CHAPTER NINE

CONCLUSION

Economists have been interested in the issue of economic growth right from the days of Adam Smith, and even before. Irrespective of the political and economic structure in their countries, economists in general and policy makers in particular have always looked for policy mixes that can ensure higher rates of long run growth. It is easy to understand that achieving higher rates of growth is an important objective for any country, because it enables them to reach higher levels of prosperity and higher standards of living, within a shorter time period. However for a developing country, it is even more important to increase the growth rates as much as possible, as this enables these countries to undergo crucial structural transformations - which are necessary in order to reach higher stages of development - within a reasonable span of time. Of course, the most important objectives for any developing country should be to overcome social evils like poverty and destitution, and higher growth rates may not take care of these problems automatically. However, if the “size of the cake is bigger”, i.e., the levels of output and wealth are higher, then at least at a theoretical level, use of appropriate policies of redistribution can be more effective in getting rid of these problems. Thus, it is of great importance to policy makers from developing economies to understand the process of growth in their economies.
A Motivation for the Thesis

To the Classical economists like Smith and Ricardo, the analysis of long run growth was also an analysis of how economies develop over time. Thus in the Classical tradition there is no difference between Growth and Development economics. The modern literature, however, recognised that the constraints to higher growth rates are different for developed and developing economies. It was accepted that in the developed economies, it is the rate of technical progress that was the main source of growth, while in developing economies, it is the volume of capital formation that largely determined the rate of growth. Consequently, the study of the growth process for a developed economy came under the purview of growth theory while those for the underdeveloped dualistic economies became a part of development economics. Recent contributions in these areas, particularly the "Endogenous Growth" literature, have however, again blurred this distinction between developed and developing economies, by claiming that their models of growth should also be interpreted as theories of development. In the light of such assertions that challenge this earlier distinction, it becomes important to take a closer look at the methodological approach that these new contributions take. In our opinion, there are two questionable aspects of the methodology of these studies – one empirical and the other theoretical – that make them unsuitable as a theory of development. The empirical studies in this literature are based on a cross section of a large group of countries, which include both developing as well as developed economies. This implies that these studies assume that the process of growth is identical in all economies, irrespective of the stage of development that they have reached. This is totally contradictory to the conventional wisdom from Development Economics, which laid special stress on the point that the process of growth in underdeveloped economies
was distinctly different from that in developed economies. The question that arises is whether these studies and their results are robust enough to hold for developing economies only. Thus, it becomes important to check whether the empirical results established in these recent studies hold even in a sample consisting of economies that are still in the early stages of their development. This is the starting point as well as the methodological approach underlying the empirical work done in our thesis. The other methodological problem with the recent literature is theoretical in nature. Here, the formal models that have been constructed to explain the empirical results are not based on economic structures that are appropriate for developing economies. Thus, even though these models may be consistent with the empirical results, the theoretical explanation for these results may be erroneous. This makes it important to construct formal models that are based on the economic structures of these developing economies and are consistent with the empirical evidence from these economies. This is the methodological approach underlying the theoretical models in our thesis.

A Summary of the Thesis

Our research broadly deals with two sets of issues that have been posited by the recent literature – the issue of convergence of growth rates and the issue of identifying the sources of economic growth. We start with the issue of convergence – an issue that has given rise to a voluminous literature. According to the Solow model of growth, for a given savings ratio, the per capita growth rate falls with the accumulation of capital. This idea can be used to argue (assuming that the savings ratio of all countries are the same) that richer countries grow at a slower rate, and hence the poorer countries – with their faster growth rates – are continuously catching up with the richer ones. This
implies that growth rates show convergence, and the nature of the growth process is
inequality reducing. This argument is however contradicted by cross country growth
evidences based on a sample with a large number of developed and developing
economies, which show that on an average, rich countries grow as fast as poor countries.
Following this cross-country evidence, a large section of the recent literature tries to
resolve this contradiction, and this has given rise to the theories of Endogenous Growth
as well as the theories of conditional convergence.

It is in the context of this above literature that we start our analysis, by looking at
the cross-country evidence within a group of developing economies. Within these
economies, we find that growth rates exhibit divergence, i.e., the relatively richer
economies grow at a higher rate compared to relatively poorer economies. This result is
distinctly different from the empirical findings of the recent literature, which shows that
richer countries on an average grow at the same rate as poorer countries. Next, we
empirically investigate the role of investment in this divergence result. We find that (a)
per capita growth rates are determined by investment ratios and (b) investment ratios are
themselves determined by per capita income levels. Thus the empirical evidence seems
to indicate a "per capita income – investment ratio – per capita growth" circle that is
responsible for the divergence of growth rates. Having established these empirical
results, we next take up the task of providing a theoretical analysis of these results. We
begin by constructing a simple model that explains the empirical results described above
and then analyse the implications of this model. We find that the model implies that (a)
growth rates accelerate continuously over time (b) for sufficiently low values of per
capita income, divergence may lead to vicious circles and retrogression, i.e., negative
growth, and (c) it is possible for relatively poor countries to escape from vicious cycles and catch up with or overtake relatively richer countries.

A little reflection of the above implications makes it clear that our simple model needs some modification in order to be a satisfactory theory of growth of a developing economy. The first of the three implications described above, i.e., growth rates accelerate continuously over time, implies that these economies experience explosive growth paths. This implication is, however, not consistent with the historical experiences of developing economies. Beyond a certain range of growth rates, these economies have not experienced any acceleration in their growth paths, either in the positive or in the negative direction. The explanation that we offer for the above fact is that there are ceilings and floors to achievable growth rates. This implies that even though there is overall divergence of growth rates, the tendency towards divergence tends to slow down at the two extremes. In the virtuous circle, this means that even though the growth rates are going up continuously, after a point their marginal increases are smaller and smaller such that they are asymptotically moving towards a ceiling rate of growth. Similarly in a vicious circle, the marginal fall in the growth rates get smaller and smaller, as they asymptotically approach a floor rate of growth. Thus, growth experiences are restricted within a certain range of values defined by the ceilings and floors, and there is no acceleration beyond this range. Within this range, however, per capita growth rates do exhibit divergence. This explanation implies that per capita growth rates are a non-linear function of initial levels of per capita income — a characteristic that is not captured in our simple model. In order to generate this non-linearity, we have next constructed a more complex model of growth of a developing economy. This has been followed up by
 empirically testing for this non-linear model and its components. We find that the empirical evidence is consistent with our non-linear model.

We now come to the second broad issue covered in our thesis, i.e., the identification of sources of economic growth in developing economies. One of the implications of our theoretical models is that relatively poor countries can "catch up" or even "leap frog" over richer countries, by generating higher levels of "exogenous" sources of economic growth. We carry out an empirical exercise that tries to identify some of these sources. In this context our empirical findings are (a) human capital is not a statistically significant source of growth (b) the degree of openness of an economy is not a statistically significant source of growth (c) the volume of exports is not a statistically significant source of growth (d) exports of manufactures are a source of growth (e) exports of primary commodities are a source of retrogression. Finally we put forward a theoretical analysis of these results. It is important to note that we have done so within the framework of our theoretical models that were constructed to explain divergence of growth rates. Thus, even though we have treated the two issues of "convergence" and "sources of growth" separately for analytical convenience, we have provided an analysis of these issues within a unified framework that puts together different aspects of the growth process in a developing economy.

**Agenda for future research**

This brings us to the end of our thesis. Of course, there are some aspects of our thesis that can be developed further. The empirical literature on cross country
studies have recently pointed out that taking a panel estimation rather than a cross section estimation is more appropriate as this can take into account cross sectional heterogeneity due to country effects. A panel estimation, of course, requires a larger amount of time series data that was not available at the time of the research. This can be carried out as and when more data is available. A sufficiently long time series data can also be used to test for the convergence / divergence hypothesis in individual countries. As far as the issue of growth rates and cross-country inequality is concerned, alternative empirical tests can be carried out (for example using Gini coefficients) that show whether cross-country inequality is increasing in a group of developing economies or not. Another useful line of enquiry would be to identify other sources of growth in these economies. For example, it would be useful to see whether particular forms of human capital (like the creation of a skilled workforce etc.,) has an effect on the growth rate. Other variables like fiscal and monetary policy can also be tested. All these will remain on the agenda of our future research.