ROLE OF FOREIGN DIRECT INVESTMENT IN ECONOMIC GROWTH OF PAKISTAN: A SECTORAL ANALYSIS

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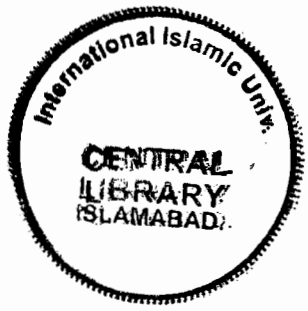

INTERNATIONAL ISLAMIC UNIVERSITY

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1- Investments, Foreign- Pakistan.

ACKNOWLEDGEMENT

All praises and thanks to Almighty ALLAH, He is most merciful, and who bestowed on me the potential and an ability to work on this thesis.

It is a matter of great pleasure to express my cordial gratitude to my esteemed supervisor Dr. Hanid Mukhtar, Senior Economist, World Bank Pakistan for his wise and painstaking guidance that he has so generously given throughout this research work. His generous corporation, suggestions, encouragement and kind supervision made this dissertation possible.

I warmly thank Dr. Faiz Bilquees Head of Department of Economics, International Islamic University, for her selfless and sincere cooperation in providing assistance in this thesis.

I am extremely grateful to my husband Mohammad Farooq and my daughter Romaisa Kanwal who sacrificed their comforts for my achievements in life and provided me with an opportunity to complete this assignment. I feel deeply indebted to my husband whose affectionate temperament, love & deep concern made it possible for me to go through all the problems.

I respectfully offer my thanks to my parents who devoted their lives for my disciplined training. I offer special thanks to my father, brothers and other family members for their love, sincerity and affections which hearten me to achieve success in every sphere of life.

Lastly I am grateful to all those who have contributed to the strength of this study.

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DATE OF VIVA VOCE EXAMINATION: December 16, 2008

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CHAPTER- 1

1.1 Introduction:

The unprecedented drastic in the structure and composition of foreign capital flows during the last quarter of a century have had a significant impact on world economy and, in the process, have changed the entire outlook towards some key economic relationships. The most significant of these changes has been the substitution of foreign debt with equity capital. The world stock of Foreign Direct Investment (FDI) reached more than $ 4 trillion in 1998, almost eight times the level of 1980, as the world growth in FDI exceeded the growth in GDP, exports/imports and even domestic investment. According to the WTO, while the world merchandize trade doubled during 1982 and 1993, the FDI inflows increased to nine times. The growth in FDI has continued to be strong even after the 1990s.

Foreign Direct Investment besides filling the saving-Investment gap may bring advanced technologies and new entrepreneurial skills, which enhance production and export composition of host economies. Foreign firms operating in host countries are also expected to diffuse ideas and technology to domestic enterprises that, in turn, will improve domestic management capabilities and the export performance of host countries. It is therefore, believed that inward FDI accelerates the stagnant growth process of the underdeveloped countries. These inflows of FDI, however, are unevenly distributed among the developing countries. Since the 1970s, more than two thirds of the total FDI inflows have been concentrated in a few countries, many of which have now become

middle income such as China, Brazil, Malaysia and newly industrialized countries like Hong Kong, Singapore, South Korea etc.

FDI also has potentially desirable features that affect the quality of growth with significant implications for poverty reduction. It may reduce adverse shocks to the poor steming from financial instability and helps to improve corporate governance. Furthermore, FDI may support the development of a safety net for the poor.

Economic growth is the increase in value of the goods and services produced by an economy. It is conventionally measured as the percent rate of increase in real Gross Domestic Product (Wikipedia (1999)). The literature on Foreign Direct Investment (FDI) and economic growth generally shows to a positive FDI – growth relationship. However very few studies offer direct tests of causality between the two variables. Economic growth may induce inflow of FDI and there is possibility that FDI may also stimulate economic growth. While this study investigates whether Foreign Direct Investment (FDI) effects economic growth and how the FDI in manufacturing sector affect the economic growth. Analysis of the study based on time series data of Pakistan over the period 1972 to 2006.

1.2 Economic Policies and FDI in Pakistan – A Historical Assessment

In Pakistan the private sector was the main vehicle for industrial investment during the 1950's and the 1960's and the involvement of the public sector was restricted to three out of 27 basic industries, (1)Generation of hydroelectric power(2) arms and ammunition and

(3) manufacturing of railway wagons, telephones, telegraph lines, and wireless apparatus. On Jauary1, 1972 the GOP issued an economic Reforms order taking over the management of ten major categories of industries, in 1975 there was another round of nationalization of small sized agro-processing units. The sudden shift toward nationalization of private sector industrial units shattered private investors' confidence. At the same time there was also acceleration in the direct investment by the public sector in new industries ranging from the basic manufacture of steel to the production of garments and breeds.

Pakistan began to implement a more liberal foreign investment policy as part of its overall economic reform program towards the end of the 1980s. Accordingly a new industrial policy package was introduced in 1989 based on the recognition of the primacy of the private sector. A number of policy and regulatory measures were taken to improve the business environment in general and attract the FDI in particular. A Board of Investment (BOI) was set up to help generate opportunities for FDI and provide investment services.

Nonetheless, some of the deep-rooted structural weaknesses of the economy persisted. Despite significant growth macroeconomic imbalances worsened, which threatened the sustainability of his growth. These included:

(i) A very low level of private savings, compounded by low public savings caused by an excessive budget deficit, a narrow and inelastic revenue base overly dependent on trade taxes, high consumption expenditures, and inadequate development expenditures;

(ii) A very high level of debt and debt servicing, indicated that the economy is headed deep toward a debt trap;

(iii) An inefficient public owned financial sector teetering on a verge of collapse due to political intervention, directed credits, segmented markets, and in general poor management;

(iv) An over-regulated economy with sizeable public ownership, industrial licensing, and price controls; and

(v) A non-competitive and distorting trade regime with import licensing, bans, and high tariffs.

The worsening economic conditions and the need to stabilize the economy, prompted the Government of Pakistan to undertake serious structural to reforms so as to restore the economic stability and ensure a faster and sustainable economic growth. These reforms wee supported by the International Financial Institutions (IFIs) through significant financial assistance. There key components of these structural reforms were:

1) Removal or easing of foreign exchange and import and price controls;

2) Increased liberalization of exchange rate regime;

3) Tightening of monetary and fiscal policies to control inflation and bring fiscal and current account deficits under control; and

4) Liberalizing the current account to promote capital flows to bolster Pakistan foreign exchange reserves.

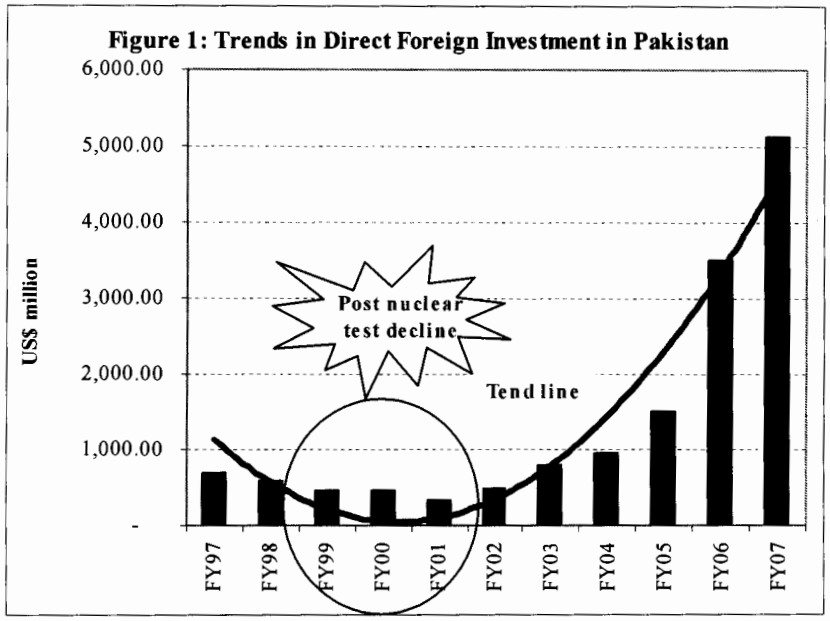
The structural reform program was unable to achieve its desired objectives, as frequent political changes led to mid-way discontinuation of most of these reforms. Nonetheless, the government did initiate some wide-ranging market-based reforms, which facilitated foreign investment in latter years. These reforms included: (a) a gradual liberalization of trade and investment regime; (b) announcement of fiscal incentives to foreign investors; and (c) extension of credit facilities, and easing foreign exchange controls. In the early 1990s, the government undertook a number of policy and regulatory measures to improve the business environment in order to attract foreign investment. In order to encourage FDI: (a) restrictions on capital inflows and outflows were gradually lifted; (b) foreign investors were allowed to hold 100 percent of the equity of industrial project on repatriable basis without any prior approval; (c) investment shares issued to non-residents could be exported, and remittance of dividends and disinvestments proceeds was made permissible without any prior permission from the State Bank of Pakistan (SBP); (d) restrictions on some capital transactions were partially relaxed; (e) foreign borrowing and certain outward investments were allowed, although under limits; (f) full convertibility of the Pakistani rupee was established on current international transactions; and (g) an interbank foreign exchange market was established.

As the policy environment continued to become more liberalize, FDI inflows into Pakistan picked up in the 1990s. However, with sanctions imposed in 1998 following

Pakistan's nuclear test, these inflows dropped sharply. However, with Pakistan's economic recovery and it's newly found status of "key non-NATO ally" of the US that the FDI increased sharply after 2001.

1.3 *Trends in Foreign Investments*

The amount of FDI rose from $70.3 million in 1984/1985 to $1090.7 million in 1995/1996, thus growing at the compound growth rate of 25.7percent. However it decreased to $682 million in 1996/1997.Since the beginning of the liberalization program (1991/1992), FDI has grown faster than in the pre-liberalization period (1984/1985-1990/1991). In particular 1995/1996 registered a phenomenal growth of 146.5% mainly due to the inflow of FDI in the power sector. While the share of manufacturing industries in overall FDI averaged only 11% during 1987-1993 but rose to35% in 1994. FDI on average accounted for nearly 80-85 % of total inflows over the period 1984/1985 to 1996/1997. FDI in Pakistan is increasing constantly, during the decade of 1990-2000; inflows of FDI to Pakistan averaged $463 million. Net inflow of FDI rose to $515 million in the year 2003. Since then, these inflows increased sharply to reach doubled every year to reach $ 4.273 billion in 2006 and further increased to $ 5.3 billion. This implies a compound growth of 59% p.a. since 2000/01.

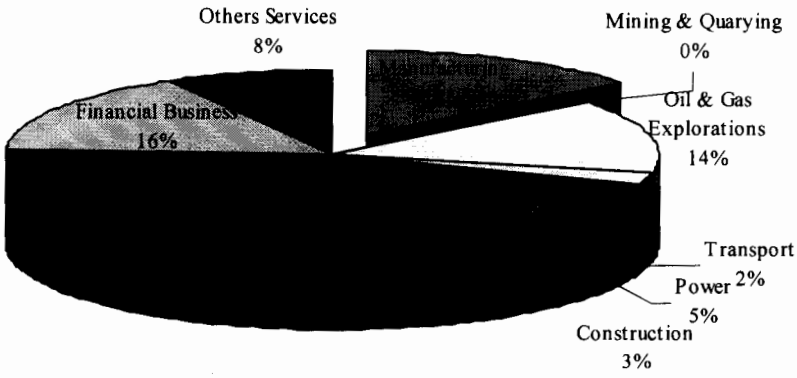


Source: State Bank of Pakistan

1.4 Sectoral Composition of Foreign Investment in Pakistan

While manufacturing sector was the first to attract foreign investment, of late, the foreign investment portfolio has diversified to cover all sectors of Pakistan's economy. In the early-1990s, the private power policy attracted considerable amount of foreign investment into the power sector. During the last five years, FDI has been focused largely in financial and telecommunication sectors (see Figure 2). The share of these two sectors in the overall FDI inflows into Pakistan during 2001/02-2006/07 was 54%.

Figure 2: Sectoral composition of FDI in Pakistan, 2002-2007



Source: State Bank of Pakistan.

1.5 The sources of FDI inflows

Table 1: Trend and Volume of Foreign Direct Investment (Net) by Source on Inflows, 1997/98-2006/07

(US $ Million)

											1997/98-2006/07	
Country	**1997/98**	**1998/99**	**1999/00**	**2000/01**	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**US$ Million**	**Share**
U.S.A.	257	215	167	93	326	212	238	326	517	913	**3,509**	23.45
U.K.	135	89	169	91	30	219	65	181	244	860	**2,324**	15.53
U.A.E	19	7	6	5	20	120	135	368	1,424	662	**2,821**	18.85
Germany	24	20	11	16	11	4	7	13	29	79	**230**	1.54
France	5	10	2	1	-7	3	-6	-4	3	0	**17**	0.11
Hong Kong	2	3	1	4	3	6	6	32	24	33	**121**	0.81
Italy	1	0	1	1	0	0	0	0	0	0	**5**	0.03
Japan	18	59	18	9	6	14	15	45	57	64	**342**	2.29
Saudi Arabia	1	23	29	57	1	44	7	18	278	105	**545**	3.64
Canada	1	0	0	0	3	1	0	2	5	11	**25**	0.16
Netherlands	27	6	11	5	-5	3	14	37	121	772	**997**	6.67
Korea	6	5	9	4	0	0	1	1	2	2	**37**	0.25
Singapore	5	2	3	4	4	4	5	8	10	21	**66**	0.44
China	4	0	0	0	0	3	14	0	2	712	**736**	4.92
Australia	1	2	2	2	0	2	2	2	31	72	**115**	0.77
Switzerland	9	7	3	4	7	3	205	138	171	175	**722**	4.82
Others	87	25	40	30	81	162	240	356	604	659	**2,351**	15.71
Total		**472**	**470**	**322**	**484**	**798**	**949**	**1,524**	**3,521**	**5,140**	**14,964**	100.00

Source: State Bank of Pakistan

As is apparent from Table 1 that USA remains the biggest investor in Pakistan, followed by UAE and UK. American investment increased sharply in 2005/06 and 2006/07. While

in the past, most of US investment went into pharmaceutical and oil sectors, financial sector was a beneficiary of a large share of these investments in latter years. The steepest rise in investment during the last two years however originated from "other" (Egypt, China, Australia, etc.) countries.

The remainder of this paper is structured as follows: Chapter:2 provides the Literature Review regarding to FDI & Economic Growth & FDI's effects on different sectors of the economy. The impact of FDI is developed in chapter 3. Chapter 4 presents econometric model and methodology. The results are presented in chapter 5. Chapter 6 presents the key inferences and policy implications.

CHAPTER - 2

2.1 LITERATURE REVIEW

In economic literature there two opposite views about the impact of Foreign Direct Investment on the economy. The first considers the FDI to be the running blood in a less developed, capital-scarce economy. It bridges the saving-investment gap, provides a venue for technology transfer enhances corporate governance and as a consequence increases economic growth and reduces poverty. On the other hand, the other view looks at FDI to be a mode through which multi-national companies exploit the resources of less developed countries to further their financial motives and in the process cripples the domestic industry, destroys indigenous craft and as a result promotes income inequalities. Some researchers have also pointed out the non-favorable macroeconomic consequences associated with inflows of foreign capital.

Although the issue of foreign investment filling the domestic resource gap had been there since the evolution of economic growth theory, it was perhaps MacDougall (1960) who first explicitly analyzed the costs and benefits of foreign investment through a neo-classical theoretical model framework Kemp (1961) analyzed foreign investment and the advantages that the national economy receives from this type of external financing.

Diamond (1965) holds that the future of the people in the countries which import capital is bright and that the future of the people in the countries which export capital is bleak. He laid special emphasis on the productivity of foreign investment. Otherwise, the

countries receiving it might not get real benefits. Thus, the analysis of the early literature of the 1960s shows that the effect of foreign investment on economic growth are favorable in the short run, but in the long run the benefits are not sustainable.

Stoneman (1975) analyzed the influence of FDI on the economic growth of the developing countries. He found that FDI enhances the productivity levels owing to higher capital stock and at the same time improves the balance of payment position.

According to the Blasubarmanyam and Sapsford (1996) FDI has strong effect on the enhancement of the economic growth in export promoting countries as compare to the import substituting economies. If a Multi National Enterprise (MNE) decides to establish a subsidy in the developed country the aim is to access the big and developed market, while by investing in a less developed country tries to take advantage of the low cost production factors or to get access to real resources, the European countries belong to the developed group even though not all of them are on the same development level, but the growth of those countries would attract the FDI, that is causation from GDP to FDI, Moudatsou.A (2001). Nishat & A.Aqeel (2003) analyzed the strong affect of policy variables in attracting FDI and determining its growth in both short and long run in Pakistan. They found positive and significant impact of reforms on FDI in Pakistan.

Arguing from the other side, Khan (1998) had cautioned against treating the inflows of foreign capital as an unambiguous blessing. He showed that while some developing countries have substantially benefited from these inflows, for others it had been a curse as

they led to monetary expansion, build-up of inflationary pressures, real exchange rate appreciation, financial sector difficulties and widening of current account deficits.

Dhakal & Saif Rehman(2002) have analysed the causal relationship between economic growth and increased FDI in nine Asian countries, and found that FDI to growth causality is reinforced by greater trade openness, more limited rule of law, lower receipts of bilateral aid, and lower income level in the host country. Growth to FDI causality, on the other hand, is reinforced by greater political rights and more limited rule of law. They found FDI to growth causation in Pakistan.

Aykut and Selin (2006) analyzed that when the sectoral composition of FDI get skewed towards the manufacturing sector there is positive and significant affect on economic growth. On the contrary, when the sectoral composition of FDI get skewed towards the primary and services sector there is a negative and mostly significant affects mostly in the developed countries.

Rose & Maria (2002) determined that FDI does not have direct affect on the acceleration of the economic growth rather many of the other independent determinants of growth use to enhance it. Al Iriani (2005) found a positive correlation between FDI and growth in a bidirectional way. He also determined that the capital inflows are more beneficial and create less problem if they are long run and in the form of direct investment. Borensztein (1997) has examined that the interactions between human capital and the efficiency of FDI, and found empirically that FDI has positive affects on economic growth when the

level of education is higher than the given threshold. There is a positive relationship between FDI and economic growth, Blin and Outtara (2001).

Aitken and Harrison (1999) found no evidence supporting the existence of technology spillovers from foreign firms to domestically owned firms in Vanezuela. Choudhary and George (2003) have focused on the causal relationship between FDI and economic growth in, Chile, Malaysia and Thailand, and found that GDP that causes FDI in Chile while there is a strong evidence of bidirectional causality between GDP and FDI. FDI found to be significantly positive relates to GDP growth rate, Anh (2005)

Sung Hoon Lim explained that FDI bring about various positive externalities such as stable inflow of foreign capital, increase in employment, increase in GNP, improvement in balance of payments and transferring multinational corporations, advanced managerial skills and technology to the host country. Akhtiar & Ahmed Nawaz have analyzed that the macroeconomic factors, such as the output growth, employment, capital formation and human capital exhibit long run relationship with FDI, and among the cost related factors only wage rate is having long run relationship with FDI.

Athgukorala(2003) has examined the relationship between FDI and GDP using time series data from the Sri Lankan economy & found the direction of causation is from GDP growth to FDI, whether DIN and TP's causation is towards GDP as well as from GDP to DIN & TP.

Utara & Konzo(2000) have analyzed that the depreciation of the host country currency attracts FDI inflows while large volatility of the exchange rate discourages FDI inflows. According to Kevin (1999) FDI tends to be more likely to promote economic growth in East Asia than Latin America, and FDI more likely to promote economic growth when host countries adopt liberalize trade regime, improve education and thereby human capital conditions, encourage export oriented FDI and maintain macroeconomic stability. Katrina & Apergis (2001) have analyzed that FDI causes income and income causes FDI, income and FDI are the significant determinants in attracting FDI in transitional economies.

Hossain.M.Amir(2007) found that there is always positive relationship between FDI and economic growth, while the initial inflows of FDI tends to increase the host country's imports, but with the lag of one year imports use to decrease as well as exports use to increase, because primarily FDI companies have high propensities to import capital and intermediate goods and services that are not readily available in the host country. However if FDI is concentrated in import substituting industries, then it is expected to affect imports negatively, because the goods that were imported earlier would now be produced in the host country by foreign investors.

Bogahwatte & Balamurali (2004) have determined that a long-run equilibrium does exist between GDP, DIN, OPEN and FDI, and here is bidirectional Granger causality between FDI and Economic growth. Wang (2002) finds that FDI in manufacturing sector has a significant positive impact on growth.

CHAPTER – 3

3.1 The Economic Impact of Foreign Direct Investment – A Summary

A comprehensive analysis of the impact of FDI on any economy could be determined perhaps only through an economy wide model. This is because, at least theoretically, FDI can have an impact on a wide range of economic variables. These may include: the level, growth and/or composition of GDP; level and composition of exports and/or imports; trends and shifts in capital flows; domestic investment, either through crowding it out or by crowding in; inflation; income distribution and absolute or relative poverty levels. Moreover, as these effects could be temporary in nature or more permanent, a dynamic macroeconomic model is more suited to do the job than a static model.

It may, however, be mentioned that the impact of FDI on some of these variables is only indirect and is dependent upon a number of other factors, including the policy environment and political and social systems. For example, while it is both important and interesting to analyze the effect of FDI on income distribution and poverty, it has to be kept in mind that these effects, if any, arise only through the impact of other factors, which in turn have their effect on improving (or worsening) the income distribution and poverty in the country. The most obvious effects in this regard are the impacts of FDI on income (GDP) and employment. The first determines the expansion (or reduction) in the size of the income, while the second indicates how this increase will be distributed. FDI flows into more capital intensive sectors, as has been the case in Pakistan during the last 7-8 years, can increase the size of GDP, but may not have a significant impact on creating

more jobs. Hence, there is a possibility that in the absence of any policy action from the government, these investments may adversely affect income distribution in the county. Furthermore, even the jobs which are created by these investments would be white collar middle class jobs, implying even smaller impact on reducing poverty.

Partly because of its limited scope and partly due to data deficiencies, this study restricts itself only to evaluate the effect of FDI on the level of GDP. The composition effects are, nonetheless, analyzed by undertaking a sectoral analysis for all the main sectors of the economy. Moreover, an attempt, albeit only a cursory one, is made to see the effect of FDI on exports and imports.

The main premise of this, and many other papers, is that developing countries generally face an investment-saving gap, which stymies their development process. Hence, foreign capital, whether in the form of debt or investment, is welcome as it enhances investment in the country and therefore propels it to a higher growth trajectory. A case is also made for Foreign Direct Investment as a better source of financing because of the managerial, information and technology externalities. Hence, a general prescription for developing countries to enhance economic growth is to adopt policies that would attract the most FDI.

In some sense however, this presents a rather myopic view. What is ignored is that inflow of FDI has its own dynamics and has a significant impact not only on the sector to which they are flowing but also on some broader macroeconomic variables. Hence,

policies designed to attract increased flows of FDI may be a necessary but definitely not sufficient condition for achieving higher economic growth. These policies need to reviewed and adjusted constantly and need to be supplemented by other macroeconomic and sectoral polices and actions to achieve desired results.

Standard open-economy models show that larger inflow of capital from abroad, if not neutralized by the monetary authorities, will lead to an increase in monetary base and hence to an expansion in money supply. While investment increase as direct and indirect result on capital inflows, increased money supply can, and usually does, lead to an increase in consumption. The resulting increase in aggregate demand would lead to building up of inflationary pressures, which in turn will cause and appreciation in real exchange rate, a sharp increase in imports and consequently widening of current account deficit. Nonetheless, as increased financing was available, there could be an increase in foreign exchange reserves, despite higher current account deficit.

In addition to these macroeconomic effects, there could other effects on the domestic financial sector. Attempts by monetary authorities to (fully or partially) sterilize the FDI inflows would imply selling off high-yielding domestic papers by the banking system to hold low-yielding foreign assets by the domestic banking system, leading to weakening of their balance sheets. The income earning potential of the banking system is further impacted, at least in the short-run, as increased money supply causes a decline in interest rates. Moreover, due to increased money supply, there is also a possibility of a decline in

the quality of banks' lending operations. All this together indicate that vulnerability of banking system could increase due to higher inflow of FDI.

A look at its economic history would indicate that Pakistan too has not been immune from this problem. Doubling of FDI (as percent of GDP) in 1995/96,[1] was accompanied doubling of trade deficit and was followed by an increase in inflation rate from 8 percent to 13%. Similarly, the surge in FDI inflow since 2002 also saw a continuous increase in both the inflation rate and current account deficit (CAD). However, not only was the larger CAD fully financed by large capital inflows, but also there was a sizable build-up in foreign exchange reserves.

[1] This was mainly an outcome of the Private Power Policy adopted by the government which led to a sharp increase in FDI into the power sector.

CHAPTER – 4

4.1 ECONOMIC MODEL AND METHODOLOGY

To achieve the above mentioned objectives, this study attempts to develop an econometric model for analyzing the impact of FDI on economic growth based on the economic theory and recent literature. It is an established fact that there is no single determinant of economic growth, rather multiple factors play a critical role in this process. The main objective of the study is to examine the relationship between FDI and economic growth. Modeling the relationship we follow the study of Bogahawatte and Balamurali (2004).

The theoretical and empirical discussion as presented in the literature review postulated that economic growth mainly depends on Foreign Direct Investment (FDI), Domestic Investment (DI), Openness, Private Credit, Government spending, share of skilled labor in overall labor force. The main model is presented in equation (1) below as:

$$Gr = f(FDI, DI, Op, Pc, REER, GDPo, FDIo, In, Imp, POP, N, \varepsilon t) \quad (1)$$

Where:

Gr = Growth in Real Gross Domestic Product.

FDI = Foreign Direct Investment (as percent of GDP)

DI = Domestic Investment (as a percent of GDP)

Op = Openness (i.e. (exports + imports)/GDP)

Pc = Private Credit (as a percent of GDP)

REER= Real Effective Exchange Rate

GDPo= Non-manufacturing value added

FDIo = FDI in non-manufacturing sectors

In = Real interest rate

Imp = Real Imports

POP = Population (in numbers)

N = Employment rate (i.e. total employment/total labor force)

εt = is iid with $(0,\sigma 2)$ (stochastic disturbance term)

Equation (1) is the reduced-form of (2) obtained from the following set of simultaneous equations:

$$Gr = \varphi(FDI, DI, Exp) \quad (2)$$

$$GDPm = \eta(FDIm, Lf, In, Pc, Imp) \quad (3)$$

$$Exp = \psi(FDI, GDPm, REER) \quad (4)$$

$$LF = \zeta(GDP/POP, GS) \quad (5)$$

$$Op = Exp + Imp \quad (6)$$

$$FDI = FDIm + FDIo \quad (7)$$

$$GDP = GDPm + GDPo \quad (8)$$

Where:

Exp= Real Exports

Gs = Government spending (as a percent of GDP)

Lf = Skilled labor force (total number of skilled workers in labor force)

GDPm= Manufacturing value added

Assuming the time series are non stationary and the variables of the economic growth and its determinants are cointegrated. The dynamic economic growth model can be represented by the error correction mechanism. Following Johansen (1998) and Juselius (1990). The dynamic error correction economic growth function is approached through the process of auto regressive distributed lags (ADL) and the testable form of the model will be as following:

$$\Delta y_T = \mu + \sum_{K=1}^{P-1} \Pi_K \Delta y_{T-K} + \pi Y_{T-1} + \varepsilon_T \qquad (2)$$

Where,

$$\Delta Yt = \mu + \sum_{K=1}^{P-1} \Pi_K \Delta Y_{t-k} + \Pi Y_{t-1} + \varepsilon_t \qquad (3)$$

Where

$$\Pi_k = I - (\Pi_1 - \ldots\ldots - \Pi_k); \text{ and} \qquad (4)$$

$$\Pi = I - (\Pi_1 - \ldots\ldots - \Pi_P) \qquad (5)$$

Since ε_t is stationary , the rank r of the long run matrix determines how many linear combinations of Y_t are stationary. If the co integration rank r = 0 so that $\Pi = 0$, the equation (3) is similar to a traditional first differenced VAR model. With $0<r<n$, there is r cointegrating vectors or r stationary linear combinations of Y_t where $\Pi = \alpha\beta$, where both

α and β are (nxr) matrices. The cointegrating vector β has the property that β' Yt is stationary although Yt is non stationary.

The vector α contains the loading vectors. The elements of which weight each co integrating relationship in each of the n equation of the system. The expected sign of the error correction parameter is negative. It gives the speed of adjustment towards the state of equilibrium.

4.2 Methodology:

As a first step towards estimating a relationship between FDI and economic growth and other major macroeconomic variables, a series of unit root tests were undertaken to determine the existence of a factual or "spurious" relationship among these variables. Under this step the stationary properties of the variables were tested. A variable is said to be stationary if its mean, variance and auto co-variance remains the same. The investigation of stationary (non stationary) in a time series is closely related to the tests for the unit roots. Existence of the unit root in a time series denotes non stationarity. In order to check the stationarity of the variables in this study I'll employ the ADF test. The results of AF tests are given in Annex II.

In the next step, the model defined by equations (1)-(8) was transformed into a (semi-) reduced form equation assuming various function forms of equations (1)-(5). For example, and following a large number of studies on this subject, a Cobb-Douglas type of

production function was assumed for equation (1), which specifies output (i.e. real GDP) as being dependent on labor (employment) and capital (investment),[2] i.e.:

$$Y_t = AL_t^{\alpha} I_t^{\beta} \qquad (9)$$

Total investment is assumed to be a geometric sum of domestic investment (DI) and FDI, i.e.

$$I_t = DI_t^{\rho} FDI_t^{\sigma} \qquad (10)$$

Combining equations (9) and (10) yields the basic production function:

$$Y_t = AL_t^{\alpha} DI_t^{\rho} FDI_t^{\sigma}$$

4.3 DATA AND VARIABLES

As mentioned earlier, data deficiencies restricted the scope of the study. The data requirements were too large and data availability too limited to venture a more comprehensive analysis. Despite that a number of agencies in Pakistan, including the State Bank of Pakistan (SBP), Board of Investment (BOI), Planning Commission, Ministry of Finance, respective line ministries, stock exchanges, etc. have institutional interest in FDI, it is only SBP which compiles and publishes data on FDI. These data, however, are quite aggregated and allows only for an aggregative analysis.

Most of these data are provided on annual basis, further limiting the comprehensiveness of the analysis. In order to improve the credibility of various econometric tests and

[2] It should be noted that the production function specified below is valid under some strong assumptions about the relationship between output and capital stock and only as a first approximation of the actual relationship. However, in most cases this approximation is quite valid for macroeconomic relationships(i.e. for overall GDP and sectoral value added).

robustness of estimates, efforts will also be made to collect data on monthly basis and splice these with the annual information using latest statistical techniques.

The variables used in statistical analysis are given below:

- GDPR = real GDP (i.e. GDP in 1999/00 market prices)
- FDIRR = the real Foreign Direct Investment, i.e. FDI in nominal rupees/GDP deflator (19999/00 =1).
- OPNY = an index of openness of the economy, defined as (Imports + Exports)/GDP.
- PCNY = credit to private sector as a percentage of GDP..
- DIR = the real domestic Investment, i.e. nominal domestic investment/GDP deflator.
- EXPR = exports in real (i.e. 1999/00 prices) rupees.
- IMPR = imports in real (i.e. 1999/00 prices) rupees.
- ERR = real exchange rate = (nominal exchange rate)*(ratio of US to Pakistani prices).
- GDPUS = real GDP of USA (used as a proxy for world GDP).
- D2000 = dummy variable taking value 1 for 1999/00 and the subsequent years in the sample, 0 otherwise.
- D2000*X = product of D2000 and variable X, where X could be any variable defined above or below.
- @TREND = a computer generated time dummy, i.e. trend variable.
- LX = natural logarithm of X, where X could be any of the above defined variables.

- X(-k) = kth lag of X, where k could be any integer (less than the number of years in the sample, and X can be any of the above define variabes.
- DX = the first difference in X i.e. X – X(-1), where X can be any of the above defined variables.
- XSSS = value of X in SSS sector, where X could be real sectoral value added (VA), Employment (EM), real domestic investment (DI), real foreign investment (FI), etc. and SSS could be MAN (manufacturing), MIN (Mining and quarying); CON (construction), ELG (Electricity and Gas Distribution); TRN (transport and Communication), FIN (Banking and Finance) and TRD (Wholesale and Retail Trade).
- The main source for all the variables is the annual reports of the State Bank of Pakistan; either the data for employment is collected from the Federal Board of Statistics.

CHAPTER – 5

5.1 Estimation Results

(a) The impact of FDI on Output:

As mentioned above, the model utilized to assess the impact of FDI on economic growth yields a reduced form equation, where output (i.e. real GDP) is expressed a function of FDI and all exogenous variables. A Vector Error Correction (VEC) estimation technique was used to estimate equation (1). However, estimation results showed that a number of these exogenous variables do not have any significant impact on output (or output growth). Hence, in order to have larger degrees of freedom, some of these variables were dropped from the equation.

The simplified model yields the following results:

LGDPR = 0.711 + 0.126459*LEMPR + 0.20202*LDIR + 0.036997*LFDIRR
[0.60] [0.40] [3.35] [1.94]

- 0.009*D2000*LFDIRR - 0.052*LOPNY + 0.548967*LGDPR(-1) +
[-2.36] [-0.46] [3.11]

0.178322*LGDPR(-2)
[1.16]

R-squared	0.995
Adj. R-squared	0.994
Sum sq. resids	0.049
S.E. equation	0.042
F-statistic	794.122
Log likelihood	65.511
Akaike AIC	-3.286
Schwarz SC	- 2.931
Mean dependent	14.621
S.D. dependent	0.543

The terms inside the brackets are the t-statistics

It may, however, be pointed out that the above model may have a simultaneity problem and the coefficients may therefore have a simultaneity bias and could be inconsistent. Rather than using simultaneous equation estimation techniques to achieve consistent estimates of coefficients of the model, the model was modified to include the lagged values of FDI and domestic investment (DIR) in the model. This not only takes care of the simultaneity problem but has the advantage of clearly specifying the direction of causal effect from FDI to GDP. The results of the modified model are presented below:

LGDPR = 2.583 + 0.441*LEMP + 0.177*LDIR + 0.025*LFDIRR(-1) + 0.020*LOPNY
[2.76] [2.01] [3.10] [1.75] [0.20]

- 0.007*D2000*LFDIRR(-1) + 0.524*LGDR(-1) + 0.035*LGDR(-2)
[-2.26] [3.15] [0.23]

R-squared	0.996
Adj. R-squared	0.994
Sum sq. resids	0.044
S.E. equation	0.040
F-statistic	870.421
Log likelihood	67.109
Akaike AIC	-3.378
Schwarz SC	-3.022
Mean dependent	14.621
S.D. dependent	0.543

The results indicate that except for the "openness" variable (and the second autoregressive variable, i.e. LGDPR(-2)), all other variables have a significant positive effect on output (real GDP). However, there are a couple important results that come out from this estimation. First, while domestic and foreign investment both have a significant impact on GDP, the level of impact (i.e. output elasticity) of domestic investment if about 7 times higher than the foreign investment. This is somewhat of a paradoxical result, as it

seems to dispels the notion that DI is more efficient than Foreign Direct investment as it "crowds in" better technical know-how and better corporate governance. However, if one considers that a bulk of foreign investment in Pakistan has come into power and services sectors (telecommunications and banking), which, despite having very high profitability and sectoral growth rates have a somewhat limited impact on GDP growth solely because their weight in GDP is relatively small. Moreover, has improved technology gives best results only if there is a supporting labor market environment, a part of the "technological" impact is muted by the lack of adequately trained manpower in the country. Second, as the level of FDI increased sharply after 1999/00, the marginal impact of foreign investment declined, indicating perhaps, diminishing economic returns to FDI.

Openness variable does not have any significant impact on GDP. It may be mentioned again that the openness variable was included as a "technological" variables in the output (i.e. aggregate production functions) equation, i.e. greater the openness of the economy, greater the chances of it benefiting from the fruits of comparative advantage and from the changes in international economy. However, the available data used for dependent variable (i.e. GDP) provides information on "equilibrium loci", i.e. aggregate supply (equaling demand) if the economic growth is triggered by supply side phenomenon, or aggregate demand (equaling supply) if growth is demand driven, exports have a positive (one to one) impact on GDP while imports have a negative (one to one) effect. Hence, for the openness variable, which is sum of exports and imports (as a percentage of GDP) the two effects tend to cancel each other out, rendering the coefficient statistically

insignificant.[3] The estimation results are simply a confirmation of the fact that the growth in developing countries, especially in Pakistan, has been more demand driven than for supply side changes.

(b) The impact of GDP on FDI inflows:

In order to test whether there is any simultaneity in the model, but more importantly to determine whether economic growth is in fact of determinant of FDI inflows, the following model was estimated.

LFDIR = - 7.285 + 0.825368*LGDPR + 1.237508*LOPNY + 0.773201*D2000 +
[-2.04] [3.01] [2.08] [3.88]]

0.492587*LFDIRR(-1) + 0.09142*LFDIRR(-2)
[3.42] [0.64]

R-squared	0.976
Adj. R-squared	0.972
Sum sq. resids	2.566
S.E. equation	0.297
F-statistic	239.958
Log likelihood	- 3.936
Akaike AIC	0.568
Schwarz SC	0.834
Mean dependent	7.941
S.D. dependent	1.788

[3] This could be elaborated by observing that:
OPNR = EXPR + IMPR
Hence, change on OPNR= change in EXPR if IMPR is constant; and = change in IMR if EXPR is held constant.
The aggregate demand equation is given as:
GDPR = CONR + DIR+FDIR + EXPR-IMPR (where CONR is real consumption).
Hence, if the effect of OPNR is generated by EXPR (i.e. IMPR assumed unchanged):
d(GDPR)/d(OPNR) = d(GDPR)/D(EXPR) = 1
And, if the effect of OPNR is generated by IMPR (i.e. EXPR assumed unchanged):
d(GDPR)/d(OPNR) = d(GDPR)/D(IMPR) = -1
Thus, the impact of OPNR on GDP ranges between -1 to 1 depending upon whether the (unit) change in OPN is generated by IMPR or EXPR. In the event the (unit) change in OPNR is brought about by equal (0.5) movement in EXPR and IMPR, the impact on GDPR is zero.

The results clearly confirm the existence of simultaneity in the model. In order to account for the simultaneity problem, the lagged value of real GDP is used in the regression model. The results are given below:

LFDIR = 0.501 + 0.797*LGDPR(-1) + 1.332*LOPNY + 0.752*D2000 + 0.493*LFDIRR(-1) +
[3.49] [2.97] [2.24] [3.78] [3.42]

0.090*LFDIRR(-2)
[0.63]

R-squared	0.976
Adj. R-squared	0.972
Sum sq. resids	2.581
S.E. equation	0.298
F-statistic	238.542
Log likelihood	-4.037
Akaike AIC	0.574
Schwarz SC	0.840
Mean dependent	7.941
S.D. dependent	1.788

The results show that the (lagged value of) GDP has a strong positive impact on FDI inflows. In other words, better growth performance attracts increased FDI. Similarly, greater openness of the economy also generates interest among the prospective investors to invest in Pakistan. The results also show that since 1999/00 there has been a structural shift in the trend of FDI inflows, in terms of their volume.

(c) FDI and Trade Flows:

As mentioned above, the FDI not only has a potential of increasing economic growth, it helps reducing external vulnerabilities of the economy and promote economic stability by financing current account deficit (CAD) and enhancing foreign exchange reserves. On the other hand, for the developing countries, greater inflows of FDI generally lead to a widening CAD, at least in the short run, as imports increase faster, and earlier, than

exports. While exports do eventually catch-up, the period during this happens requires a very prudent management of the economy. The length of this period depends on the composition of FDI and the economic policies adopted by the host countries. If FDIs flow into those sectors which are primarily exports producing, or even import substituting, this duration could be very short. On the other hand, if the primary targets of FDIs are sectors producing primarily for domestic consumption, this period could be quite large. In addition, remitting of profits from these investments by foreign investors will have a negative effect on BOP, irrespective of whether the investments were in export producing, import substituting or domestic consumption sectors.

Pakistan is currently going through the process where large inflows of FDIs have resulted in a situation where CAD has been increasing very rapidly. This is because to-date most FDI in Pakistan have gone to the non-traded sectors (i.e. power, banking and telecommunication sectors). Hence, a large increase in FDI, as was visualized in 2005/06 and 2006/07, would imply greater capital outflows due to repatriation of returns from these investments, with no direct corresponding increase in foreign exchange earning ability of the country. On the other hand, FDI seem to have a sizeable impact on imports.

In order to confirm the above hypotheses, exports and imports were regressed on FDI (along with other relevant variables). The results are given below:

LEXPR = - 6.022 + 1.210262*LGDPR - 0.141*LGDPRUS + 0.46843*LERR +
[-3.10] [4.79] [-1.03] [2.64]

0.051955*LFDIRR(-1) + 0.190365*LEXPR(-1) - 0.157*LEXPR(-2)
[1.89] [1.54] [-1.33]

R-squared	0.987
Adj. R-squared	0.985
Sum sq. resids	0.237
S.E. equation	0.092
F-statistic	363.674
Log likelihood	37.771
Akaike AIC	- 1.758
Schwarz SC	- 1.447
Mean dependent	12.496
S.D. dependent	0.741

Where:

LEXPR = Real total exports (in rupees)
LGDPUS = World GDP
LERR = Real exchange rate

LIMPR = - 3.101 + 1.254943*LGDPR - 0.885*LERR + 0.078178*LFDIRR(-1) +
[-1.74] [3.87] [-3.61] [2.46]

0.342575*LIMPR(-1) - 0.332*LIMPR(-2)
[2.10] [-2.40577]

R-squared	0.977
Adj. R-squared	0.973
Sum sq. resids	0.299
S.E. equation	0.102
F-statistic	245.249
Log likelihood	33.691
Akaike AIC	- 1.582
Schwarz SC	- 1.316
Mean dependent	12.840
S.D. dependent	0.617

These results present some very interesting features. First, real GDP has a strong positive impact on exports, whereas real world income does not impact Pakistani exports. In

other word, it is not demand but supply constraints that are responsible for poor performance by Pakistani exports. Second, the real exchange rate seems to have a negative impact on export performance, indicating that depreciation of local currency will not improve export performance and may even worsen it. Finally, FDI do have some positive effect on exports, but that effect is rather small in magnitude and is significant only at 10% level of significance, indicating a rather weak link between exports and FDI.

On the other hand, real imports are strong impacted by GDP and FDIs and negatively by real exchange rate. This indicates that one percent increase in GDP will lead to a 1.2 percent increase in imports. The impact of FDI on imports is at least 50 percent larger than the magnitude of the effect on exports (and is statistically quite significant), indicating that inflow of FDI is likely to worsen trade deficit. Finally, the impact of real exchange rate is very strong on imports, implying that depreciation of local currency will have a positive impact on CAD by reducing imports.

(d) Sectoral impact of FDI

The above analysis was undertaken at the macro level, i.e. assessing the impact of FDI on macroeconomic variables like GDP, export and imports. However, it is abundantly clear that the main impact of FDI on these macroeconomic variables originates at the sectoral level. Not only that the FDI adds to the capital stock in the sector to which they flows, but also improvements in technology and corporate governance happens first at the sector level.

In order to expand the scope of investigation from macro to sectoral level, a production function is specified at each (main) sector level, with output assumed to be a function of sectoral employment and investment. The sectoral investment is bifurcated into its domestic and foreign components with effect on output of each component assumed to be different.

Nonetheless, sector-wise data on FDI is available only from 1994/95, thus the sectoral estimations are undertaken for a shorter sample. Moreover, employment data for a few sectors were either not available or were rounded up in such a way to show little or no variation. For these sectors, employment variable was proxied by a time dummy and/or the lagged dependent variable, which were included to capture the effect of changes in employment.

Like in the case of the aggregate (i.e. GDP) equation, the first lag of the autoregressive scheme cam out statistically significant (while the second lag was insignificant) in most of the sectoral equations. The only exception was the Finance sector, in which both lags were insignificant. Hence, for the finance sector, VAR model was replaced with a more "normal" output model.

Finally, it has been postulated that since 1999/00, the FDI flows to Pakistan have undergone changes not only in its structure, but also in terms of quality of investment (i.e. these inflows has been made larger difference in technology and corporate governance). An attempt is made to test this hypothesis by including a dummy variable for 1999/00-

2. Mining sector

LVAMINR = 0.104 + 0.021071*LDIMINR(-1) - 0.004*LFIMINR(-1)
[0.08] [0.66] [-0.40]

+ 0.009576*D2000*LFIMINR(-1) + 1.115959*LVAMINR(-1)
[1.81] [2.83]

- 0.142*LVAMINR(-2)
[-0.35]

R-squared	0.981
Adj. R-squared	0.961
Sum sq. resids	0.010
S.E. equation	0.044
F-statistic	50.886
Log likelihood	23.174
Akaike AIC	- 3.122
Schwarz SC	- 2.905
Mean dependent	11.471
S.D. dependent	0.222

For mining, sectoral FDI does not seem to have a significant impact on output in the pre-1999/00 period. However, this impact has improve sharply since 1999/00.

3. Construction sector

LVACONR = 15.156 + 1.129*LEMCON + 0.152*LDICONR(-1) - 0.018*LFICONR(-1) +
[4.57] [8.045] [6.91] [-2.49]

0.026*D2000*LFICONR(-1) - 0.838*LVACONR(-1) + 0.293*LVACONR(-2)
[7.41] [-3.97] [1.77]

R-squared	0.987
Adj. R-squared	0.969
Sum sq. resids	0.002
S.E. equation	0.020
F-statistic	52.585
Log likelihood	32.876
Akaike AIC	-4.705
Schwarz SC	-4.452
Mean dependent	11.432
S.D. dependent	0.114

The results for construction sector indicate a vey strong and positive effect of domestic investment of sectoral output. The FDI, on the other hand, has a negative effect in the pree-1999/00, but a positive effect in the post-1999/00, period.

4. Electricity and Gas sector

LVAELGR = 15.306 - 0.459*LDIELGR - 0.292*LFIELGR - 3.124*D2000 +
[3.74] [-4.07] [-1.66] [-1.77]

0.329706*D2000*LFIELGR - 0.081*@TREND + 0.502412*LVAELGR(-1) -
[1.79] [-3.39] [1.92]

0.102*LVAELGR(-2)
[-0.26]

R-squared	0.943
Adj. R-squared	0.810
Sum sq. resids	0.015
S.E. equation	0.071
F-statistic	7.087
Log likelihood	20.591
Akaike AIC	- 2.289
Schwarz SC	- 2.000
Mean dependent	11.711
S.D. dependent	0.163

Contrary to expectations, both domestic and foreign investment seems to have a negative effect (however FDI coefficient is significant only at 90 percent) effect on output. With the sector dominated by public sector utility, these results have strong implications for the effectiveness of public expenditure. Another surprising result is that productivity of FDI seems to have improved since 1999/00 – the period when there had been limited inflow of FDI into the sector.

5. Transport and Communication sector

LVATRNR = - 4.250 - 0.197*LEMTRN + 0.013928*LDITRNR(-1) + 0.009658*LFITRNR(-1)
[-1.63] [-1.60] [0.44] [1.90]

- 0.009*D2000*LFITRNR(-1) + 0.669076*LVATRNR(-1) +
[-1.94] [2.03]

0.663576*LVATRNR(-2)
[1.58]

R-squared	0.995
Adj. R-squared	0.987
Sum sq. resids	0.001
S.E. equation	0.016
F-statistic	123.590
Log likelihood	35.525
Akaike AIC	- 5.186
Schwarz SC	- 4.933
Mean dependent	12.974
S.D. dependent	0.137

For transport sector, none of the variables appear to have a significant effect on output. However, FDI has a positive effect, yet this effect declines to almost zero in the post-1999/00 period—the period where FDI inflows, especially to the telecom sector, has been very strong.

6. Banking and Finance sector

LVAFINR = 9.0714 + 0.1344*LDIFINR + 0.1679*LFIFINR + 0.05218*@TREND -
(28.188) (4.290) (2.079) (-2.156)

0.4420*D2000 + 0.0854*D2000*LFIFINR
(-1.597) (2.419)

R-squared	0.842585
Adjusted R-squared	0.711406
S.E. of regression	0.157755
Sum squared residuals	0.149319
F-Statistic	6.423174
Log likelihood	9.292203
Durbin-Watson statistic	1.678182

The only regression where all estimated coefficients came out to be statistically significant. Both domestic and FDI have a positive effect on output. A result which is contrary to the results at the macro level is that not only that FDI has higher productivity than domestic investment but also this productivity has increased by about 50% since 1999/00, when a large scale FDI were made into the sector.

7. Wholesale and Retail Trade sector

The wholesale and retail trade sector has been one of the weakest sectors in terms of attracting FDI. Nonetheless, FDI seems to have a significant effect on sectoral output. Moreover, the productivity of FDI has increased sharply since 1999/00.

LVATRDR = 1.506 - 0.232*LEMTRD + 0.225777*LDITRDR + 0.0554*LFITRDR +
[0.61] [-0.83] [1.59] [2.30]

0.35401*D2000 - 0.065*D2000**LFITRDR + 0.986593*LVATRDR(-1)
[2.64] [-2.70] [4.48]

- 0.244*LVATRDR(-2)
[-0.65]

R-squared	0.998
Adj. R-squared	0.994
Sum sq. resids	0.001
S.E. equation	0.014
F-statistic	248.827
Log likelihood	38.420
Akaike AIC	- 5.531
Schwarz SC	- 5.241
Mean dependent	13.482
S.D. dependent	0.186

CHAPTER – 6

6.1 CONCLUSIONS AND POLICY IMPLICATIONS

The main conclusions of this study are:

i) As regards the effect of FDI in Pakistan, the evidence suggest that changes in output level and economic are impacted by FDI inflows. On the other hand, economic growth leads to more FDI inflows. This implies that attracting more FDI has the potential of starting a virtuous cycle that can have dynamic growth effects on the economy.

ii) Contrary to the general belief, FDI is found to be significantly less efficient in promoting economic growth than domestic investment. This emphasizes the importance of improving the overall investment environment so that overall investment, domestic or foreign, could be promoted to achieve targets of higher economic growth.

iii) Another important finding of this study is that FDI inflows are not an unqualified benefit for the economy. The growing inter-linkages between FDI and international trade in Pakistan were analyzed, which reveal a positive impact of FDI on both exports and imports. However, both the magnitude and the level of significance of the FDI coefficient in the export equation is much small than that in the imports equation, showing that FDI are likely to worsen the trade deficit (and CAD, ceterus paribus). This means that the government not only needs to monitor the situation very closely, but has to devise an appropriate policy package so that while positive impact (e.g. on growth)

confirms that for investors policy coherence has critically important influence on their choices of location.

vii) The conclusions of the econometric analysis of FDI and economic growth can be somewhat misleading, especially if one does not account for the simultaneity between FDI and GDP growth. However, our analysis also shows that there is a significant dynamism in the relationship between the GDP and FDI variable; as this year's FDI has an impact on next year's GDP, which in turn impacts the FDI in the next preceding year. Thus, citerus paribus, there is a dynamic outward (inward) spinning spiral relationship between FDI and GDP for any positive inflow (outflow) of FDI. This dynamic relationship calls for public policies focused on attracting FDI, provided the impact of FDI on economic stability I mitigated through an integrated policy package.

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Annex I:
Estimation Results of Other Variants of the Basic Model

Dependant Variable: DLGDPR

Variables	I	II	III
C	0.023564 (0.523549) (0.6044)	0.03338 (0.704657) (0.4863)	0.053557 (1.089729) (0.2848)
DLFDIRR	0.372105 (3.338713) (0.0023)	0.328033 (2.829818) (0.0081)	0.400488 (3.251917) (0.0029)
DLDINY	-0.03176 (-0.06679) (0.9472)	-0.08196 (-0.1631) (0.8715)	-0.25686 (-0.50273) (0.619)
DLOPNY	0.081723 (0.252091) (0.8027)	0.105028 (0.306425) (0.7613)	-0.00651 (-0.01867) (0.9852)
DLEMPR	-0.79074 (-0.33677) (0.7386)	-0.57163 (-0.23034) (0.8193)	0.002886 (0.001158) (0.9991)
DLPCNY	-0.91145 (-2.16605) (0.0384)		
DLGDPR(-1)			-0.14405 (-0.92125) (0.3645)
LDIR			
LEMP			
Observations	36	36	35
R Squared	0.362059	0.26229	0.322074
Durbin Watson stat	2.382928	2.026509	1.88936

Notes: All regressions include a constant term and are estimated by OLS. t – values and the probabilities are in parenthesis.

Dependant Variable: LGDPR

Variables	OLS
C	3.218168 (6.740703) (0)
LFDIRR	0.044982 (1.374683) (0.1788)
LDIR	0.866715 (17.97405) (0)
LEMP	0.303236 (1.775879) (0.0853)
LOPNY	-0.367113 (-3.408278) (0.0018)
Observations	37
R Squared	0.991388
Durbin Watson Stat	0.89877

Note: Regressions include a constant term and are estimated by OLS, t-values are in parenthesis, and all the variables are in real term.

- FDIRR is the Foreign Direct Investment in nominal rupees/ GDP deflator (19999/00), so FDI is in real rupees.
- OPN is the Openess, defined as Imports + Exports/GDP.
- PCN is the private credit.
- DIRR is the domestic Investment in nominal rupees / GDP deflator, so Domestic Investment is in real rupees.
- GR is the GDP growth rate LGDP – LGDP(-1)

The overall regression results show that all the variables are positively related with the growth rate of GDP, except the Employment level, which can be because of the wage system in Pakistan.

While the effect of Domestic Investment is more than the FDI, and it could be because of the better environment for the domestic investment as compare to the foreign investment.

Simultaneity Check

Dependant Variable: LFDIRR

Variables	OLS(1)	OLS(2)	OLS(3)	OLS(4)	OLS(5)	OLS(6)
C	-6.81343 (-2.95344) (0.0057)	-0.03452 (-0.28045) (0.7809)	-0.04052 (-0.32039) (0.7508)	0.055147 (0.834041) (0.4103)	-5.2411 (-4.48854) (0.0001)	-4.02577 (-2.48291) (0.0185)
LGDPR	1.026913 (5.185587) (0)				0.579939 (4.471587) (0.0001)	0.57065 (4.400935) (0.0001)
DLGDPR		0.704328 (3.19546) (0.0031)	0.697498 (3.104003) (0.004)	0.6081 (2.714622) (0.0105)		
TIME	0.060311 (3.106523) (0.0038)	0.00753 (1.278585) (0.21)	0.00768 (1.281263) (0.2093)			
DLOPNY			0.143983 (0.296497) (0.7688)			
D2000				0.301864 (1.921302) (0.0634)		
LFDIRR(-1)					0.705622 (8.51955) (0)	0.724563 (8.577597) (0)
LOPNY(-1)						-0.35735 (-1.07755) (0.2893)

Observations	37	36	36	36	36	36
R Squared	0.919313	0.292844	0.294782	0.332482	0.96648	0.967654
Durbin Watson Stat	0.515917	2.117086	2.159271	2.211818	1.903958	2.013806

Notes: All regressions include a constant term and are estimated by OLS. t – values and Probabilities are in parenthesis.

The table shows the positive relationship between FDI and all the other variables, as like, the increment in growth rate of GDP use to increase the FDI.

These results also show the existence of simultaneity, because here is two ways causation exists between FDI and GDP.

Manufacturing Sector

Dependant Variable: DVAMANRSM

Variables	OLS
C	-258652 (-2.88597) (0.0203)
FIMANRSM	4.14755 (1.491671) (0.1741)
DIMANRSM	1.857165 (3.036171) (0.0162)
DEMMAN	64850.25 (2.004242) (0.08)
Observations	12
R Squared	0.661921
Durbin Watson Stat	1.97651

Notes: Here DVAMANRSM is the smoothened out trend in real value added in manufacturing sector, while FIMANRSM defines the smoothened out trend in FDI and in manufacturing sector.

- DIMANRSM defines the smoothened out trend in Domestic Investment and manufacturing sector, and it shows the positive relationship with DVAMANRSM.
- DEMMAN is the change in Employment * Manufacturing sector.

Dependant Variable: DVAR

Variables	OLS
C	4063.195 (0.952314) (0.343)
FIR	1.233452 (2.604449) (0.0105)
DIR	0.183316 (2.903949) (0.0045)
DEMP	10365.69 (1.803449) (0.0741)
MIN*FIR	-1.58806 (-1.39943) (0.1645)
MAN*FIR	0.112818 (0.115811) (0.908)
CONS*FIR	-0.58556

	(-0.19409) (0.8465)
ELG*FIR	-2.57914 (-2.13844) (0.0347)
TRN*FIR	-1.58195 (-2.38363) (0.0189)
TRD*FIR	11.1419 (3.295082) (0.0013)
OTH*FIR	-0.31027 (-0.26479) (0.7917)
Observations	120
R Squared	0.294057
D.Watson Stat	1.456579

Notes: These variables define as: DVAR is the change in real Value added.

- FIR: FDI in real term.
- DIR: Domestic Investment in real term.
- DEMP: Change in employment.
- MIN: Mining.
- MAN: Manufacturing.
- CONS: Construction.
- ELG: Electric & Gas.
- TRN: Transport.
- TRD: Transport & Trade.
- OTH: Others.

Most of the results show the positive relationship with the value added except mining, manufacturing, construction and others.

Mining Sector

Dependant Variable: VAMINRSM

Variables	**OLS**
C	37957.57 (1.189226) (0.2684)
FIMINRSM	9.917498 (2.24824) (0.0547)
DIMINRSM	-0.74575 (-0.61174) (0.5577)
VAMINRSM(-1)	0.522294 (2.490985) (0.0375)
Observations	12
R Squared	0.966094
D.Watson Stat	2.344921

Notes: Here VAMINRSM is the smoothened out trend in real value added in manufacturing.

- FIMINRSM is the smoothened out trend in FDI and in mining.
- DIMINRSM is the smoothened out trend in domestic investment and in mining.

While (-1) showing the lag value, so except DIMINRSM ,both of the variables showing positive relationship with value added.

Construction Sector

Dependant Variable: VACONRSM

Variables	OLS
C	54346.38 (3.154621) (0.0135)
EMCONRSM	7093.968 (0.710352) (0.4977)
FICONRSM	-0.12159 (-0.24547) (0.8123)
DICONRSM	0.446043 (1.744752) (0.1192)
@Trend	1732.63 (2.144234) (0.0644)
Observations	13
R Squared	0.808883
D.Watson Stat	2.721593

Notes: VACONRSM is the smoothened out trend in the real value added.

- EMCONRSM is the smoothened out trend in the employment & construction.
- FICONRSM is the smoothened out trend in FDI & in Construction.
- DICONRSM is the smoothened out trend in domestic investment & in construction.

Most of the results showing negative relationship with real value added of construction.

Electricity & Gas Distribution Sector

Dependant Variable: DVAELGR

Variables	OLS
C	22544.31 (1.171521) (0.2858)
DEMELG	-271408 (-1.87293) (0.1102)
DIELGR	-0.64817 (-1.49605) (0.1853)
FIELGR	3.287702 (1.582028) (0.1647)
DVAELGR(-1)	0.239641 (0.707792) (0.5056)
Observations	11
R Squared	0.477538
D.Watson Stat	1.975082

Notes: DVAELGR is the change in value added of electricity & Gas sector.

- DEMELG is the change in employment*electricity & Gas.
- DIELGR is the change in real electricity & Gas.
- FIELGR is the FDI*real electricity & Gas.
- DVAELGR(-1) is the change in real value added & electricity & Gas with one time period lag.

All the results showing negative relationship with the DVAELGR.

Banking & Finance Sector

Dependant Variable: DVAFINR

Variables	OLS
C	-5022.36 (-0.43536) (0.6736)
DIFINR	0.166709 (0.180891) (0.8605)
FIFINR	1.660784 (1.845244) (0.0981)
Observations	12
R Squared	0.557647
D.Watson Stat	2.583321

Notes: DVAFINR is the change in real value added in Finance sector.

- DIFINR is the change in domestic investment*real FDI.
- FIFINR is the real FDI*Finance.

Whole Sale & Retail Trade Sector

Dependant Variable: DVATRDR

Variables	**OLS**
C	-43543.1 (-3.9216) (0.0057)
DEMTRD	-10716.2 (-0.75197) (0.4766)
DITRDR	12.25812 (4.225356) (0.0039)
FITRDR	-15.2723 (-3.80277) (0.0067)
@Trend	-5378.45 (-1.62017) (0.1492)
Observations	12
R Squared	0.906262
D.Watson Stat	2.772093

Notes: DVATRDR is define as change in real value added & retail trade sector.

- DEMTRD is the change in employment*retail trade .
- DITRD is the domestic investment*retail trade.
- FITRDR is the FDI*real retail trade.

Most of the results showing positive relationship with DVATRDR, which means that FDI plays healthy role in growth whenever it comes in whole sale & retail trade sector.

Transport, Communication & Storage Sector

Dependant Variable: DVATRNR

Variables	OLS(1)	OLS(2)
C	9389.356 (1.096954) (0.3147)	6986.527 (0.657356) (0.532)
DEMTRN	-17055.4 (-1.32747) (0.2326)	-16505.2 (-1.1795) (0.2767)
DITRNR	0.139261 (1.785789) (0.1244)	0.198302 (2.223093) (0.0616)
FITRNR	-0.14802 (-0.51713) (0.6236)	-0.30963 (-1.06602) (0.3218)
DVATRNR(-1)	-0.20672 (-0.65015) (0.5397)	
CRTRNY		-97951.1 (-0.61246) (0.5596)
Observations	11	12
R Squared	0.596172	0.594889
D.Watson Stat	2.23524	1.657076

Notes: DVATRNR is defining as value added in transport and communication sector.

- DEMTRN is the real employment*transport & communication.
- DITRNR is the real domestic investment*transport & communication
- FITRNR is the real FDI*transport & Communication.
- CRTRNY is the credit disbursed to transport and communication Sector as a percent of GDP

Above all regressions include a constant term and are estimated by OLS. t – values and probabilities are in parenthesis.

The results show that what happens when FDI comes on different sectors and its impact on the growth rate, and it all shows that FDI plays a vital role in the enhancement of the growth rate of Pakistan.

Annex: 11

Unit Root Test Results:

Null Hypothesis: FDIRR has a unit root
Exogenous: Constant
Log Length: 9(Automatic based on SIC, Max lag=9

		T-State	Probability
ADF Test		6.893387	1
	1% Level	-3.69987	
	5% Level	-2.97626	
	10% Level	-2.62742	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Method: Least Square

Variables	Coefficient
FDIRR(-1)	4.846711 (6.893387) (0)
D(FDIRR(-1))	-4.46057 (-6.64217) (0)
D(FDIRR(-2))	-4.65235 (-5.85168) (0)
D(FDIRR(-3))	-5.21367 (-5.08253) (0.0001)
D(FDIRR(-4))	-5.11923 (-5.23901) (0.0001)
D(FDIRR(-5))	-4.64396 (-4.45859) (0.0004)
D(FDIRR(-6))	-6.51571

	(-5.2238) (0.0001)
D(FDIRR(-7))	-6.65958 (-4.62331) (0.0003)
D(FDIRR(-8))	-8.51607 (-6.64878) (0)
D(FDIRR(-9))	-6.84998 (-7.14923) (0)
C	-2342.31 (-2.56732) (0.0207)
R-Squared	0.977576
Observations	27
D.Watson Stat	1.005034
Akaik Info Criterion	19.16905
Schwarz Criterion	19.69698

2: Null Hypothesis: GDPR has a unit root
Exogenous: Constant
Lag length: 0(Automatic based on SIC, Max Lag=9)

		T-State	Probability
ADF Test		0.753958	0.9917
	1% Level	-3.62678	
	5% Level	-2.94584	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61153	

ADF Test Equation:

Dependant Variable:D(GDPR)
Method: Least Square

Variables	Coefficients
GDPR(-1)	0.045454 (0.753958) (0.4561)
C	86925.44 (0.867492) (0.3918)
R Squared	0.016444
Observations	36

D.Watson Stat	2.113654
Akaik Info Criterion	29.07934
Schwarz Criterion	29.16732

3.Null Hypothesis: LFDIRR has a Unit Root
Lag length: 0(Automatic based on SIC, Max Lag=9)

		T-State	Probability
ADF Test		1.007444	0.9958
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(LFDIRR)
Method: Least Square

Variables	Constant
GDP(-1)	0.045454
C	86925.44
R Squared	0.016444
Observations	36
D.Watson Stat	2.113654
Akaik Info Criterion	29.07934
Schwarz Criterion	29.16732

4.Null Hypothesis:LGDP has a unit root.
Log Length:0(Automatic based on SIC, Max lag=9)

		T-State	Probability
ADF Test		0.176162	0.9672
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

5. ADF Test Equation:
Dependant Variable:D(LGDPR)

Variables	Coefficient
LGDPR(-1)	0.008422 (0.176162) (0.8612)
C	-0.01682 (-0.02665) (0.9789)
R Squared	0.000912
Observations	36
D.Watson Stat	2.145308
Akaik Info Criterion	0.384816
Schwarz Criterion	0.472789

6. Null Hypothesis:DLFDIRR
Lag Length: 0(Automatic based on SIC, Max lag=9)

		T-State	Probability
ADF Test		-6.35042	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(DLFDIRR)

Variables	Coefficient
DLFDIRR(-1)	-1.05904 (-6.35042) (0)
C	0.161013 (2.149956) (0.039)
R Squared	0.549966
Observations	35
D.Watson Stat	1.913592
Akaik Info Criterion	1.116241
Schwarz Criterion	1.205119

7. Null Hypothesis:DLGDPR has a Unit Root
Lag Length:9 (Automatic based on SIC, Max lag=9)

		T-State	Probability
ADF Test		2.980137	1
	1% Level	-3.71146	
	5% Level	-2.98104	
	10% Level	-2.62991	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(DLGDPR)

Variable	Coefficent
DLGDPR(-1)	9.11677 (2.980137) (0.0093)
D(DLGDPR(-1))	-10.1655 (-3.36242) (0.0043)
D(DLGDPR(-2))	-10.1089 (-3.39619) (0.004)
D(DLGDPR(-3))	-10.0629 (-3.43377) (0.0037)
D(DLGDPR(-4))	-9.99848 (-3.47487) (0.0034)
D(DLGDPR(-5))	-9.84453 (-3.51876) (0.0031)
D(DLGDPR(-6))	-9.61532 (-3.55742) (0.0029)
D(DLGDPR(-7))	-8.69452 (-3.99993) (0.0012)
D(DLGDPR(-8))	-6.8679 (-4.75077) (0.0003)
D(DLGDPR(-9))	-3.91608 (-5.52698) (0.0001)
C	-0.43188 (-2.3521) (0.0327)
R Squared	0.977576

Observations	27
D.Watson Stat	1.005034
Akaik Info Criterion	19.16905
Schwarz Criterion	19.69698

8. Null Hypothesis: GDPR has a unit root.
Log Length: 0(Automatic based on SIC, Max length=9)

		T-State	Probability
ADF Test		0.753958	0.9917
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variacle:DGDPR

Variable	Coefficient
GDPR(-1)	0.045454 (0.753958) (0.4561)
C	86925.44 (0.867492) (0.3918)
R Squared	0.016444
Observations	36
D.Watson Stat	2.113654
Akaik Info Criterion	29.07934
Schwarz Criterion	29.16732

9. Null Hypothesis: LFDIRR has unit root.
Lag Length: 0(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		1.007444	0.9958
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(FDIRR)

Variable	Coeficient
LFDIRR(-1)	0.042982 (1.007444) (0.3208)
C	-0.16153 (-0.47879) (0.6352)
R Squared	0.028986
Observations	36
D.Watson Stat	2.191937
Akaik Info Criterion	1.144525
Schwarz Criterion	1.232498

10. Null Hypothesis: LGDPR has a unit root
Lag length: 0(Automatic based on SIC, Maxlag=9)

		T-State	Probability
ADF Test		0.176162	0.9672
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(LGDPR)

Variable	Coeficient
LGDPR(-1)	0.008422 (0.176162) (0.8612)
C	-0.01682 (-0.02665) (0.9789)
R Squared	0.000912
Observations	36
D.Watson Stat	2.145308
Akaik Info Criterion	0.384816
Schewarz Criterion	0.472789

11. Null Hypothesis: DLFDIRR has unit root.
Lag Length: 0(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		-6.35042	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLFDIRR)

Variable	Coefficient
DLFDIRR(-1)	-1.05904 (-6.35042) (0)
C	0.161013 (2.149956) (0.039)
R Squared	0.549966
Observations	35
D.Watson Stat	1.913592
Akaik Info Criterion	1.116241
Schwarz Criterion	1.205119

12.Null Hypothesis: DLGDPR has a unit root.
Lag Length: 9(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		2.980137	1
	1% Level	-3.71146	
	5% Level	-2.98104	
	10% Level	-2.62991	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLGDPR)

Variable	Coefficient
DLGDPR(-1)	9.11677 (2.980137) (0.0093)
D(DLGDPR(-1))	-10.1655 (-3.36242)

	(0.0043)
D(DLGDPR(-2))	-10.1089 (-3.39619) (0.004)
D(DLGDPR(-3))	-10.0629 (-3.43377) (0.0037)
D(DLGDPR(-4))	-9.99848 (-3.47487) (0.0034)
D(DLGDPR(-5))	-9.84453 (-3.51876) (0.0031)
D(DLGDPR(-6))	-9.61532 (-3.55742) (0.0029)
D(DLGDPR(-7))	-8.69452 (-3.99993) (0.0012)
D(DLGDPR(-8))	-6.8679 (-4.75077) (0.0003)
D(DLGDPR(-9))	-3.91608 (-5.52698) (0.0001)
C	-0.43188 (-2.3521) (0.0327)
R Squared	0.855564
Observations	26
	1.081269
Akaike Info Criterion	0.26397
Schwarz Criterion	0.796241

13. Null Hypothesis: DIR has a unit root.
Lag Length: 0(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		2.92697	1
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DIR)

Variable	Coefficient

DIR(-1)	0.174745 (2.92697) (0.0061)
C	2930.986 (0.174982) (0.8621)
R Squared	0.201262
Observations	36
D.Watson Stat	2.159207
Akaike Info Criterion	25.51268
Schwarz Criterion	25.60065

14.Null Hypothesis: LDIR has a unit root.

		T-State	Probability
ADF Test		0.500107	0.9844
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(LDIR)

Variable	Coefficient
LDIR(-1)	0.02474 (0.500107) (0.6202)
C	-0.17574 (-0.31092) (0.7578)
R Squared	0.007302
Observations	36
D.Watson stat	2.003135
Akaike Info Criterion	0.45698
Schwarz Criterion	0.544953

15. Null Hypothesis: DLDIR has a unit root.

		T-State	Probability
ADF Test		-5.64401	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	

*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLDIR)

Variable	Coefficient
DLDIR(-1)	-0.97838 (-5.64401) (0)
C	0.109162 (2.034533) (0.05)
R Squared	0.491172
Observations	35
D.Watson Stat	2.001644
Akaike Info Criterion	0.482304
Schwarz Criterion	0.571181

16. Null Hypothesis: DINY has a unit root.
Lag Length: 1(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		-2.84999	0.0617
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DINY)

Variable	Coefficient
DINY(-1)	-0.34808 (-2.84999) (0.0076)
D(DINY(-1))	0.622926 (3.709066) (0.0008)
C	6.078844 (2.941229) (0.006)
R Squared	0.331373
Observations	35

D.Watson Stat	1.90969
Akaike Info Criterion	3.386816
Schwarz Criterion	3.520132

17. Null Hypothesis: LDINY has a unit root.

		T-State	Probability
ADF Test		-3.15965	0.0312
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(LDINY)

Variable	Coefficient
LDINY(-1)	-0.3607 (-3.15965) (0.0034)
D(LDINY(-1))	0.598378 (3.774951) (0.0007)
C	1.028127 (3.194914) (0.0031)
R Squared	0.35298
Observations	
D.Watson Stat	1.977125
Akaike Info Criterion	-2.36596
Schwarz Criterion	-2.23264

17. Null Hypothesis: OPN has a unit root

		T-State	Probability
ADF Test		8.007868	1
	1% Level	-3.69987	
	5% Level	-2.97626	
	10% Level	-2.62742	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable:D(OPN)

Variable	Coefficient
OPN(-1)	1.509297 (8.007868) (0)
D(OPN(-1))	-1.49753 (-5.07571) (0.0001)
D(OPN(-2))	-1.62954 (-4.14391 (0.0008)
D(OPN(-3))	-2.01405 (-5.5006) (0)
D(OPN(-4))	-0.51566 (-1.60881) (0.1272)
D(OPN(-5))	-1.70219 (-2.92634) (0.0099)
D(OPN(-6))	-1.0793 (-1.74765) (0.0997)
D(OPN(-7))	-4.61246 (-6.0733) (0)
D(OPN(-8))	-1.54935 (-2.3355) (0.0329)
D(OPN(-9))	-5.32152 (-6.84456) (0)
C	15902.01 (1.058098) (0.3057)
R Squared	0.984578
Observations	27
D.Watson Stat	2.398166
Akaike Info Criterion	24.39347
Schwarz Criterion	24.9214

18.Null Hypothesis: OPNY has a unit root.

		T-State	Probability
ADF Test		-2.08022	0.2534
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(OPNY)

Variable	Coefficient
OPNY(-1)	-0.23812 (-2.08022) (0.0451)
C	8.56343 (2.2784) (0.0291)
R Squared	0.112904
Observations	36
D.Watson Stat	1.56058
Akaike Info Criterion	5.295202
Schwarz Criterion	5.383175

19. Null Hypothesis: LOPNY has a Unit root.

		T-State	Probability
ADF Test		-3.01203	0.0432
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(LOPNY)

Variable	Coefficient
LOPNY(-1)	-0.32512 (-3.01203) (0.0049)
C	1.153902 (3.079788) (0.0041)
R Squared	0.21063
Observations	36
D.Watson Stat	1.867168
Akaike Info Criterion	-1.4178
Schwarz Criterion	-1.32982

20. Null Hypothesis: DLOPNY has a unit root

		T-State	Probability
ADF Test		-6.07345	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLOPNY)

Variable	Coefficient
DLOPNY(-1)	-1.05099 (-6.07345) (0)
C	0.032668 (1.472663) (0.1503)
R Squared	0.527808
Observations	35
D.Watson Stat	1.043675
Akaike Info Criterion	-1.20015
Schwarz Criterion	-1.11128

21. Null Hypothesis: PCN has a unit root.
Lag Length: 8(Automatic based on SIC, max length=9)

		T-State	Probability
ADF Test		4.354603	1
	1% Level	-3.68919	
	5% Level	-2.97185	
	10% Level	-2.62512	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(PCN)

Variable	Coefficient
PCN(-1)	1.245349 (4.354603) (0.0004)
D(PCN(-1))	-0.7741 (-1.67997)

	(0.1102)
D(PCN(-2))	-1.1097 (-2.8024) (0.0118)
D(PCN(-3))	-1.531 (-3.6121) (0.002)
D(PCN(-4))	-2.38873 (-4.75382) (0.0002)
D(PCN(-5))	-1.49587 (-2.22103) (0.0394)
D(PCN(-6))	-2.44445 (-3.16593) (0.0053)
D(PCN(-7))	-2.41601 (-2.58855) (0.0185)
D(PCN(-8))	-2.05461 (-1.77762) (0.0924)
C	-3517.9 (-0.35296) (0.7282)
R Squared	0.980676
Observations	28
D.Watson	1.86137
Akaike Info Criterion	23.90173
Schwarz Criterion	24.37752

22. Null Hypothesis: PCNY has a unit root.

		T-State	Probability
ADF Test		-3.20041	0.0284
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(PCNY)

Variable	Coefficient
PCNY(-1)	-0.22615 (-3.20041) (0.0031)

D(PCNY(-1))	0.608454 (4.419978) (0.0001)
C	5.227045 (3.158249) (0.0035)
R Squared	0.470111
Observations	35
D.Watson Stat	1.70796
Akaike Info Criterion	4.195444
Schwarz Criterion	4.328759

23. Null Hypothesis:LPCNY has a unit root.

		T-State	Probability
ADF Test		-3.04599	0.0403
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(LPCNY)

Variable	Coefficient
LPCNY(-1)	-0.22973 (-3.04599) (0.0046)
D(LPCNY(-1))	0.574864 (4.071472) (0.0003)
C	0.717017 (3.04413) (0.0046)
R Squared	0.418098
Observations	35
D.Watson Stat	1.866189
Akaike Info Criterion	-2.1353
Schwarz Criterion	-2.00199

24. Null Hypothesis; DLPCNY has a unit root.

		T-State	Probability
ADF Test		-3.07688	0.0376
	1% Level	-3.6329	
	5% Level	-2.9484	

*MacKinnon (1996) one-sided p-values.	10% Level	-2.61287	

ADF Test Equation:
Dependant Variable: D (DLPCNY)

Variable	Coefficient
DLPCNY(-1)	-0.48166 (-3.07688) (0.0042)
C	0.000745 (0.049252) (0.961)
R Squared	0.22293
Observations	35
D.Watson Stat	1.729144
Akaike Info Criterion	-1.93785
Schwarz Criterion	-1.84897

25. Null Hypothesis: EMP has a unit root.

		T-State	Probability
ADF Test		0.245069	0.9718
	1% Level	-3.62678	
	5% Level	-2.94584	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61153	

ADF Test Equation:
Dependant Variable: D(EMP)

Variable	Coefficient
EMP(-1)	0.003389 (0.245069) (0.8079)
C	0.530069 (1.305935) (0.2003)
R Squared	0.001763
Observations	36
D.Watson Stat	2.276088
Akaike Info Criterion	1.892217
Schwarz Criterion	1.98019

26.Null Hypothesis: LEMP has a unit root.

		T-State	Probability
ADF Test		-0.95425	0.7588
	1% Level	-3.62678	
	5% Level	-2.94584	
	10% Level	-2.61153	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(LEMP)

Variable	Coefficient
LEMP(-1)	-0.01205 (-0.95425) (0.3467)
C	0.062461 (1.488282) (0.1459)
R Squared	0.026083
Observations	36
D.Watson Stat	2.426651
Akaike Info Criterion	-4.97171
Schwarz Criterion	-4.88374

27: Null Hypothesis :DLEMP has a unit root.

		T-State	Probability
ADF Test		-7.05575	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLEMP)

Variable	Coefficient
DLEMP(-1)	-1.21992 (-7.05575) (0)
C	0.027614

	(5.306769) (0)
R Squared	0.60137
Observations	35
D.Watson Stat	2.014541
Akaike Info Criterion	-4.9618
Schwarz Criterion	-4.87293

28. Null Hypothesis: EMPR has a unit root

		T-State	Probability
ADF Test		-1.71669	0.4146
	1% Level	-3.62678	
	5% Level	-2.94584	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61153	

ADF Test Equation:
Dependant variable: D(EMPR)

Variable	Coefficient
EMPR(-1)	-0.13733 (-1.71669) (0.0951)
C	3.609262 (1.655921) (0.1069)
R Squared	0.079764
Observations	36
D.Watson Stat	2.303537
Akaike Ifo Criterion	1.566973
Schwarz Criterion	1.654946

29. Null Hypothesis: LEMPR has a unit root

		T-State	Probability
ADF Test		-1.63975	0.4525
	1% Level	-3.62678	
	5% Level	-2.94584	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61153	

ADF Test Equation:
Dependant Variable: D(LEMPR)

Variable	Coefficient
LEMPR(-1)	-0.13523 (-1.63975) (0.1103)
C	0.441964 (1.622198) (0.114)
R Squared	0.073286
Observations	36
D.Watson	2.28403
Akaike Info Criterion	-5.00205
Schwarz Criterion	-4.91407

30. Null Hypothesis: DLEMPR

		T-State	Probability
ADF Test		-7.15429	0
	1% Level	-3.6329	
	5% Level	-2.9484	
	10% Level	-2.61287	
*MacKinnon (1996) one-sided p-values.			

ADF Test Equation:
Dependant Variable: D(DLEMPR)

Variable	Coefiicient
DLEMPR(-1)	-1.22719 (-7.15429) (0)
C	-0.00563 (-1.64147) (0.1102)
R Squared	0.608001
Observations	35
D.Watson	2.030121
Akaike Info Criterion	-4.94706
Schwarz Criterion	-4.85818

31. Null Hypothesis: POP has a unit root

		T-State	Probability
ADF Test		1.93189	0.9997

	1% Level	-3.6329	
	5% Level	-2.9484	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61287	

ADF Test Equation:
Dependant Variable: D(POP)

Variable	Coefficient
POP(-1)	0.003533 (1.93189) (0.0623)
D(POP(-1))	0.782634 (7.160537) (0)
C	0.285637 (2.0408) (0.0496)
R Squared	0.956442
Observations	35
D.Watson Stst	1.972589
Akaike Info Criterion	-1.58289
Schwarz Criterion	-1.44957

32. Null Hypothesis: LPOP has a unit root

		T-State	Probability
ADF Test		-2.07056	0.2572
	1% Level	-3.6329	
	5% Level	-2.9484	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61287	

ADF Test Equation:
Dependant Variable: D(LPOP)

Variable	Coefficient
LPOP(-1)	-0.0026 (-2.07056) (0.0465)
D(LPOP(-1))	0.766046 (7.286507) (0)
C	0.018269

	(2.153589) (0.0389)
R Squared	0.924894
Observations	35
D.Watson Stat	2.007582
Akaike Info Criterion	-10.9925
Schwarz Criterion	-10.8592

33. Null Hypothesis: DLPOP has a unit root.

		T-State	Probability
ADF Test		-0.80299	0.8059
	1% Level	-3.6329	
	5% Level	-2.9484	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.61287	

ADF Test Equation:
Dependant Variable: D(DLPOP)

Variable	Coefficient
DLPOP(-1)	-0.04091 (-0.80299) (0.4277)
C	0.000925 (0.658154) (0.515)
R Squared	0.019165
Observations	35
D.Watson Stst	2.153744
Akaike Info Criterion	-10.924
Schwarz Criterion	-10.8351

34. Null Hypothesis: D2LPOP has a unit root.

		T-State	Probability
ADF Test		-6.26441	0
	1% Level	-3.63941	
	5% Level	-2.95113	
*MacKinnon (1996) one-sided p-values.	10% Level	-2.6143	

ADF Test Equation:
Dependant Variable: D(D2LPOP)

Variable	Coefficient
D2LPOP(-1)	-1.10167 (-6.26441) (0)
C	-0.00022 (-1.24317) (0.2228)
R Squared	0.550832
Observations	34
D.Watson Stat	2.015181
Akaike Info Criterion	-10.8838
Schwarz Criterion	-10.794

Summary Statistics of FDI & Associated Variables

	1995/2007			2002/2007		
	Average	**Standard Deviation**	**Average Growth p.a**	**Average**	**Standard Deviation**	**Average Growth p.a**
Foreign Direct Investment (in million of Current Rupees)						
Agriculture	0	0	--	0	0	--
Mining	7210	9837	32.27	12509	12535	93.12
Manufacturing	8689	14285	27.20	15936	18874	40.72
Construction	1327	2734	9.52	2159	3770	314.34
Elec & Gas	3624	6561	11.92	999	8432	-271.65
Transport & Communication	13554	32419	52.41	28128	45259	-498.63
Commerce	1543	2913	29.69	2877	4049	78.59
Financial	13311	19050	23.03	25512	23179	35.86
Ownership of Dwellings	0	0	--	0	0	--
Others	3572	10110	30.87	6844	14875	42.32
Foreign Direct Investment (in million of 1999/00 Rupees)						
Agriculture	0	0	--	0	0	--
Mining	4584	4547	20.43	6614	5296	66.75
Manufacturing	6414	7687	15.56	9572	9606	26.29
Construction	1418	2546	.80	1600	2796	300.40
Elec & Gas	3649	5066	2.27	476	4397	-248.93
Transport & Communication	7499	16375	40.48	14891	22826	-453.27
Commerce	1108	1725	21.03	1876	2410	63.25
Financial	9647	11120	14.79	16995	13111	24.31
Ownership of Dwellings	0	0	--	0	0	--
Others	2417	5731	19.69	4214	8451	25.54
FDI to GDP Ratio(Percent)						
Agriculture	0.0	0.0	--	0.0	0.0	--
Mining	4.5	3.9	14.17	5.6	4.0	53.82
Manufacturing	1.0	.9	7.97	1.1	.9	13.86
Construction	1.5	2.6	-2.39	1.4	2.3	276.35
Elec & Gas	3.2	4.2	3.21	.7	3.6	-254.11
Transport & Communication	1.5	3.0	34.79	2.9	4.2	-437.20
Commerce	.1	.2	15.34	.2	.2	50.59
Financial	5.2	4.1	6.64	8.2	4.0	6.06
Ownership of	0.0	0.0	--	0.0	0.0	--

Dwellings						
Others	0.4	.8	13.12	.6	1.2	18.19
	1995/2007			**2002/2007**		
	Average	**Standard Deviation**	**Average Growth p.a**	**Average**	**Standard Deviation**	**Average Growth p.a**
GDP (in million of 1999/00 Rupees)						
Agriculture	914324	103111	3.57	996315	71361	3.91
Mining & Quarrying	94387	22483	5.49	114098	17924	8.41
Manufacturing	630357	186855	7.03	788106	161088	10.92
Construction	91430	10968	3.27	98069	13606	6.39
Elec & Gas Distribution	121439	19087	-.91	119688	25104	-3.36
Transport & Communication	418644	67244	4.22	476777	41674	4.77
Commerce	704820	142379	4.93	822214	130522	8.41
Finance & Insurance	156663	53906	7.64	187860	67518	17.20
Ownership of Dwellings	113453	17818	4.24	129243	8259	3.46
Others	586328	129001	5.80	703218	77455	6.22
GDP (fc)	3831843	712744	4.95	4435586	578715	6.95
Indirect Taxes	326648	48592	1.78	367409	34197	5.57
Subsidies	39840	27593	21.52	63155	22910	26.61
GDP (mp)	4118651	726683	4.55	4739840	587809	6.63
GDP (in million of Current Rupees)						
Agriculture	986915	317940	9.96	1249629	233773	10.68
Mining & Quarrying	122001	72507	16.26	186666	52368	16.97
Manufacturing	720707	419542	15.37	1065440	377566	19.97
Construction	105848	45074	11.71	140627	44212	16.74
Elec & Gas Distribution	132919	35845	6.49	155965	28546	1.33
Transport & Communication	531846	266443	13.98	762972	197327	14.25
Commerce	775423	344933	12.10	1054846	314061	16.08
Finance & Insurance	193756	92702	11.01	243275	118877	24.83
Ownership of Dwellings	122555	44721	10.97	160537	30366	10.16
Others	638221	281571	13.06	881574	207215	12.88
GDP (fc)	4330191	1883492	12.37	5901529	1570745	14.69

Indirect Taxes	361032	134337	8.75	477915	107131	13.24
Subsidies	49091	43883	29.83	84538	41164	35.81
GDP (mp)	4642132	1973075	11.92	6294906	1636054	14.35

	1995/2007			**2002/2007**		
	Average	**Standard Deviation**	**Average Growth p.a**	**Average**	**Standard Deviation**	**Average Growth p.a**
Domestic Investment (in million of Current Rupees)						
Agriculture	84354	31270	6.57	106446	34177	15.18
Mining	38017	24365	14.64	53937	28320	14.33
Manufacturing	175013	97572	15.85	250976	94202	19.17
Construction	16483	6519	7.51	18144	9645	16.49
Elec & Gas	67113	20830	-1.87	53527	17921	5.01
Transport & Communication	143965	137259	24.96	233985	162824	40.40
Commerce	13071	10236	19.65	21202	10081	28.66
Financial	20658	20160	24.53	34923	22634	49.75
Ownership of Dwellings	91867	34904	10.50	120688	28923	12.19
Others	65440	35540	15.01	92680	35375	19.84
Domestic Investment (in million of 1999/00 Rupees)						
Agriculture	70269	11061	-2.58	66175	6582	.80
Mining	30089	14781	4.39	34325	20771	-1.28
Manufacturing	147003	24371	5.24	163157	26731	6.95
Construction	18396	8068	-1.06	14089	6697	12.57
Elec & Gas	63098	34740	-10.33	34380	14578	-8.89
Transport & Communication	103092	57310	15.18	139249	67541	24.43
Commerce	10591	5322	11.66	15166	4508	17.61
Financial	16188	11122	16.19	24231	11960	37.03
Ownership of Dwellings	80138	9410	3.09	87964	4609	2.65
Others	52569	8515	5.18	58394	7427	5.71
Employment (in millions)						
Agriculture	17.7	1.8	2.75	18.7	1.8	4.68
Mining	0.0	0.0	0.00	0.0	0.00	0.00
Manufacturing	4.9	1.2	5.63	6.0	0.5	3.55
Construction	2.5	0.3	2.57	2.7	0.3	5.66
Elc & Gas	0.3	0.0	2.75	0.3	0.0	2.38
Transport	2.2	0.3	3.88	2.5	0.1	2.05
Trade	5.7	0.8	3.31	6.4	0.4	3.31
Finance &	0.0	0.0	0.00	0.0	0.0	0.00

Insurance						
Ownership of Dwellings	0.0	0.0	0.00	0.0	0.0	0.00
Others	6.2	0.8	3.63	7.0	0.4	2.90

	1995/2007			2002/2007		
	Average	**Standard Deviation**	**Average Growth p.a**	**Average**	**Standard Deviation**	**Average Growth p.a**
Credit (in million of Current Rupees)						
Agriculture	100.909	32639	8.65	127815	22376	9.27
Mining	11327	4460	10.26	12049	3381	15.26
Manufacturing	493766	326292	17.61	755858	306836	23.30
Construction	18277	18000	17.63	29294	22473	62.04
Elc & Gas	20859	15082	16.25	31101	17170	12.09
Transport	39619	26515	15.36	59464	28076	27.37
Trade	111264	66654	12.05	152112	82757	31.47
Finance & Insurance	0	0	--	0	0	--
Ownership of Dwellings	0	0	--	0	0	--
Others	74841	42653	13.77	107481	43547	24.34

The above table shows that in the period between 1994/95-2006/07 & 2001/02-2006/07 FDI has fallen in Electric & Gas sector, while it has increased in all the other sectors especially transport & Communication (telecommunication) & financial sector (Banks), same like the affect has occurred on the FDI to GDP ratio.

- While GDP growth p.a (in million of current Rupees) has tremendously increased through the finance sector, Indirect Taxes and subsidies between the 2001/02-2006/07.Either it has sharply decreased by Electric & Gas sector.

- The growth p.a of Domestic Investment (in million of current Rupees) has increased very sharply through finance & Insurance sector, transport & Communication, construction & Agriculture sector.
- As we know that the employment opportunities are very few in our country, and during 1994/95-2006/07 & 2001/02-2006/07 the employment has decreased in all other sectors except construction & Agriculture sector.
- The growth p.a of Credit has sharply increased in construction & Trade sector, while it has decreased in Electric & Gas sector.

So, the overall table shows that FDI increased sharply in Finance & Telecommunication sector, and all the bigger parts of economy showing great & positive contribution of Finance and Communication sector's performances.

Annex: 111

DATA:

Year	D2000	DIN	DINY	DIR	EMP	EMPR	ER	ERR
1971	0	7,821	0.1283	113,533	18.03	29.66	4.77	20.02
1972	0	7,564	0.1159	104,036	18.45	29.43	11.00	45.64
1973	0	8,489	0.1052	100,588	18.87	29.21	9.90	37.36
1974	0	11,783	0.1124	113,216	19.31	28.98	9.90	33.03
1975	0	18,005	0.1341	139,500	19.75	28.76	9.90	29.15
1976	0	26,707	0.1697	184,612	20.21	28.54	9.90	27.51
1977	0	30,925	0.1711	193,157	20.68	28.32	9.90	26.44
1978	0	33,865	0.1591	194,093	21.15	28.10	9.90	25.96
1979	0	36,775	0.1563	199,751	21.64	27.88	9.90	26.64
1980	0	45,866	0.1622	225,484	22.14	27.67	9.90	26.30
1981	0	47,707	0.1420	211,022	22.65	27.45	9.90	25.89
1982	0	52,346	0.1338	179,584	23.17	27.24	9.91	21.32
1983	0	61,761	0.1404	195,981	23.71	27.02	12.71	26.29
1984	0	69,212	0.1366	207,236	24.21	26.76	13.48	27.31
1985	0	77,925	0.1367	220,651	24.72	26.52	15.15	29.91
1986	0	87,545	0.1409	240,696	24.78	25.76	16.14	31.62
1987	0	100,040	0.1448	263,118	26.32	26.55	17.18	33.07
1988	0	111,266	0.1365	259,630	26.59	26.01	17.60	31.08
1989	0	133,573	0.1439	285,974	27.42	26.03	19.22	32.32
1990	0	148,124	0.1437	301,023	30.18	27.93	21.45	35.56
1991	0	177,057	0.1443	325,041	29.57	26.69	22.42	34.76
1992	0	225,194	0.1548	356,066	30.07	26.47	24.66	33.69
1993	0	256,416	0.1594	477,065	30.92	26.55	25.77	42.38
1994	0	280,540	0.1489	462,271	31.68	26.53	29.94	44.53
Year	D2000	DIN	DINY	DIR	EMP	EMPR	ER	ERR

1995	0	317,845	0.1411	459,932	31.78	25.97	30.63	40.82
1996	0	368,424	0.1439	491,918	32.56	25.97	33.33	41.76
1997	0	396,859	0.1354	467,346	34.59	26.94	38.71	43.50
1998	0	402,845	0.1246	441,182	35.42	26.93	42.85	45.27
1999	0	409,357	0.1154	423,491	36.23	26.93	50.14	50.76
2000	0	607,410	0.1588	607,410	38.02	27.65	51.77	51.77
2001	1	659,325	0.1566	611,102	38.48	27.33	58.44	55.46
2002	1	680,373	0.1528	615,451	39.42	27.34	61.43	57.89
2003	1	736,433	0.1510	637,851	39.66	26.87	58.50	53.91
2004	1	844,847	0.1498	679,126	40.15	26.56	57.57	50.66
2005	1	1,134,942	0.1746	852,422	40.27	26.01	59.36	50.39
2006	1	1,529,897	0.2015	1,044,269	40.52	25.56	59.86	47.67
2007	1	2,062,295	0.2369	1,301,560	40.58	25.00	60.10	45.45

Year	EXPN	EXPR	FDI	FDINR	FDIRR	FDIY	GDPN	GDPR
1971	3,922	56,933	24	112	368	0.22	60,953	884,806
1972	3,923	53,961	26	282	876	0.52	65,262	897,680
1973	9,961	118,024	29	283	758	0.42	80,727	956,504
1974	11,960	114,914	25	243	527	0.28	104,847	1,007,389
1975	12,994	100,678	30	299	524	0.27	134,219	1,039,928
1976	13,881	95,952	27	265	415	0.20	157,373	1,087,832
1977	13,991	87,388	22	219	309	0.15	180,781	1,129,166
1978	16,629	95,306	27	262	340	0.15	212,869	1,220,016
1979	21,529	116,938	39	385	473	0.20	235,311	1,278,132
1980	29,485	144,952	41	407	452	0.17	282,707	1,389,819
1981	35,707	157,942	43	428	428	0.15	335,848	1,485,555
1982	33,033	113,327	43	424	388	0.13	391,332	1,342,550
1983	44,395	140,875	32	408	354	0.11	439,899	1,395,891
1984	47,835	143,229	77	1,036	820	0.25	506,791	1,517,447
1985	49,889	141,265	70	1,065	807	0.23	570,001	1,614,002
1986	63,268	173,949	145	2,343	1,719	0.46	621,151	1,707,788
1987	79,056	207,927	108	1,855	1,302	0.32	691,109	1,817,704
1988	93,601	218,410	162	2,855	1,828	0.42	815,344	1,902,540
1989	108,318	231,904	210	4,039	2,382	0.53	928,110	1,987,045
1990	126,583	257,247	216	4,637	1,892	0.54	1,030,724	2,094,678
1991	172,812	317,248	246	5,516	2,702	0.54	1,227,380	2,253,223
1992	209,215	330,801	335	8,265	3,679	0.69	1,454,941	2,300,484
1993	217,372	404,423	306	7,897	3,235	0.59	1,608,982	2,993,527
1994	254,187	418,847	354	10,602	3,846	0.68	1,884,590	3,105,408
1995	311,795	451,178	442	13,550	4,317	0.73	2,252,551	3,259,517

Year	EXPN	EXPR	FDI	FDINR	FDIRR	FDIY	GDPN	GDPR
1996	358,375	478,500	1,102	36,715	10,792	1.73	2,559,547	3,417,492
1997	390,520	459,881	682	26,405	6,846	1.09	2,931,491	3,452,159
1998	441,406	483,412	601	25,767	6,213	0.96	3,232,572	3,540,197
1999	451,144	466,721	472	23,680	5,039	0.81	3,547,294	3,669,773
2000	514,280	514,280	470	24,327	4,255	0.64	3,826,111	3,826,111
2001	617,148	572,010	322	18,840	15,941	0.45	4,209,873	3,901,961
2002	677,855	613,173	485	29,776	24,289	0.67	4,452,654	4,027,777
2003	815,158	706,038	798	46,684	35,859	0.96	4,875,648	4,222,976
2004	883,704	710,361	949	54,661	38,008	0.97	5,640,580	4,534,149
2005	1,019,771	765,920	1,524	90,460	58,671	1.39	6,499,782	4,881,796
2006	1,195,770	816,202	3,521	210,755	127,477	2.78	7,593,854	5,183,371
2007	1,402,144	884,924	5,140	308,889	173,718	3.55	8,706,917	5,495,127

Year	GDPRUS	IMPN	IMPR	OPN	OPNY	OPR	PCN	PCNY
1971	18,596	5,323	77,270	9,245	0.15	134,203	18,846	0.31
1972	45,155	4,727	65,020	8,650	0.13	118,980	20,834	0.32
1973	42,981	9,598	113,723	19,559	0.24	231,748	23,031	0.29
1974	42,764	15,202	146,064	27,162	0.26	260,977	25,460	0.24
1975	42,681	23,016	178,328	36,010	0.27	279,006	28,144	0.21
1976	44,955	23,854	164,889	37,735	0.24	260,841	31,112	0.20
1977	47,030	26,741	167,025	40,732	0.23	254,414	34,393	0.19
1978	49,649	32,600	186,840	49,229	0.23	282,146	38,020	0.18
1979	51,217	42,529	231,003	64,058	0.27	347,942	42,030	0.18
1980	51,101	54,578	268,312	84,063	0.30	413,264	46,462	0.16
1981	52,388	62,129	274,815	97,836	0.29	432,757	51,362	0.15
1982	51,415	68,501	235,008	101,534	0.26	348,334	56,778	0.15

Year	GDPRUS	IMPN	IMPR	OPN	OPNY	OPR	PCN	PCNY
1983	68,916	82,018	260,260	126,413	0.29	401,135	62,766	0.14
1984	78,389	92,222	276,134	140,057	0.28	419,362	69,385	0.14
1985	91,721	106,729	302,211	156,618	0.27	443,476	92,220	0.16
1986	101,089	103,475	284,494	166,743	0.27	458,442	122,570	0.20
1987	111,238	109,273	287,402	188,329	0.27	495,329	143,822	0.21
1988	118,667	131,197	306,138	224,798	0.28	524,548	154,626	0.19
1989	134,150	156,641	335,362	264,959	0.29	567,266	172,809	0.19
1990	152,537	173,293	352,173	299,876	0.29	609,420	195,966	0.19
1991	159,213	188,681	346,380	361,493	0.29	663,628	221,062	0.18
1992	180,948	247,411	391,195	456,626	0.31	721,996	251,311	0.17
1993	194,142	299,146	556,564	516,518	0.32	960,987	309,595	0.19
1994	234,598	297,305	489,896	551,492	0.29	908,743	352,363	0.19
1995	245,991	362,414	524,425	674,209	0.30	975,603	416,094	0.18
1996	277,566	454,290	606,565	812,665	0.32	1,085,066	478,701	0.19
1997	336,924	504,368	593,950	894,888	0.31	1,053,831	546,814	0.19
1998	388,534	469,311	513,973	910,717	0.28	997,385	632,025	0.20
1999	474,828	498,539	515,752	949,683	0.27	982,473	735,887	0.21
2000	508,235	561,990	561,990	1,076,270	0.28	1,076,270	754,190	0.20
2001	577,991	661,455	613,076	1,278,603	0.30	1,185,085	750,211	0.18
2002	617,256	681,880	616,814	1,359,735	0.31	1,229,988	841,057	0.19
2003	602,603	786,224	680,977	1,601,382	0.33	1,387,015	949,030	0.19
2004	614,654	825,399	663,492	1,709,103	0.30	1,373,853	1,274,245	0.23
2005	652,310	1,271,565	955,035	2,291,336	0.35	1,720,955	1,712,093	0.26
2006	676,068	1,885,193	1,286,785	3,080,963	0.41	2,102,987	2,300,392	0.30
2007	692,586	2,794,944	1,763,951	4,197,088	0.48	2,648,875	3,090,838	0.35

Year	PGDP	PGDPUS	POP	@TREND
1971	0.07	0.29	60.79	0
1972	0.07	0.30	62.67	1
1973	0.08	0.32	64.62	2
1974	0.10	0.35	66.62	3
1975	0.13	0.38	68.69	4
1976	0.14	0.40	70.82	5
1977	0.16	0.43	73.02	6
1978	0.17	0.46	75.28	7
1979	0.18	0.50	77.62	8
1980	0.20	0.54	80.02	9
1981	0.23	0.59	82.51	10
1982	0.29	0.63	85.07	11
1983	0.32	0.65	87.73	12
1984	0.33	0.68	90.48	13
1985	0.35	0.70	93.24	14
1986	0.36	0.71	96.19	15
1987	0.38	0.73	99.15	16
1988	0.43	0.76	102.20	17
1989	0.47	0.79	105.35	18
1990	0.49	0.82	108.04	19
1991	0.54	0.84	110.79	20
1992	0.63	0.86	113.61	21
1993	0.54	0.88	116.47	22
1994	0.61	0.90	119.39	23
1995	0.69	0.92	122.36	24

Year	PGDP	PGDPUS	POP	@TREND
1996	0.75	0.94	125.38	25
1997	0.85	0.95	128.42	26
1998	0.91	0.96	131.51	27
1999	0.97	0.98	134.51	28
2000	1.00	1.00	137.50	29
2001	1.08	1.02	140.80	30
2002	1.11	1.04	144.18	31
2003	1.15	1.06	147.64	32
2004	1.24	1.09	151.18	33
2005	1.33	1.13	154.81	34
2006	1.47	1.17	158.53	35
2007	1.58	1.20	162.33	36