



DETERMINANTS OF ECONOMIC GROWTH IN INDIA

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Abstract

This paper attempts to investigate, which macroeconomic variables are strongest in determining and predicting economic growth in India. The paper uses the secondary data obtained from National Accounts Statistics and World Bank for the period 1980-81 to 2015-16. The key variables are exports, FDI, inflation, government spending and investment categorized under three heads namely, outward orientation, government intervention and macroeconomic stability. These variables have been expressed as a function of various macroeconomic variables of growth and have subsequently been regressed against the GDP growth and its two components, industrial and service sectors growth. The findings of the study reveal that exports and investment are significant determinant for the growth of industrial sector while inflation and exports are significant determinant for the growth of services sector.

Keywords: Economic Growth, FDI, Government Spending, Exports, Investment and Inflation.

1. Introduction

Starting from Mid- Eighties, India has sustained a rapid growth in the last twenty years. However, this relatively high rate of growth of Indian economy has been associated with some substantial structural changes, which have not only shifted the hitherto centers of growth but also altered the relative significance of sectors of economic activities. The service sector has emerged the fastest growing and the most dominating sector, followed by the industrial sector. Taking this in account, it can be said that the Indian economy which was by and large, once considered an agrarian economy, has predominantly become a service based economy. The change in the composition of GDP puts forward an important question The question that what determines the rate of economic growth? It is therefore important to understand the relationship between economic growth and its components. Another important aspect of economic growth literature concerns the identification of growth determinants which explain the observed differences in the growth among countries. A wide range of studies have investigated the factors underlying economic growth. Our study attempts to analyse the determinants of growth in Indian context. The objective of the paper is twofold. Firstly, to discuss the growth of GDP and its constituents in India and secondly, to investigate the variables which strongly affect this growth in India.

The paper is divided into six sections. Section 2 gives a brief account of determinants of growth mentioned in the literature. Section 3, discusses patterns of GDP in Indian economy, Section 4 gives the empirical model and sources of data. This is followed by Sections 5, which discusses the results. The final section 6 concludes the study.

2. Determinants of Growth: A Review of Literature

There is no denying the fact that determinants of economic growth are different in different countries under varying situations. However, right from Adam Smith there has been a quest to find out the main factors that foster growth. Using differing conceptual and methodological viewpoints, economists have placed emphasis on a different set of explanatory parameters and offered various insights to the sources of economic growth. They have found various factors that determine growth. The important ones include **foreign aid**, (Henrik Hansen and Finn Tarp ,2000;

Mosley, 1980; Henrik Hansen and Finn Tarp, 2000; Carl-Johan Dalgaard et al., 2004; Channing Arndt et al., 2010; Matthijs Lof et al., 2013; Jeffrey Sachs, 2006; Burnside and Dollar, 2000; Levy, 1988; Karras, 2006) **foreign direct investment** (Manuchehr and Ericsson, 2001a; Nair-Reichert and Weinhold, 2001; Choe, 2003; Chowdhury and Mavrotas, 2006; Alfaro, 2004; Al-Iriani, 2007; Shaikh, 2010; Faras and Ghali, 2009; Solomon, 2011; Li and Liu 2005; Lensink and Morrissey, 2006; Borensztein et al., 1998; Hermes and Lensink 2000) **Infrastructure** (Mattoon, 2004; Bristow and Nellthorp, 2000; Macdonald, 2008; Snieska and Draksaitė, 2007) **investment**, (Anyanwu, 2014); Freire-Seren, 2002; Acikgoz and Mert, 2005; Bayraktar, 2006; Prochniak, 2011; Rebelo, 1990; Barro, 1990; Becker et al., 1990) **trade**, (Helpman, 1981; Krugman, 1979; Coe and Helpman, 1995; Xu and Wang, 1999; Dar and Amilkhalkali, 2003; Konya & Singh, 2006; Chen and Feng, 2000; Anaman 2004) **R&D**, (Davidson and Segerstrom, 1998; Fagerberg, 1987; Lichtenberg 1992; and Ulku, 2004) **Public expenditure**, (Lamartina and Zaghini, 2008; Arpaia and Turini, 2008; Szarowská, 2012; Ghosh and Gregorio, 2008; Aschauer, 1989) **Inflation**, (Bruno and Easterly, 1998; Temple, 2000; Mallik & Chowdhury, 2001; Orphanides and Solow, 1990; Rapach, 2003; Akgul and Ozdemir, 2012; Benhabib & Spiegel, 2009) **human capital**, (Freire-Seren, 2002; Bayraktar, 2006; Prochniak, 2011; Sach and Warner, 1997; Gallup et al. 1998; Barro 1991; Mankiw et al. 1992; Barro and Sala-i-Martin 1995; Brunetti et al. 1998; and Hanushek and Kimko, 2000) **demography**, (Fetahi-Vehapi, Sadiku, and Petkovski 2015; Kormendi and Meguire 1985; Kelley and Schmidt 1995, 2000; Barro 1997; Bloom and Williamson 1998) **education**, (Chen and Feng, 2000; Zervos, 1993; Martin and Xavier, 1997; Renelt, 1992) **fiscal policy**, (Fischer, 1993; Easterly and Rebelo, 1992) **geography**, (Gallup et al., 1998; Sachs and Warner, 1998; Hall and Jones, 1997 and 1999; Easterly and Levine 2003; Rodrik et al. 2004; Crosby 1986; and Diamond 1997) **political**, (Levine and Zervos, 1993; Brunetti and Weder, 1995; Gallup et al. 1998; Barro, 1991; Lipset, 1959) **and financial factors** (Prochniak, 2011; Kormendi and Meguire 1985; Scully 1988; Grier and Tullock 1989; Brunetti 1997; Lensink et al. 1999; Lensink 2001).

Guided by literature and certain theoretical considerations, we have divided key growth indicators under three categories namely, outward orientation, government intervention and macroeconomic stability. The variables selected for these three categories are exports, FDI, investment, government spending, and inflation.

3. Pattern of GDP growth in India

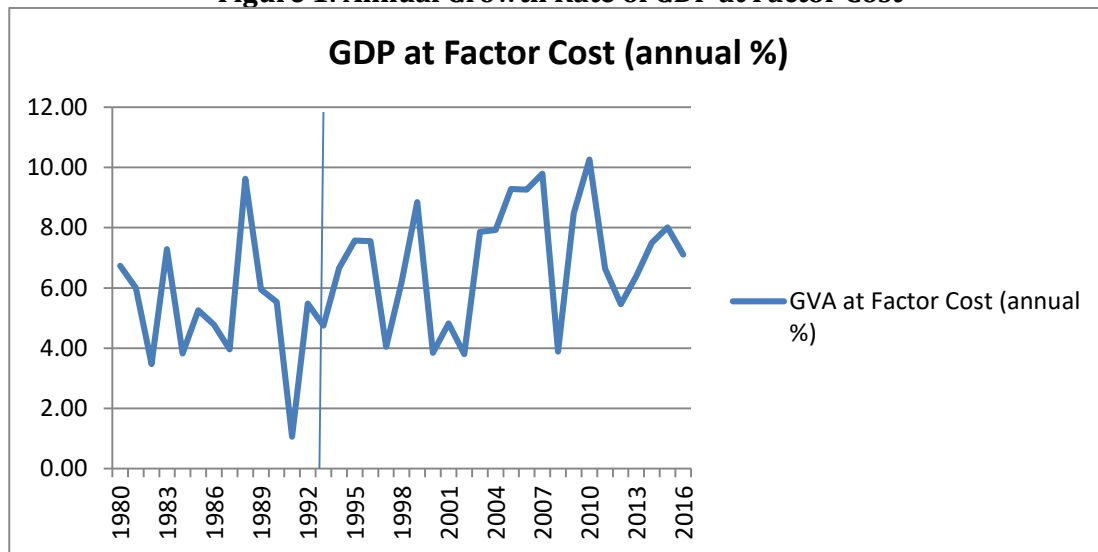
Indian economy has experienced some bouts of accelerated growth since mid-1980s before entering a phase of deceleration in the wake of global economic slowdown after 2008. Leaving behind the jokingly so-called 'Hindu rate of growth' of 3.5 percent mark during the three decades, from 1950 to 1980, the annual GDP growth hit the 5.6 per cent mark in the 1980s. It accelerated to 6.5 percent in the 1990s, and touched an all-time high of 9 percent in the XIth plan before coming down to around 7 percent in recent years. During the process of growth over 1980 to 2015-16, the Indian economy has experienced a change in the production structure with a shift away from agriculture towards industry and the tertiary sector.

3.1 Yearly growth rates of GDP during the period 1980-81 to 2015-16

In comparing the performance prior to the July 1991 reforms the line has been drawn at 1992-93 since 1991-92 was the year of crisis and including the year 1991-92 in the post reform period creates distortion.

Central to the high growth rate in the 1980s, was the super high growth during the period 1988-91 which includes growth rates of 10.2 percent in 1988-89, followed by 6.1 percent in 1989-90 and ultimately 5.3 percent in 1990-91. The fragile, but faster growth during the 1980s took place in the context of significant reforms. Growth during the 1980s was also propelled by fiscal expansion financed by borrowing abroad and at home. But this was unsustainable and led to the crisis of June 1991. The reforms in the 1990s were more systematic and they gave rise to a decidedly more stable and sustainable growth from the year 1992.

Figure 1: Annual Growth Rate of GDP at Factor Cost



Source: Author’s calculation based on data from National Accounts Statistics

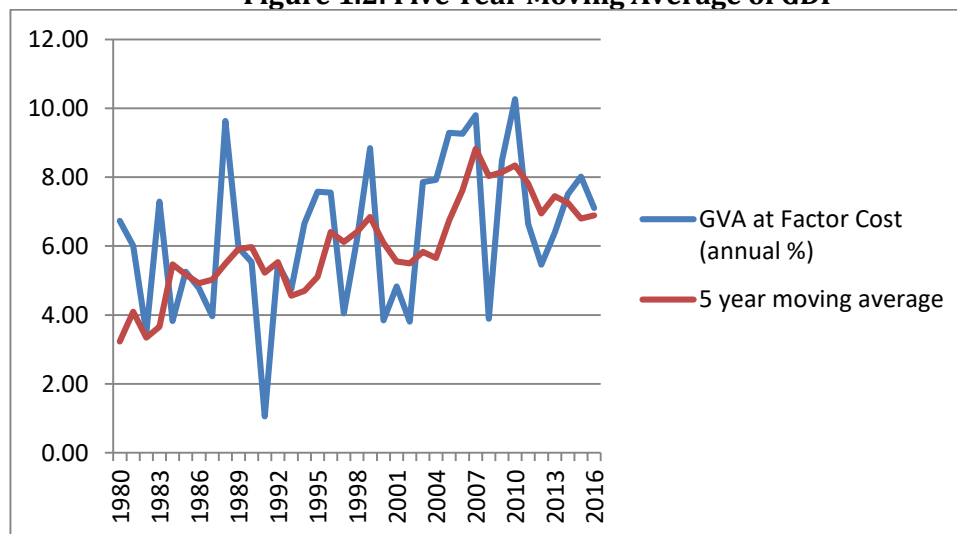
The identified sources of the shift in the growth rate in the 1980s, especially the sub period 1988–91 were liberalization and external and internal borrowing. On the external front, policy measures such as import liberalization, export incentives, and a more realistic real exchange rate contributed to productive efficiency. On the internal front, freeing up of several sectors from investment licensing reinforced import liberalization and allowed faster industrial growth. Second, both external and internal borrowing allowed the government to maintain high levels of public expenditures and thus boost growth through demand. But, unfortunately, these factors carried with them the seeds of the June 1991 macroeconomic crisis and thus brought economy to halt.

3.2. Sectoral Contribution and Growth of GDP in India

For examining the growth performance in India, we have calculated five-year Moving Averages of Annual Growth Rates of GDP growth rates from 1980-81 to 2015-16 .

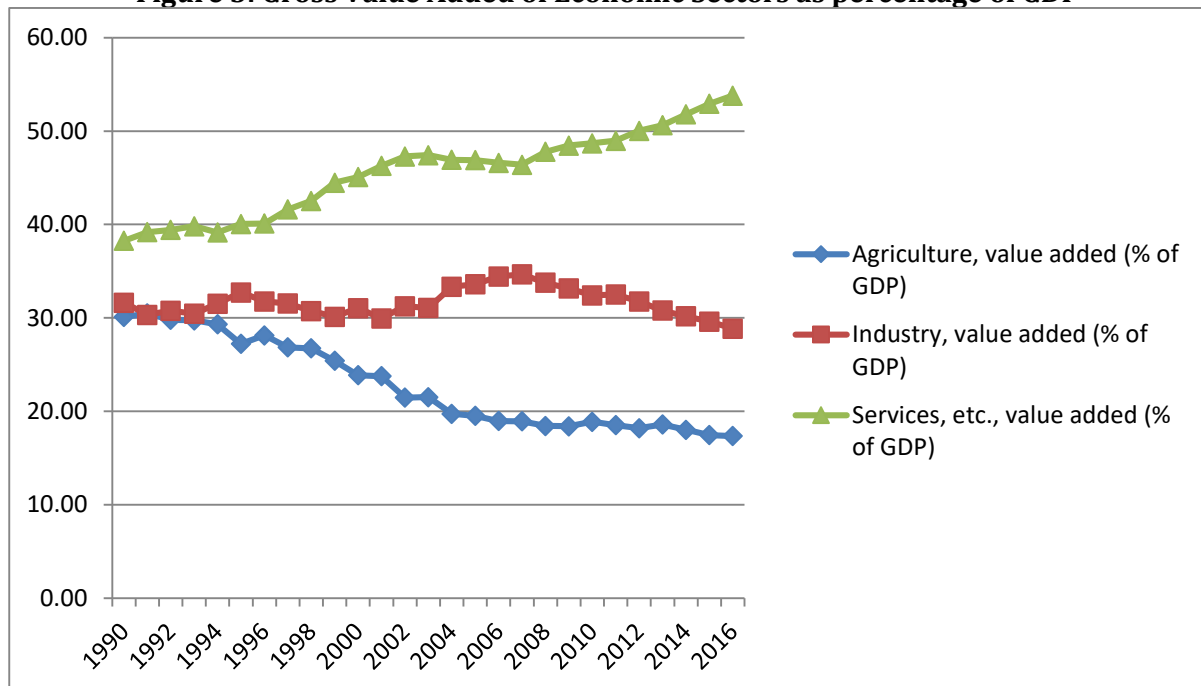
The first acceleration occurs in the mid-1980s and the second acceleration occurs toward the end of the 1990s and after that it has been growing steadily. Both of these accelerations in GDP growth appear to have been associated with accelerations in the growth of services.

Figure 1.2: Five Year Moving Average of GDP



Source: Author’s calculation based on data from National Accounts Statistics

Figure 3: Gross Value Added of Economic Sectors as percentage of GDP



Source: Author's calculation based on National Accounts Statistics

4. Empirical Model and Sources of Data

Our study aims to examine the impact of various growth indicators on growth of main components of GDP (service and industries). The analysis has been carried out for the period of 1980-2016 for the Indian economy using the data obtained from World Development Indicators and National Accounts Statistics

Since the purpose of this paper is to focus on only major indicators of economic growth to determine their relative importance to GDP growth. We have categorized the indicators under three main categories: outward orientation, government indicators and macroeconomic stability. In this model, the indicators for outward orientation include net exports (EXP) and foreign direct investment (FDI) as percentages of GDP. Exports of goods and services represent demand for that country's products in other countries and therefore strong markets for that country's goods. Demand for a country's goods in world markets reflect growth potential and strong economic stability. Foreign direct investment (FDI) represents how interested foreign companies are in that particular country's companies and markets. Key government indicators include government spending (SPEND) and total investment (INVEST) as percentage of GDP. Both of these variables represent ways in which a government can use fiscal policy to respond to or create shocks in the economy. Macroeconomic indicator includes the inflation rate (INFLAT) as a percentage a GDP and represent the macroeconomic stability of a country. A brief description of the variables used in the analysis is given in Table 1 below:

Table 1: Key Indicators

Category	Variable	Definition	Expected Sign
Dependent Variable	GROWTH	GDP growth (Annual %)	N/A
Outward Orientation	EXP	Exports of goods and services (% of GDP)	+
Outward Orientation	FDI	Foreign Direct investment, net inflows(% of GDP)	+
Government Indicators	SPEND	Expenditure, total (% of GDP)	+
Government Indicators	INVEST	Gross domestic investment(% of GDP)	+
Macroeconomic Indicator	INFL	Inflation, GDP deflator (annual %)	-

Taking into consideration all the above variables, the regression model for determinants of economic growth is as follows:

$$\text{Growth} = a + b_1 \text{EXP} + b_2 \text{FDI} + b_3 \text{SPEND} + b_4 \text{INVEST} + b_5 \text{INFL} + e \quad \dots (1)$$

$$\text{INDG} = a + b_1 \text{EXP} + b_2 \text{FDI} + b_3 \text{SPEND} + b_4 \text{INVEST} + b_5 \text{INFL} + e \quad \dots (2)$$

$$\text{SERG} = a + b_1 \text{EXP} + b_2 \text{FDI} + b_3 \text{SPEND} + b_4 \text{INVEST} + b_5 \text{INFL} + e \quad \dots (3)$$

Where,

Growth = Aggregate GDP Growth (combined of three sectors)

INDG= Annual GDP Growth Rate of Industrial Sector

SERG= Annual GDP Growth Rate of Services Sector

5. Results and Discussion

The Regression Results of Equations (1), (2) and 3 are presented in Table 2, 3 and 4

Table 2: Results of Regression Equation (1)

Variable	Coefficient	t-statistic	Level of Significance	Sign Same as Expected
Constant	6.616	1.727	0.094	n/a
INVEST	0.439	4.193	0.010	Yes
SPEND	-0.554	-2.233	0.033	Yes
FDI	0.576	0.929	0.360	Yes
EXP	0.480	1.515	0.040	Yes
INFL	-0.273	-2.405	0.022	Yes

Dependent variable: GDP Growth (combined of three sectors) in Annual Percentages

Adjusted R Square=0.512, N=37, Durbin Watson= 2.113

The results from Table 2 reveal that Adjusted R square for the overall model (equation 1) is 0.51 meaning that the model explains more than 50 per cent of the variance in economic growth of Indian economy. As discussed above the variables Exports and FDI, that represent outward orientation, only Exports is found to be the significant determinant of growth at 0.04. The result suggests that if Exports are to increase by 1 per cent, then the GDP growth would increase by 0.48 per cent.

Further, both government spending (SPEND) and investment (INVEST) are significant determinant of growth at 0.01 and 0.03 respectively. The negative and the positive sign of the coefficients of SPEND and INVEST show that government spending reduces growth while investment increases growth respectively. The negative sign highlights the fact that there should be less government intervention.

The last category of variable which include macroeconomic indicator, the model reports that if inflation is to decrease by 27.3 per cent, the GDP growth would increase by 1 per cent.

Table 3: Results of Regression Equation (2)

Variable	Coefficient	t-statistic	Level Significance	Sign Same as Expected
Constant	4.954	.911	0.370	n/a
EXP	.577	3.878	0.001	Yes
FDI	-0.544	-1.544	0.133	No
SPEND	0.074	0.084	0.934	Yes
INVEST	0.404	2.415	0.022	Yes
INFL	-0.269	-1.67	0.105	Yes

Dependent variable: Growth of Industrial Sector in Annual Percentages.

Adjusted R Square= 0.381, N=37, Durbin Watson=1.875

Table 3 shows that Adjusted R square for the overall model (equation 2) is 0.38, meaning that the model explains 38 per cent of the variations in industrial growth of Indian economy. Out of the two variables namely, Exports and FDI, only Exports is found to be the significant determinant of industrial GDP growth at 0.001. The result suggests that if Exports increase by 1 per cent, then the industrial GDP growth would increase by 0.57 per cent.

Further, out of the two government indicators, government spending (SPEND) and investment (INVEST), only investment is the significant determinant of industrial growth at 0.02. The result suggests that if investment increases by 1 per cent, then the industrial GDP growth would increase by 0.40 per cent. In the last category, inflation is found to be an insignificant determinant of industrial GDP growth. Thus out of the five variables selected for the purpose of analysis, only Export and Investment have positive effect on the GDP growth of industrial sector in the economy. Therefore, outward orientation and government indicators to some extent have affirmative bearing on the GDP growth of industrial Sector.

Table 4: Results of Regression Equation (3)

Variable	Coefficient	t-statistic	Significance level	Sign Same as Expected
Constant	.834	0.145	0.886	n/a
EXP	.338	2.142	0.040	Yes
FDI	.289	0.774	0.445	Yes
SPEND	.753	0.806	0.426	Yes
INVEST	-.347	-1.961	0.059	No
INFL	-.382	-2.238	0.033	Yes

Dependent variable: Growth of Services Sector GDP in Annual Percentages

Adjusted R Square=0.442, N=37, Durbin Watson=2.289

Table 4 reveals that Adjusted R square for the overall model (equation 3) is 0.44, meaning that the model explains 44 per cent of the variance in GDP growth of services sector Indian economy. Out of the two variables namely, Exports and FDI, only Exports is found to be the significant

determinant of service GDP growth. The result suggests that if we increase exports by 1 per cent, then the GDP growth of Services sector would increase by 0.34 per cent.

Further, out of the two government indicators, government spending (SPEND) and investment (INVEST), none of them found to be significant determinant of the service growth at significance level of .42 and .06 respectively. This is because as the growth in service has been picked up due to more outward orientated policies adopted by Indian economy post economic reforms. However, in the last category inflation is found to be a significant determinant of service growth. The model reports that if inflation decreases by 38 per cent, the GDP growth would increase by 1 per cent.

Thus out of the five variables selected for the purpose of analysis, only Export and Inflation have positive effect on the GDP growth of services sector in the economy. Therefore, outward orientation and macroeconomic indicator to some extent have affirmative bearing on the GDP growth of service sector.

6. Conclusion

We have made an attempt to examine which variables have been successful in explaining the variations in Aggregate GDP growth and its components namely, services GDP and industrial Sector GDP. Variables explaining outward orientation, government intervention and macroeconomic indicators are significant determinants of overall economic growth. After extending the analysis to two major components of GDP namely, service and industry, it has been found that 'Exports' which represents outward orientation and 'Investment' which represents government intervention have positive impact on the growth of industrial sector GDP in Indian economy. Whereas, in case of services sector, 'Inflation' and 'Exports' have been found to be a significant determinant of the GDP growth in the sector. Further, government spending which is a significant determinant for overall growth, does not hold similar importance for industrial and service sector GDP growth. However, it could be a major determinant of the growth in agriculture growth that has not been taken into account in the present study.

References

- Acikgoz, S., and Mert, M. 2014. Sources of Growth Revisited: The importance of the nature of technological progress, *Journal of Applied Economics* 17 (1): 31-62.
- Akgul I. & Ozdemir S. (2012), Inflation threshold and the effects on economic growth, 'Iktisat Is- letme ve Finans', 27(313), 85-106.
- Alfaro, L.C.-0(2004). FDI and economic growth: the role of local financial markets. *Journal of International Economics*, 64(1),89-112.
- Al-Iriani, M. (2007). Foreign direct investment and economic growth in the GCC countries: A causality investigation using heterogeneous panel analysis, *Topics in Middle Eastern and North African Economies*, 9(1), 1-31
- Anaman, K. A. (2004). Determinants of Economic Growth in Brunei Darussalam. *Journal of Asian Economics* 15 (4): 777-796.
- Anyanwu, J. C. (2014). Factors Affecting Economic Growth in Africa: Are there any lessons from China? *African Development Review* 26 (3): 468-493.
- Arpaia Alfonso, and Alessandro Turrini. (2008). Government Expenditure and Economic Growth in the EU: Long-Run Tendencies and Short-Term Adjustment, *SSRN Working Paper Series* 300: 800-844
- Aschauer, D.A. (1989). Is public expenditure productive? *Journal of Monetary Economics* 23,177-200.
- Barro, R. J. (1991). Economic Growth in a Cross-Section of Countries, *Quarterly Journal of Economics*, 106(2), pp. 407-443
- Barro, R.J, and X. Sala-i-Martin (1995) *Economic Growth*, New York: McGraw-Hill.
- Bayraktar, B. (2006). Investigation on Sources of Growth for Turkey. *Canadian Journal of Development* 27 (1): 25-38

- Benhabib J. & Spiegel M.M. (2009). Moderate inflation and the deflation–depression link, 'Journal of Money, Credit and Banking' 41(4), 787–798.
- BLOOM, D., and J. WILLIAMSON (1998). Demographic Transitions and Economic Miracles in Emerging Asia, *World Bank Economic Review* 12, 419-56.
- BORENSZTEIN, E., J. DE GREGORIO, and J. LEE (1998) How does Foreign Direct Investment affect Economic Growth? *Journal of International Economics* 45, 115-35.
- Bristow, A.L., Nellthorp, J. (2000), Transport project appraisal in the European Union, *Transport Policy* 7. 51-60.
- Brunetti, A. (1997) Political variables in cross-country growth analysis, *Journal of Economic Surveys* 11(2), 163-90
- Brunetti, A., G. Kisunko, and B.Weder (1998). Credibility of Rules and Economic Growth: Evidence from a Worldwide Survey of the Private Sector, *The World Bank Economic Review* 12(3), 353-84.
- Bruno M. & Easterly W. (1998), Inflation crises and long-run growth, *Journal of Monetary Economics*, 41(1), 3–26.
- Burnside, C., and D. Dollar (1997). 'Aid, Policies, and Growth'. WB Policy Research Working Paper 1777. Washington, DC: World Bank.
- Burnside, C., and D. Dollar (2000). 'Aid, Policies and Growth'. *American Economic Review*, 90(4):847–68
- Carl-Johan Dalgaard, Henrik Hansen, and Finn Tarp (2004). On the Empirics of Foreign Aid and Growth. *The Economic Journal*, 114, 191-216.
- Channing Arndt, Sam Jones, and Finn Tarp (2010). Aid, Growth, and Development: Have We Come Full Circle? *Journal of Globalization and Development* Volume 1, Issue 2, Article 5.
- Chen, B. and Feng Y. (2000). Determinants of Economic Growth in China: Private enterprise, education, and openness. *China Economic Review* 11: 1-15
- Choe, J. Il. (2003). Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth? *Review of Development Economics*, 7(1), 44–57.
- Chowdhury, A. & Mavrotas, G. (2006). FDI and Growth: What Causes What? *World Economy*, 29(1), 9–19
- Coe, D. & Helpman, E. (1995). International R&D Spillovers. *European Economic Review*, 39(5), 859- 887
- Crosby, Alfred W. (1986). *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*, Cambridge: Cambridge University Press.
- Dar, Atul and Amirkhalkhali, Sal (2003). On the Impact of Trade Openness on Growth: further evidence from OECD countries," *Applied Economics*, Taylor & Francis Journals, vol. 35(16), pages 1761-1766.
- Davidson, C., & Segerstrom, P. (1998). R&D Subsidies and Economic Growth. *The RAND Journal of Economics*, 29(3), 548-577.
- Denison, Edward F. (1962). *The Sources of Economic Growth in the United States and Alternatives Before Us*. CED Supplementary Paper, No 13.
- Diamond, Jared M. (1997). *Guns, Germs and Steel: The Fate of Human Societies*, New York NY: W.W. Norton & Co
- Easterly, W., and R. Levine (2003). Tropics, germs and crops: how endowments influence economic development, *Journal of Monetary Economics* 50(1), 3-39.
- Easterly, W., R. King, R. Levine and S. Rebelo. (1992). How Do National Policies Affect Long-run Growth? A Research Agenda. *World Bank Discussion Paper* No. 164.
- FAGERBERG, J. (1987). A Technology Gap Approach to Why Growth Rates Differ, *Research Policy* 16, 87-99

- Faras, R. Y., & Ghali, K. H. (2009). Foreign direct investment and economic growth: the case of the GCC countries. *International Research Journal of finance and economics*, (29), 134–145
 - Fetahi-Vehapi, M, Sadiku, L, and Petkovski, M. (2015). Empirical Analysis of the effects of Trade Openness on Economic Growth: An evidence of South East European countries. *Procedia Economics and Finance* 19: 17-26.
 - Fischer, S. (1993). *The Role of Macroeconomic Factors in Growth*. Journal of Monetary Economics 32. M.I.T. Cambridge, USA
 - Freire-Seren, M. J. (2002). On the Relationship between Human Capital Accumulation and Economic Growth. *Applied Economic Letters* 9 (12): 805-808
 - Further Evidence from OECD Countries, *Applied Economics*, 35(16),1761-1766, <http://www.tandfonline.com/doi/abs/10.1080/0003684032000129020>(downloaded:19.03.2018)
 - Gallup, J. L, J. Sachs and A. D. Mellinger. (1998), *Geography and Economic Growth*. Paper prepared for the Annual Bank Conference on Development Economics, Washington, D. C., April 20-21
 - Ghosh, Sugata, and Andros Gregoriou. (2008). The composition of government spending and growth: Is current or capital spending better? *Oxford Economic Papers*, 60(3): 484-516.
 - Hall, R., and C. Jones (1999). Why do Some Countries Produce So Much More Output Than Others? *The Quarterly Journal of Economics* 114(1), 83-116
 - Hanushek, E., and D. Kimko (2000) *Shooling, Labor-Force Quality, and the Growth of Nations*, *American Economic Review* 90, 1184-1200
 - Helpman, E. (1981). *International Trade in the Presence of Product Differentiation, Economies of Scale, and Monopolistic Competition: A Chamberlin-Heckscher-Ohlin Approach*. *Journal of International Economics*, 11(3), 305-340.
 - Henrik Hansen and Finn Tarp. (2000). *Aid Effectiveness Disputed*. *Journal of International Development*, 12(3), 375–98.
 - Hermes, N., and R. Lensink (2000). *Foreign direct investment, financial development and economic growth*, *Journal of Development Studies* 40(1), 142-63
 - Karras, G. (2006). 'Foreign Aid and Long-run Economic Growth: Empirical Evidence for a Panel of Developing Countries'. *Journal of International Development*, 18(1): 15–28.
 - Kelley, A.C., and R.M. Schmidt (1995) *Aggregate Population and Economic Growth Correlations: The Role of the Components of Demographic Change*, *Demography* 32, 543-55.
 - Kormendi, R., and P. Meguire (1985) *Macroeconomic determinants of growth: cross-country evidence*, *Journal of Monetary Economics* 16(4), 141-63.
 - Krugman, P. (1979). *Increasing Returns, Monopolistic Competition, and International Trade*. *Journal of International Economics*, 9(4), 469-479
 - Lamartina, Serena, and Andrea Zaghini. (2008). "Increasing public expenditure: Wagner's Law in OECD countries." *German Economic Review* 12(2): 149–164.
 - Lensink, R. (2001) *Financial development, uncertainty and economic growth*, *De Economist* 149(3), 299-312
 - Lensink, R., H. Bo, and E. Sterken (1999) *Does Uncertainty Affect Economic Growth? An Empirical Analysis*, *Weltwirtschaftliches Archiv* 135, 379-396
 - Lensink, Robert, and Oliver Morrissey. (2006). "Foreign Direct Investment: Flows, Volatility and the Impact on Growth." *Review of International Economics* 14(3): 478-493.
 - Levine, R. and S. Zervos. (1993), *Looking at Facts: What We know about Policy and Growth from Cross-Country Analysis*. *World Bank Policy Research Papers*, WPS 1115.
 - Levy, V. (1988). 'Aid and Growth in Sub-Saharan Africa: the Recent Experience'. *European Economic Review*,32(9): 1777–95.
-

- Li, Xiaoying, and Xiaming Liu. (2005). "Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship." *World Development* 33(3): 393-407.
- Lichtenberg, F. (1992) R&D Investment and International Productivity Differences, NBER Working Paper, No. 4161.
- Lipset, S.M. (1959) Some Social requisites of Democracy: Economic Development and Political Legitimacy, *American Political Science Review* 53, 69-105
- Macdonald, R. (2008), An Examination of Public Capital's Role in Production. *Economic Analysis Research Paper Series*. No. 50. Ottawa: Statistics Canada.
- Mallik G. & Chowdhury R.M. (2001), Inflation and economic growth: Evidence from South Asian countries, '*Asian Pacific Development Journal*', 8, 123-135
- Mankiw, N., D. Romer, and D. Weil (1992) A Contribution to the Empirics of Economic Growth, *Quarterly Journal of Economics* 107(2), 407-37
- Manuchehr, I., & Ericsson, J. (2001a). On the causality between foreign direct investment and output: a comparative study. *The International Trade Journal*, 15(1), 1-26
- Matthijs Lof, Tseday Jemaneh Mekasha, and Finn Tarp. (2013). Aid and income: Another timeseries perspective. Working Paper No. 2013/069 Helsinki: UNU-WIDER.
- Mattoon, R. H. (2004), Infrastructure and State Economic Development: A survey of the issues (I-G). *Economic Conference*.
- Mosley, P. (1980). Aid, savings and growth revisited *Bulletin of the Oxford University Institute of Economics and Statistics* 42, 79-95.
- Nair Reichert, U., & Weinhold, D. (2001). Causality Tests for Cross-Country Panels: a New Look at FDI and Economic Growth in Developing Countries. *Oxford bulletin of economics and statistics*, 63(2), 153-171
- Orphanides, A. and Solow, R.M. (1990). Money, Inflation and Growth. *Handbook of Monetary Economics*, Vol 1, 223-261.
- Rapach D.E. (2003), International evidence on the long-run impact of inflation, *Journal of Money, Credit, and Banking*, 35(1), 23-48
- Rodrik, D., A. Subramanian, and F. Trebbi (2004). Institutions rule: the primacy of institutions over geography and integration in economic development, *Journal of Economic Growth* 9, 31-65
- Sach, J. D., and A. M. Warner. (1997). Sources of Slow Growth in African Economies. *Journal of African Economies*, Vol. 6, pp. 335-376
- Scully, G. (1988). The Institutional Framework and Economic Development, *Journal of Political Economy* 96(3), 652-62.
- Shaikh, F. M. (2010). Causality Relationship Between Foreign Direct Investment, Trade And Economic Growth In Pakistan. In *International Business Research* (Vol. 1, pp. 11-18). Harvard Business School.
- Snieska, V., Bruneckiene, J. (2009). Measurement of Lithuanian Regions by Regional Competitiveness Index. *Inzinerine Ekonomika Engineering Economics* (1), 45-57.
- Solomon, E. M. (2011). Foreign Direct Investment, Host Country Factors and Economic Growth. *Ensayos Revista de Economia*, 30(1), 41-70.
- Szarowská, Irena (2012). "The cyclicity of government expenditure and Wagner's law-Case of Czech Republic, Slovakia, Hungary, Bulgaria and Romania." *Scientific Papers of the University of Pardubice. Series D, Faculty of Economics & Administration* 18(24):188-198.
- Temple J. (2000). Inflation and growth: Stories short and tall, '*Journal of Economic Surveys*', 14, 395-426.
- Ulku, H. (2004). R&D Innovation and Economic Growth: An Empirical Analysis, *IMF Working Paper* 185.
- Xu, B., & Wang, J. (1999). Capital Goods Trade and R&D Spillovers in the OECD. *Canadian Journal of Economics*, 32(5), 1258-1274

Appendix: Annual growth rates (% of GDP), Annual Growth Rate of GDP at Factor Cost and 5 Year Moving Average

Year	Agriculture, value added (% of GDP)	Services, etc., value added (% of GDP)	Industry, value added (% of GDP)	Annual Growth Rate (GDP at FC)	5 year Moving Average
1980	36.70	34.30	29.00	6.74	3.23
1981	35.33	34.67	30.00	6.01	4.09
1982	34.10	35.82	30.08	3.48	3.34
1983	34.79	35.09	30.12	7.29	3.65
1984	33.41	36.06	30.54	3.82	5.47
1985	32.04	37.28	30.69	5.25	5.17
1986	30.84	38.25	30.91	4.78	4.92
1987	30.26	38.78	30.95	3.97	5.02
1988	31.32	37.88	30.80	9.63	5.49
1989	30.05	38.28	31.67	5.95	5.91
1990	30.10	38.27	31.63	5.53	5.97
1991	30.48	39.19	30.33	1.06	5.23
1992	29.80	39.43	30.77	5.48	5.53
1993	29.74	39.81	30.44	4.75	4.55
1994	29.32	39.15	31.53	6.66	4.70
1995	27.23	40.05	32.72	7.57	5.10
1996	28.13	40.11	31.76	7.55	6.40
1997	26.85	41.62	31.53	4.05	6.12
1998	26.75	42.52	30.74	6.18	6.40
1999	25.41	44.47	30.12	8.85	6.84
2000	23.88	45.08	31.04	3.84	6.09
2001	23.77	46.28	29.95	4.82	5.55
2002	21.46	47.29	31.25	3.80	5.50
2003	21.51	47.43	31.06	7.86	5.84
2004	19.73	46.92	33.34	7.92	5.65
2005	19.51	46.90	33.59	9.28	6.74
2006	18.97	46.60	34.44	9.26	7.63
2007	18.93	46.40	34.66	9.80	8.83
2008	18.44	47.78	33.78	3.89	8.03
2009	18.39	48.46	33.15	8.48	8.14
2010	18.88	48.70	32.42	10.26	8.34
2011	18.53	48.97	32.50	6.64	7.81
2012	18.20	50.03	31.77	5.46	6.95
2013	18.59	50.62	30.79	6.39	7.44
2014	18.02	51.80	30.18	7.51	7.25
2015	17.46	52.93	29.61	8.01	6.80
2016	17.35	53.80	28.85	7.11	6.89