

Analysis of Economic Growth in a Developing Country: Estimating and Identifying Sources

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Dissertation Abstract

Indian economy has undergone significant transformations in last few decades. From being an example of central planning gone bad and being categorized with sub-Saharan countries, it has become one of the fastest growing economies in the world and a shining example of success of the market reforms. This dissertation is an empirical study of Indian macroeconomic growth. What happened? Why it happened? What changed? These are very interesting and important questions. Their answers help our understanding of the process of economic growth and development. The study is also useful in suggesting some policy implications that other under-developed countries can use as guidelines.

The dissertation is organized into four chapters. Chapter 1 analyzes the growth of aggregate economy in India. Chapter 2 compares and contrasts this growth with economic growth in China. In chapter 3, I examine productivity growth in Indian manufacturing sector. Chapter 4 discusses role of various policies adopted by India in promoting or hampering the growth.

The objective of first chapter is to provide robust and reproducible growth estimates for India, period-wise trends in those and to identify the importance of different sources in output growth. I construct data set for India using economic series from various sources. A comprehensive growth accounting for the Indian economy shows that without accounting for human capital, total factor productivity differences over time account for 48% to 69% of output variation. If we include the role of education or human capital, TFP growth accounts for 35% to 70% of the total GDP growth between 1960 and 2004. Even after using the Mincer wage regression coefficients to weight different levels of education, TFP growth remains significant in explaining the output growth. Starting from a modest rate in 60s, productivity growth dipped and became negative in 70s. This productivity growth rate started accelerating in 80s (much before the reform-period of early 90s). Capital-Output ratio seems to transition from one-steady state to another. Capital-per-Worker has reached a constant rate of growth. Accounting estimates, decompositions and period-wise trends point toward Indian growth being triggered by overall productivity and efficiency improvement. These results are in sharp contrast to what so called “Asian Tigers” experienced, where economic growth came mostly from high savings and capital formulation.

How does Indian growth compare with the fastest growing economy in the world i.e. China? The aim of second chapter is to find the differences in growth patterns between these two countries which followed two very different models and economic policies. Chinese economy has grown at much faster rate than Indian, but India seems to be catching up. The average estimated productivity growth rate of China (5.9%) is more than double of Indian productivity growth rate average (2.4%). The difference between same-deflator average growth rates of India and China reduces significantly (by as much as 70%) for manufacturing sector. Growth rate estimates point towards reforms in India jump-starting the TFP growth rather than the factor accumulation growth. After mid 90s, Indian TFP growth rate has started to increase while Chinese rate has remained constant. While increased growth of spending is accompanied by increase the growth rate of productivity in China, in India the correlation is negative. For India, service sector growth trend is more strongly correlated with government spending and infrastructure.

Why did India not grow earlier like China? Studies on growth analysis of Indian manufacturing, which was the focus of earlier five-year plans, have been unable to provide consistent estimates. I address this issue in chapter three by calculating exhaustive set of productivity estimates for the period 1970-2003 using Annual Survey of Industries data. TFP growth rate average is 1.1% for both gross output based and net value added based measures. In gross output production the share of materials is 0.6, much larger than the capital and the labor shares. Share of capital is constantly increasing. For the period just after the reforms (91-97), input growth jumps but TFP growth is negative. But after 98, the trend reverses and output grows despite negative input growth because of large positive TFP growth. Aggregated TFP growth rate also follows the same pattern. There are no significant differences in TFP growth rates among different-sized firms. After the reforms, TFP growth increases substantially in the public corporations. These results show that lack of productivity growth was the reason for unimpressive performance of Indian manufacturing.

In the last chapter, the dissertation answers the puzzling question that why under the similar set of economic conditions service sector in India grew while manufacturing could not. I find that interaction of policies of quantitative restrictions and inflexible labor laws distorted the intermediate input usage compared to the labor. Moreover, combination of high inflation and unavailability of credit exacerbated this factor distortion and lowered the productivity growth further. Using panel data on Indian industries, I also find underutilization of materials compared to labor until recently. Because of these economic conditions during 70s and 80s, firms were under-substituting the materials in response to price changes rather than choosing optimal allocation. As a result, productivity estimates are negatively related to labor growth and positively related to materials growth. Real wages and labor productivity are negatively related to materials inflation and this relationship breaks down after the capital market reforms in 1990s. Since these *distortion-inefficiency* channels work through intermediate inputs, service sector productivity was not affected as adversely. After 1990s, firms have started over-substituting materials and capital relative to labor which can explain the jobless growth in Indian manufacturing.

These findings have important and useful implications. The dissertation contributes to “*inspiration vs. perspiration*” debate on the correct path for economic growth. It shows that Indian economic growth is coming from productivity growth (inspiration), which is good news because it will not reach diminishing returns like growth from capital accumulation. Another crucial result for policy makers is that actual impact of a seemingly useful economic policy may end up being negative in presence of other policies. So “*ceteris-paribus*” (all other things being equal) kind of analysis should be carried out with caution. About future steps in the economic reform process in India, the dissertation finds that labor market regulations need to be fixed to stop firms from shying away from hiring workers.