

**FDI in Poland:
Determinants and Implications
for Countries in Transition**

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Introduction and Overview

This paper examines the determinants of Foreign Direct Investment (FDI) in Poland and the Polish FDI experience since economic transition to a full market economy began in late 1989. Poland with a population of 38 million, a fully liberalized market economy in the center of Europe and recently as a full member of the E.U., has become a major recipient of FDI inflows. As a smaller emerging market, analyzing its success in the market for FDI is instructive and relevant for many other countries.

FDI has grown rapidly in recent years in an increasingly integrated global economy. The emerging formerly Communist countries of Central Europe have transitioned to market economies during the last twenty years, while in the same period, global flows of FDI have increased more rapidly than any other international economic or financial transactions. Dramatic changes in the global economic and political environment have provided both the opportunity and impetus to these financial flows. Global FDI inflows in 1985 were estimated to be \$53 billion. By 1990, aggregate FDI had reached \$234 billion and preliminary estimate for 2006 indicate global FDI is \$1,340 billion¹. This increase in nominal terms of more than twenty times 1985 level occurred over a twenty year period, despite periods of stagnation and decline due to political instability and economic uncertainty. In many regions of the world, recession or stagnation was worsened and accompanied by banking and currency crises, external debt and international payments problem, and poor economic policy decision. In addition, economic restructuring in the major advanced investing countries and economic transition in emerging command economics strongly influenced investor behavior and strategy. Compounding this economic uncertainty was increasing political turbulence and instability in many regions in Central and Eastern Europe, in Asia, and in South America and the dramatic and lingering economic/political impact of the bombing of the World Trade Center in New York on 9-11 2001. Yet, during this period, FDI inflows grew at a compound rate of over 30% annually. The recent acceleration of FDI since 2004, is being fueled by the increasing globalization by transnational organizations of their production networks, the policy liberalization of host countries regarding

¹ United Nations, 1994 pp. 4-5 and Economist Intelligence Unit, 2006.

FDI in service industries and real estate, growth in mergers and acquisitions, and the expanding investment opportunities in emerging markets and newly privatized sectors in both industrialized and developing countries, as well as the diminishing impact of 9-11 and other terrorist events.

The global pattern of FDI throughout the period of this study has been dominated by OECD countries, particularly by the U.S. and the European Union. In 1995 the “triad” of the U.S., Japan, and the European Union, accounted for approximately 80% of outward global FDI and by 2006, for about 60% of FDI inflows. The US continues to be the largest as well as the preferred host country of FDI, receiving over \$183 billion in 2006. The U.K. and the EURO zone countries are estimated to receive about \$460 billion². However, FDI inflows to the “emerging markets” have increased to over \$500 billion in 2006, rising by 20% over 2005, and representing almost 40% of global FDI. Emerging markets led by the BRICs, Brazil, Russia, India and China, attracted significant inflows in this decade in relative terms, as their economies performed well, privatization continued, and structural and policy barriers to FDI were reduced or eliminated.

In the emerging market economies of Central Europe, Poland has attracted the largest inflow of FDI in recent years, approximately \$14.5 billion in 2006 and further growth is projected in 2007, if the political environment remains stable. The National Bank of Poland (NBP) estimated the stock of FDI in Poland at the end of 2005 to be \$90 billion, by far the largest in Central Europe³. The largest investors were Dutch, German, French and American. The U.S. share is estimated to be about \$7 billion. Proximity with its neighbors and EU partners (since 2004) has been an obvious factor in attracting FDI but other investors, (such as U.S. firms) have been attracted by the continued successful privatization and liberalization of capital markets, the size of the domestic market, the membership in the EU and a relatively inexpensive and available supply of skilled labor.

Polish FDI in manufacturing represents about 37% of the total stock. Largest recipients include the automotive, food processing, and electronics and telecommunications sectors followed by the financial services industry and most recently by real estate and retailing. Other economic sectors have lagged as FDI recipients because of limited sectoral privatization, FDI regulations, and regional/local policy conflicts and impediments. The Law and Justice party, currently in power, but under political and media pressure, seeks to retain a role of the State in

² “Global FDI to 2011”, Columbia University and the Economist Intelligence Unit.

³ National Bank of Poland Polish Agency for Foreign Investment (PAII2), selected publications, Warsaw 2004-2006

strategic sectors, such as transportation, banking and insurance but early elections have been called for this fall by political opponents. In 2006, and despite its size, Poland ranked tenth among all emerging market FDI recipients, slightly below Mexico, India and Brazil.

This study analyses the FDI experience of Poland and the demand determinants of FDI in this dynamic emerging economy, which has successfully transitioned in fewer than twenty years to an almost fully liberalized market environment. As the largest economy in Central Europe and as the major recipient of FDI in its region, the results of this study provide valuable insights into FDI in transition and emerging economies. The relevance and importance of this research to understanding and maintaining continued growth and economic transformation in Poland and Central Europe is significant, particularly for smaller economies in geographic proximity to economically advanced neighbors. The future performance of these economies and their successful and full transition to a competitive market environment, regionally and globally will depend at least partially in their ability to attract FDI and the technology and expertise associated with it. They must acquire and build new competitive advantages built on their existing national resources and leverage their locational advantage and political/historical linkages.

This paper is organized in the following sections: firstly, the authors provide an overview of the Polish economy and its attractiveness to FDI. Next, given the substantial record of research on the determinants of FDI, a brief summary of existing literature and studies focusing specifically on FDI in Poland is presented. This is followed by the specification of the data set, the methodology and the model of FDI determinants to be estimated. The model specifies traditional and country specific independent variables and extends the period of analysis from 1989 to 2006, from the beginning of economic transition to the most current data available. The empirical results are then presented and interpreted in the context of previous studies and a priori theoretical expectations. Lastly, the conclusions from this study are summarized. The authors suggest resulting policy implications for Poland and similar economies in Central Europe and other regions. The focus and areas for future research conclude the paper.

Overview of the Polish Economy

Beginning in 1989, Poland followed a shock therapy approach to liberalization. Many of the processes involved with these changes were sudden. Over the years, successive governments had difficulty maintaining a parliamentary majority and the reforms they undertook met with growing social unrest. A characteristic of Polish governance is relatively low level of political involvement, which can be observed in low civic participation in social and political arenas as well as low turnout during national and local elections. For these reasons Poland is often called a “young democracy” like other nations of Central Europe.

From the beginning, changes taking place in Poland were supported by developed countries which facilitated Poland’s accession to NATO and the EU. When Poland became a part of the European Union, it amended its laws to that of the community. Rules of conduct of business activities in Poland do not differ much from those existing in other member nations. Lack of trade barriers between EU countries since 2004 allows foreign investors in Poland easy access to the entire community’s market.

As an unintended consequence of the shock therapy, Polish GDP decreased by approximately 18% between 1989 and 1991. Poland’s GDP grew every year from 1992 until 1997 and then began to fluctuate slightly. From 1992 to 2005, Poland’s GDP increased from about 115 billion zlotys (\$84 billion) to 980 billion zlotys (\$302 billion). That is a growth of nearly 80% in real prices. Using 2000 as an index year, Poland’s GDP constantly grew from 65.6 in 1994 to 115.7 in 2005 (see figure 1). During the period 1992 to 2005, national production increased by 88.7%, this meant an average annual increase of approximately 7.4%. The greatest change was noted in the production and trade sectors, while the lowest increase was observed in the real estate, business services and building industries. During the 1992-2005 period, consumption grew by 171.2% and, in 2005, it accounted for 81.1% of GDP.

During the period under study, gross capital formation fluctuated significantly. In 1992-2000 the average annual increase in investment spending was 10.2%. A sudden drop occurred in 2000, which resulted in a 10% decrease over 1999. The trend turned positive in 2003 and this trend continues to the present.

Exports and imports both grew over the 1989-2005 period. In 1989 exports were over 1.9 billion zlotys (\$13 million) and by 2005 they accounted for almost 289 billion (\$89 billion). Similarly, imports grew from over 1.5 billion zlotys (\$10 million) to over 326 billion (\$100

billion), in the same period. This resulted in openness to trade increasing gradually from approximately 41% in 1989 to 63% in 2005.

The Polish economic transformation took place in a highly inflationary environment. During this period, prices of goods and services increased by almost 8000%. In the first years of changes, prices increased one hundred fold and in the later years ten-fold. Such large inflationary increases were associated with initializing market processes and it resulted in social panics, leading to over consumption and under investment. The year 1996 was the first year in which prices increased by less than 20%. In 1999 inflation was less than 10% and since 2001 it has been low and stable.

One of the most notable effects of this systemic change to a market economy was the impact on disguised unemployment. During socialism unemployment was significantly under reported and at that time considered to be nonexistent. Thus, as the transformation began, unemployment grew systematically. In 1991, unemployment was 12.2%, reached 16.4% in 1993 and 19.2% in 2005. At the same time average monthly wages also grew in nominal terms from about 21 zlotys in 1989 to about 2630 zlotys in 2005.

Attractiveness to FDI

A substantial improvement in the investment environment occurred in 90's. All factors that influence business activity may be divided into two groups: environmental factors that define the judicial, institutional, and macroeconomic conditions, and factors which reflect investors' perception and decision making. Given these factors, Poland has successfully attracted large amount of FDI. Poland's attractiveness is due in part to its political stability, continued political commitment to economic liberalization and favorable policies toward foreign investment. Additionally, Poland's domestic market size and growth together with growing purchasing power and reduced inflation further encouraged FDI. Low labor costs are significant for foreign investors. The labor costs in Central Europe are four times lower than in western countries and Poland has an abundant supply of a well-qualified labor force. Additionally the integration process with the European Union has influenced the substantial inflow of foreign capital. Another contributing factor is the lack of fiscal discrimination between foreign investors and domestic companies in Poland, including the benefits derived from a sophisticated tax incentives.

Literature review

The rapid increase in Foreign Direct Investment in Poland in the 1990s has been accompanied by a similar rise in academic research to assess the determinants of such FDI. Classical models of FDI tend to follow Dunning's (1981) ownership, location and internalization approach (OLI), relative factor endowments (Helpman, 1984), openness to trade (Hejazi and Safarian 1999), and comparative advantage and institutional factors (Bush et al., 2003). Recent literature reviews can be found in Benacek et al., (2000), Bevan and Estrin (2004), Gradzewicz (2005) and in Dobrinsky (2005). While some research has focused on market agglomeration and infrastructure (Cieřlik, 2006), the most commonly cited determinants explaining FDI in Poland include market size and market growth, labor cost, trade openness, currency valuation, level of risk, membership in the European Union, and tax incentives and subsidies.

Market size and growth

Corroborating previous studies of FDI, market size and market growth have been identified as major determinants of FDI in Poland. Market size was identified as determinants of FDI in Poland by INDICATOR (1995), in Savary (1997), and Resmini (1999), while in the Lankes and Venebles (1997) survey, as well as in Pye (1998) market size and growth potential were the major determinants in FDI in the region, a finding confirmed in Bevan and Estrin (2004). In Altzinger (1999), market potential was the most important factor. However, Holland and Pain, (1998) did not find the importance of market size and growth to be a significant determinant, contradicting the finding of Gronicki (1999).

Labor cost

INDICATOR (1995), Lankes and Venables (1997), Savary (1997), and Gronocki (1999), found wages to be a primary determining factor in FDI in Poland. It was a secondary factor for Altzinger (1999). Interestingly, for Lansbury et al. (1996), wages in Poland were significant only relative to the regional wages. Similarly, Polish wages and productivity relative to 11 CEE and Baltic economies' wages were found to be significant in Holland and Pain (1998), whereas the cost differential between the host and the investor country was not a significant factor. However, Remini (2001) did not confirm the significance of wages, perhaps, as suggested by

Bevan and Estrin (2004), because manufacturing wages were used and were not controlled for productivity and exchange rates. Similarly, in Merlevede and Schoors (2004), relative unit labor costs were significant only if their importance were allowed to increase over time.

Trade openness

INDICATOR (1995) found that export quotas and high custom rates were a deterrent to FDI in Poland, a finding also present in Lankes and Venables (1997), while “trade with the home investing countries” or “trade with the EU” were significant variables in both Landsbury et al. (1996) and in Holland and Pain (1998a).

Risk factors

Risk is composite variable and difficult to assess. Wheeler and Mody (1999) used ad hoc constructs, while Bevan and Estrin (2004) used the host country’s credit rating. In that later study risk was not a significant variable. However, when measured as a combination of consumer price inflation, GDP growth, reserve cover ratio, and country score on the EBRD transition indicator, Holland and Pain (1998) found this composite variable to be significant. Using an alternative definition of risk, Barrell and Holland (1999) found risk to be a factor in the locational choice of the FDI in the CEE, leading Benacek (2000) to conclude that “investors compare risk levels across countries at a given point in time, but are less concerned with the absolute level of risk in a country”. Reduction in capital controls (Kinoshita and Campos 2003) was also found to be a relevant variable.

Currency valuation

The strength of the Polish currency has been used as a proxy for both the level of relative inflation and the purchasing power of the investing firm. Following the initial shock therapy and the ensuing massive devaluation of the Polish Zloty, a currency peg was instituted which should have reduced the perceived exchange rate risk and, as Merlevede and Schoors, (2004) found, increased the attractiveness of Poland for FDI.

European Union membership

Bevan and Estrin (2004) found that future membership (as announced in the 1998 Cologne meeting) was a significant determinant in FDI in Central European countries. However, their use of a dummy variable for which they assigned a value of zero (for no chance of being a member), to three (for most likely to be accepted in the EU), may have tainted the result. Furthermore, as Merlevede and Schoors (2004) reported, since the 1993 Copenhagen European Council, the Union had decided that “the associated countries in Central and Eastern Europe that so desire shall become members of the European Union.” It was then widely anticipated, that Poland would be on the fast track to membership, and indeed flows of FDI to that country in the 1990s reflected this expectation.

Subsidies and Tax Incentives

As the 1996 UNCTAD report on FDI incentives indicated, MNCs look for specific financial fiscal advantages in their location decision for FDI. However, as Tøndel (2001) observed, foreign investors may be more attracted by a transparent tax system, rather than tax incentives.

Model specification and methodology

The dependent variable in this model is Foreign Direct Investment in Poland for the period 1989 to 2006 as stipulated in various issues of the IMF International Financial Statistics Yearbook. The FDI data is reported annually in US dollars. While limiting FDI to greenfield investment would have measured true new investment (removing reinvested earnings), the relative newness of FDI in Poland limits the likely size of reinvested earning thus FDI, as stipulated, is an approximate measure of greenfield investment in Poland. Our model specifies independent variables identified in the literature on determinants of FDI and our estimates include additional variables specific to Poland. The research presented in this paper follows the method described by Carstensen and Toubal (1999). A one year lag for all variables and GDP nominal as instrumental variable was used. However the results were not robust because the instrumental variable was dropped due to collinearity problem and as a result, the model was tested as one-step dynamic panel estimation. In the model specified and reported in this paper, independent variables include: market size, market growth, exchange rate, wages, openness to

trade and investment, tax rate and membership in the European Union. Data from other Central European Countries, the Slovak and Czech Republics and Hungary were used in the data panel estimates. Other methodology, such as OLS multiple regression, was attempted but the results were not robust given the limited degrees of freedom associated with this limited time-series.

Market size (GDP) is measured by the annual Gross Domestic Product of Poland in US dollars and lagged one year. The lag recognizes the delay between the decision to invest and the actual flow of capital. Market size is expected to be a positive and significant determinant of FDI in Poland.

Market growth (GROWTH) is the growth in GDP as an index based on the preceding year's GDP, so that a three percent rise in GDP over the preceding year would have a value of 103. Our expectation is a positive and significant relationship between market growth and FDI inflows.

The exchange rate (FX) is defined as the average annual value of the US dollar in Zlotys, representing the purchasing power of the US dollar in Zlotys. The extreme variation in the 1989 – 1990 valuation of the Zloty reflects Poland's transition to a market economy which resulted in significant inflation, later followed by a revaluation and a crawling market determined peg. As the Zloty depreciates, the purchasing power of investors in foreign currency terms is enhanced, thus we expect a positive and significant relationship for this variable.

Wages (WAGE) is defined as the average monthly wage converted in US dollars (for consistency purpose, all variables were computed in US dollars), as reported by IMF and the Central Statistical Office of Poland. *Ceteris paribus*, our expectation is that higher wages and resulting higher costs of production would limit FDI inflows in the host country. Thus a negative and significant relationship should result. However we did not attempt to control for productivity, as such data was not readily available for the full period of analysis, thus we cannot assess the final impact of wages on cost of production and the impediment to FDI therein.

Openness to trade and Investment (OTI) is defined as the value of trade (export plus import) as a share of GDP measured in Zlotys. As reported in the literature, much of FDI is export oriented and may also require the import of complementary intermediate and capital goods. In either case the volume of trade is enhanced, thus "openness to trade and investment" is expected to be positive and significant for FDI in Poland.

Tax rate (TAX) is the annual corporate tax rate as currently reported by the Polish Ministry of Finance. The earlier years of the period under review were not readily available but were collected from Polish government. Tax compliance, tax base, shifting depreciation and changes in accounting during the transition may limit the explanatory value of this variable as reported. However everything else being equal, higher taxes discourages FDI because of their impact on profitability, thus we expect the tax rates to be a negative and significant determinant.

.Although the negotiation to the accession process started with the 1993 Copenhagen European Council, it is the Cologne European Union meeting in 1998 which confirmed the eventual accession to full membership of Poland and set the agenda for such accession. Membership in the European Union (EU) is thus represented by a dummy variable equals to “zero” for the 1989 to 1997 period, and to “one” for 1998 and the subsequent years. The literature and indeed the experience of prior EU entrants (such as Ireland and Spain), confirmed that the benefits to membership include increased FDI inflows (including prior to official entry), as regional market access enhances the host country’s attractiveness to investors. We anticipate the experience of Poland to be similar and therefore we expect a positive and significant relationship between EU and FDI.

Prior to 1989, Poland’s economy and the data reflecting such an economic system were subject to central management and reporting by the communist government of Poland and are not comparable or consistent with the market transition beginning in 1989. This limits the availability of reliable and consistent data to our period of analysis. Given the limitations imposed by the data, a traditional OLS regression model faces severe constraints and limited degrees of freedom. As much of the recent literature shows, the dynamic panel regression technique is a more appropriate method. As Tøndel (2001) observed: “As compared to time-series, panel data set provides a larger set of observations thereby increasing the number of degrees of freedom as well as reducing collinearity between the explanatory variables. Thus, the use of panel data sets improves the efficiency of econometric estimates”. Since the time period under review is limited, the dynamic panel method with fixed effects as used in this model is appropriate and checks for the probability of autocorrelation. Data from other Central European Countries, Hungary and the Slovak and Czech Republics were used in the dynamic panel dataset for the following specification:

$$FDI = f(GDP, GROWTH, FX, TAX, OTI, WAGE, EU)$$

Empirical results

Overall, the Wald test indicates joint significance of all the independent variables, and the Arellano-Bond test confirms the very low level of autocorrelation. The statistical results of the estimated equation as reported in Table 1 confirms the significance of market size (GDP), market growth (GROWTH), the value of the exchange rate (FX), tax rates (TAX), and market openness to trade and investment (OTI). Additionally the coefficient signs for each of these variables are as expected, positive for market size, market growth, openness and exchange rates and negative for tax rates. Wage rates (WAGE) and EU accession (EU) are not significant in the model. As indicated previously, wages does not capture productivity measures. The variable does not measure relative wages to the region and to the investor country. The separation of Czechoslovakia into the Czech and the Slovak Republics in 1993 further compounds the difficulty in obtaining reliable and consistent wage data. The use of a dummy variable as a proxy for accession to the EU assumes a once and for all immediate impact, whereas the process of accession was gradual and perhaps anticipated by foreign investors prior to the 1998 Cologne Summit. Some of the integration effects into the EU are perhaps captured by the openness variable, as trade expanded following the accession process.

Policy implications and conclusion

In this paper, we attempted to identify the determinants of FDI in Poland during the period of transition 1989-2006. While much research has been conducted on FDI in advanced market economies, and similar models have been used for analyzing the basic determinants of FDI for economies in transition, this paper specifies a different model including variables which reflect the specific attractiveness and characteristics of the host country.

Utilizing the dynamic panel methodology allows for the inclusion of instrumental variables from other Central European countries, expands the dataset and provides tests of the overall significance of the model and of the probability of autocorrelation. The results of this empirical

analysis confirm the overall significance of the model with a low probability of autocorrelation. As presented earlier, this paper validated the linkage between market variables and FDI as well as the relationship of FDI to the attractiveness of the host country during the period of economic transition. Specifically, exchange rate, corporate taxes, and openness to trade and investment were significant. However, the variables associated with wages, and the accession to the EU, were not significant as determinants of FDI. Missing productivity measures might have accounted for the non significance of wages and, while membership to the EU is an obvious factor in attracting FDI, the gradual process of accession to the EU rendered the use of a dummy variable (with a once and for all impact) insignificant.

The results of this study confirm that for economies in transition, market size and rate of growth are critical factors in FDI attractiveness suggesting that domestic economic performance and appropriate economic policies are crucial. The findings of this paper also indicate that limiting the currency's initial volatility and eventually achieving a relatively stable currency are important objectives for the host countries if they are to attract FDI. Additionally the benefits of open trade and investment policies in terms of their impact on FDI, as validated in this paper, should encourage other nations to continue on the path of economic reform and liberalization. Lastly, an important finding in this study is the significance of corporate taxes in attracting FDI. The reduction in corporate tax rates provides a strong incentive for foreign investors to locate in an economy in transition. Therefore tax reform and tax cuts should be on the agenda of governments desirous to attract FDI. The rise in the absolute value of wages did not seem to deter FDI indicating that productivity rather than the unadjusted labor cost may be a more relevant factor. This paper did not validate the significance of the accession to the EU as a determinant to FDI in Poland. The use of a dummy variable proxy might not have captured the impact of the gradual accession process on FDI.

Future research should focus on variables relative to the regional competing nations as well as relative to the home countries of the foreign investors. Such variables should include relative market share and relative growth of the economy, relative corporate tax rates, risk factors and corporate governance. Sectoral analysis would also enhance the understanding of industry specific FDI and its associated determinants. Alternative instrumentalization of the labor cost and EU accession variables may enhance the overall significance of the model specified.

Finally, extending this model to Eastern European countries and beyond would contribute to a greater understanding of the FDI determinants in emerging markets.

The findings of this paper emphasize the importance of market liberalization and economic policy reforms. The continued growth and success of these Central European economies, and that of other economies in transition, is linked to their continued ability to attract FDI and the technology associated with it. Continued flows of FDI are likely to sustain and / or accelerate the full transition to a competitive market economy. As this paper demonstrates, Poland is a relevant and important example, and in a knowledge-driven and increasingly interdependent and competitive global economy, other emerging and/or transition economics outside the region have much to learn from the Polish experience.

Bibliography

Altzinger, W, (1999), 'Austria's Foreign Direct Investment in Central and Eastern Europe: 'Supply Based' or 'Market Driven', presented at The 47th International Atlantic Economic Conference, Vienna.

Barrell, R and D Holland, (1999), "Foreign Direct Investment in Central European Manufacturing: Consequences for enterprise restructuring and labor productivity", NIESR, mimeo.

Barrell, R and N Pain, (1997a), 'The Growth of Foreign Direct Investment in Europe', *National Institute Economic Review*, no. 160, pp. 63-75.

Benacek, V. et al (2000). "The Determinants and Impact of Foreign Direct Investment in Central and Eastern Europe: A comparison of survey and econometric evidence", Transnational Corporations, *Journal of United Nations*, vol.9, no. 3, New York, December, p. 163-212.

Buch, C., Kokta, R., Piazolo, D., (2003), "Does the East Get What Would Otherwise Flow to the South? FDI Diversion in Europe", *Journal of Comparative Economics* 31, pp.94-109.

Bevan, A. and Estrin, S. (2004) "The Determinants of Foreign Direct Investment into European Transition Economies", *Journal of Comparative Economics* 32 pp. 775-787.

Carstensen, K. and Toubal F. (2004), " Foreign Direct Investment in Central and Eastern European Countries: a Dynamic Panel Analysis" *Journal of Comparative Economics*, Volume 32, Issue 1, pp. 3-22.

Cieřlik, A, (2006), "Endogenous Agglomeration Externalities and the Location of Multinational Firms in Poland", Working Paper.

Dunning, J., (1981), *International Production and the Multinational Enterprise*. Allen & Unwin, London.

Dobrinsky, R., (2005), "Domestic Savings and the Driving Forces of Investment in the ECE Emerging Market Economies," Occasional Paper No. 4, United Nations Economic Commission for Europe.

Gradzewicz, M., (2005), "Analysis of Investment Behavior in Industrial Processing Enterprises", *NBP Working Paper*

Gronicki, M, (1999), "The Determinants of FDI in Poland (note)".

Hejazi, W and Safarian, E., (1999), "Trade, Foreign Direct Investment, and R & D Spillovers", *Journal of International Business Studies* 30, pp. 491-511.

Helpman, E., (1984), "A Simple Theory of International Trade with Multinational Corporations", *Journal of Political Economy*, 92, pp.451–471.

Holland, D and N Pain, (1998a), 'The Diffusion of Innovations in Central and Eastern Europe: A Study of the Determinants and Impact of Foreign Direct Investment', *NIESR Discussion Paper* No. 137.

Holland, D and N Pain, (1998b), 'The determinants and impact of foreign direct investment in the transition economies: a panel data analysis', in V Edwards (ed), *Convergence or Divergence: Aspirations and Reality in Central and Eastern Europe and Russia*, Proceedings 4th Annual conference, Centre for Research into East European Business, University of Buckingham.

INDICATOR, (1995), 'Inwestorzy zagraniczni w Polsce (Foreign Investors in Poland)', for PAIZ, Warsaw. Jenkins, R, (1990), 'Comparing Foreign Subsidiaries and Local Firms in LDCs: Theoretical Issues and Empirical Evidence', *Journal of Development Studies*, vol. 26, pp. 205-28.

Kinoshita, Y., and Campos N., (2003), "Why does FDI go where it goes? New Evidence from the Transition Countries", William Davidson Institute Working Paper No. 573.

Lansbury, M, Pain N., and Smidkova K., (1996), 'Foreign direct investment in Central Europe since 1990: an econometric study', *National Institute Economic Review*, No. 156, pp.104-113.

Lankes, H P and A J Venables, (1997), 'Foreign direct investment in Eastern Europe and the former Soviet Union: results from a survey of investors', in Zecchini S. (ed.) *Lessons From the Economic Transition: Central and Eastern Europe In The 1990s*, OECD and Kluwer Academic Publishers.

Merlevede, B., and Schoors, K., (2004) "Determinants of Foreign Direct Investment in Transition Economies", Centre for Russian International Socio-Political and Economic Studies, Ghent University.

Pye, R B K, (1998), 'Foreign Direct Investment in Central Europe: The Experiences of Major Western Investors', *European Management Journal*, Special Issue, *Russia and Central and Eastern Europe*.

Resmini, Laura, 2001. The Determinants of Foreign Direct Investment into the CEECs: New Evidence from Sectoral Patterns. *Economics of Transition* 8, 665–689.

Savary, J., (1997), 'The French firms motivations for investing in Eastern Europe countries. A study of investors and potential investors', in Witkowska, Janina-Wysokinska and Zofia (eds.), *Motivations of Foreign Direct Investors and Their Propensity to Exports in the Context of European Integration Process*, University of Łódź, pp. 43-76.

Tøndel L., (2001), "Foreign Direct Investment During Transition; Determinants and Patterns in Central and Eastern Europe and the former Soviet Union", Chr. Michelsen Institute *Development Studies and Human Rights*, WP 2001: 9.

UNCTAD, (1998), *World Investment Report 1998*, United Nations, Geneva.

Figure 1

Poland GDP growth indexed to prior year

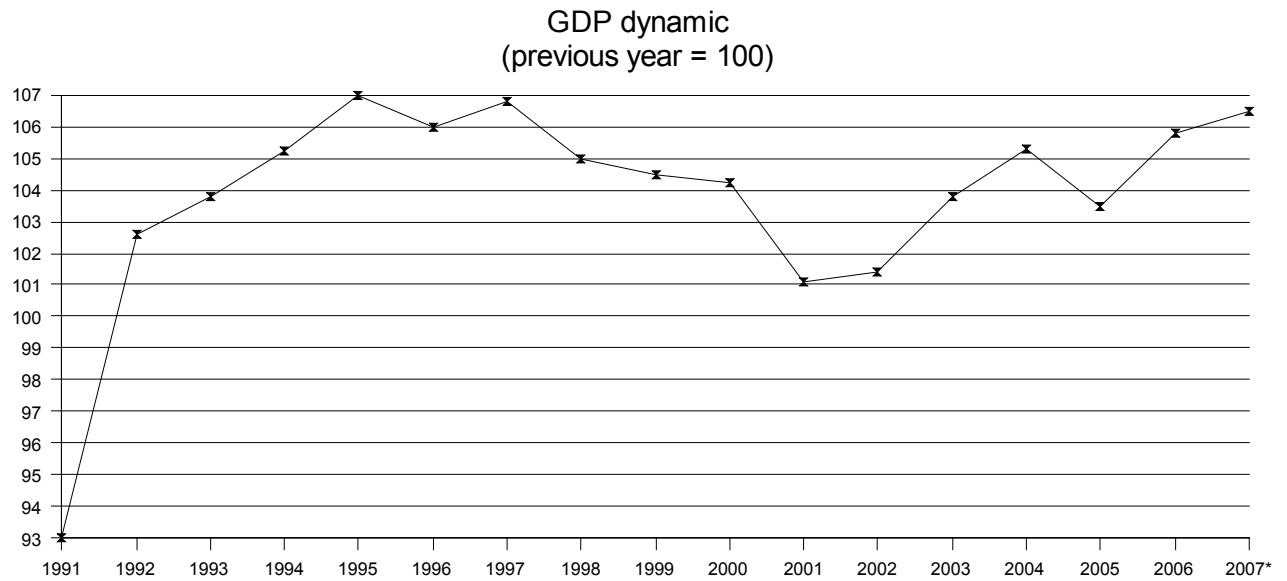


Table 1
Determinants of FDI in Poland

Independent Variables	Coefficients	Standard error	z	P >
GDP	.1263209***	.0262008	4.82	0.000
GROWTH	258.5924**	119.8422	2.16	0.031
FX	5722.829***	1768.563	3.24	0.001
TAX	-85015.89***	19053.53	-4.46	0.000
OTI	30282.53**	13826.58	2.19	0.029
WAGE	13.22994	11.2222	1.18	0.238
EU	1395.898	1262.73	1.11	0.269

*** Significant at 1%

** Significant at 5%

Wald $\chi^2(9) = 88.73$

Arellano-Bond test: $z = -1.78$ $P > | | = 0.0753$