conditions are determinants for economic growth and argue that differences between the Commonwealth of Independent States (CIS) and the Central and Eastern European (CEE) countries are associated with economic policies.

2.2 Foreign Direct Investment

According to Moosa (2002) FDI “is the process whereby residents of one country (the source country) acquire ownership of assets for the purpose of controlling the production, distribution and other activities of a firm in another country (host country)” (p. 1). The UN on the other hand, defines FDI as “an investment involving a long term relationship and reflecting lasting interest and control of a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor” (UNCTAD, 1999). ‘Control’ in these definitions means that the investor has a certain amount of power in making decision of the managerial processes and strategy of the project abroad. Control can also take the form of contracts such as, subcontracting, management contracts, franchising, licensing, and product sharing. It is therefore important to differentiate FDI from portfolio investment, and the difference lies within the fact that FDI is long term oriented, whereas portfolio investment is short term. Furthermore, a foreign direct investor manages or controls the assets, which is not necessarily true for a portfolio investor.

2.2.1 Forms of Foreign Direct Investment

According to Moosa (2002) there are three main forms of FDI: greenfield investment, cross-border mergers and acquisitions (M&As), and joint ventures. Greenfield investment creates distribution and production facilities in the host country, which is considered positive for the host country because it creates employment and increases value added output in the economy. The second form of FDI, cross-border M&As consists of foreign firms acquiring or merging with local firm in the host country, which allows the investor to enter a market more easily. According to Moosa (2002) “cross border acquisitions of businesses are a politically sensitive issue, as most countries prefer to maintain local control of domestic firms” (p. 15). Therefore, host countries tend to be more open towards greenfield investments than M&As. Those against M&As argue that they are not advantageous for the host country since they do not increase the productive capacity. On the contrary, the shifting of ownership could lead to layoffs and other losses in benefits. According to Lokar and Bajzikova (2008), M&As are easier to implement because the firm already possesses the knowledge of production and distribution systems, and already has a customer base. This also makes them the most common type of FDI. The third form of FDI is joint ventures, which take place with a government institution or a firm located in the host country, or even another foreign investor company in the host country. Usually the foreign firm imparts the technology and capital, and the host country makes the information about government, regulations and bureaucracy available (Moosa 2002).

2.2.2 Effects of Foreign Direct Investment

There have been many studies concerning the positive and negative effects of FDI on host economies. The neoclassic economic theory states that FDI tends to increase not only income, but also social welfare. In order for this to happen the host country should have optimal conditions that will not be affected by monopolies, protectionist policies, and other externalities, otherwise welfare will decrease (Lall and Streeten, 1977). Furthermore, MNCs will usually invest in places with low input costs that will produce high returns, i.e. maximize profits. One could assume that this is efficient and would produce high levels of welfare. Studies by Leahy and Montagna (2000) argue that the direct product competition that takes place at the host country can decrease welfare, since MNCs will obtain market shares from local firms. Furthermore, Glass and Saggi (1998) argue that foreign investors may compete with the local producers in an economy to the point where they are driven out of the market, thus reducing welfare.

Moosa (2002) argues that the costs and benefits of FDI cannot be measured in a quantitative way, and Lall and Streeten (1977) divide the effects of FDI on the host country into economic, political, and social effects. Economic effects of FDI cover the effects on economic variables (output, balance of payments and market structure). Secondly, political effects cover sovereignty issues and whether the MNCs “jeopardize national independence (who runs the host country the prime minister or the CEO of the investing MNC?)” (Moosa, 2002, p. 69). Social effects are related to the emergence of a “foreign elite in the host country” and the effects that MNCs can have on local culture (Moosa, p. 69, 2002). However, these effects tend to appear mostly when there are major economic, social, and cultural disparities among the host and home country of the MNC (Moosa, 2002).

FDI can have both negative and positive effects on national economies. Positive effects are related to the increase of money inflows from abroad, enhancement of both the trade and external balance of a country. However, this occurs if the goods and services are exported abroad. Other positive effects include increase of spillovers, such as technical know-how in production. On the other hand, negative effects on national economies in the short run take place when products and services are imported into the host country to curtail certain activities. In the long run, a negative effect of FDI can be the dependence of the host country on FDI for development (Lokar & Bajzikova, 2008). Furthermore, FDI can have an impact on the external balance of an economy, and these two effects “depend primarily on whether the motivation for the inflow of capital is ‘market seeking’ or ‘efficiency seeking’ ” (Lokar & Bajzikova, 2008, p. 254). Market seeking FDI could cause a negative effect on the trade balance since goods from the foreign investor are being mostly sold in the host country (Varamini and Matty, 1998). Efficiency seeking FDI tends to cause a positive effect on the trade balance, since the foreign investor is trying to obtain a low cost input, which could lead to higher exports (Lokar & Bajzikova, 2008).

2.2.3 Foreign Direct Investment and Development

FDI is valuable for development in transition economies, such as those moving from socialism towards capitalism (Lokar & Bajzikova, 2008). Economic theories on growth and development argue that capital accumulation and technological progress among others increase real per capita income (Moosa, 2002). Furthermore, the modernization hypothesis states that FDI is crucial for economic growth because it spreads technology and managerial know-how into the host economy (Tsai, 1994). Moosa (2002) argues that economic growth depends on the amount of technology in a country compared to the rest of the world, and hence development in developing economies can be determined by the speediness in obtaining a certain level of technology. Other studies such as, Zhang and

Song (2000) argue that the effects of FDI can be different among countries, and that this difference can be explained by the differences in stages of development. Some studies claim that high growth rates have to exist in order to attract more FDI (Barrel and Pain, 1996). Studies by Ericsson and Irandoust (2001) examine the relationship between FDI and growth and found that growth is a determinant of FDI inflows in some countries and FDI is a determinant of growth in others. Further studies on the on FDI-led growth models and growth-driven FDI, such as the study by Lheem and Guo (2004) on China, show that China “might have experienced the two effects, simultaneously” (p. 253).

The effects of FDI on the host economy’s growth vary according to the economic environment of the host country. Macroeconomic policies in the host country influence the effects that FDI can have on growth. FDI increases output when it utilizes resources in the host country that were not in use before. Furthermore, output in the host country should increase when FDI enhances resource productivity which could take place when FDI transfers resources to a more efficient or productive sector in the host country’s economy (Moosa, 2002). Other studies such as Borensztein, de Gregorio, and Lee (1998) conclude that FDI transfers technology and therefore affects growth more positively than local investment, but they argue that in order for FDI to be more productive than local investment, the host country should offer enough human capital. Lastly, the FDI also encourages domestic investment, which will increase total investment in the economy by more than the initial foreign investment (Borensztein et al., 1998).

Conversely, other studies conclude negative effects of FDI on growth. Lall and Streeten (1977) conclude that MNCs in developing countries can have negative effects on the host economies. They argue that a lower rate of accumulation can takes place at the host country, since most of the profits are sent home and are not kept in the host country. Secondly, they argue that MNC’s could harm development by increasing harmful practices or deteriorating economic policy control in the host country. Lastly, they state that the market could be affected negatively by MNC’s and become less competitive. Borschier (1980) found that FDI can have positive short term effects, but negative ones in the long run, due to a negative correlation among the accumulation of FDI stock and economic growth.

2.3 Foreign Direct Investment in Different Modes of Transition

The effects of FDI on the host economy’s growth vary according to the political and economic environment of the host country. Although the effects of FDI on growth have yielded various results, a study by Woo (2009) shows that FDI has a positive and significant effect on total factor productivity (TFP) growth. Differences in TFP growth can explain more than fifty percent of the cross country variations in income growth per capita (Klenow & Rodriguez-Clare, 1997; Easterly & Levine, 2001; Hall and Jones 1999). Therefore, although previous research has not always found FDI to be an explanatory variable in GDP growth, the argument for the importance of FDI in development remains. FDI brings important technological transfers, production processes, and management practices to the host country which impact TFP growth (Woo, 2009).

In general, the level of reform is a significant positive determinant of FDI inflows into transition economies (Deichmann, Eshghi, Haughton, Sayek, & Teebagy, 2003). Openness and liberalization enhances capital increases via FDI flows and countries opting for shock-therapy reform opened up their economies to FDI at a faster pace than the countries opting for gradual reform (Kukeli, Fan, & Fan, 2006). Although Latin America was in

general more open than the Asian economies they received on average less FDI than the Asian economies, highlighting the fact that although liberalization policies may be one determinant of FDI there is certainly a more complex interaction of determinant factors for MNCs, such as human capital and transaction costs (Foders & Feldsieper, 2000). The incoming FDI flows for the gradual countries and the shock-therapy countries included in this study is illustrated below in Figure 1. The figure illustrates that shock-therapy countries received more FDI inflows as a percentage of GDP during the initial four years. However, the differences after that level out until year thirteen after reform, where there is a larger divergence.

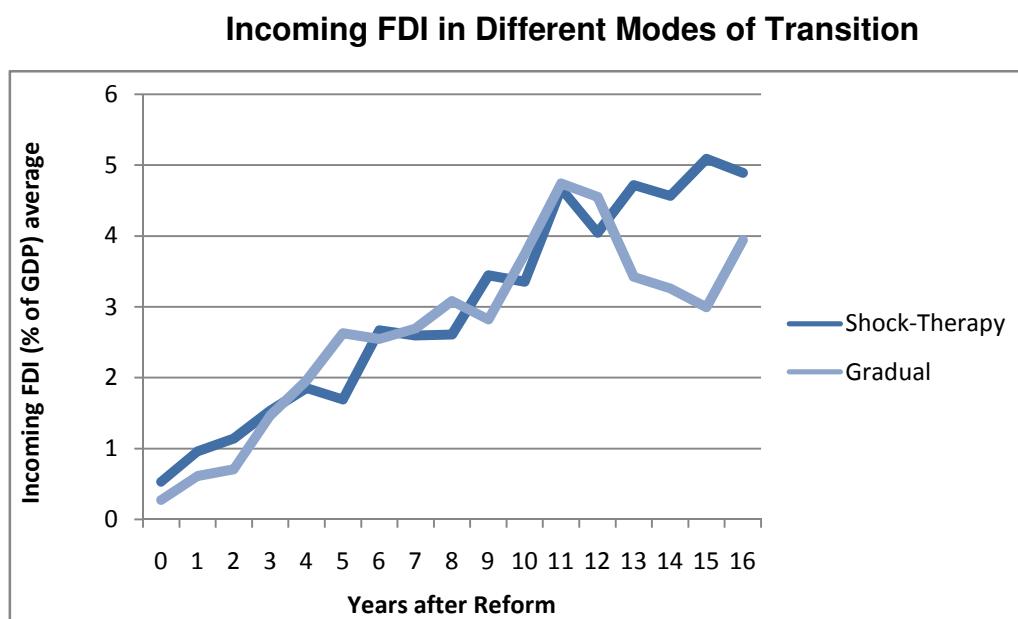


Figure 1 Composed by authors using data from United Nations Conference on Trade and Development (2010).

FDI brings both direct effects from the increase in capital of the economy as well as the indirect effects of technology transfers and know-how, such as management, organizational, and marketing strategies. There have been few studies on the effects of the mode of transition on FDI. Kukeli, et al. (2006) present empirical evidence that countries following the shock-therapy approach to transition have a higher marginal effect on the growth rate of output from an increase in FDI per worker and FDI/output ratio than the countries adopting gradual reform. However, they also find, contrary to their expectations, that an increase of FDI flow by one percent causes an increase in output for the gradual countries that is 4 times higher than that of the countries adopting the shock-therapy approach to reform (Kukeli, et al., 2006).

Desmet, Meza, and Rojas (2008) claim that “the very existence of spillovers may require temporarily restricting FDI” (p. 926). In order for FDI to be absorbed and materialized by the host economy, the economy must possess the capacity to absorb the indirect effects from FDI. According to Desmet, et al. (2008), by letting FDI in gradually, the capital coming into the country will have time to be put to use and the technology will have time to be adopted by the host economy, and additionally, other spillover effects such as managerial and organizational know-how will be adopted and adjusted to the host economy. When additional investment takes place, the economy will have reached a higher level of absorptive capacity and will be able to use the additional FDI more effectively. Desmet, et al. (2008) argue that gradual economies will end up with “superior technology

and a greater capital stock” (p. 926). Future FDI therefore has a chance to be even more effective and more spillover effects can be harnessed. Borensztein, et al. (1998) support the argument that the positive effects of FDI are conditional upon certain capacities for absorption, such as human capital.

China adopted a gradual strategy for liberalization and made use of certain strategies in order to make the most efficient use of incoming FDI. The coastal regions were opened up to FDI first since these areas were believed to have the highest absorptive capacity (Jia, 1994). China expected that the technology would later spread to other Chinese provinces and as this occurred, more provinces opened up to FDI (Jia, 1994). This stepwise strategy for liberalization gave spillover effects the time needed to materialize. Other restrictions on FDI were also enacted, such as the requirement of foreign firms to operate as a joint venture with Chinese firms. China has benefited from these restrictions on FDI and their gradual approach to reform, and according to Desmet, et al. (2008) this may allow them to converge to a steady state economy with superior technology and higher capital stock.

3 Empirical Model

3.1 Data

The purpose of this thesis is to analyze the effectiveness of FDI in the two different modes of transition, gradual and shock-therapy, in order to determine if the mode of transition has an effect on the effectiveness of FDI on GDP growth rates. In order to perform this study, data had to be obtained on the mode of transition for each country, as well as data on FDI inflows, and GDP growth rates.

The countries used for the empirical analysis in this study were developing and transition economies that had undergone a transition from a relatively closed economy to a more open one. Since no index for classifying countries as either gradual or shock reformers exists, the authors consulted various secondary literary sources such as scholarly journal articles and books to classify countries³. The core reforms to the economy during transition are macroeconomic stabilization, price liberalization, and privatization. The speed at which these reforms were introduced determines whether the country falls into the gradual or shock category. In some cases in the classification process, various studies presented contradictory results due to differences in the definition and interpretation of the concepts. All countries in the current study were therefore classified according to the speed at which the core reforms were introduced⁴. See Appendix A for the complete list of countries, their classification, initial reform year, and sources. Appendix B presents the classified countries on a world map to illustrate the countries included in the study, their mode of transition, and geographical location.

Multiple regression analysis using Ordinary Least Squares (OLS) was performed using aggregate secondary data from the United Nations Conference on Trade and Development (UNCTAD) FDI STAT (2010) and the United Nations (UN) Statistics Division National Accounts Main Aggregates database (2009). FDI statistics are generally plagued by inconsistencies between the reporting of the host country and the home country, and furthermore many companies do not wish to publish information about their foreign operations due to secrecy concerns (Moosa, 2002). So although, obtaining completely accurate FDI data is unlikely, FDI data from UNCTAD is among the most comparable and readily available for studies on FDI.

3.2 Model Specification

Since the central and eastern European countries (CEEC) were among the last to transition in the early 1990s this study examines in total sixteen years after reform. Through the use of secondary literature on transition economies, the year of economic reform for each country has been identified and labeled as 'year 0' for the regression. Each country has also been identified as either a gradual reformer or a shock-therapy reformer and classified as such with the use of a dummy variable. Twenty-three countries are identified as gradual and

³ The European Bank of Reconstruction and Development (2009) publishes the Transition Index (TI) made up of nine different components measuring 29 countries from central Europe to central Asia. This index however, does not classify countries into the gradual or shock categories; rather measures their relative progress toward a full market economy in the nine areas.

⁴ For more detailed information about the differences between the gradual and shock-therapy reform approach, see Section 2.1.

thirty-seven are identified as shock-therapy reformers. The full list of countries, mode of transition, year of economic reform, and sources can be found in Appendix A.

The empirical model devised for this study aims to discern the effectiveness of FDI inflows in the different modes of transitions on GDP growth. The growth rate of GDP from year to year is presented in Figure 2 as an average for the gradual countries and for the shock-therapy countries. There is a clear upward trend for both the shock-therapy countries as well as the gradual countries. However, a divergence in year 4 occurs, when the gradual countries seem to outpace the shock-therapy reformers in growth rates.

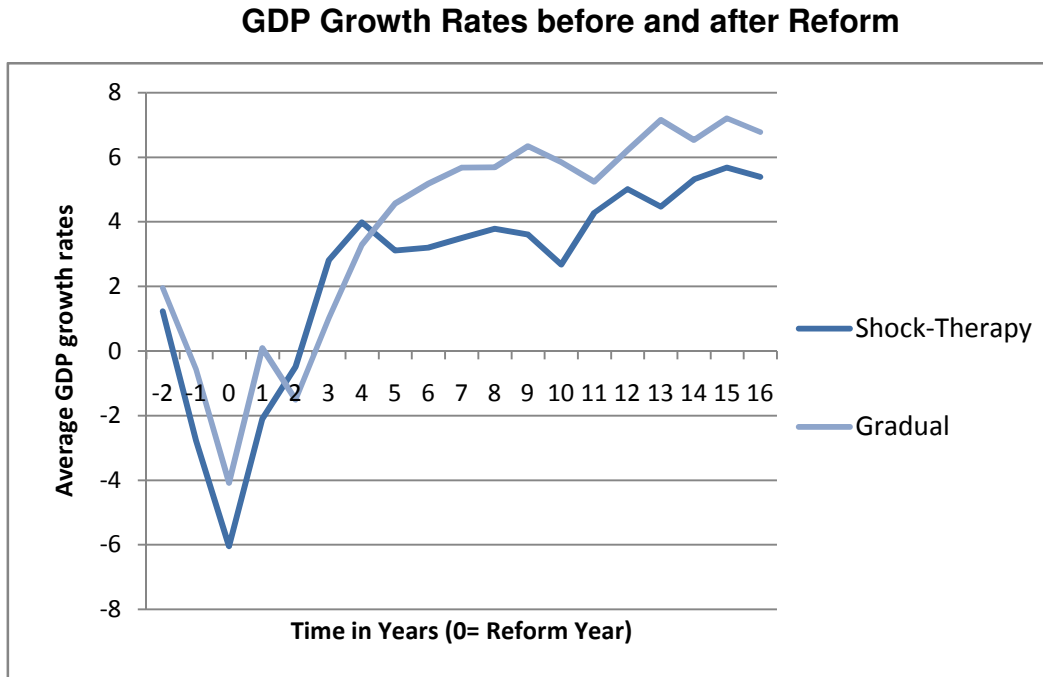


Figure 2 Composed by authors using United Nation Statistics Division National Accounts Main Aggregates database (2009).

An Ordinary Least Squares (OLS) regression was performed with the following equation:

$$g_{4,i} = \beta_0 + \beta_1 D + \beta_2 \overline{FDI}_{0,4} + \beta_3 D \cdot \overline{FDI}_{0,4} + \beta_4 \bar{g}_{-2,0} + \beta_5 D \cdot \bar{g}_{-2,0} + \varepsilon_i$$

using the change in the growth rate between year 4 and year i ($g_{4,i}$) as the dependent variable and using for explanatory variables a dummy variable for the mode of transition (D), average FDI inflows between year 0 and 4 ($\overline{FDI}_{0,4}$), an interaction variable between FDI inflows and the dummy, average GDP growth rate between year -2 and 0 ($\bar{g}_{-2,0}$), and an interaction variable between GDP growth prior to reform and the dummy. These variables are discussed in more detail below.

Growth Rate of Gross Domestic Product between year 4 and i ($g_{4,i}$)

Most studies on FDI focus on its effects on growth (Borensztein et al.,1998; Asheghian; 2005). FDI affects GDP through the accumulation of capital and investments in the economy, as well as through spillover effects that increase productivity (Moosa, 2002).

The dependent variable $g_{4,i}$ presents the change in the GDP growth rate between year 4 and year i , where year i is equal to the years 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16. The reason for starting in year 4 is partly because all the effects of incoming FDI will not materialize immediately and may be reflected in the GDP several years later. For example, the effects of the additional capital will be reflected sooner in an economy than the spillover effects, which are the most interesting effects for this study (see Section 2.2.4). Additionally, including the GDP for years 0 to 4 would have introduced endogeneity problems with the average FDI inflow variable, because of the simultaneity of the effects⁵. Therefore, these years are not studied in the dependent variable. It is also notable that the divergence in GDP growth rates between gradual and shock-therapy countries occur 4 years after the reform (see Figure 2) and thus becomes a natural breaking point.

The regression is performed 12 times, with i changing for each regression. This measures the GDP growth in a time span beginning with the growth between year 4 and 5, and increasing the time span by one year for each additional regression until the final time span measures the growth between year 4 and 16. This allows an examination of not only the short term effects, but also the long term effects of FDI on GDP growth.

Mode of Transition (D)

The dummy (D) is 0 if the country's mode of transition was shock-therapy and 1 if the country employed a gradual reform. Including the dummy variable in the regression shows the effects of the mode of transition on GDP growth. The mode of transition for each country was determined through secondary literary sources, see Section 3.1 and Appendix A.

Average Foreign Direct Investment Inflows as a Percentage of GDP between year 0 and 4 ($\overline{FDI}_{0,4}$)

The explanatory variable $\overline{FDI}_{0,4}$ is the average inward foreign direct investment into the economy in the year of reform and four years after, as a percentage of GDP. $\overline{FDI}_{0,4}$ is normalized by representing it as a percentage of GDP to be able to compare the different countries regardless of the size of their economy. The reason for selecting this time period is to be able to examine both the short term and long term effects of the incoming FDI on $g_{4,i}$, since FDI spillover effects take time to materialize in an economy.

Interaction between FDI and Mode of Transition ($D \cdot \overline{FDI}_{0,4}$)

This is the interaction variable between $\overline{FDI}_{0,4}$ and the mode of transition dummy variable (D). The reason for including an interaction variable is to be able to see the difference in the effectiveness of the $\overline{FDI}_{0,4}$ on $g_{4,i}$ between the gradual and shock-therapy reform approach.

Average GDP Growth for Years 0, -1, and -2 ($\bar{g}_{-2,0}$)

$\bar{g}_{-2,0}$ is the average year-to-year GDP growth for the reform year and two years before the reform year. It represents the effect of the average GDP growth prior to reform on the GDP growth rate after the reform, beginning in year 4 ($g_{4,i}$). This variable is included in order to determine if the GDP growth rate prior to economic reforms has an effect on the GDP growth of an economy after it has reformed.

⁵ See Section 2.2.4 for more information about the relationship between FDI and growth.

Interaction between Avg. GDP Growth for Yrs. 0, -1, and -2 and Mode of Transition ($D \cdot \bar{g}_{-2,0}$)

$D \cdot \bar{g}_{-2,0}$ is the interaction variable between the average GDP growth prior to the reform and the mode of transition dummy variable. It is included in order to identify the effects of $\bar{g}_{-2,0}$ on $g_{4,i}$ in the different modes of transition.

3.3 Regression Results

To study the effects of the mode of transition, 12 regressions were first carried out changing the dependent variable for each regression, beginning with the growth between years 4 and 5, and ending with the growth between years 4 and 16. The explanatory variables detailed above were all included and remained the same for the 12 regressions performed. However, due to the lack of data on GDP growth ($\bar{g}_{-2,0}$), 19 countries had to be excluded from the regressions, leaving a total of 41 countries (13 of these were gradual reformers and 28 were shock-therapy reformers)⁶.

In order to include all 60 transitioning countries identified in this study, a second set of 12 regressions were performed, which did not include the variable for prior GDP growth rates. This set of regressions will be referred to as Regression Set 2, whereas the primary equation as detailed in Section 3.2 above will be referred to as Regression Set 1.

The results for the two sets of regressions will be discussed below⁷. Primarily, results from Regression Set 1 will be relied upon to draw conclusions⁸. However, when significant results from Regression Set 2 are found to be relevant for the discussion, these will also be included. In general, the results for both regression sets were similar.

The dummy variable D is used to capture the differences between the mode of transition countries follow and takes on the value of 0 for shock-therapy reformers and 1 for gradual reformers. Thus, for shock-therapy reformers, the effectiveness of $\overline{FDI}_{0,4}$ on $g_{4,i}$ can be recognized in the coefficient estimates for β_2 , whereas for gradual reformers, this effect would be seen when adding the estimates for β_2 and β_3 . Likewise, the effects of $\bar{g}_{-2,0}$ on $g_{4,i}$ can be identified for shock-therapy countries through the coefficient estimates for β_4 and for gradual countries through the coefficient estimates for $\beta_4 + \beta_5$.

Mode of Transition

The dummy variable (D) has a positive and significant effect on $g_{4,i}$ for almost all regressions performed. In Regression Set 1, the coefficient is positive and significant for all regressions except the first where $i=5$. In Regression Set 2, the coefficient estimate ($\widehat{\beta}_1$) is

⁶ Many of these countries were former Soviet countries, and therefore no data exists prior to the year of reform, see Appendix A for the full list of countries, and indications for which countries were excluded from the regression with the prior GDP growth variable.

⁷ Detailed regression output for Regression Set 2, including all coefficient estimates and standard errors can be found in Appendix C. Adjustment for outliers can be found in Appendix D.

⁸ Testing indicated that there is no substantial presence of autocorrelation, multicollinearity, or heteroskedasticity in either set of regressions, using the Durbin-Watson, Variance Inflation Factor (VIF), and White's test.

significant for most regressions except the last two where i is equal to 15 and i is equal to 16. The fact that throughout all regressions performed, the sign was positive indicates that, ceteris paribus, being a gradual reformer has a positive effect on the GDP growth rate.

Average Foreign Direct Investment Inflows as a Percentage of GDP between year 0 and 4

The coefficient estimates for $\overline{FDI}_{0,4}$ are significant between $i=10$ and $i=14$ in Regression Set 1. For the remaining regressions performed the β_2 coefficient estimates were not significant. A consideration of the frequency of particular signs on the coefficient estimates could offer some insight. For all regressions the $\overline{FDI}_{0,4}$ coefficient estimates are positive, except for the last one ($i=16$). This indicates that for shock-therapy countries, average inflows of FDI in the year of reform and the subsequent 4 years ($\overline{FDI}_{0,4}$), have mainly a positive relationship on GDP growth rates for years 4 through 15. However, in $i=16$, which measures the growth rate between year 4 and 16, and thus over the longest time period, the coefficient estimate is negative, but not significant.

Interaction between FDI and Mode of Transition

The coefficient estimates for $D \cdot \overline{FDI}_{0,4}$ are not significant in Regression Set 1. Nevertheless, the signs are mainly negative; however the final regression reveals a positive sign. This suggests that the gradual reformers initially have an inferior effectiveness of $\overline{FDI}_{0,4}$ on GDP growth as compared to the shock-therapy reformers. However, when examining the growth between year 4 and 16 (the longest period of time used for the regressions) the coefficient estimate becomes positive.

When adding together $\widehat{\beta}_2 + \widehat{\beta}_3$, 7 of the regressions indicate a negative relationship between being gradual and the effectiveness of $\overline{FDI}_{0,4}$ on GDP growth ($g_{4,i}$) and 5 indicate a positive relationship.

Average GDP Growth for Years 0, -1, and -2

The coefficient estimates for this variable were not significant, indicating that for shock-therapy countries, average GDP growth rates prior to reform ($\overline{g}_{-2,0}$) did not have a significant effect on later GDP growth rates. The signs for the coefficient estimates indicated that the effect of this variable on $g_{4,i}$ for the shock-therapy countries was positive in half of the regressions and negative in the other half (see Table 3).

Regression Results for Regression Set 1

	$\widehat{\beta}_0$	$\widehat{\beta}_1$	$\widehat{\beta}_2$	$\widehat{\beta}_3$	$\widehat{\beta}_4$	$\widehat{\beta}_5$	$\widehat{\beta}_2 + \widehat{\beta}_3$	$\widehat{\beta}_4 + \widehat{\beta}_5$	R ²	adj. R ²	Model Significance
i=5	0.017 (0.013)	0.026 (0.021)	0.879 (1.037)	-0.885 (2.043)	0.331* (0.177)	-0.138 (0.314)	-0.006	0.193	0.167	0.048	25%
i=6	0.050*** (0.018)	0.052* (0.029)	1.035 (1.428)	-1.986 (2.812)	0.393 (0.244)	-6.837E-5 (0.432)	-0.951	0.393	0.223	0.112	15%
i=7	0.095*** (0.023)	0.064* (0.036)	0.210 (1.768)	-0.976 (3.482)	0.035 (0.302)	0.605 (0.535)	-0.766	-0.640	0.237	0.127	*
i=8	0.114*** (0.028)	0.094** (0.045)	1.784 (2.224)	-1.601 (4.381)	0.113 (0.380)	1.042 (0.673)	0.183	1.155	0.316	0.219	**
i=9	0.122*** (0.030)	0.142*** (0.047)	3.842 (2.337)	-3.588 (4.603)	0.140 (0.399)	1.701** (0.707)	0.254	1.841	0.487	0.414	***
i=10	0.127*** (0.037)	0.199*** (0.059)	5.058* (2.908)	-4.799 (5.728)	-0.024 (0.496)	2.369** (0.879)	0.259	2.345	0.531	0.464	***
i=11	0.152*** (0.043)	0.222*** (0.067)	6.093* (3.330)	-5.972 (6.560)	-0.227 (0.568)	3.226*** (1.007)	0.121	2.999	0.553	0.489	***
i=12	0.190*** (0.048)	0.252*** (0.076)	7.140* (3.759)	-8.248 (7.405)	-0.411 (0.642)	4.073*** (1.137)	-1.108	3.662	0.572	0.511	***
i=13	0.225*** (0.058)	0.290*** (0.092)	8.490* (4.563)	-10.503 (8.988)	-0.590 (0.779)	4.853*** (1.380)	-2.013	4.263	0.550	0.486	***
i=14	0.274*** (0.064)	0.300*** (0.102)	9.349* (5.029)	-10.957 (9.906)	-0.784 (0.858)	6.038*** (1.521)	-1.608	5.254	0.571	0.510	***
i=15	0.352*** (0.065)	0.314*** (0.103)	7.711 (5.084)	-8.538 (10.013)	-0.809 (0.868)	6.775*** (1.537)	-0.827	5.966	0.612	0.557	***
i=16	0.511*** (0.079)	0.253* (0.125)	-1.743 (6.209)	3.686 (12.231)	0.128 (1.060)	6.782*** (1.878)	1.943	6.910	0.571	0.509	***

Table 3 Composed by authors using SPSS regression output for regression equation: $g_{4,i} = \beta_0 + \beta_1 D + \beta_2 \overline{FDI}_{0,4} + \beta_3 D * \overline{FDI}_{0,4} + \beta_4 \bar{g}_{-2,0} + \beta_5 D * \bar{g}_{-2,0} + \varepsilon_i$.

*=10% **=5% ***=1% Standard errors are indicated in parentheses.

The model significance is based on the F statistic.

Interaction between Average GDP Growth for Years 0, -1, and -2 and the Mode of Transition

The interaction variable $D \cdot \bar{g}_{-2,0}$ has a significant and positive effect on $g_{4,i}$ starting at $i=9$ and continuing until $i=16$, with increasing magnitudes for the coefficient estimates as the time span becomes larger. This indicates that there is a difference between the modes of transition and the effects of $\bar{g}_{-2,0}$ on $g_{4,i}$. Furthermore, $\beta_4 + \beta_5$ is positive for all regressions except for one, where $i=7$, therefore suggesting that the prior GDP growth rates in gradual reformers have a positive effect on the GDP growth between years 4 and 16.

Summary of Results

The mode of transition does appear to be a positive and significant determinant for GDP growth rates. Being a gradual reformer, *ceteris paribus*, leads to higher growth rates. Furthermore, there is some evidence that the mode of transition does have an impact on the effectiveness of FDI inflows on GDP growth rates. The FDI inflows in shock-therapy countries had a positive and significant effect on GDP growth from $i=10$ to $i=14$, however this effect becomes insignificant in the following regressions and even negative in the last regression performed. The effectiveness of FDI inflows on GDP growth rates in gradual reformers is less than that of the shock-therapy reformers for all regressions in Regression Set 1 although these results are not significant. When adding together $\widehat{\beta}_2 + \widehat{\beta}_3$, 7 of the regressions indicate a negative relationship between being gradual and the effectiveness of $\overline{FDI}_{0,4}$ on GDP growth ($g_{4,i}$) and 5 indicate a positive relationship. Interestingly, in the last regression where $i=16$, the coefficient sign for $\overline{FDI}_{0,4}$ changes its positive trend and becomes negative whereas the coefficient estimate for $D \cdot \overline{FDI}_{0,4}$ changes its negative trend and becomes positive. The coefficient estimate for the average GDP growth prior to reform is insignificant indicating that this variable does not influence the GDP growth for shock-therapy reformers. However, the coefficient estimate for the interaction variable between the dummy and the average GDP growth prior to reform (which indicates the difference between the gradual and shock-therapy approach) is significant and positive in the majority of the regressions.

4 Analysis

When running two sets of regressions on transitioning countries from different geographical locations and observing the different variables under specific time periods beginning two years prior to the reform and 16 after reform, the results indicate that the mode of transition has some effect on the effectiveness of FDI inflows on output growth. Regression results indicate that FDI inflows ($\overline{FDI}_{0,4}$) in transitioning economies following the shock-therapy approach have a positive effect on GDP growth ($g_{4,i}$), with significant results between $i=10$ and $i=14$. However, in the last regression examining the growth rate between year 4 and 16, the coefficient estimate β_2 is negative. The interaction variable $D \cdot \overline{FDI}_{0,4}$ has a negative coefficient estimate in all but one regression, indicating that the effectiveness of FDI on GDP growth rates is lower for gradual countries than for the shock-therapy reformers. When $i=16$, which measures the change in growth rate in the longest time span between years 4 and 16, the positive trend for β_2 turns negative, whereas the negative trend for β_3 becomes positive.

The positive effect of FDI inflows on GDP growth for the shock-therapy countries supports the results of Kukeli, et al. (2006) that speedy liberalization of prices, trade restrictions, and privatization would encourage investment and high growth rates. However, Desmet, et al. (2008) argued that gradual economies that initially restrict FDI in early stages after reform are able to harness not only the inflows of capital, but also spillover effects from technology and know-how. The ability to generate these spillover effects enhances the productivity of domestic capital stock and labor, raising the absorptive capacity of the economy, which will eventually allow future FDI inflows to become more effective (Desmet, et al., 2008). The current study only took into account the FDI inflows immediately following economic reform, where the gradual economies received on average less FDI inflows. Thus it is possible that the model failed to capture positive effects on GDP growth rates between years 4 and 15 by not taking into account the effects of subsequent FDI inflows, which would theoretically have a stronger effectiveness on output growth because of the upgraded absorptive capacity of the economy.

According to Desmet et al. (2008), gradual reformers tend to harness more spillovers than shock-therapy countries and additionally, spillovers take a longer period of time to be reflected in the GDP, whereas capital inflows are reflected earlier. This reasoning could partly explain why the additional effect of being gradual on the effectiveness of FDI inflows on GDP growth rates, captured by β_3 , only reflected a positive relationship when measuring between years 4 and 16. Furthermore, the relationship between the FDI inflows for shock-therapy countries and GDP growth rates was negative for years 4 through 16 ($i=16$). Bornschieer (1980) found that FDI can have positive short term effects, but negative ones in the long run, and the results for the shock-therapy reformers reflect this pattern.

Shock-therapy countries had higher amounts of FDI inflows and thus higher amounts of capital flows into their economies, which could possibly explain the positive effects on GDP growth rates noted between year 4 and 15 after the reform. It is possible to argue that when $i=16$, the gradual countries managed to generate greater spillover effects and hence increased labor and domestic capital productivity, whereas the shock-therapy countries may have been unable to harness the full potential of the FDI inflows. However, this is difficult to ascertain since the regression would have to be performed with data for the current and upcoming years to see the continuing trends in the long run.

For shock-therapy countries, the GDP growth prior to reform did not have a significant impact on the dependent variable. On the other hand, the coefficient estimate for $D \cdot \bar{g}_{-2,0}$

was significant and positive in the majority of the regressions, indicating that the additional effect of being gradual was positively related to GDP growth. However, prior to reform, five out of thirteen gradual countries had a negative $\bar{g}_{-2,0}$, indicating that the additional effect of being gradual for these countries had, through prior GDP growth, a negative impact on $g_{4,i}$. The remaining eight out of thirteen gradual countries had a positive $\bar{g}_{-2,0}$ demonstrating that the additional effect of being gradual for these countries had a positive impact on $g_{4,i}$ through prior GDP growth. In the gradual approach, the old institutional framework is gradually phased out, where the private sector makes use of existing knowledge about socioeconomic processes (Murrell, 1992). According to Hall and Jones (1999), institutions are a determinant for output growth. The current authors speculate that the fact that old institutional structures tend to linger in gradual reformers, reinforces negative or positive trends in output shortly before the reform. This could be a possible explanation for the significantly positive coefficient estimates of $D \cdot \bar{g}_{-2,0}$ on $g_{4,i}$, for the gradual countries. The shock-therapy reformers, on the other hand, tended to destroy the existing institutional framework and the knowledge of prior socioeconomic processes became obsolete in the new economic system (Roland, 2000). This could perhaps offer a reason for the prior GDP growth rates not being a significant determinant of the GDP growth rates after reform ($g_{4,i}$).

It is important to mention that the gradual economies end up with higher GDP growth rates than the shock-therapy economies and the dummy variable has a significant and positive effect on GDP growth for all regressions, indicating that the mode of transition is a determinant of growth.

5 Conclusion

This study has contributed with a compiled list of 60 transition countries, classified according to their mode of transition, which has not been readily available before. Utilizing these classifications, a multiple regression analysis using Ordinary Least Squares (OLS) was performed for a 19 year period, in an attempt to determine if the mode of transition impacted the effectiveness of FDI on GDP growth. The results indicate that countries employing a shock-therapy mode of transition experience more positive results for the effects of FDI inflows on GDP growth rates. The gradual countries experience mostly insignificant and negative results for the effects of FDI inflows on GDP growth. When examining the signs of the coefficients, the positive trend for the shock-therapy countries becomes negative in the longest time period observed (from year 4 to 16 after the economic reform). Similarly, the generally negative relationship between FDI inflows and GDP growth for gradual economies reverses and becomes positive for this time period.

Taking into account previous studies on the effectiveness of FDI on GDP growth for transitioning economies, one could argue that this reversal of effects could be due to the fact that spillover effects generated by the gradualists take a long time to materialize in an economy. Performing the regression with data for the current and upcoming years would be needed in order to see if these trends continue in the long run, in order to validate this conclusion. Further research could also examine the effects of FDI in transitioning economies on total factor productivity (TFP) since the spillover effects from FDI enhance resource productivity directly and could be a more precise measure of the effectiveness of FDI in an economy.

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Appendices

Appendix A: Country Classification Table

Country	Mode of Transition	Source	Reform Year	Source
Albania	0	(Marangos, 2002)	1992	(Marangos, 2002)
Argentina	0	(Williamson, 1990)	1989	(Santiso, 2003, p. 299)
Armenia*	0	(Ofer & Pomfret Eds., 2004, p. 128)	1992	(International Monetary Fund, 2000)
Azerbaijan*	1	(Horowitz, 2004)	1992	(International Monetary Fund, 2000)
Bangladesh	1	(Kalirajan & Salim, 1997, p. 387)	1992	(Kalirajan, 1997, p. 387)
Barbados	0	(Williamson, 1990, p. 264)	1982	(Santaella, 1996, p.508)
Belarus*	1	(Havrylyshyn, et al., 1999, p. 25)	1992	(International Monetary Fund, 2000)
Bolivia	0	(Williamson, 1990; Rodrik, 1996, p. 10; Santiso, 2003, p. 299)	1986	(Veltmeyer, 1993)
Brazil	0	(Williamson, 1990; Rodrik, 1996, p. 10)	1982	(Rodrik, 1996, p.10)
Bulgaria	0	(Marangos, 2002; Roland, 2000)	1991	(Marangos, 2002; Roland, 2000)
Cambodia	1	(Havrylyshyn, et al., 1999, p. 23)	1985	(Toda, 2001)
Cameroon	1	(Jilberto & Mommen, 1996, p. 246; Widner, 1994, p. 37)	1989	(Hawkins, 1991)
Chile	0	(Williamson, 1990; Rodrik, 1996, p. 10)	1973	(Williamson, 1990)
China	1	(Papava, 2005; Brooks & Hill, 2004, p. 80)	1984	(Roland, 2000)
Colombia	0	(Williamson, 1990; Rodrik, 1996, p. 10)	1984	(Williamson, 1990)
Costa Rica	1	(Santiso, 2003, p. 299 ; Clark, 2001)	1982	(Santiso, 2003, p. 299)
Côte d'Ivoire	1	(Widner, 1994, p. 37)	1980	(Widner, 1994, p. 37)
Croatia*	1	(Horowitz, 2004)	1990	(International Monetary Fund, 2000)
Czech Republic*	0	(Marangos, 2002; Papava, 2005; Roland, 2000)	1991	(Marangos, 2002)
Dominican Republic	0	(Williamson, 1990, p. 266)	1980	(Williamson, 1990, p. 266)

Ecuador	0	(Veltmeyer, 1993)	1992	(Veltmeyer, 1993)
Egypt	0	(Bromley & Bush, 1994)	1991	(Bromley & Bush, 1994)
El Salvador	0	(Williamson, 1990, p. 298)	1989	(Williamson, 1990, p. 298)
Estonia*	0	(Marangos, 2002)	1992	(Marangos, 2002)
Ghana	1	(Aryeetey, Harrigan & Nissanke, 2000, p. 348)	1983	(Aryeetey, et al., 2000, p. 348)
Guatemala	0	(Williamson, 1990, p. 299)	1986	(Williamson, 1990, p. 299)
Guyana	0	(Williamson, 1990)	1981	(Mosley, Harrigan, & Toye, 1991, p. 362)
Honduras	0	(Williamson, 1990, p. 300)	1979	(Williamson, 1990, p. 300; Santaella, 1996, p.509)
Hungary*	1	(Papava, 2005; Sustersic, 2009; Roland, 2000; Marangos, 2002)	1968	(Roland, 2000; Marangos, 2002)
India	1	(Ahluwalia, 2002)	1991	(Ahluwalia, 2002)
Indonesia*	0	(Dowling & Chin-Fangb, 2008, p. 476)	1966	(Klein, 2007, p. 89)
Jamaica	0	(Williamson, 1990, p. 262)	1980	(Williamson, 1990, p. 262; Mosley, Harrigan, & Toye, 1991, p. 362; Thomas & Nash, 1991, p. 223,232)
Kazakhstan*	1	(Popov, 2007, p. 7)	1992	(International Monetary Fund, 2000)
Kenya	1	(Widner, 1994, p. 37)	1982	(Mosley, Harrigan, & Toye, 1991, p. 301)
Kyrgyz Republic*	0	(Pomfret, 2006, p. 39)	1992	(International Monetary Fund, 2000)
Latvia	0	(Marangos, 2002)	1993	(Marangos, 2002; International Monetary Fund, 2000)
Lithuania*	0	(Nsouli, Rached, & Funke, 2005)	1992	(International Monetary Fund, 2000)
Mexico	0	(Rodrik, 1996, p. 10)	1983	(Williamson, 1990)
Moldova*	1	(Ofer & Pomfret Eds., 2004, p. 102)	1992	(International Monetary Fund, 2000)
Mongolia	0	(Anderson, Lee & Murrell, 2000, p.529)	1990	(International Monetary Fund, 2000)
Nicaragua	0	(Williamson, 1990, p. 301)	1988	(Williamson, 1990, p. 301)
Panama	1	(Jong & Vos, 2000, p. 17)	1990	(Jong & Vos, 2000, p. 17)

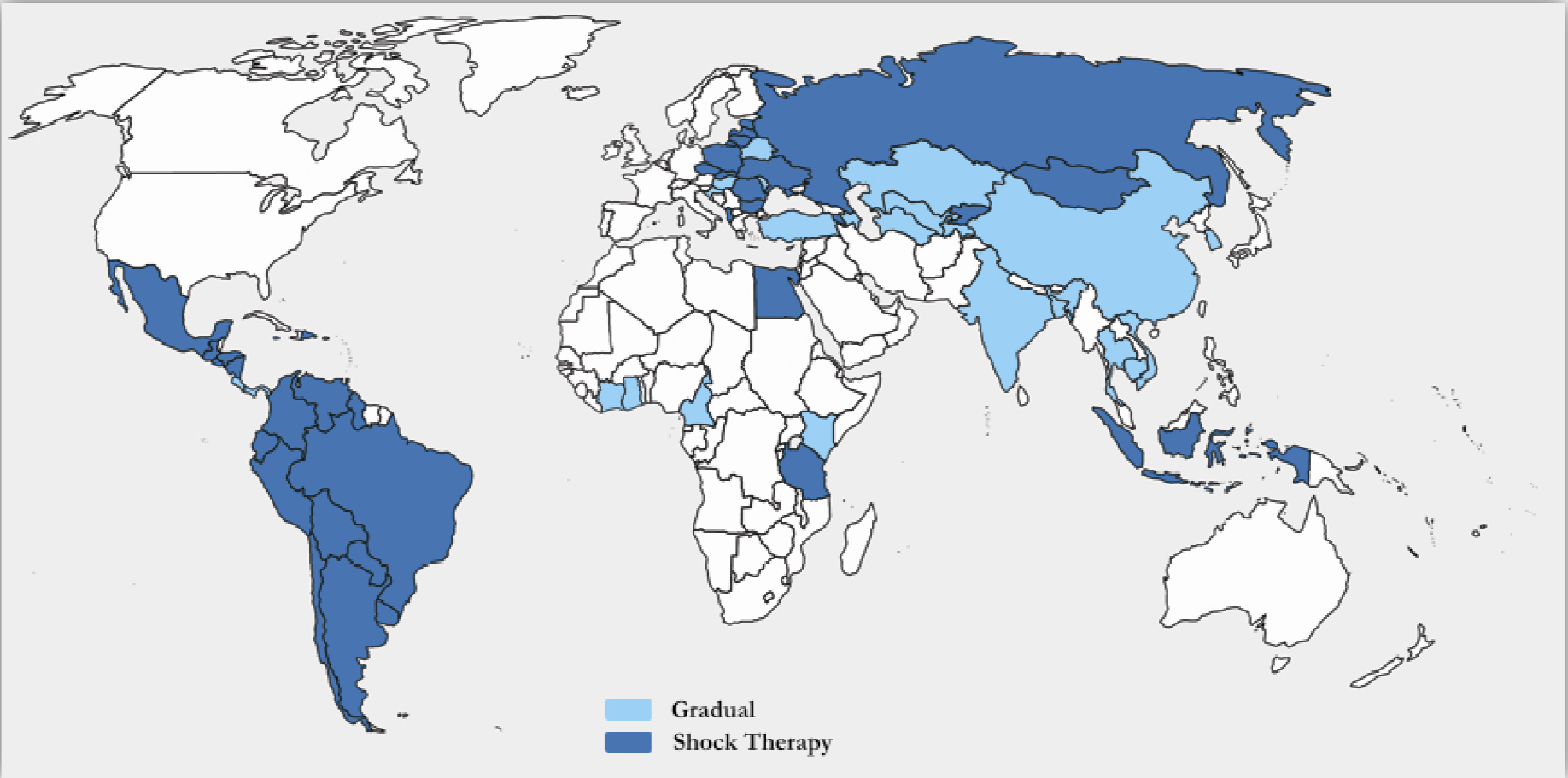
Paraguay	0	(Williamson, 1990)	1989	(Williamson, 1990)
Peru	0	(Williamson, 1990; Rodrik, 1996, p. 10; Santiso, 2003, p. 299)	1990	(Veltmeyer, 1993)
Poland	0	(Papava, 2005; Roland, 2000)	1990	(Roland, 2000)
Romania	0	(Roland, 2000)	1990	(Roland, 2000)
Russian Federation*	0	(Marangos, 2002; Roland, 2000)	1992	(Marangos, 2002; Roland, 2000; International Monetary Fund, 2000)
Slovakia*	0	(Roland, 2000)	1991	(Roland, 2000)
South Korea* (Republic of Korea)	1	(Brooks & Hill, 2004)	1964	(Edwards, 1993; Shin & Chang, 2005: 429)
Tajikistan*	1	(Ofer & Pomfret Eds., 2004)	1992	(International Monetary Fund, 2000)
Tanzania	0	(Nord, et al., 2009)	1986	(Nord, et al., 2009)
Thailand	1	(Brooks & Hill, 2004, p. 244)	1972	(Brooks & Hill, 2004, p. 244)
Trinidad and Tobago	0	(Williamson, 1990)	1987	(Williamson, 1990)
Turkey	1	(Cizre & Yeldan, 2005)	1980	(Cizre & Yeldan, 2005)
Turkmenistan*	1	(Havrylyshyn, et al., 1999, p. 25; Pomfret, 2001)	1992	(International Monetary Fund, 2000)
Ukraine*	0	(Roland, 2000)	1992	(International Monetary Fund, 2000)
Uruguay	0	(Williamson, 1990, p. 399)	1972	(Williamson, 1990; Klein, 2007, p. 554)
Uzbekistan*	1	(Papava, 2005; Sustersic, 2009; Kaminski, 1996)	1992	(International Monetary Fund, 2000)
Venezuela	0	(Williamson, 1990, p. 392)	1989	(Williamson, 1990, p. 392)
Vietnam	1	(Havrylyshyn, et al., 1999, p. 23; Thayumannavan, 2001)	1986	(Brooks & Hill, 2004, p.281)

1 = Gradual

0 = Shock Therapy

*= Countries excluded from regression including prior GDP growth variable ($\bar{g}_{-2,0}$)

Appendix B: World Map indicating the Mode of Transition



Created by authors using Appendix A

Appendix C: Regression Results for Regression Set 2 (excluding prior GDP growth variable)

	$\widehat{\beta}_0$	$\widehat{\beta}_1$	$\widehat{\beta}_2$	$\widehat{\beta}_3$	$\widehat{\beta}_2 + \widehat{\beta}_3$	R^2	adj. R^2	Model Significance
i=5	0.024**	0.039**	0,585	-2.273**	-1.688	0,126	0,079	*
	(0.012)	(0.017)	(0.713)	(0.990)				
i=6	0.056***	0.066***	0.735	-2.816*	-2.081	0.131	0.085	**
	(0.017)	(0.025)	(1.053)	(1.463)				
i=7	0.092***	0.087***	0.796	-2.313	-1.517	0.145	0.100	**
	(0.021)	(0.030)	(1.273)	(1.768)				
i=8	0.127***	0.108***	1.405	-1.968	-0.563	0.157	0.112	**
	(0.026)	(0.037)	(1.577)	(2.191)				
i=9	0.154***	0.153***	2.602	-2.425	0.177	0.221	0.180	***
	(0.030)	(0.044)	(1.870)	(2.598)				
i=10	0.172***	0.207***	3.805	-3.123	0.682	0.256	0.216	***
	(0.038)	(0.055)	(2.351)	(3.266)				
i=11	0.212***	0.231***	4.958	-3.114	1.844	0.239	0.198	***
	(0.047)	(0.067)	(2.876)	(3.995)				
i=12	0.266***	0.265***	5.959	-3.328	2.631	0.229	0.188	***
	(0.056)	(0.081)	(3.460)	(4.806)				
i=13	0.317***	0.288***	7.174	-0.025	7.149	0.247	0.206	***
	(0.071)	(0.102)	(4.356)	(6.051)				
i=14	0.380***	0.269**	8.399	6.462	14.861	0.272	0.233	***
	(0.090)	(0.129)	(5.515)	(7.660)				
i=15	0.477***	0.247	7.384	14.760	22.144	0.297	0.260	***
	(0.108)	(0.156)	(6.662)	(9.253)				
i=16†	0.641***	0.183	-1.574	27.323***	25.749	0.314	0.278	***
	(0.120)	(0.174)	(7.403)	(10.282)				

*=10%

**=5%

***=1%

Standard errors are indicated in parentheses.

The model significance is based on the F statistic.

† Testing indicated presence of heteroskedasticity due to an outlier. Additional regressions removing outliers were performed and can be found in Appendix D.

Appendix D: Regression Results for Regression Set 2 (excluding prior GDP growth variable), outliers removed.

	$\widehat{\beta}_0$	$\widehat{\beta}_1$	$\widehat{\beta}_2$	$\widehat{\beta}_3$	$\widehat{\beta}_2 + \widehat{\beta}_3$	R ²	adj. R ²	Model Significance
i=5	0.024**	0.038**	0.585	-2.144	-1.559	0.088	0.037	20%
	(0.011)	(0.017)	(0.683)	(1.773)				
i=6	0.056***	0.076***	0.735	-4.924*	-4.189	0.151	0.103	**
	(0.017)	(0.026)	(1.017)	(2.640)				
i=14	0.380***	0.338***	8.399*	-8.028	0.371	0.169	0.123	**
	(0.077)	(0.112)	(4.750)	(7.334)				
i=15	0.477***	0.343***	7.384	-5.477	1.907	0.153	0.107	**
	(0.087)	(0.127)	(5.366)	(8.285)				
i=16	0.641***	0.292**	-1.574	4.552	2.978	0.159	0.113	**
	(0.096)	(0.140)	(5.920)	(9.140)				

*=10%

**=5%

***=1%

Standard errors are indicated in parentheses.

The model significance is based on the F statistic.

Note: In i=5 and i=6 the outliers removed are Azerbaijan, Kazakhstan, and Turkmenistan. In i=14, i=15 and i=16 the outlier Azerbaijan is removed.