

doc  
CA1  
EA533  
94P08  
ENG

.b 255 3077(E)

UNCLASSIFIED

## **POLICY STAFF PAPER**

**NO. 94/08**

---

### **Determinants of Economic Growth in Developing Countries: Evidence and Canadian Policy Implications**

**Richard E. Mueller  
Policy Analyst  
Economic and Trade Policy  
Policy Staff**

**(April 1994)**

---

Policy Staff papers are intended to foster discussion of international trends and issues by foreign policy officials. The opinions expressed are not necessarily those of the Government of Canada.

Please address any comments and questions concerning this paper to Policy Staff (CPB), Foreign Affairs and International Trade, 125 Sussex Drive, Ottawa, Ontario K1A 0G2. (Tel.: (613) 944-0367; fax: (613) 944-0375.) For copies of this paper, please contact the Department's Info Export centre (BPTE) (fax: (613) 996-9709) and indicate Code SP42A.

Ce document est également disponible en français.

## POLICY STAFF PAPERS/DOCUMENTS DU GROUPE DES POLITIQUES

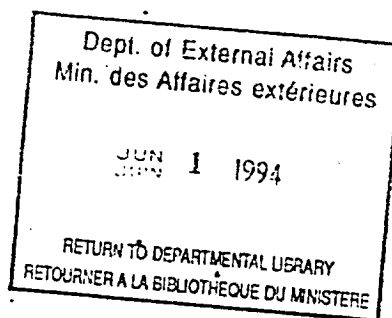
Recent Papers on Economic and Trade Policy Issues/Récents documents sur des questions économiques et de politique commerciale:

### A) TRADE POLICY SERIES

1. Globalization and Public Policy in Canada: In Search of a Paradigm, by Keith H. Christie. 93/01 (January 1993) \*
2. Trade and the Environment: Dialogue of the Deaf or Scope for Cooperation?, by Michael Hart and Sushma Gera. 92/11 (June 1992)
3. Globalization: The Impact on the Trade and Investment Dynamic, by Dennis Seebach. 93/07 (June 1993) \*
4. Merger Control Under Trade Liberalization: Convergence or Cooperation? by Nicolas Dimic. 93/09 (August 1993) \*
5. Technology Consortia: A Prisoner's Dilemma? by Rhoda Caldwell. 93/10 (August 1993) \*
6. Optimal Patent Term and Trade: Some Considerations on the Road Ahead by I. Prakash Sharma. 93/12 (October 1993) \*
7. And the Devil Take the Hindmost: The Emergence of Strategic Trade Policy by I. Prakash Sharma and Keith H. Christie. 93/14 (December 1993)
8. Stacking the Deck: Compliance and Dispute Settlement in International Environmental Agreements by Keith H. Christie. 93/15 (December 1993)
9. Japan Trading Corp.: Getting the Fundamentals Right by I. Prakash Sharma. 93/16 (December 1993)
10. Financial Market Integration: The Effects on Trade and the Responses of Trade Policy, by James McCormack. 94/01 (February 1994)
11. The New Jerusalem: Globalization, Trade Liberalization, and Some Implications for Canadian Labour Policy, by Rob Stranks. 94/02 (February 1994)
12. Competition Policy Convergence: The Case of Export Cartels, by William Ehrlich and I. Prakash Sharma. 94/03 (April 1994)
13. The Day After: An Agenda for Diversifying Free Trade, by Keith H. Christie. 94/04 (January 1994)
14. Global Strategies and Foreign Direct Investment: Implications for Trade and the Canadian Economy, by Julie Fujimura. 94/07 (March 1994)
15. Competition and Trade Policy Interface: Some Issues in Vertical Restraints, by I. Prakash Sharma and Prue Thomson. (forthcoming)
16. Competition Policy Convergence: Abuse of Dominant Position, by I. Prakash Sharma, Prue Thomson and Nicolas Dimic. (forthcoming)

**Determinants of Economic Growth in Developing Countries: Evidence and Canadian Policy Implications**

Executive Summary/Résumé	2
1. Introduction	6
2. Traditional Growth Theory	8
2.1. The Theoretical Model	8
2.2. The Empirical Evidence	9
● Does Income Converge Over Time	9
● Population Growth	11
● Investment in Physical Capital	12
● Does the Neoclassical Model Adequately Explain Growth?	15
3. Recent Developments in the Study of Economic Growth	16
3.1. The New Growth Theory	16
3.2. Beyond the Neoclassical Growth Model: Other Factors Behind Economic Growth	18
● Investment in Human Capital	18
● Trade	20
● The Role of the Government	31
4. Conclusions and Canadian Policy Implications	37
Appendix	41
Bibliography	43



43-267-744

## Executive Summary

The economic growth experiences of developing countries have been markedly different since the end of the Second World War. Some countries, such as Taiwan and South Korea, have managed to increase their real per capita incomes by a factor of five or six from the mid 1950s. Other countries, notably sub-Saharan African countries, have actually seen a decline in their real per capita incomes. What are the factors that are responsible for the divergent growth experiences of these countries?

Traditional growth theory predicts that per capita real income growth rates between countries should converge over time, that investment is positively related to income growth rates, and that population growth has a negative impact on per capita income growth. Empirical evidence supports these predictions, but still leaves a great deal of the variation in growth rates unexplained. Traditional growth theory explains this variation as a result of exogenous technological change which is not easily specified, but which increases growth rates through better utilization of capital and labour in the production process.

The new growth theory attempts to overcome this inadequacy of the traditional growth model. Namely, it offers a theoretical explanation for differences in the rates of technical change between countries. While these approaches provide a firm theoretical foundation to advance hypotheses about the causes of divergent growth rates, they do not have a firm empirical basis and therefore remain untestable. These theories have, however, prompted economists to think again about the factors behind economic growth, exploring elements in addition to those in the traditional growth theory.

Human capital is one variable that tends to affect growth rates. Various proxies for human capital have proved to be highly significant in empirical studies. In addition, the type of human capital developed is also important. If society offers rewards to those engaged in rent-seeking activities, for example, then talented people will enter these occupations and growth prospects will be diminished.

Empirical evidence does not offer unqualified support for an export-expansion policy, as higher exports do not always lead to higher growth rates. More important may be export diversification and the movement away from an economy dependent mainly on commodity exports.

The role of government in the growth process is complex. There is support for the positive relationship between economic growth and the degree of autonomy the government exercises in sustaining long-term goals, such as investment policies, over short-term goals, such as pork-barrel populism or cronyism. Government fiscal policy, for example, can enhance growth if directed toward infrastructure rather than current consumption expenditures. Likewise, a stable monetary policy is desirable to keep inflation in check and minimize speculative, non-productive activities. The degree of political stability is also an important determinant of long-term growth.

Although economic growth is a complex process that is not yet completely understood, there are a number of broad measures that Canada can implement, both bilaterally and multilaterally, to enhance the growth prospects of the world's poorest nations. These include: better targeting and coordination of aid resources, including a greater focusing of assistance on countries that are providing macroeconomic stability, exploring the long-term implications of current IMF and World Bank structural adjustment programs, and the reduction of the trade barriers of OECD countries against imports from developing countries. The full implementation of the MTN results on time would make an important contribution in this regard.

## Résumé

Les expériences de croissance économique des pays en développement ont été sensiblement différentes depuis la fin de la seconde Guerre mondiale. Certains pays comme Taïwan et la Corée du Sud ont réussi à accroître de cinq à six fois leurs revenus réels par habitant depuis le milieu des années 1950. D'autres pays, surtout ceux de l'Afrique sub-saharienne, ont en fait observé une baisse de leurs revenus réels par habitant. Quels facteurs expliquent la divergence des expériences de croissance de ces pays?

La théorie classique de la croissance postule que les taux de croissance des revenus réels par habitant entre les pays devraient progressivement converger, que l'investissement est indéniablement lié aux taux de croissance du revenu, et que l'accroissement démographique a un impact négatif sur la croissance du revenu par habitant. Ces postulats sont confirmés par les données empiriques, mais une large part de la variation dans les taux de croissance reste inexpliquée. La théorie classique de la croissance explique cette variation par un changement technique exogène qui n'est pas vacilement spécifiable mais qui accroît les taux de croissance par une meilleure utilisation du capital et du travail dans le processus de production.

La nouvelle théorie de la croissance tente de combler cette lacune du modèle classique. Elle offre une explication théorique des différences entre les taux nationaux de changement technique. Ces approches fournissent un solide fondement théorique pour la présentation d'hypothèses sur les causes de la divergence des taux de croissance; elles ne s'appuient toutefois pas sur des données empiriques solides et restent donc invérifiables. Mais elles ont incité les économistes à réexaminer les facteurs qui sous-tendent la croissance économique, et à explorer des éléments autres que ceux postulés par la théorie classique.

Le capital humain est l'une des variables qui tendent à influencer sur les taux de croissance. Diverses variables de remplacement se sont révélées hautement significatives dans les études empiriques. De plus, le type de capital humain qui est développé est aussi important. Si la société récompense par exemple ceux qui mènent des activités de grand rapport, les gens de talent se livreront à ce type d'activités, et les perspectives de croissance seront réduites.

Les données empiriques n'appuient pas sans réserve les politiques d'expansion des exportations puisque l'accroissement des exportations n'entraîne

pas toujours une hausse des taux de croissance. La diversification des exportations et l'abandon progressif d'une économie essentiellement tributaire des exportations de produits de base pourraient s'avérer des facteurs plus importants.

Le gouvernement joue un rôle complexe dans le processus de croissance. Il semble y avoir une relation positive entre la croissance économique et le degré d'autonomie qu'exerce le gouvernement pour privilégier des objectifs à long terme - comme les politiques d'investissement - par rapport à des objectifs à court terme comme les politiques de subventionnement, de favoritisme et de patronage. La politique fiscale du gouvernement peut, par exemple, favoriser la croissance si elle est axée sur les dépenses d'infrastructure plutôt que sur les dépenses de consommation courante. De même, une politique de stabilité monétaire est souhaitable pour enrayer l'inflation et réduire au minimum la spéculation improductive. Le degré de stabilité politique est aussi un facteur important de la croissance à long terme.

Bien que la croissance économique soit un processus complexe qui n'est pas encore très bien compris, le Canada peut appliquer, aux plans bilatéral et multilatéral, un certain nombre de grandes mesures visant à améliorer les perspectives de croissance des nations les plus pauvres du monde. Il peut par exemple mieux cibler et coordonner les ressources d'aide, notamment en focalisant davantage l'aide aux pays qui fournissent une stabilité macro-économique, étudier les incidences à long terme des actuels programmes d'ajustement structurel du FMI et de la Banque mondiale, et réduire les obstacles commerciaux que les pays de l'OCDE posent aux importations depuis les pays en développement. La mise en application intégrale des résultats des NCM selon l'échéancier prévu constituerait une importante contribution à cet égard.

## 1. Introduction

The study of economic development is a relatively new sub-discipline within economics. When World War II ended, the task of rebuilding a devastated Europe began. A year earlier, in 1944, representatives of the industrialized world met in Bretton Woods, New Hampshire to plot the desired course of the world economy. The successful development of the Bretton Woods institutions meant that the restrictive trade practices and dismal economic performance that characterized the world economy in the 1920s and 1930s would unlikely be repeated to the same degree. Furthermore, the Keynesian idea of government involvement in the economy was accepted by most economists and was thought to mean that the turbulent swings of the business cycle could largely be mitigated by government involvement in the economy.

Broadly speaking, this optimism proved to be justified. Economic growth in the industrial countries was high, bolstered by the pent-up purchasing power of citizens who were unable to purchase consumer goods during the war. Growth was aided by the transformation of the economy from a wartime posture, to one based on satisfying consumer demands. At the same time, many countries in Africa, Asia and the Caribbean were joining Latin America in becoming independent from their colonial masters. Given the economic growth successes of the industrialized world, it was thought that these experiences could easily be transferred to the developing world.

Despite the optimism that surrounded the post-war period, 50 years later we must ask ourselves what, in fact, has been the growth experience of the developing world in the post-war period? The growth experience of different countries since 1955 has been strikingly divergent. Real per capita gross domestic product (GDP) between 1955 and 1989 increased by a factor of 5 or 6 for such countries as Taiwan, Japan and South Korea, compared to a factor of about 2.5 for Canada and 2 for the United States. Other countries, mainly in Africa, did not fare as well. Per capita real output actually declined over the 34 year period in Zaire, Zambia and Ghana.<sup>1</sup>

---

<sup>1</sup>These results utilize the updated data set (PWT 5.5) contained in Robert Summers and Alan Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-88," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 327-68. Some 71 countries are studied over the 1955 to 1989 period. See the Appendix for details and a complete list of the 71 countries.



Parente and Prescott have analyzed data on 102 of the world's economies during the 1960-85 period.<sup>2</sup> They offer four stylized development facts:

- In every year studied, there existed great real per capita income disparity between countries. In 1985, the highest output countries produced about 29 times the per capita output of the lowest output countries.
- The disparity of income has not increased or decreased. The relative distance between the richest and poorest countries has remained essentially stable over the 1960-85 period.
- The entire per capita income distribution has shifted up. In general, the rich have become better-off in real terms, but so have the poorer countries.
- The upward movement of the income distribution, however, masks intra-group movements within rich and poor countries. There have been countries that have increased their position in the relative income distribution, but an equal number of countries have seen their relative income decline. For example, countries such as Saudi Arabia, South Korea, Thailand and Taiwan have had increases in real GDP per capita, but others such as Mozambique, Ghana and Nicaragua saw their relative wealth decline.

Thus, what we observe is that the distribution of world real per capita income has remained relatively unchanged, although there has been a secular shift up in the distribution itself along with some movement within the distribution. What are the economic and political factors responsible for this divergence in growth rates? Why have some countries such as those in Southeast Asia been successful in expanding their economies and improving their standards of living, while other countries, most notably those in sub-Saharan Africa, have fallen behind. The purpose of this paper is to attempt to answer some of these questions. The following section discusses traditional growth theory and provides the theoretical foundation for the subsequent empirical evidence. Section 3 will look at the more recent theoretical and empirical evidence on economic growth which attempts to overcome the perceived inadequacies of traditional growth theory. Section 4 concludes and briefly discusses the implications of the findings

---

<sup>2</sup>Stephen L. Parente and Edward C. Prescott, "Changes in the Wealth of Nations," *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 17, No. 2 (Spring 1993), 3-16.

for Canadian policy. In particular, given the evidence, what kinds of policies should Canada consider pursuing in terms of its foreign aid programs and to which policies should it lend its voice in International Financial Institutions (IFIs) in order to better the prospects for economic growth in developing countries.

## 2. Traditional Growth Theory

### 2.1. The Theoretical Model

The traditional, or neoclassical, growth theory can be traced back to the mid 1950s and is normally attributed to its chief architect, Robert Solow.<sup>3</sup> The simple Solow model has the economy producing a single output which exhibits constant returns-to-scale in production and diminishing marginal productivity in the two factors of production, homogeneous labour and physical capital. Increasing the capital-labour ratio means increasing the amount of capital per worker, thus increasing productivity and per capita incomes. The rate of investment and the labour force growth rate, both exogenous to the model, are determined by the savings rate and the population growth rate respectively. By increasing the rate of investment beyond the rate of population (and hence labour force) growth, the capital-labour ratio would be increased (i.e., capital-deepening) and growth would occur.

If the neoclassical model is correct, the data should support a number of testable hypotheses. Firstly, the neoclassical growth model predicts that the growth rates of various countries will ultimately converge. In a free market environment, each country will have access to similar technologies and mobile factors of production will be drawn to the areas where they are able to earn the highest rate of return. Poorer countries (given their initial position) are in a better position to exploit the gains from more capital since they have a relatively low capital-labour ratio. In other words, given the usual neoclassical assumptions, countries with less capital will have higher returns to this capital and any

---

<sup>3</sup>Robert Solow, "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics*, Vol. 70, No. 1 (1956), 65-94. Certainly the neoclassical growth theory is but one of many models of economic development which have been put forth throughout the years. Other major contributions include the outward-oriented growth model, import-substituting industrialization, the basic needs approach, the Stalinist heavy industrialization model, the neo-Marxist dependency model, etc. The neoclassical model is chosen because of its direct and continuing relevance in studying economic growth, especially since it has been the focus of new critiques under the auspices of the new growth theory (discussed below).

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?

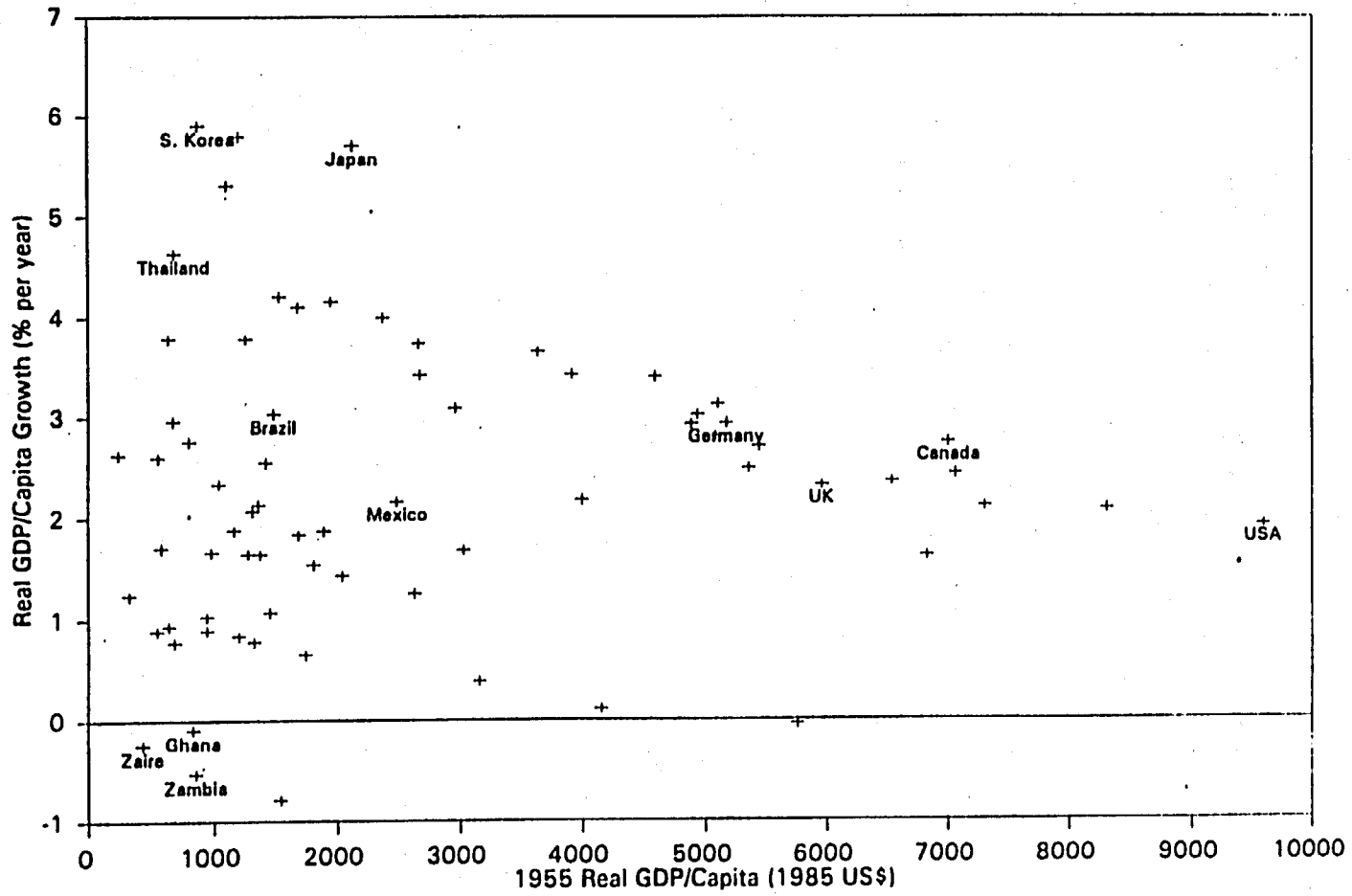
The convergence in per capita GDP between countries, as predicted by traditional growth theory, has failed to materialize on a truly global scale. Figure 1 shows that the growth experiences of 71 countries have been very different. Countries such as Thailand and South Korea have experienced unprecedented 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.<sup>4</sup> Industrialized countries, centrally-planned economies and middle-income developing countries all experienced intra-group convergence. Brander

---

<sup>4</sup>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.

**Figure 1**  
**1955 Real GDP Per Capita vs. 1955-89 Real GDP Per Capita Growth**



Source: Calculated from PWT 5.5. See Appendix for details.

expands on this, noting that Asian countries have been catching up with OECD countries, while African countries have generally been falling behind and Latin America's relative position has remained the same. Lower-income countries, however, failed to achieve any convergence. Thus, with the exception of the latter group, we see the narrowing of differences within groups, but little income per capita convergence between groups.<sup>5</sup>

### ● Population Growth

*Prima facie*, we would expect large increases in the general population growth rate to have harmful effects on economic growth rates. As population growth increases, it generally increases the proportion of young people to those of working age, often called the dependency ratio. Increasing the dependency ratio generally has a negative impact on economic growth for a number of reasons. First, current consumption becomes of more immediate importance than current investment. In other words, the current consumption versus future consumption trade-off favours the former. Secondly, scarce resources are spread out over increasing numbers of people. This means that each working person must support larger numbers of people who are not in the labour force. The impact on per capita GDP growth is obvious, especially in the absence of productivity growth. For example, it can increase the strain put on the educational system, thus hindering the ability of the country to develop its human resources. In addition, high dependency ratios can mean that government social assistance programs (if they exist) become overburdened, causing more government resources to be diverted away from programs such as education. Thirdly, increases in population are often

---

<sup>5</sup>James A. Brander, "Comparative Economic Growth: Evidence and Interpretation," *Canadian Journal of Economics*, Vol. 25, No. 4 (November 1992), 795-7. Brander cites an FAO report from 1963 to show that development economists did not correctly predict the strong growth areas. The report says that resources in Latin America and Africa were unquestionably ample without approaching full utilization. Resources in Asia, however, were limited and thus the report questioned the ability of Asia to increase food production by the magnitude necessary to match population growth. Another way of expressing this convergence within groups is through the use of a Gini-coefficient which measures the degree of inequality between countries. The Gini-coefficient ranges between 0 (perfect equality) and 1 (perfect inequality). Between 1950 and 1980, this number fell from .302 in 1950 to .129 in 1980 for the industrialized countries. For centrally-planned economies the coefficient dropped from .381 to .301, while middle-income developing countries experienced a smaller fall from .269 to .258. Low-income countries, however, experienced a small increase over the 30-year period to .112 from .103. See Robert Summers, I.B. Kravis and Alan Heston, "Changes in World Income Distribution," *Journal of Policy Modelling*, Vol. 6 (May 1986), 237-69, cited in Baumol, op. cit., p. 1080.

difficult to manage, leading, for example, to increased rural-urban migration and its resultant problems.

In the neoclassical model, increasing the capital-labour ratio is what leads to growth. Thus, increasing the population results in a decrease in this ratio which leads to lower per capita income growth. Figure 2 plots annualized per capita real GDP growth against annualized population growth over the 1955 to 1989 period for our 71 country sample. The negative correlation is immediately obvious. The sub-Saharan African countries of Zaire, Zambia and Ghana, for example, have among the highest population growth rates and among the lowest income growth rates.

Brander and Dowrick bolster this argument. They discover that declines in fertility (presumably highly correlated with the population growth rate) precede income growth in their sample of countries.<sup>6</sup> They also find evidence that income growth has a negative effect on fertility. Therefore, a feedback mechanism exists, whereby lower fertility leads to higher income growth which further reduces fertility.

### ● Investment in Physical Capital

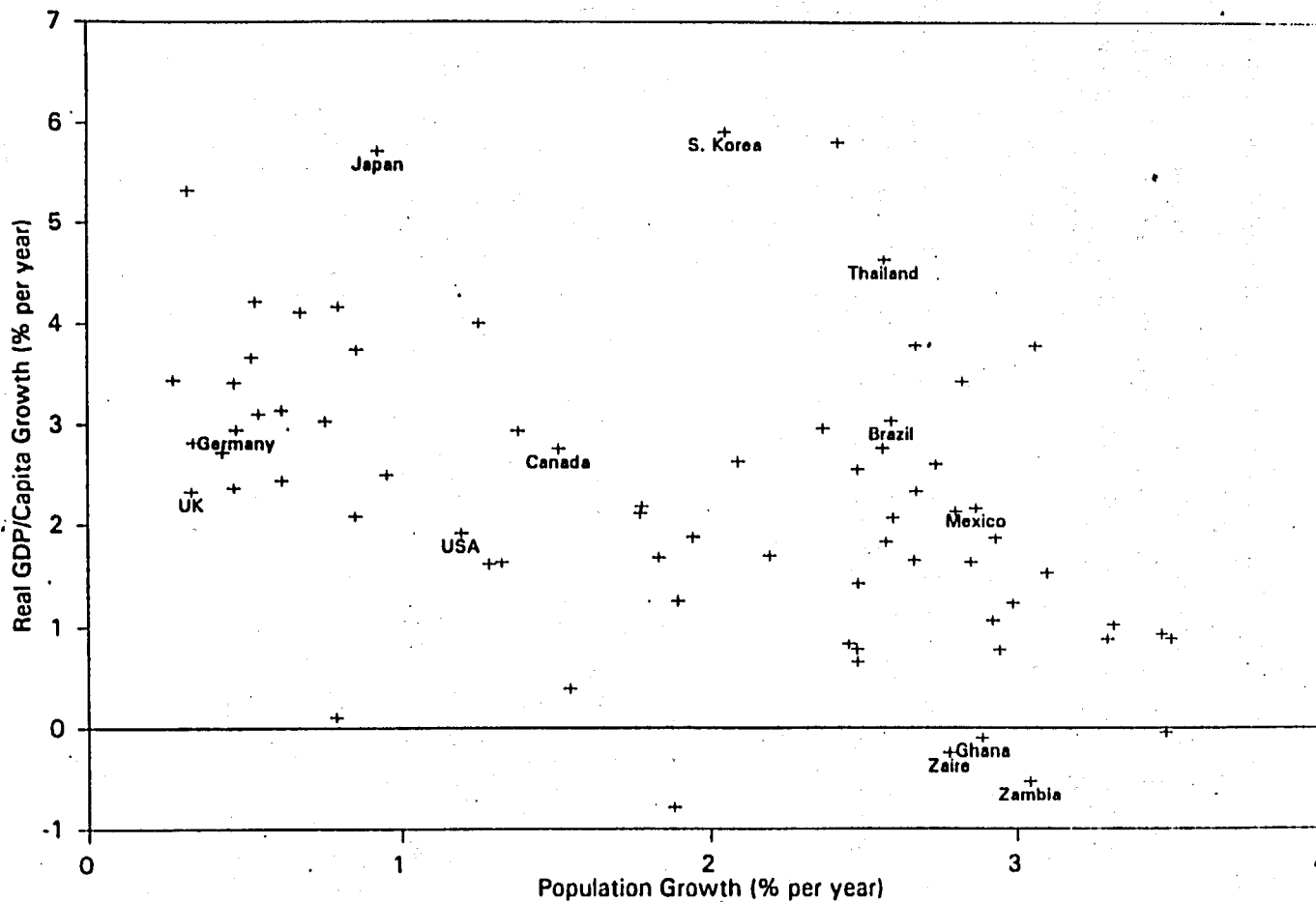
As we have already seen, traditional growth theory holds that increasing the stock of physical capital vis-a-vis the population, or capital-deepening will lead to growth. Increasing investment leads to an increased stock of capital which increases the productivity of labour, thus leading to economic growth. Figure 3 clearly shows the positive relationship between the investment share of GDP and annualized real per capita GDP growth over the 35 year period from 1955 through 1989.

De Long and Summers also find that investment in equipment is strongly associated with growth; each additional one per cent of GDP invested in equipment is associated with an increase in GDP growth of one-third of one percent, much higher than the association between growth and any other investment

---

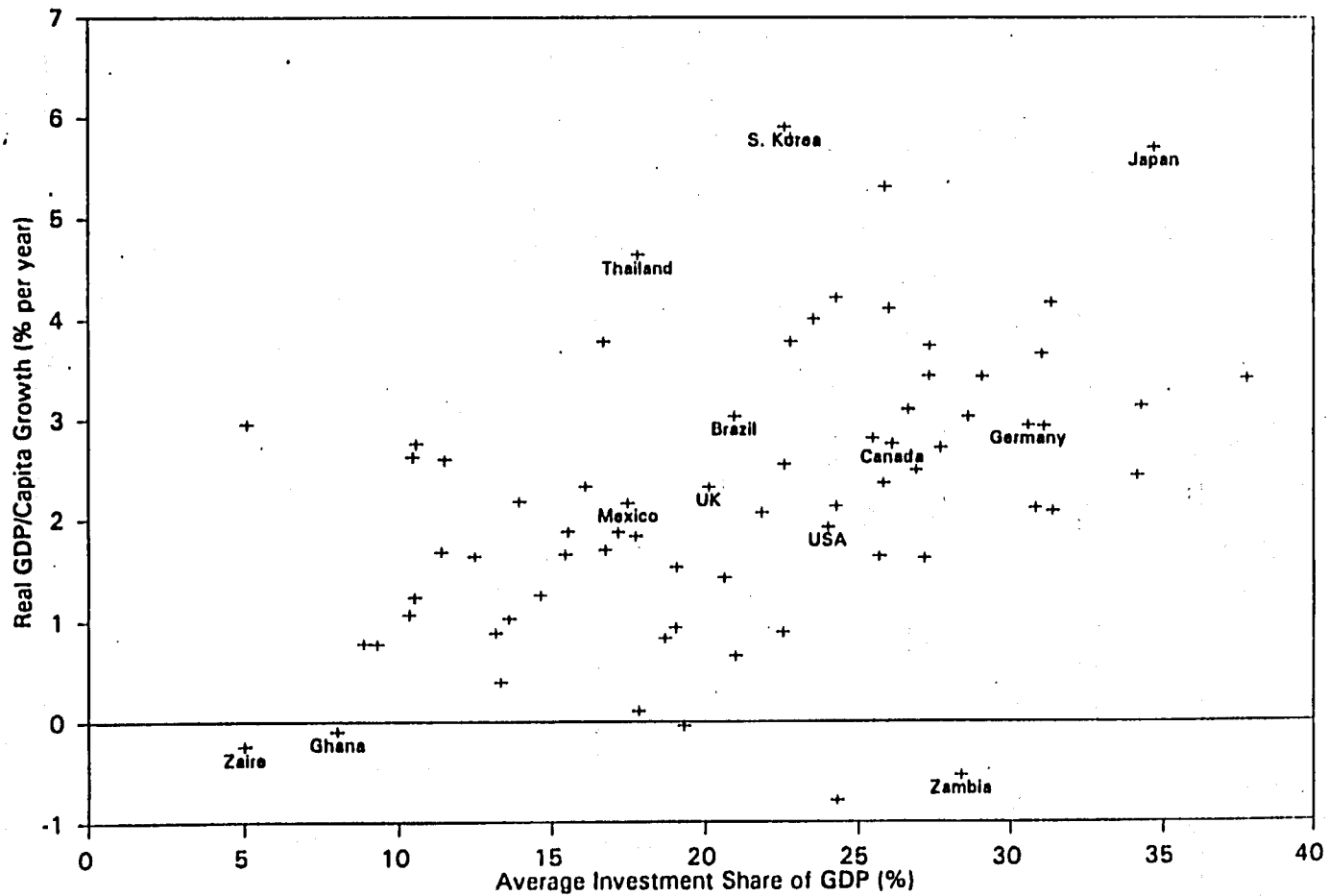
<sup>6</sup>James A. Brander and Steve Dowrick, "The Role of Fertility and Population in Economic Growth: New Results from Aggregate Cross-National Data," mimeo, University of British Columbia, 1991, cited in Brander, *op. cit.*, p. 815.

**Figure 2**  
**1955-89 Population Growth vs. 1955-89 Real GDP Per Capita Growth**



Source: Calculated from PWT 5.5. See Appendix for details.

**Figure 3**  
**1955-89 Investment Share of GDP vs. 1955-89 Real GDP Per Capita Growth**



Source: Calculated from PWT 5.5. See Appendix for details.



component.<sup>7</sup> Dowrick and Nyugen studied the growth experience of the OECD countries in the post-war period.<sup>8</sup> They noted that increases in total factor productivity (TFP), which are often used as an explanation of diverging growth rates, have occurred in non-OECD countries that were relatively well-off in 1950. One reason for the poor historical performance of Argentina, Chile and Venezuela has been the low rates of investment relative to population growth rates.

● Does the Neoclassical Model Adequately Explain Growth?

Looking at initial GDP per capita, population growth and the investment to GDP ratio in isolation show only limited support for the neoclassical model of growth. Taking all of these variables into consideration, however, offers stronger support for the theory. Table 1 shows the effect that each of these variables has on real per capita GDP growth, reflecting what was shown in the above three figures. When real GDP per capita is regressed on all three of the variables taken

**Table 1**  
**116 Country Regression Results**

Independent Variable	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)	Coeff. (t-stat)
Constant	1.57 (6.48)	3.27 (8.25)	-0.22 (-0.62)	0.98 (1.47)
1960 GDP per Capita	0.16 (2.06)			-0.14 (-1.94)
Population Growth		0.64 (3.71)		-0.38 (-2.20)
Investment/GDP			0.12 (6.74)	0.11 (5.15)
R-squared (adj)	0.03	0.11	0.28	0.29

Note: From Brander, op. cit., p. 803. Brander uses an earlier version of the Penn World Tables (PWT 5) utilizing data on 116 countries over the 1960-88 period. The dependent variable is real GDP per capita growth (annualized).

<sup>7</sup>J. Bradford De Long and Lawrence H. Summers, "Equipment Investment and Economic Growth," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 445-502.

<sup>8</sup>Steve Dowrick and Duc-Tho Nyugen, "OECD Comparative Economic Growth 1950-85: Catch-Up and Convergence," *American Economic Review*, Vol. 79, No. 5 (December 1989), 1010-30.

together, however, there is more support for the neoclassical model. Column 4 shows that the coefficients each have the correct sign and are statistically significant. This evidence does then support the convergence hypothesis when we control for differences in population growth and investment, implying that countries which were relatively poorer initially were beginning to catch up to the richer countries by 1988. The regression results also show that higher population growth rates hinder the growth process.

These results are consistent with the three predictions of neoclassical theory outlined above. Still, a relatively low adjusted  $R^2$  value means that a great deal of the variation between countries within this group has been left unexplained.<sup>9</sup> Neoclassical theory posits that this unexplained variation, or "the Solow residual," is due to technological change which is not easily specified. Still, this unexplained variation is too large for many observers. New theories have been developed to deal explicitly with this technical change. In other words, since the three variables under consideration fail to explain the complete growth experience, technical change was thought to account for the remainder. In particular, if the difference is due to changes in the state of technology between countries, why do different countries have different rates of technical progress? This is what the new growth theory addresses.

### 3. Recent Developments in the Study of Economic Growth

#### 3.1. The New Growth Theory

The so-called new growth theory, or endogenous growth theory, attempts to deal with the major shortcomings of the traditional growth theory. Namely, it explicitly attempts to endogenize the role of technical change into the model. Recall that traditional growth theory treated this phenomenon as exogenous to the model. Thus, for example, the rate of technical change is dependent on the rate of scientific advances. But what causes this to occur? How are the transmissions from pure science to commercial applications made? Certainly the Soviet Union produced its share of Nobel laureates, but was unsuccessful in developing this science into commercial products. By contrast, Japan has few (if any) Nobel laureates, but has been very effective at developing and adapting products for sale

---

<sup>9</sup>Basically, the adjusted  $R^2$  statistic measures the amount of variation in the dependent variable (in this case, real GDP growth) that is explained by the dependent variables. The closer the  $R^2$  value is to 1, the better the data "fit" the model.

in consumer goods markets. How does this occur? It has been hypothesized that there are knowledge externalities in research and development. In other words, one good idea begets another, which begets a third and so on. There may also exist increasing returns to scale in production, not decreasing or constant returns to scale as is usually assumed. Thus, a large global manufacturer such as Korea's Samsung may be able to become more productive the larger it becomes as it branches out into the development and marketing of new products. In addition, the market structure that firms operate in is also important. A non-competitive market or effective protection of intellectual property rights may allow the firm to capture economic rents from the development of its products, thus increasing the potential rewards of R&D. These are the variables that endogenous growth theory attempts to include. In a nutshell, endogenous growth theory is based on the assumption that long-run growth is based on economic incentives provided by the economic environment within which economic actors work.

Romer, in his pioneering article, presented a theoretical argument that, even with a constant state of technology and population, growth in per capita incomes can increase, and may even increase without an upper bound.<sup>10</sup> He accomplishes this by dropping the diminishing returns assumption in the neoclassical growth model. Thus, the rate of technological change becomes endogenized in his model, and not exogenous as in the traditional growth theory model. This is owing to the hypothesis that investment in knowledge will have increasing returns to scale. In addition, increasing the stock of knowledge creates a public good whereby positive externalities are derived. For example, investment in R&D will result in firm-specific knowledge that is used to develop a certain product, but it also increases the stock of such knowledge, thus increasing the possibilities for development of new products.<sup>11</sup> Opening an economy to international trade may also have positive growth implications, increasing the transfer of knowledge and the positive externalities that it produces.

---

<sup>10</sup>Paul M. Romer, "Increasing Returns and Long-Run Growth," *Journal of Political Economy*, Vol. 94, No. 5 (October 1986), 1002-37. For a good summary of endogenous growth theory, see Gene M. Grossman and Elhanan Helpman, *Innovation and Growth in the Global Economy*, Cambridge, Mass.: The MIT Press, 1991.

<sup>11</sup>See Grossman and Helpman, *op. cit.*, p. 335.

### 3.2. Beyond the Neoclassical Growth Model: Other Factors Behind Economic Growth

The new growth theory is especially relevant when studying developing economies, since it provides a firm foundation on which to answer the question of why growth rates have differed across countries contrary to the traditional growth theory approach which says that income convergence between countries will occur. However, Harris notes that, while these models are interesting, they remain largely theoretical and untestable, owing to the absence of firm empirical data.<sup>12</sup> Nonetheless, they do present a number of ideas that are important for our understanding of the growth processes in developing countries. The development of the new growth theory has prompted economists to begin thinking again about the factors responsible for growth. Some of these variables are discussed below.

#### ● Investment in Human Capital

As we have already seen, early development economists tended to focus only on physical capital in designing growth models. In the 1960s, the definition of capital began to expand to include human capital. In most models, labour was thought to be homogeneous in that one unit of labour was qualitatively equivalent to any other unit of labour. Human capital theory teaches that labour is not, in fact, homogeneous, but that qualitative differences do exist. The better the quality of labour, the more productive it will be when combined in the proper proportions with capital. Human capital is a complement to physical capital in the production process and, if not available, physical capital may not be attracted to capital-poor regions as predicted by the neoclassical model. This shortage of complementary human capital could be what is preventing some countries from achieving higher growth rates.<sup>13</sup> Appropriately targeted education is the key to improving the

---

<sup>12</sup>Richard G. Harris, "Globalization, Trade, and Income," *Canadian Journal of Economics*, Vol. 26, No. 4 (November 1993), 555-76. In the case of the NICs in Asia, some empirical evidence does exist to support the new growth theory. Jati K. Sengupta, "Growth in NICs in Asia: Some Tests of New Growth Theory," *Journal of Development Studies*, Vol. 29, No. 2 (January 1993), 342-57, finds that investment in human capital, increasing returns to scale, and the impact of openness in international trade are all important in explaining the high rates of growth in Korea, Japan and Taiwan.

<sup>13</sup>Robert E. Lucas, Jr. "Why Doesn't Capital Flow from Rich to Poor Countries?" *American Economic Review*, Vol. 80, No. 2 (May 1990), 92-6. Also see James A. Schmitz, Jr. "Early Progress on the 'Problem of Economic Development,'" *Federal Reserve Bank of Minneapolis*

quality of labour. Evidence suggests that development of human capital is highly correlated with growth rates in developing countries.<sup>14</sup>

Although qualitative differences in human capital are difficult to measure, various proxies are used to establish this correlation. Mankiw, et al. augment the basic Solow neoclassical model by using the secondary school enrollment rate as a proxy for human capital. They find it to be highly significant. The entire augmented model explains most of the variation in growth rates between countries.<sup>15</sup> Using the literacy rate as a proxy, Azariadis and Drazen show that this variable is always positively and significantly correlated with GDP per capita growth over the 1960-80 period.<sup>16</sup> Once human capital hits a certain minimum "critical mass," returns to scale can rise significantly. This explains why some economies achieve a higher steady state growth path than other economies and why incomes per capita between countries may not converge to the degree

---

*Quarterly Review*, Vol. 17, No. 2 (Spring 1993), 17-35.

<sup>14</sup>In addition, education tends to be one of the main variables which lower birth rates and thus population growth. For a good review of population and development issues, see Nancy Birdsall, "Population Growth," *Finance and Development* (September 1984), 10-14, reprinted in Gerald M. Meier, *Leading Issues in Economic Development*, 5th Ed. (New York: Oxford University Press, 1989), 436-40.

<sup>15</sup>N. Gregory Mankiw, et al. "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, Vol. 107, No. 429 (May 1992), 407-37.

<sup>16</sup>Costas Azariadis and Allan Drazen, "Threshold Externalities in Economic Development," *Quarterly Journal of Economics*, Vol. 105, No. 2 (May 1990), 501-26. The authors argue that since the standard neoclassical model's prediction of per capita income convergence has not been borne out by empirical observation, it must be augmented. They elaborate on the standard neoclassical model by adding the idea of "threshold externalities in the accumulation of human capital," which are increasing social returns to scale which become particularly pronounced when the level of human capital hits some critical mass. The authors note, however, "that a relatively highly qualified labor force seems to be a necessary – not a sufficient – condition for rapid growth. Many countries in our sample possess a highly qualified labour force, but have apparently failed to put it to good use." (p. 524). The importance placed on the type of human capital development is also relevant to a discussion of long-term productivity growth in Canada. Although Canada spends a higher proportion of GDP on education than any other G-7 country, and has the highest participation rate within the OECD with regard to post-secondary education, total factor productivity growth is well below the OECD average. This contrast has led an increasing number of observers to question whether Canada's educational system is adequately targeted on the human resource needs of the market-place.

predicted by the neoclassical growth model.

While there is little doubt that development of human capital is an important variable in the growth equation, the type of human capital that is developed is also important. Talented people tend to enter the occupations where they are able to earn the highest returns on their particular talents. Which occupations individuals choose have direct implications for the allocation of resources, and hence the rate of real economic growth. If talented people become entrepreneurs, they tend to improve the state of technology. The probable result is productivity and income growth. By contrast, if talented people are able to earn a higher rate of return in rent-seeking activities, they will enter these occupations. Rent-seeking activities result in a redistribution of income rather than the creation of income. In addition, as rent-seeking sectors expand they consume a larger proportion of the economy's resources and attract a larger proportion of talented human capital, leaving fewer resources for more productive activities. The result is a general decline in the ability of an economy to fulfil its growth potential. Murphy, et al., look at the growth implications of college enrollment levels in engineering and law, presumably entrepreneurs and rent-seekers. They discover that there is a large direct and indirect positive effect of engineers on growth and a large direct negative effect of lawyers on growth. In their words: "Lawyers are indeed bad, and engineers good, for growth."<sup>17</sup>

● Trade

Export Promotion or Import Substitution: The Debate Revisited

The post-World War II period was a time peppered with optimism regarding the prospects for global trade and economic prosperity. The countries of the industrialized world were committed not to repeat the sequence of events which ultimately resulted in the beggar-thy-neighbour policies of the inter-war period; a period in which countries went through rounds of currency devaluations and retaliatory tariff increases to protect domestic industries. The General Agreement

---

<sup>17</sup>Kevin M. Murphy, et al., "The Allocation of Talent: Implications for Growth," *Quarterly Journal of Economics*, Vol. 106, No. 2 (May 1991), p. 529. This statement should not be misinterpreted to mean that lawyers are always and everywhere detrimental to growth. Certainly arguments can (and have) been made for the growth-inducing benefits of a solid legal foundation. In post-communist Russia, for example, potential investors see numerous opportunities but have proceeded cautiously, partially as a result of the lack of well-defined property rights and enforceable contracts.

on Tariffs and Trade (GATT) was agreed to after the War as a precaution against a return to the inward-looking policies of the inter-war years.

At the same time, in the developing world such trade liberalization policies were not viewed as favourably. Earlier protectionist policies of the developed world did not only affect other industrialized countries, but also harmed developing countries which were largely dependent on Western markets for their raw material exports. This forced retrenchment led many countries to believe that they did not have to depend on the fickle markets of the developed world. More importantly, however, a number of governments, especially in Latin America, felt that close ties to the (mainly) American market could again backfire in the future if the United States became protectionist. Many economists began to believe that trade liberalization was not beneficial for developing countries, and that the only way to promote domestic industrialization was through a policy of import substituting industrialization (ISI), a policy which had been implicitly forced upon countries as a result of the earlier protectionist policies and the general lack of trade preceding and during the Second World War. The argument, based on the independent but related work of Hans Singer and Raul Prebisch, was built on two premises: (1) a secular decline in the price of raw materials would result in the decline of the developing countries terms of trade and would lead to a widening disparity of income between the developed and developing worlds in the absence of a domestic industrialization program; and (2) to industrialize, countries needed to assist emerging (i.e., infant) industries.<sup>18</sup>

Another important development occurred at the same time. Namely, the enhanced role of government. Following the success of the Marshall Plan in Western Europe, along with the prevailing Keynesian economic ideology of the day, a philosophy which questioned the ability of markets to fully employ resources in an efficient manner, the policy of ISI gained a great number of proponents, especially in Latin America. Throughout the region, ISI policies were implemented throughout the 1950s, 1960s and 1970s.

---

<sup>18</sup>See Sebastian Edwards, "Openness, Trade Liberalization, and Growth in Developing Countries," *Journal of Economic Literature*, Vol. 31, No. 3 (September 1993), 1358-93. The original thoughts of Singer and Prebisch are contained in Hans Singer, "The Distribution of Gains Between Investing and Borrowing Countries," *American Economic Review*, Vol. 40, No. 2 (1950), 473-85; and Raul Prebisch, *The Economic Development of Latin American and its Principal Problems*, New York: United Nations, 1950. The latter document is often referred to as the "ECLA Manifesto," since it contained the policy position at the time of the Economic Commission for Latin America, the United Nations organization that Prebisch headed.

Beginning in the 1960s, a neoclassical resurgence began to take hold in mainstream economics. Trade liberalization became part of the new orthodoxy in academic circles. In addition to these influences within the economics profession, the success of Japan and the emergence of its Pacific Rim neighbours with their perceived outward-oriented policies did little to bolster the case for ISI. Nor did the way in which ISI policies were implemented in practice. ISI was often managed inefficiently and domestic policies designed to help ISI often hindered the industrialization process. ISI proved to be a net loss for many economies as inefficient subsidized industry drained resources away from the government and consumers were forced to pay higher prices for goods of lesser quality. For example, exchange rates were often fixed and kept artificially high to facilitate the importation of intermediate and capital goods, much to the detriment of exports (of course, export revenues were necessary to import the capital goods needed for ISI). In addition, domestic fiscal deficits often resulted in expansionary monetary policies which fuelled inflation and, given the fixed exchange rate, made domestic exports even less competitive internationally. This threw the trade balance into a deficit position, necessitating foreign borrowing. These factors, in combination with an unfavourable external environment in the early 1980s, are often blamed for the debt crisis. Still, it was often these policies which were intended to be complementary to ISI that proved to be detrimental, not necessarily the policy of ISI itself.

The case of Korea provides an interesting example of positive government intervention in export expansion, mainly since many economists cite the Korean example as particularly illustrative of the export expansion hypothesis.<sup>19</sup> In the decade following the Korean War, the country was much like its other developing country contemporaries: imports were subject to high tariffs and excessive quantitative restrictions and a multiple exchange rate system was in place. In other words, Korea was one of the most inward-looking economies in the developing world. In 1964, prospects for inward-oriented development appeared dim. The government embarked on an export-led industrialization policy. Exchange rates were unified following a major devaluation, import tariffs were reduced and import licenses were eased. An export promotion policy was followed whereby incentives were given to industry through a number of channels including direct cash subsidies, tax reductions, preferential interest rates and tariff

---

<sup>19</sup>Most of the material in this section is from Larry E. Westphal, "Industrial Policy in an Export-Propelled Economy: Lessons from South Korea," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 41-59, and Edwards, op. cit.



exemptions on imported intermediate materials. These export incentives were not targeted at specific sectors, but were generally available to any firm wishing to engage in export activities.<sup>20</sup>

Generally these policies were relatively neutral, in that they did not introduce distortions that would have occurred if the government had allocated resources by trying to pick specific export "winners." Perhaps the main reason for the success of these policies, however, was that the government had good relations with business and created an atmosphere in which business could be certain the economic system would respond to and adequately reward their efforts. Trading companies in Korea were also responsible for the country's successful export development. These companies offered a wide-range of export-related facilities to potential exporters. Products such as foreign marketing, transportation and credit were all offered by these trading companies to facilitate exports from emerging Korean industries.<sup>21</sup> Thus, Korea did promote ISI policies, but not to the exclusion of exports and in a way that minimized the distortion of market signals (e.g., through high import tariffs or multiple exchange rates), in contrast with the policy mix in many Latin American countries.<sup>22</sup>

Export expansion can have a number of growth-inducing benefits for an economy. Exports often act as an outlet for production in an economy which is

---

<sup>20</sup>The Korean government was also very aware of the limiting size of the domestic market and intervened in the economy using non-neutral policies (such as temporary monopolies designed to promote large-scale infant industries). These targeted industries were granted preferential access to credit as well as favourable tax treatment. The government, however, also established targets for these industries so that they would quickly increase production and become competitive at world prices. Industries that failed to do so were quickly shut-down.

<sup>21</sup>Mrinal Datta-Chaudhuri, "Market Failures and Government Failures," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 25-39.

<sup>22</sup>Nonetheless, an aggressive export-led strategy depends for its success in large part on the willingness of the principal importing countries to purchase the goods in question without challenging such trade as "unfair" in light of the heavy use of export incentives vulnerable to countervailing duties. Particularly in the post Cold War era, typified as well by reduced growth rates and higher unemployment within the OECD area, it is less likely that such a strategy will go unchallenged in the future. In addition, the final text of the subsidies/countervail agreement from the Uruguay Round of Multilateral Trade Negotiations explicitly addresses developing country export subsidies. In essence, it will formally oblige middle and higher income developing countries to forego the use of such subsidies for most products after an eight year phase-out period.

too small domestically to support an efficient scale of production. Increasing exports allows economies to specialize in the production of specific products, exporting production above domestic demand. Export expansion also allows countries to earn foreign exchange, which can promote the importation of advanced capital goods and materials (i.e., facilitating technology transfer). In addition, exposure to foreign competition forces domestic firms to become efficient producers if they wish to survive both domestically (in the absence of restrictive trade barriers) and internationally. An outward orientation also exposes domestic firms to different ideas and methods of production which can lead them to become more efficient producers. In fact, an expansion in exports must by definition increase domestic income.<sup>23</sup> It is also theoretically possible that increasing domestic income may result in an increase in exports. As an economy grows, the small size of the domestic market becomes a limiting factor in increasing the scale of production. Thus, exports provide an outlet for domestic production. Nonetheless, it is equally plausible that increasing domestic incomes will result in a decrease in exports as domestic consumption increases.

#### Do Higher Exports Lead to Higher Growth Rates?

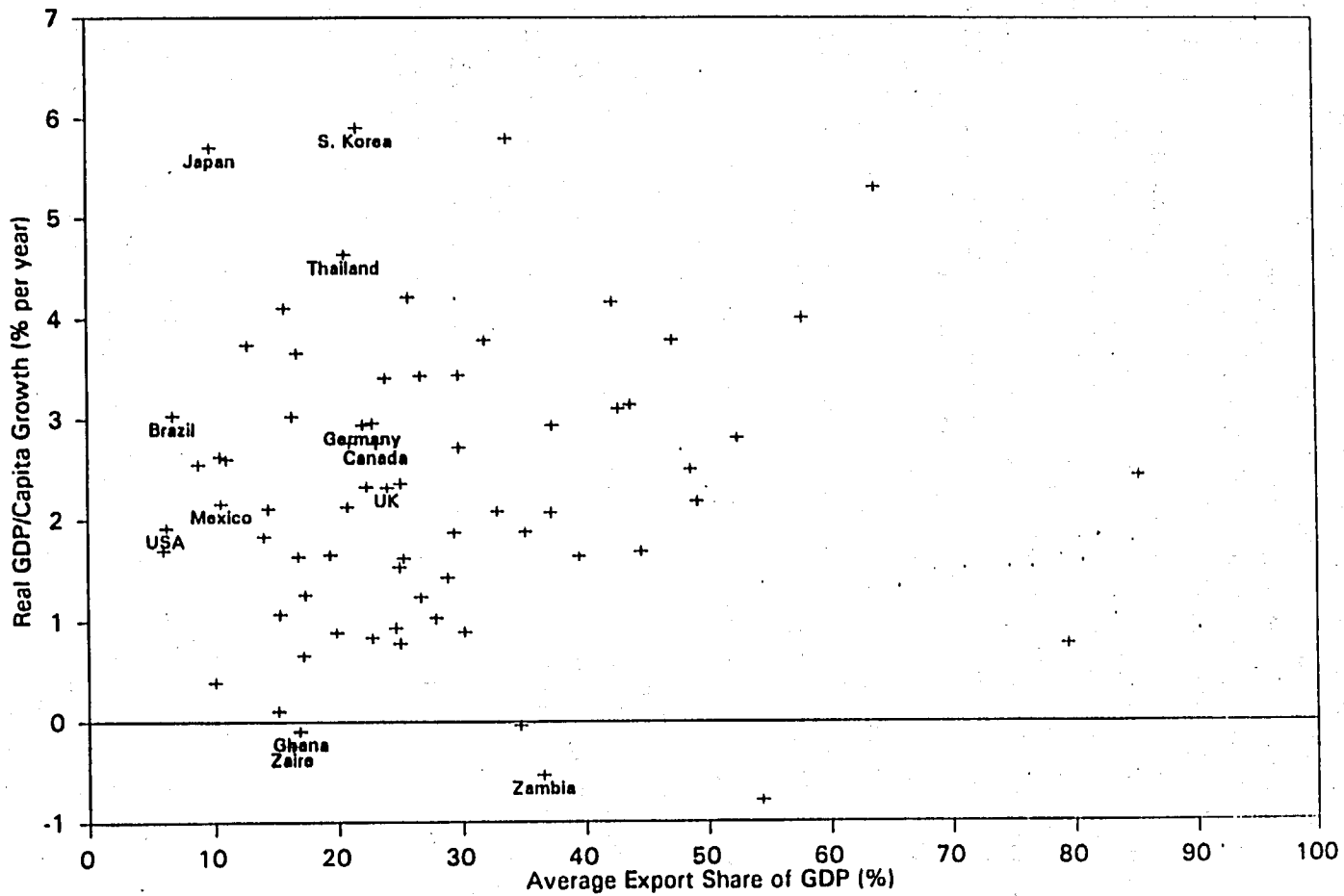
Despite these theoretical arguments, the case for export expansion is less than overwhelming. While most economists generally subscribe to the notion that export expansion is good for growth, little concrete empirical evidence exists to support this contention. Even a recent *Globe and Mail* article noted that the link between free trade and growth is "one of the most widely held, yet most difficult to prove ideas in economics."<sup>24</sup> Figure 4 shows the relationship between exports and growth for our 71 country sample. This direct evidence fails to support the

---

<sup>23</sup>In the usual Keynesian national accounting framework,  $Y = C + I + G + (X - M)$ , an increase in exports (X) must lead to an increase in national income (Y) since exports are an injection into the domestic economy. To avoid this methodological problem, researchers have looked at how changes in X have an impact on Y. This theory, however, is normally used as justification for causality leading from export expansion to economic growth even though most empirical work simply shows the correlation between the two variables.

<sup>24</sup>Peter Passell, "Trade Winds Blowing in Prosperity's Direction," *Globe and Mail*, December 16, 1993, p. B7.

**Figure 4**  
**1955-89 Export Share of GDP vs. 1955-89 Real GDP Per Capita Growth**



Source: Calculated from PWT 5.5. See Appendix for details.

export-led growth hypothesis.<sup>25</sup> Many other studies, however, do support the export-led growth hypothesis whereby economies that increase the share of exports in GDP have higher rates of growth. Otani and Villanueva, for example, estimate that increasing the export/GDP ratio by 2 percentage points would lead to a sustained increase in per capita GDP growth of 4-5 per cent per year.<sup>26</sup> These studies, however, show the existence of a correlation between growth and exports, but do not address the causality issue directly.

Other articles do attempt to address causality explicitly. Chow, for example, concludes that growth in manufacturing exports was responsible for industrial development, either unidirectionally or bidirectionally, in seven of the eight Newly Industrialized Countries (NICs) that he studied.<sup>27</sup> Jung and Marshall also employ

---

<sup>25</sup>It should be noted that Figure 4 is an oversimplification of the complexity of the actual export share-real GDP growth relationship, but it does provide us with an indication of the correlation between the two variables. Other factors which may be important in determining the importance of exports as an engine of growth include the size of the domestic market, the extent to which domestic and international markets are efficient, the level and degree of relative price distortions, etc. See Santo Dodaro, "Exports and Growth: A Reconsideration of Causality," *Journal of Developing Areas*, Vol. 27, No. 2 (January 1993), pp. 231-2 for a discussion.

<sup>26</sup>Ichiro Otani and Delano Villanueva. "Determinants of Long-Term Growth Performance in Developing Countries," IMF Working Paper No. 88/97 (November 1988). For evidence of this in the case of Africa, see Augustin Kwasi Fosu, "Exports and Economic Growth: The African Case," *World Development*, Vol. 18, No. 6 (June 1990), 831-5. The other articles frequently cited in support of the export expansion hypothesis are: Gershon Feder, "On Exports and Economic Growth," *Journal of Development Economics*, Vol. 12, Nos. 1 & 2, (February/April 1983), 59-73; Rostam M. Kavoussi, "Export Expansion and Economic Growth: Further Empirical Evidence," *Journal of Development Economics*, Vol. 14, Nos. 1 & 2 (Jan-Feb 1984), 241-50; Rati Ram, "Exports and Economic Growth: Some Additional Evidence," *Economic Development and Cultural Change*, Vol. 33, No. 2 (January 1985), 415-25; Bela Balassa, "Exports, Policy Choices, and Economic Growth in Developing Countries After the 1973 Oil Shock," *Journal of Development Economics*, Vol. 18, No. 1 (May/June 1985), 23-35; Deepak Lal and Sarath Rajapatirana, "Foreign Trade Regimes and Economic Growth in Developing Countries," *World Bank Research Observer*, Vol. 2, No. 2 (July 1987), 189-217. William L. Wilbur and Mohammed Z. Haque, "An Investigation of the Export Expansion Hypothesis," *Journal of Development Studies*, Vol. 28, No. 2 (Jan. 1992), 297-313, explicitly address the link between exports and domestic savings.

<sup>27</sup>Peter C.Y. Chow, "Causality Between Export Growth and Industrial Development: Empirical Evidence from the NICs," *Journal of Development Economics*, Vol. 26, No. 1 (June 1987), 55-63. Chow's methodology, however, can be criticized on the grounds that his chosen sample was biased since it included only eight industrialized countries, and not other countries that were not industrialized.

causality tests in exploring the export expansion hypothesis, finding evidence to support the export expansion hypothesis in only four of the 37 countries that they considered. In fact, six of the 37 countries supported the export-reducing growth hypothesis. They conclude that the evidence casts doubt on the efficacy of export promotion policies in fostering economic development.<sup>28</sup> Dodaro also employs causality tests and discovers that there is weak support for the export expansion hypothesis and weak but stronger support for the alternative hypothesis that GDP growth promotes export growth.<sup>29</sup> Bahmani-Oskooee and Alse show that there is a long-run positive relationship between real exports and real output in less developed countries (LDCs) and that the growth of one is reinforced by growth in the other. In other words, exports and GDP exhibit bidirectional causality.<sup>30</sup>

There is also evidence which shows that diversion of resources from domestic production to export production may be beneficial for growth. Aside from the usual argument that small domestic markets need to produce for the export market to exploit economies of scale, production inputs may themselves become more productive. Feder, for example, presents data which show that the marginal productivities of factors of production may in fact be higher in the export sector than in the domestic sector. Furthermore, domestic production is able to capture some of the positive externalities from the export sector. For example, the export sector may be exposed to new and more productive technologies which can be used to increase productivity in the non-export sector. As a result, the export sector is more efficient at allocating resources than the domestic sector, and this is why exports generate growth.<sup>31</sup> This, however, is not necessarily just a case for export promotion, but is part of a broader argument for a better, more market-driven domestic allocation of resources.

---

<sup>28</sup>Woo S. Jung and Peyton J. Marshall, "Exports, Growth and Causality in Developing Countries," *Journal of Development Economics*, Vol. 18, No. 1 (May/June 1985), 1-12. They argue that the time series analysis that they conduct is a more accurate methodology than the cross-sectional analysis usually conducted in these studies, since the stability of coefficients may not hold across countries.

<sup>29</sup>Dodaro, *op. cit.*

<sup>30</sup>Mohsen Bahmani-Oskooee and Janardhanan Alse, "Export Growth and Economic Growth: An Application of Cointegration and Error-Correction Modelling," *Journal of Developing Areas*, Vol. 27, No. 4 (July 1993), 535-42.

<sup>31</sup>Feder, *op. cit.*

Levine and Renelt note that exports *per se* are not important, but rather the positive relationship between trade and economic growth.<sup>32</sup> Thus, for example, trade liberalization might have more meaningful growth implications than simple export promotion policies. In addition, most studies do not allow for a sufficient degree of disaggregation nor do they account for other policies, aside from trade promotion, which may work in harmony with export-expansion policies. Helleiner argues that more country-specific and industry-specific empirical research is needed. Furthermore, the dichotomous categorization of inward versus outward-oriented trade policies is far too over-simplified to capture the reality of international trade.<sup>33</sup> South Korea did not pursue a pure export-expansion policy, but rather combined this policy with selective protection of strategic infant industries. In fact, strategies of import-substitution and export-expansion were not incompatible in the case of South Korea. Rather, the success of Korea compared to Argentina, which also pursued import-substitution, may have had more to do with the incentives offered to exporters in Korea (compared to taxes on the export sector in Argentina), rather than the policy of import-substitution itself.<sup>34</sup>

---

<sup>32</sup>Ross Levine and David Renelt. "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review*, Vol. 82, No. 4 (September 1992), 942-63.

<sup>33</sup>G.K. Helleiner, "Trade Strategy in Medium-Term Adjustment," *World Development*, Vol. 18, No. 6 (June 1990), 879-97. In subsequent work, Helleiner argues that traditional tariff and non-tariff trade policies may not be as important for growth as policies directly related to imports of foreign direct investment, intellectual property and services. Although export revenues are necessary to earn the foreign exchange necessary to purchase these productivity-enhancing imports. See *Trade Policy and Industrialization in Turbulent Times*, unpublished manuscript, World Institute for Development Economics Research, March 1993, p. 48.

<sup>34</sup>Neng Liang, "Beyond Import Substitution and Export Promotion: A New Typology of Trade Strategies," *Journal of Development Studies*, Vol. 28, No. 3 (April 1992), 447-72. Policies designed to promote domestic industrialization can have a detrimental effect on exporters. In the case of many Latin American countries, for example, tariff barriers were raised in order to protect domestic industries from external competition. Since these tariffs tended to be extensive, however, all domestic producers who imported capital or intermediate goods faced this implicit tax on production, making it difficult to be competitive in export markets. It should also be noted that Korea benefitted from large foreign assistance programs following the Korean War and had more stable management-labour relations than a country such as Argentina during and after the Peron years. Some have also argued that, owing to South Korea's position of literally being on the front lines of the Cold War, countries such as the U.S. were willing to turn a blind eye toward market-distorting export policies in the name of broader and more important international political interests.

### Primary Exports, Manufactured Exports and Export Diversification

Developing countries which are primary commodity exporters are subjected to the volatility of the world's commodity markets. Often commodities are subject to low demand elasticities. This implies that as international commodity prices increase, world demand for the commodity will not decrease substantially, allowing primary commodity exports to increase export revenues substantially in periods of great international demand. When commodity prices are depressed, by contrast, export revenues also decrease dramatically.<sup>35</sup> In addition, commodities tend to have low supply elasticities over the short to medium-term which means that production cannot be increased during international bull markets. Nor can production be decreased when prices are low. These demand and supply elasticities conspire to make international commodity prices very volatile and thus subject a number of developing economies to wildly fluctuating export revenues.

Manufacturing exports, by contrast, tend to have relatively stable prices since production can be altered depending on market conditions. In addition, manufactured goods tend to be differentiated. Thus, shoes from Brazil, leather furniture from Italy and wine from France all have demand which is largely due to product differentiation. This means that different prices can exist for products that are only marginally different. This, of course, does not occur to the same degree in commodity markets. If tin or aluminum is priced cheaper in one country, another country will not be able to sell its production. Demand for French wine, however, will continue to be strong, despite its moderate price fluctuations. In addition, manufactured exports tend to have a larger domestic value-added than basic commodity exports.<sup>36</sup>

---

<sup>35</sup>Hans W. Singer and Patricia Gray, "Trade Policy and Growth of Developing Countries: Some New Data," *World Development*, Vol. 16, No. 3 (March 1988), 395-403, conclude that the correlation between export-orientation and growth appears to be strong only under favourable market conditions. Thus, outward-orientation cannot be considered as a universal recommendation for all countries under all types of conditions. Even when global demand conditions are favourable, countries which are industrialized tend to benefit more than primary commodity-oriented economies.

<sup>36</sup>Consider the simple example of breakfast cereal which uses grains imported exclusively from a developing country but the final product is produced exclusively in a developed country. A box may retail for \$3.00 but only contain \$.50 worth of imported grains. The value-added for the developed economy would then be \$2.50. Harold Innis used a similar argument when he described the Canadian economy as a "staple economy," since it exported raw materials and imported

While commodity exports may not be as desirable as manufactured exports, expansion of these exports may still have positive growth implications. Kavoussi finds that primary exports tend to be positively correlated with productivity increases, but that these productivity gains tend to be greater for low-income countries. Among middle-income countries, export expansion tends to be more beneficial for those economies that switch to exports of manufactured goods.<sup>37</sup>

This evidence underlines the importance of export diversification as a trade strategy. Diversification of exports is also considered important for the same reason that diversification of investment portfolios is recommended by money managers in order to reduce the risk due to the volatility of any one asset. Export diversification tends to protect a country from the international price swings of any one exported product. This is especially true of commodity exports, since prices of these goods tend to be more volatile than manufactured exports. Furthermore, over the longer-term, the terms of trade tend to move against those countries which are dependent on raw material exports. There is also evidence, however, that the terms of trade may have moved against many manufactured goods exported by developing countries. The argument is that, as they move through the product cycle, manufactured goods become more like commodities.<sup>38</sup>

---

manufactured goods. If memory serves, he used the example that Canada exported apples and imported apple sauce.

<sup>37</sup>Kavoussi, op. cit.

<sup>38</sup>Between 1900 and 1986, the prices of non-fuel commodities fell by about 40%, or 0.6% per year, relative to the price of manufactured goods. For all commodities (including fuels), the relative price decline was about 35%, or 0.5% per year. The usual caveat applies that such relative price index movements over time do not take into account qualitative differences in products. For details, see Enzo R. Grilli and Maw Cheng Yang, "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows," *World Bank Economic Review*, Vol. 2, No. 1 (January 1988), 1-47. Grilli and Yang try to put a positive spin on these statistics, however, by noting that, although the barter terms of trade have moved against commodity exporters, the income terms of trade may have benefitted these countries owing to increased exports which more than compensated for the relative price declines. They speculate that this quantity increase could be due to productivity increases, or intensive development of raw material exports. However, if it is due to extensive development of these resources, the countries have been harmed by the decrease in their commodity terms of trade. On declining terms of trade against LDC manufactured exports, see Matthias Lucke, "Developing Countries' Terms of Trade in Manufactures, 1967-87: A Note," *Journal of Development Studies*, Vol. 29, No. 3 (April 1993),



## ● The Role of the Government

The government has played a greater or lesser role in the development of all developing economies. Both the political environment and the economic policies pursued by government can be important in determining the growth potential of an economy.

There is little evidence to suggest that economic growth will be promoted more by a democratic government than by an authoritarian regime.<sup>39</sup> As with the determinants of economic growth in general, little empirical evidence exists which explains any correlation between the rates of economic growth and the type of regime in power. A number of empirical studies have been conducted, but none are conclusive as to the type of regime most conducive to economic growth.<sup>40</sup> For example, some of the economies of Asia grew at high rates in the post-war economy and had authoritarian governments.

---

588-95.

<sup>39</sup>While there is little evidence to suggest that the form of government is beneficial toward economic growth, there is evidence that suggests that economic growth is good for democracy. As the size of the economic pie increases, there is a greater probability of a compromise between different groups in society, since the opportunity cost of increasing the absolute share of one group does not prohibit other groups from also increasing their absolute share, although relative shares may change. By contrast, when growth is stagnant, increasing the absolute share of one group means decreasing that of other groups. For a more in depth discussion of this issue, see Evelyne Huber, et al., "The Impact of Economic Development on Democracy," *Journal of Economic Perspectives*, Vol. 7, No. 3 (Summer 1993), 71-85. These authors, using the standard definition found in the literature, define democracy as having three features: free and fair elections of representatives on the basis of universal suffrage; control of the state apparatus by elected officials; and guarantees of freedom of expression and association (p. 73). This standard definition of democracy might not be fully relevant when analyzing societies where community consensus may be developed through more direct participatory processes (e.g., town hall meetings; tribal or clan communal meetings). These same authors also argue that the end of the Cold War removes many of the obstacles to the formation of democratic societies. In particular, American tolerance of authoritarian regimes can no longer be justified on U.S. national security grounds. Also, the Soviet model has all but been discredited as a viable economic and political system in most of the developing world.

<sup>40</sup>For a summary of these studies, see Adam Przeworski and Fernanco Limongi. "Political Regimes and Economic Growth," *Journal of Economic Perspectives*, Vol. 7, No. 3 (Summer 1993), 51-69.

Some authors have suggested that the type of regime may matter less than how the government functions in practice. According to Bardhan, too much emphasis has been placed on authoritarianism versus democracy.<sup>41</sup> Instead, we should focus our attention on the degree of relative autonomy that government practices; whether it puts long-term goals (such as investment policies to enhance economic growth prospects) ahead of short-term pork-barrelling policies that are pursued for political gain (such as immediate consumption). He suggests that we should look at the quality of intervention, not the quantity. Government intervention in the economy should involve selective, targeted measures, and not indiscriminant blanket controls and regulations. For example, a government program to reduce poverty should offer subsidies to the poorest segments of society, rather than blanket price controls that would distort relative prices and benefit all consumers, not just the neediest.

A more important factor for economic growth than the type of government, may be the degree of political stability that is exhibited by a country. Even moderate political instability can scare away potential foreign investors and creditors and cause the rapid devaluation of the domestic currency in international markets. More extreme instability can result in the marked slowdown of productive activity and the emigration of large numbers of people, often the most productive members of society. There is evidence to support the hypothesis that political stability is an important determinant of economic growth. Barro shows that political instability (as measured by the number of political assassinations, coups and revolutions) is negatively related to investment and growth rates.<sup>42</sup>

As mentioned above, early development economists put a great deal of emphasis on government involvement in the economy, largely the result of prevailing Keynesian economic thinking at the time. Economists tended to focus on market failures in the economy and reasoned that governments could somehow overcome these market shortcomings to ensure that the economy would remain on a steady growth path. The neoclassical resurgence brought with it a host of attacks on the role of government in the economy; the less government, the better. Krueger notes that the role that traditional development economists

---

<sup>41</sup>Pranab Bardhan, "Symposium on the State and Economic Development," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 3-7.

<sup>42</sup>Robert J. Barro, "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 407-43.

assigned to governments was one of a "benevolent social guardian."<sup>43</sup> This was an erroneous characterization, since persons in the public sector often act in their own self-interest, just as other economic actors. She states that the counterpart to market failure is government failure, and that government inefficiencies and misallocation of resources became apparent in the 1970s and 1980s.

For example, the sheer size of the bureaucracy can inhibit growth. One recent study has shown that a number of countries have extensive surplus labour in the government sector. This can remove labour from other productive activities, thus having negative implications for growth. In addition, political pressures can result in increased government employment through lobbying efforts which can lead to increases in rent-seeking activities, such as employment for friends, etc. The net result can be a drain on a significant proportion of a country's physical and human resources, without a commensurate proportion of directly productive activities.<sup>44</sup> A large military can also result in similar problems by diverting scarce resources away from more productive activities.

Government monetary policies can also have a profound effect. High real interest rates, coupled with restrictions on the flow of capital to the private sector, have been shown to have a negative impact on private investment. In addition, during a credit squeeze, government attempts to absorb a larger share of domestic financial resources can have similar crowding-out effects. In addition, the flow of foreign capital may not be able to compensate for the shortage of domestic capital if inappropriate exchange rate and interest rate policies are pursued.<sup>45</sup>

Of course, a monetary policy which is loose can be inflationary. Inflation can harm economic growth prospects by distorting prices. Relative price changes normally act to direct resources to their best use. Inflation can distort these price signals. Inflation also moves the economy away from productive activity into speculative rent-seeking activities. Although high rates are a problem, as long as

---

<sup>43</sup>Anne O. Krueger, "Government Failures in Development," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 9-23.

<sup>44</sup>A. Gelb, et al., "Public Sector Employment, Rent Seeking and Economic Growth," *Economic Journal*, Vol. 101, No. 408 (September 1991), 1186-99.

<sup>45</sup>Mario I. Blejer and Moshin S. Khan. "Government Policy and Private Investment in Developing Countries," *IMF Staff Papers*, Vol. 31, No. 2 (June 1984), 379-403.

rates are stable over the long term, mechanisms are developed to lessen the negative effects of inflation. Indexation is one mechanism. The dollarization of an economy is another coping strategy. Unstable inflation rates (and higher rates are often unstable in practice) create more of a problem since firms and individuals may drastically alter the ways in which they allocate resources. Empirical evidence, however, fails to establish a significant negative relationship between inflation and long-term growth rates in cross-country studies.<sup>46</sup>

What about government expenditures? Do they lead to sustained economic expansion as posited by Keynesian economic theory? Figure 5 fails to show a strong relationship between economic growth and the government expenditure share of GDP. Other evidence, however, is mixed. Barro presents evidence to show that government consumption has a detrimental effect on growth.<sup>47</sup> He also concludes that government investment programs have a small positive (but statistically insignificant) effect on growth. Khan and Reinhart conclude that private investment tends to have a greater positive affect on long-term economic growth than government investment.<sup>48</sup> They also note, however, that these results should not be misinterpreted. Government investment may not be directly productive. For example, improving the infrastructure will not directly lead to growth, but rather could indirectly lead to new investments by the private sector which would in fact enhance longer-term growth prospects. Likewise, indirect growth benefits may occur as a result of government investment in human resources such as education and health, despite the fact that the aggregate data fail to reflect this.<sup>49</sup> Ram concludes that the size of the government does have a positive effect on economic growth especially in smaller countries, largely as a

---

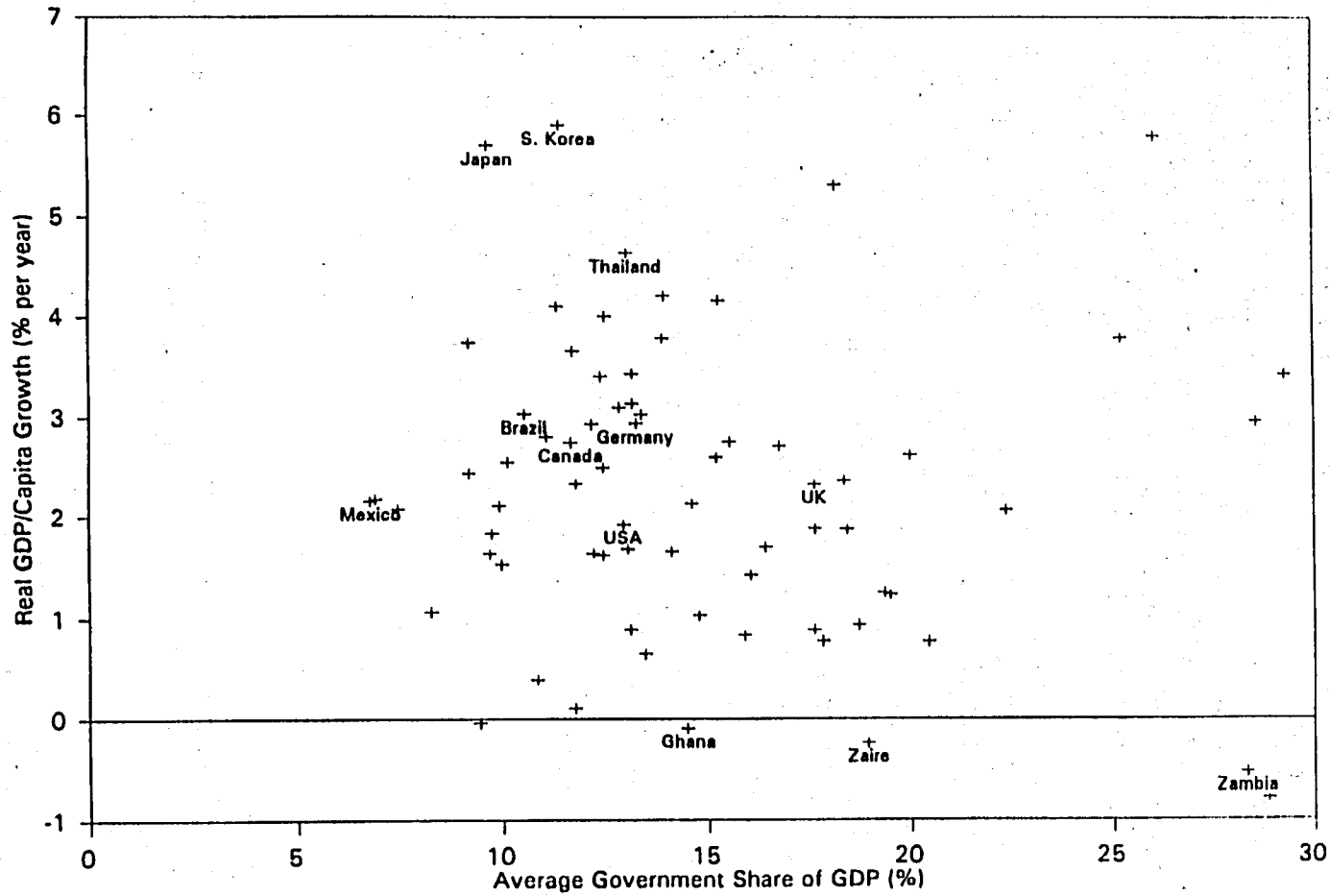
<sup>46</sup>See Ross Levine and Sara J. Zervos, "What We Have Learned About Policy and Growth from Cross-Country Regressions?" *American Economic Review*, Vol. 83, No. 2 (May 1993), 426-30, and Levine and Renelt, *op. cit.*

<sup>47</sup>Barro, *op. cit.*

<sup>48</sup>Moshin S. Khan and Carmen M. Reinhart. "Private Investment and Economic Growth in Developing Countries," *World Development*, Vol. 18, No. 1 (January 1990), 19-27.

<sup>49</sup>Otani and Villanueva, *op. cit.*

**Figure 5**  
**1955-89 Government Share of GDP vs. 1955-89 Real GDP Per Capita Growth**



Source: Calculated from PWT 5.5. See Appendix for details.

result of externalities provided by government involvement in the economy.<sup>50</sup> Thus, government investment may act as a complement to private investment, thereby increasing economic growth rates compared to what would occur in the absence of public investment.

For government intervention in the economy to be successful, it must enhance market opportunities for the private sector, taking care not to distort market signals. Schmitz argues that theories that stress cross-country differences in the incentives offered to entrepreneurs to expand business and adopt new technologies (lower tax rates, for example) may help to explain the differences in per capita growth rates.<sup>51</sup> Proving this type of theory, however, remains the problem. There is also a more traditional role for the government in providing services and information that the market will not supply. Infrastructure is usually cited in this context, but it can go beyond this. In India, for example, the state disseminated techniques, provided credit and developed markets for small-scale cottage industries such as weaving.<sup>52</sup> As Fishlow points out: "The heart of the matter is not simply taking the state out, but bringing the private sector, and civil society, back in more positively."<sup>53</sup>

Levine and Renelt find little correlation between most policy variables and rates of economic growth. They conclude: "National policies appear to be a complex package, and future researchers may wish to focus on macroeconomic policy regimes and interactions among policies as opposed to the independent influence of any particular policy."<sup>54</sup> De Long and Summers echo this sentiment. Their research shows that much of the variation in growth rates between countries cannot be traced to macroeconomic policies, but must be attributed to structural and external factors. Bad macroeconomic policies can result in poor economic

---

<sup>50</sup>Rati Ram, "Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time-Series Data," *American Economic Review*, Vol. 76, No. 1 (March 1986), 191-203.

<sup>51</sup>Schmitz, op. cit., p. 32.

<sup>52</sup>Datta-Chaudhuri, op. cit.

<sup>53</sup>Albert Fishlow, "The Latin American State," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 61-74.

<sup>54</sup>Levine and Renelt, op. cit., p. 960.

performance, while good macroeconomic policies are a necessary, but insufficient, condition for productivity growth.<sup>55</sup>

#### 4. Conclusions and Canadian Policy Implications

The recipe for economic growth in developing countries, as in all countries, is complex and not yet fully understood. We generally know that high rates of investment in physical and human capital have a positive impact on growth rates, while high population growth rates tend to have detrimental effects. The political type of government does not appear to be critical over the medium-term, although its size and its ability to create a stable political environment and pursue non-market distorting economic policies are important determinants of high economic growth rates. The expansion of exports *per se* does not appear to be as important as the kinds of products being exported, diversification of exports and the degree to which export markets are free of distortions. A number of intangibles also appear to be important in determining growth rates, although these are not very well understood. For example, well-defined property rights tend to foster innovation since innovators are able to capture temporary economic rents from the development of new products.

It is clear that the fundamental impetus for change must come from within the developing countries themselves. Credible and permanent economic policy changes cannot be dictated from the outside. This means that the opportunities for the international community to promote economic growth in these countries are limited. Still, Canada does have an opportunity to promote positive change through its development assistance and trade policies.

The mission of the Canadian International Development Agency (CIDA) is to support sustainable development in developing countries.<sup>56</sup> Although economic growth and sustainable development are not synonymous owing to the frequent trade-offs between the two, real economic growth per capita must occur if

---

<sup>55</sup>J. Bradford De Long and Lawrence H. Summers, "Macroeconomic Policy and Long-Run Growth," *Federal Reserve Bank of Kansas City Economic Review*, Vol. 77, No. 4 (4th Quarter 1992), 5-29.

<sup>56</sup>For a review of Canada's development policy, as enunciated in the late 1980s, see Canadian International Development Agency, *Sharing our Future: Canadian International Development Assistance*, Ottawa: Minister of Supply and Services, 1987.

countries are to become richer and develop. All indices of human development include per capita GDP as a major component, underlining the importance of economic growth in any development strategy.<sup>57</sup>

Canada has a generous historical record of providing international assistance to developing countries and, more recently, to the economies in transition in eastern Europe and the former Soviet Union. Still, for most developing countries, such assistance from the members of the Organization for Economic Cooperation and Development (OECD) makes at best a modest contribution to improving per capita living standards. In 1990-91, total development assistance from the OECD area accounted for less than one percent of gross national product (GNP) throughout most of the developing world. Even in the poorest region, sub-Saharan Africa, net international assistance transfers from OECD members only accounted for 10.8% of the region's GNP, despite receiving over one-third of total bilateral and multilateral disbursements from OECD members.<sup>58</sup>

Decreasing OECD trade barriers against developing country exports would be more beneficial, surpassing the amount of international assistance currently given, and offering indebted countries a means to reduce external debt obligations. The World Bank estimates that if OECD tariff and non-tariff barrier (NTB) restrictions

---

<sup>57</sup>Generally, social indicators such as life expectancy and literacy rates which are commonly used to measure the degree of development, tend to be highly correlated with economic growth. In fact, the Overseas Development Council's Physical Quality of Life Index (PQLI) was found to be statistically redundant in a ranking of 150 countries, since the PQLI ranking was approximately equal to the ranking based on per capita GNP. See D.A. Larson and W.T. Wilford, "The Physical Quality of Life Index: A Useful Social Indicator?" *World Development*, Vol. 7, No. 6 (June 1979), 581-84, cited in Panayiotis Afxentiou, "Basic Needs: A Survey of the Literature," *Canadian Journal of Development Studies*, Vol. 11, No. 2 (1990), 241-57.

<sup>58</sup>Development Assistance Committee (DAC), *Development Co-operation, 1992 Report*, Paris, Organization for Economic Co-operation and Development, 1992, pp. A27-29. Net international development assistance includes concessional flows from OECD members and through member-financed multilateral organizations. Credits from the International Monetary Fund (IMF) are more substantial. In the 1980-90 period, Fund credits averaged 1.8% of the recipient country's GDP and covered 29.3% of the current account deficit. Countries which completed IMF programs, however, received larger proportions of IMF financing. In these cases, Fund credits averaged 2.6% of GDP and 48.3% of the current account deficit. Although Fund programs are largely designed to offer temporary balance of payments relief, in practice many countries, particularly those in sub-Saharan Africa, have become dependent on this financing. See Tony Killick, et. al., "What Can We Know About the Effects of IMF Programs," *The World Economy*, Vol. 15, No. 5 (September 1992).



were removed, the total exports of the developing countries studied would increase dramatically. In the case of China, Jamaica, Pakistan, Thailand and the Philippines, exports would increase by at least 40%. Countries that have a high percentage of textiles and clothing in total exports would benefit even more; Bangladesh, Sri Lanka and the Dominican Republic would see their exports more than double. The benefit could exceed the amount of ODA given to countries such as China and Sri Lanka by more than 400%.<sup>59</sup>

In light of the considerations discussed in this Paper, there are a number of broad policies that Canada can promote, both bilaterally and multilaterally, in order to better foster economic growth in the developing countries.

- Given the complexity of the growth process in these countries and the necessarily modest direct impact of external economic assistance to developing countries, Canada should work to develop comprehensive projects and programs to reinforce existing economic structures and institutions, if functioning efficiently, or to reform these structures and institutions, if not functioning efficiently. Judgements should be made on a case-by-case basis. As Nicholas Stern has noted: "There is no substitute for detailed work in the countries themselves."<sup>60</sup> Aid funds can partially substitute for domestic resource mobilization, but only in the short to medium-term. The simple dependence on aid does not represent a catalyst for sustained growth; rather, it represents temporary growth which will cease when aid flows are eliminated or scaled-down. Local, sustained commitment is essential. Consequently, aid should be carefully tailored to countries and sectors within those countries that are best able to utilize aid funds with the ultimate goal of self-sustaining growth. The achievement of sustainable growth momentum in such economies and sectors can, in turn, have a dynamic impact throughout a given economy and with regard to neighbouring countries.

---

<sup>59</sup>World Bank, "Global Economic Prospects and the Developing Countries 1993," mimeo, pp. 76-7. The OECD supports this argument, noting that the cost of existing barriers to developing economies exceeds the total value of aid flows. See DAC, op. cit., p. 37. Both the World Bank and the OECD use static estimation exercises which do not include the dynamic effects of increased investment, better technologies, etc. that would result from decreased trade barriers. Inclusion of these dynamic effects would likely increase the net benefits to developing countries.

<sup>60</sup>Nicholas Stern, "Public Policy and the Economics of Development," *European Economic Review*, Vol. 35 (1991), p. 267.

- The long-term growth implications of Structural Adjustment Programs (SAPs) through the World Bank and the International Monetary Fund (IMF) should be better understood. There is little evidence to suggest that the structural adjustment programs of the IMF are detrimental to the short and medium-term growth prospects of an economy. Longer-term growth prospects of countries under SAPs, however, remain relatively unstudied. These programs do appear, however, to lower investment rates in both physical and human capital over the short-term.<sup>61</sup>
- Canada should push multilaterally, and on a regional basis where appropriate, for decreasing tariffs and NTBs that restrict the importation of many products from developing countries (e.g., textiles, clothing and certain agricultural products). The results of the Uruguay Round of Multilateral Trade Negotiations represent steps in the right direction in this regard. Although the evidence presented above does not offer unambiguous support for the export-led growth hypothesis, the elimination of trade barriers would allow for a more efficient international movement of resources, thus enhancing growth prospects in cases where developing countries were able to exploit competitive export opportunities.

---

<sup>61</sup> Proponents of the so-called growth-oriented critique of structural adjustment policies have failed to provide convincing evidence of their negative effects on growth rates. However, a number of methodological problems exist in judging the success or failure of such programs. For example, economies are usually exhibiting poor economic performance before they go to the IMF for help, making it difficult to differentiate between the effects of previous macroeconomic economic experience with the direct effects of IMF programs. Nonetheless, a number of studies, including some by IMF economists, show that the effects of IMF programs on growth rates tend to be mixed in the one to three year period immediately following implementation of programs. See Killick, et al., op. cit.; Manuel Pastor Jr. "The Effects of IMF Programs in the Third World: Debate and Evidence from Latin America," *World Development*, Vol. 15, No. 2 (February 1987), 249-62; Donal J. Donovan, "Macroeconomic Performance and Adjustment Under Fund-Supported Programs: The Experience of the Seventies," *IMF Staff Papers*, Vol. 29, No. 2 (June 1982), 171-203; and Thomas M. Reichmann and Richard T. Stillson. "Experience with Programs of Balance of Payments Adjustment: Stand-By Arrangements in the Higher Tranches, 1963-72," *IMF Staff Papers*, Vol. 25, No. 2 (June 1978), 293-309. Some of these studies have also noted that physical investment rates tend to fall in the period immediately following implementation of such programs. In addition, government expenditures are usually curtailed as part of such programs, which often impacts negatively on education expenditures. Thus, longer-term growth rates could be hindered, unless the adjustment leads to a more stable and sustainable environment, socially as well as economically. Although these studies are limited to the effects of IMF programs, similar remarks apply to SAPs funded by the World Bank.

## Appendix

The data set utilized in the figures is an updated version of the Penn World Table (PWT) and is unique in that its expenditure series are denominated in a common set of prices, thus allowing for real quantity comparisons to be made through time and between countries.<sup>62</sup> It contains data on 145 countries from 1950 through 1990. Of these, some countries were dropped owing to incomplete data. Some 74 countries had data spanning at least a 35 year period. Of these, 71 countries were chosen with data spanning 1955 through 1989, which maximizes the number of observations over the longest period of time. Members of the Organization for Economic Co-operation and Development (OECD) are noted with an asterisk (\*).

### Africa (13)

Egypt  
Ghana  
Kenya  
Malawi  
Mauritius  
Morocco  
Nigeria  
S. Africa  
Uganda  
Zaire  
Zambia  
Zimbabwe

### C. and N. America (13)

Canada \*  
Costa Rica  
Dom. Rep.  
El Salvador  
Guatemala  
Honduras  
Jamaica  
Mexico  
Panama  
Puerto Rico  
Trin. & Tob.  
USA \*

### South America (11)

Argentina  
Bolivia  
Brazil  
Chile  
Colombia  
Ecuador  
Guyana  
Paraguay  
Peru  
Uruguay  
Venezuela

### Asia (14)

India  
Iran  
Israel  
Japan \*  
Jordan  
S. Korea  
Malaysia  
Myanmar  
Pakistan  
Philippines  
Sri Lanka  
Taiwan  
Thailand

### Europe (21)

Austria \*  
Belgium \*  
Cyprus  
Denmark \*  
Finland \*  
France \*  
Germany \*  
Greece \*  
Iceland \*  
Ireland \*  
Italy \*  
Luxembourg \*  
Malta  
Netherlands \*  
Norway \*  
Portugal \*  
Spain \*  
Sweden \*  
Switzerland \*  
Turkey \*  
UK \*

### Oceania (2)

Australia \*  
New Zealand \*

---

<sup>62</sup> For complete details, see Summers and Heston, op. cit. The updated version is the PWT 5.5.

The following data series were used: Real GDP growth is the annualized growth rate over the 35 year period and, along with the initial 1955 level of real GDP, is from the real GDP per capita in constant dollars expressed in 1985 international prices (RGDPCH in PWT 5.5). Likewise, population growth is from the population series (POP) and is annualized over 35 years. Both the investment and government expenditures share of real GDP are annual averages (CI and CG). Export share of real GDP is an annual average and is calculated as  $AVEX = (NFB + OPEN)/2$ , where OPEN is the PWT variable measuring the proportion of imports plus exports as a proportion of real GDP and NFB is the net for balance as a proportion of real GDP calculated as  $NFB = 100 - CI - CG - CC$ , where CI and CG are as above and CC is the consumption share of real GDP.

## Bibliography

- Afxentiou, Panayiotis. "Basic Needs: A Survey of the Literature," *Canadian Journal of Development Studies*, Vol. 11; No. 2 (1990), 241-57.
- Azariadis, Costas, and Allan Drazen. "Threshold Externalities in Economic Development," *Quarterly Journal of Economics*, Vol. 105, No. 2 (May 1990), 501-26.
- Bahmani-Oskooee, Mohsen, and Janardhanan Alse. "Export Growth and Economic Growth: An Application of Cointegration and Error-Correction Modelling," *Journal of Developing Areas*, Vol. 27, No. 4 (July 1993), 535-542.
- Balassa, Bela. "Exports, Policy Choices and Economic Growth in Developing Countries After the 1973 Oil Shock," *Journal of Development Economics*, Vol. 18, No. 1 (May/June 1985), 23-35.
- Bardhan, Pranab. "Symposium on the State and Economic Development," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 3-7.
- Barro, Robert J. "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 407-43.
- Baumol, William J. "Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show," *American Economic Review*, Vol. 76, No. 5 (December 1986), 1072-85.
- \_\_\_\_\_, and Edward N. Wolff. "Productivity Growth, Convergence, and Welfare: Reply," *American Economic Review*, Vol. 78, No. 5 (December 1988), 1153-59.
- Birdsall, Nancy. "Population Growth," *Finance and Development* (September 1984), 10-4, reprinted in Gerald M. Meier, *Leading Issues in Economic Development*, 5th Ed. (New York: Oxford University Press, 1989), 436-40.
- Blejer, Mario I., and Moshin S. Khan. "Government Policy and Private Investment in Developing Countries," *IMF Staff Papers*, Vol. 31, No. 2 (June 1984), 379-403.

- Brander, James A. "Comparative Economic Growth: Evidence and Interpretation," *Canadian Journal of Economics*, Vol. 25, No. 4 (November 1992), 792-818.
- Canadian International Development Agency. *Sharing our Future: Canadian International Development Assistance*. Ottawa: Minister of Supply and Services, 1987.
- Chow, Peter C. Y. "Causality Between Export Growth and Industrial Development: Empirical Evidence from the NICs," *Journal of Development Economics*, Vol. 26, No. 1 (June 1987), 55-63.
- Datta-Chaudhuri, Mrinal. "Market Failures and Government Failures," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 25-39.
- De Long, J. Bradford. "Productivity Growth, Convergence, and Welfare: Comment," *American Economic Review*, Vol. 78, No. 5 (December 1988), 1138-54.
- \_\_\_\_\_, and Lawrence H. Summers. "Equipment Investment and Economic Growth," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 445-502.
- \_\_\_\_\_. "Macroeconomic Policy and Long-Run Growth," *Federal Reserve Bank of Kansas City Economic Review*, Vol. 77, No. 4 (4th Quarter 1992), 5-29.
- Development Assistance Committee. *Development Co-operation, 1992 Report*. Paris: Organisation for Economic Co-operation and Development, 1992.
- Dodaro, Santo. "Exports and Growth: A Reconsideration of Causality," *Journal of Developing Areas*, Vol. 27, No. 2 (January 1993), 227-44.
- Donovan, Donal J. "Macroeconomic Performance and Adjustment Under Fund-Supported Programs: The Experience of the Seventies," *IMF Staff Papers*, Vol. 29, No. 2 (June 1982), 171-203.
- Dowrick, Steve, and Duc-Tho Nyugen. "OECD Comparative Economic Growth 1950-85: Catch-Up and Convergence," *American Economic Review*, Vol. 79, No. 5 (December 1989), 1010-30.

- Edwards, Sebastian. "Openness, Trade Liberalization, and Growth in Developing Countries," *Journal of Economic Literature*, Vol. 31, No. 3 (September 1993), 1358-93.
- Feder, Gershon. "On Exports and Economic Growth," *Journal of Development Economics*, Vol. 12, Nos. 1 & 2, (February/April 1983), 59-73.
- Fishlow, Albert. "The Latin American State," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 61-74.
- Fosu, Augustin Kwasi. "Exports and Economic Growth: The African Case," *World Development*, Vol. 18, No. 6 (June 1990), 831-35.
- Gelb, A., et al. "Public Sector Employment, Rent Seeking and Economic Growth," *Economic Journal*, Vol. 101, No. 408 (September 1991), 1186-99.
- Grilli, Enzo R., and Maw Cheng Yang, "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows," *World Bank Economic Review*, Vol. 2, No. 1 (January 1988), 1-47.
- Grossman, Gene M., and Elhanan Helpman. *Innovation and Growth in the Global Economy*. 2nd. Printing. Cambridge, Mass.: The MIT Press, 1992.
- Harris, Richard G. "Globalization, Trade, and Income," *Canadian Journal of Economics*, Vol. 26, No. 4 (November 1993), 555-76.
- Helleiner, G.K. "Trade Strategy in Medium-Term Adjustment," *World Development*, Vol. 18, No. 6 (June 1990), 879-97.
- \_\_\_\_\_. *Trade Policy and Industrialization in Turbulent Times*, Unpublished Manuscript, World Institute for Development Economics Research, March 1993.
- Huber, Evelyne, et al. "The Impact of Economic Development on Democracy," *Journal of Economic Perspectives*, Vol. 7, No. 3 (Summer 1993), 71-85.
- Jung, Woo. S., and Peyton J. Marshall. "Exports, Growth and Causality in Developing Countries," *Journal of Development Economics*, Vol. 18, No. 1

(May/June 1985), 1-12.

Kavoussi, Rostam M. "Export Expansion and Economic Growth: Further Empirical Evidence," *Journal of Development Economics*, Vol. 14, Nos. 1 & 2 (January/February 1984), 241-50.

Khan, Moshin S., and Carmen M. Reinhart. "Private Investment and Economic Growth in Developing Countries," *World Development*, Vol. 18, No. 1 (January 1990), 19-27.

Killick, Tony; et al. "What Can We Know About the Effects of IMF Programs," *The World Economy*, Vol. 15, No. 5 (September 1992), 575-97.

Krueger, Anne O. "Government Failures in Development," *Journal of Economic Perspectives*, Vol. 4 No. 3 (Summer 1990), 9-23.

Lal, Deepak, and Sarath Rajapatirana. "Foreign Trade Regimes and Economic Growth in Developing Countries," *World Bank Research Observer*, Vol. 2, No. 2 (July 1987), 189-217.

Levine, Ross, and David Renelt. "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review*, Vol. 82, No. 4 (September 1992), 942-63.

Levine, Ross, and Sara J. Zervos. "What We Have Learned About Policy and Growth from Cross-Country Regressions?" *American Economic Review*, Vol. 83, No. 2 (May 1993), 426-30.

Liang, Neng. "Beyond Import Substitution and Export Promotion: A New Typology of Trade Strategies," *Journal of Development Studies*, Vol. 28, No. 3 (April 1992), 447-72.

Lucas, Robert E. Jr. "Why Does Capital Not Flow From Rich to Poor Countries?" *American Economic Review*, Vol. 80, No. 2 (May 1990), 92-6.

Lucke, Matthias. "Developing Countries' Terms of Trade in Manufactures, 1967-87: A Note," *Journal of Development Studies*, Vol. 29, No. 3 (April 1993), 588-95.



- Mankiw, N. Gregory, et al. "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, Vol. 107, No. 429 (May 1992), 407-37.
- Murphy, Kevin M., Andrei Shleifer and Robert W. Vishny, "The Allocation of Talent: Implications for Growth," *Quarterly Journal of Economics*, Vol. 106, No. 2 (May 1991), 503-30.
- Otani, Ichiro, and Delano Villanueva. "Determinants of Long-Term Growth Performance in Developing Countries," IMF Working Paper No. 88/97 (November 1988).
- Parente, Stephen L., and Edward C. Prescott. "Changes in the Wealth of Nations," *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 17, No. 2 (Spring 1993), 3-16.
- Passell, Peter. "Trade Winds Blowing in Prosperity's Direction," *Globe and Mail*, December 16, 1993, p. B7.
- Pastor, Manuel Jr. "The Effects of IMF Programs in the Third World: Debate and Evidence from Latin America," *World Development*, Vol. 15, No. 2 (February 1987), 249-62.
- Prebisch, Raul. *The Economic Development of Latin American and its Principal Problems*, New York: United Nations, 1950.
- Przeworski, Adam, and Fernanco Limongi. "Political Regimes and Economic Growth," *Journal of Economic Perspectives*, Vol. 7, No. 3 (Summer 1993), 51-69.
- Ram, Rati. "Exports and Economic Growth: Some Additional Evidence," *Economic Development and Cultural Change*, Vol. 33, No. 2 (January 1985), 415-25.
- \_\_\_\_\_. "Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time Series Data," *American Economic Review*, Vol. 76, No. 1 (March 1986), 191-203.
- Reichmann, Thomas M., and Richard T. Stillson. "Experience with Programs of Balance of Payments Adjustment: Stand-By Arrangements in the Higher Tranches, 1963-72," *IMF Staff Papers*, Vol. 25, No. 2 (June 1978), 293-

309.

- Romer, Paul M. "Increasing Returns and Long-Run Growth," *Journal of Political Economy*, Vol. 94, No. 5 (October 1986), 1002-37.
- Schmitz, James A. Jr. "Early Progress on the 'Problem of Economic Development'," *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 17, No. 2 (Spring 1993), 17-35.
- Sengupta, Jati K. "Growth in NICs in Asia: Some Tests of New Growth Theory," *Journal of Development Studies*, Vol. 29, No. 2 (January 1993), 342-57.
- Singer, Hans W. "The Distribution of Gains Between Investing and Borrowing Countries," *American Economic Review*, Vol. 40, No. 2 (1950), 473-85.
- \_\_\_\_\_, and Patricia Gray. "Trade Policy and Growth in Developing Countries: Some New Data," *World Development*, Vol. 16, No. 3 (March 1988), 395-403.
- Solow, Robert. "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics*, Vol. 70, No. 1 (1956), 65-94.
- Stern, Nicholas. "Public Policy and the Economics of Development," *European Economic Review*, Vol. 35 (1991), 241-71.
- Summers, Robert, and Alan Heston. "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-88," *Quarterly Journal of Economics*, Vol. 106, No. 425 (May 1991), 327-68.
- Wilbur, William L., and Mohammed Z. Haque. "An Investigation of the Export Expansion Hypothesis," *Journal of Development Studies*, Vol. 28, No. 2 (January 1992), 297-313.
- Westphal, Larry E. "Industrial Policy in an Export-Propelled Economy: Lessons from South Korea," *Journal of Economic Perspectives*, Vol. 4, No. 3 (Summer 1990), 41-59.
- World Bank. "Global Economic Prospects and the Developing Countries 1993," mimeo.



**B) TRADE DEVELOPMENT SERIES**

1. From a Trading Nation to a Nation of Traders: Towards a Second Century of Trade Development, by Andrew Griffith. 92/05 (March 1992)
2. Exports and Job Creation, by Morley Martin. 93/06 (June 1993) \*

**C) REGIONAL TRADE AND ECONOMIC SERIES**

1. Different Strokes: Regionalism and Canada's Economic Diplomacy, by Keith H. Christie. 93/08 (May 1993) \*
2. Canada in the Americas: New Opportunities and Challenges, by Conrad Sheck, Colin Robertson, Jamal Khokhar, Nicolas Dimic, and Keith Christie. 94/06 (forthcoming)
3. China 2000: The Nature of Growth and Canada's Economic Interests, by Steve Lavergne. (forthcoming)

**D) OTHER ECONOMIC PAPERS**

1. World Population Growth and Population Movements: Policy Implications for Canada, by Michael Shenstone. 92/07 (April 1992)
2. Pour des sanctions efficaces et appropriées, par Jean Prévost. 93/04 (mars 1993) \*
3. Black Gold: Developments in the World Oil Market and the Implications for Canada, by Sushma Gera. 93/05 (February 1993) \*
4. Determinants of Economic Growth in Developing Countries: Evidence and Canadian Policy Implications, by Rick Mueller. 94/08 (April 1994)
5. Still an Albatross? The LDC Debt Crisis Revisited, by Rick Mueller. 94/09 (April 1994)

\* available in English/disponible en français

