investment in capital will exhibit higher marginal returns. Thus, income convergence should occur over time as the increase in the capital stock takes hold in capital-poor regions. Secondly, countries with high rates of population growth should exhibit slower per capita GDP growth. This is due to the fact that any. capital stock would be spread out among larger numbers of people, thus decreasing the capital-labour ratio. Thirdly, increasing the rate of investment will increase the stock of capital and therefore capital-deepening will occur, resulting in higher growth rates.

2.2. The Empirical Evidence

● **Does Income Converge Over Time?**

The convergence in per capita GDP between countries, as predicted by traditional growth theory, has failed to materialize on a truly global scale. Figure 1 shows that the growth experiences of 71 countries have been very different. Countries such as Thailand and South Korea have experienced unprecedented high rates of economic growth. Some sub-Saharan countries, such as Ghana, Zaire and Zambia, have seen their per capita incomes actually fall over the 35 year period. If convergence had taken place, we would expect to see a downward trend in the data where those with higher initial incomes would grow at slower rates. No such pattern is apparent for the entire sample.

In a related paper, Baumol addresses this convergence issue. He discovers that from 1950-80, convergence does tend to occur, but not between all countries.[4] Industrialized countries, centrally-planned economies and middle-income developing countries all experienced intra-group convergence. Brander

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[4]Baumol argues that income convergence is, in fact, evident in his data. De Long, however, shows little evidence to support the convergence hypothesis based on simple regression when per capita GDP growth is regressed on initial per capita GDP levels. De Long criticizes Baumol's methodology for its *ex post* choice of countries with good growth performance records. In other words, Baumol's sample was biased owing to the fact that he selected the "winners" to be in his sample. See William J. Baumol, "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show," *American Economic Review*, Vol. 76, No. 5 (December 1986), 1072-85, and J. Bradford De Long, "Productivity Growth, Convergence, and Welfare: Comment," *American Economic Review*, Vol. 78, No. 5 (December 1988), 1138-54. These criticisms are addressed in a subsequent paper which also offers support to the income convergence hypothesis. See William J. Baumol and Edward N. Wolff, "Productivity Growth, Convergence, and Welfare: Reply," *American Economic Review*, Vol. 78, No. 5 (December 1988), 1155-9.