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"New" Growth Theory and Development Assistance

by

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"NEW" GROWTH THEORY AND DEVELOPMENT ASSISTANCE

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Executive Summary

The developing world as a whole has experienced unprecedented levels of economic growth in the post-war period. But, the stunning divergence of growth patterns amongst countries of the developing world over the last forty years is perhaps the single most important factor in determining the differences between the haves and the have-nots of today. The experience, and relative prosperity, of those countries and many others have changed dramatically during that period. The reason for this is economic growth and the reasons for these diverging growth patterns are government policies. In some cases, development strategies were misguided, based on a faulty ideological base. In others, resources including massive flows of development assistance were squandered by political elites who misdirected investment, including by more than occasionally lining their own pockets. In still other countries, civil war and domestic unrest meant that sustained economic growth was impossible.

This Paper looks at the lessons from growth theory, and the theoretical and empirical literature on aid's contribution to macroeconomic growth. I conclude that, while neoclassical growth theory argues that foreign aid can "replace" domestic capital in the capital accumulation process, several studies have noted that aid as a growth motor has been discredited to a large degree in both donor and recipient countries. On the other hand, new or endogenous growth theory says that economies grow by raising the productivity of human capital. This requires commitment and an enabling environment. Canadian aid flows are not large, and are falling. Thus Canadian aid should be even more tightly focussed on training and education, and encouraging a market-based environment more propitious for learning by doing, especially in countries where there is a commitment to sustain the reforms required to create such an environment.

This Paper also argues that international assistance should focus on improving the research and development capabilities of recipient countries. Research and development contributes to increasing human capital, and hence to rising economic growth rates. Existing arrangements with regard to access to technology could also be reviewed. In addition, international assistance should be targeted in large part on improving the export capabilities and the functioning of domestic markets of recipient countries, through improving two-way market access, strengthening intellectual property and commercial law regimes, and helping recipient countries to participate in markets more efficiently.

Sommaire

Au cours de la période d'après-guerre, les pays en développement dans leur ensemble ont connu des niveaux de croissance économique sans précédent. Mais leurs schémas de croissance ont divergé tellement depuis quarante ans qu'ils constituent peut-être le facteur le plus important de différenciations entre les nantis et les démunis d'aujourd'hui. En même temps, l'expérience et la prospérité relative de ces pays et de beaucoup d'autres ont changé radicalement. Ces variations s'expliquent par la croissance économique et les politiques gouvernementales sont à l'origine de la divergence des schémas de croissance. Dans certains cas, les stratégies de développement adoptées étaient peu judicieuses et reposaient sur un fondement idéologique laissant à désirer. Dans d'autres, les ressources, soutenues par les rentrées massives d'aide au développement, étaient dilapidées par l'élite politique qui les investissait mal et se remplissait les poches plus souvent qu'autrement. Ailleurs, la guerre civile et l'agitation intérieure rendaient impossible toute croissance économique soutenue.

Le présent document étudie les leçons à tirer de la théorie de la croissance et les articles théoriques et empiriques sur la contribution de l'aide à la croissance macro-économique. J'en conclus que même si la théorie de la croissance néoclassique semble indiquer, que l'aide étrangère peut « remplacer » le capital intérieur dans le processus d'accumulation du capital, plusieurs études révèlent que l'aide comme moteur de la croissance est grandement mise en doute à la fois dans les pays donateurs et les pays bénéficiaires. Par ailleurs, la théorie de la croissance nouvelle ou endogène affirme que c'est en élevant la productivité du capital humain que l'on fait progresser l'économie. Il faut évidemment qu'il y ait une volonté en ce sens et que le milieu le permette. Le Canada ne fournit qu'une aide restreinte et elle s'amenuise. Il devrait donc l'axer plus étroitement sur la formation et l'éducation et favoriser une économie de marché apte à apprendre par l'action, surtout dans les pays qui sont déterminés à soutenir les réformes essentielles à la création d'un tel milieu.

Je soutiens également dans ce document que l'aide internationale devrait servir à améliorer les capacités de recherche et de développement des pays bénéficiaires. La recherche et le développement sont un apport pour le capital humain et contribuent ainsi à la hausse des taux de croissance économique. On pourrait aussi revoir les arrangements actuels concernant l'accès à la technologie. On pourrait également orienter en grande partie l'aide internationale vers l'amélioration des capacités d'exportation des pays bénéficiaires et du fonctionnement de leurs marchés intérieurs en favorisant l'accès bilatéral aux marchés, en consolidant les régimes relatifs à la propriété intellectuelle et au droit

commercial et en aidant les pays bénéficiaires à s'implanter plus activement sur les marchés.

"If we can learn about government policy options that have even small effects on the long-term growth rate, then we can contribute much more to improvements in standards of living than has been provided by the entire history of macroeconomic analysis. Economic growth is the part of macroeconomics that really matters."¹

"The basic test of development success must be economic growth, because if poverty is to be attacked successfully, the economy as a whole must grow."²

2. Introduction

The stunning divergence of growth patterns between countries over the last forty years is perhaps the single most important factor in determining the differences between the haves and the have-nots of the 1990s. The stories are apocryphal, but do indeed have a core element of truth. After the Second World War, per capita incomes in Asia and Africa were not dissimilar; even, for example, those in South Korea were comparable to Ghana. Yet the experience and relative prosperity of those countries and many others have changed dramatically since that period. The reason for this is economic growth.

Even small changes in the yearly growth rate of GDP have extremely large cumulative effects on per capita income over the time period being discussed. For developing countries, the growth experience has been even more extreme than in the industrialized world. Economists have tried to explain these differing growth experiences using a variety of models, usually based on a simple neoclassical production function. In such a model, the creation of capital is vital for economic growth, and subsequently investment is a central factor. For much of the last thirty years, large sums of assistance have been transferred from the industrialized world to various countries in the developing world, through both official bilateral and multilateral channels and through non-official sources. Yet today, many countries remain dependent on foreign aid, trapped in low-growth, poverty-stricken states. By contrast, other nations have experienced a high-growth period, where

¹ Robert J. Barro, "Recent Research on Economic Growth", NBER Reporter, Summer 1994, p.7.

² William Ryrie, First World, Third World, St. Martin's Press, London, 1995, p.17.

per capita incomes have increased several fold. They too were once aid recipients, but now no longer require official development assistance to the same degree. Instead, they are destinations for private capital inflows.

Given the diverse historical experience, this Paper attempts to examine the theoretical components of growth theory, with particular attention being given to new or endogenous growth theory. While recognizing that growth is not the only goal for our aid recipients, the analysis provided here can guide our discussion of the role of aid and foreign assistance within certain theoretical confines. At a time when official bilateral assistance is coming under attack in many industrialized countries,³ and the overall level of such flows has declined, both absolutely

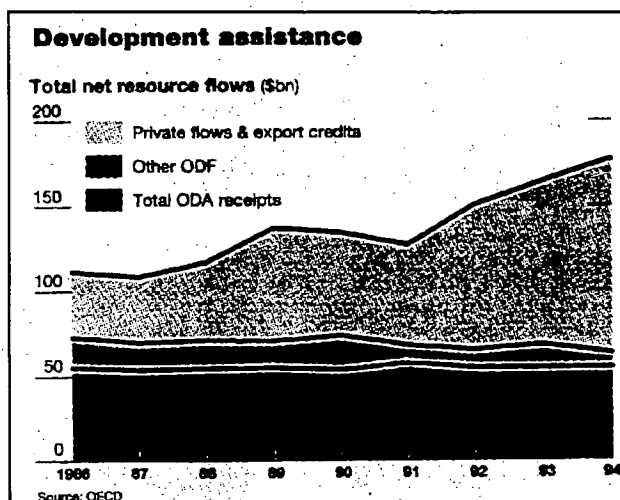


Figure 1

and in relative terms, the theoretical arguments from growth theory may be useful in informing the aid debate (see Figure 1). A discussion and analysis of Canadian aid flows over the last decade show similar pressures to those being felt elsewhere in the Western world. The general lessons from this theoretical analysis can then be drawn for Canadian aid policy. This Paper is not concerned with the specific geographic distribution of aid,⁴ nor with providing a detailed critique of Canadian aid policy over the last forty years. While acknowledging the larger debate surrounding "development", I focus on the seeming juncture at which the theoretical discussion on growth theory has arrived and its implications for the role of aid. This in turn may provide an informed backdrop against which to review the disbursement of Canadian foreign assistance in the years to come.

³ See Michael Prowse, "The Assault on Aid", *Financial Times*, November 6, 1995 and Will Hutton, "Aid that only Basket Cases Need Apply For", *Manchester Guardian Weekly*, January 28, 1996.

⁴ For a useful discussion of these issues, see previous Policy Staff Papers by Keith Christie and David Preston, "Dealing With Diversity: Canada's Economic Relations with Developing Countries", No. 95/15 (December 1995) and Nicholas Dimic, "The Geographic Distribution of Canada's Bilateral Assistance: Alternative Approaches", No. 95/11 (August 1995).

3. Diverging Growth Patterns in the Developing World

There are no hard and fast rules concerning growth in developing countries. While the growth figures and business-cycle pattern for the industrialized world have converged to a large degree in the last two decades, the experience of the developing world has been considerably different. The average for real GDP increases worldwide from the period 1976-86 was 3.3 per cent per annum. For the 1986-96 period, the figure is estimated to be 3.2 per cent.⁵ But when the numbers are disaggregated by region, several important trends can be discerned. For industrialized countries, the averages for the two decades were 2.7 and 2.6 per cent respectively. Developing countries in Asia showed outstanding real growth figures of 6.7 and 7.7 per cent per annum for the decades in question, while African countries exhibited 2.1 and 2.4 per cent and Latin America and the Caribbean 3.2 and 2.7 per cent by comparison.

GDP growth figures by themselves, however, can misrepresent the true extent of economic growth. GDP per capita more realistically measures the benefits of economic growth, since high population growth rates can whittle away even impressive growth figures while low GDP growth figures may not be problematic if population growth is small. Even considering real GDP per capita, our story does not change appreciably. The difference in the developing world is starkly underlined by Asia's real annual increase of 5.3 per cent per capita in the last twenty years, or a doubling of per capita income roughly every thirteen years. By contrast, Western Hemisphere developing countries averaged a modest 1.2 per cent and Africa a -0.7 per cent decline per annum over the last twenty years, indicating how serious the situation is on that continent. Development theorists have noted these discrepancies in growth patterns, even more obvious given the similarities in per capita income levels forty years ago, and have sought to explain them using several different theoretical constructs.

4. Neoclassical Growth Theory

Neoclassical growth theory was first set out in Solow and Swan's work⁶ in 1956. Its strength and weakness is its simplicity. Steady-state economic growth depends on technological progress and population growth, both of which are

⁵ International Monetary Fund, World Economic Outlook, October 1995.

⁶ Robert Solow, "A Contribution to the Theory of Economic Growth", Quarterly Journal of Economics, Vol. 70 (1), February 1956.

exogenous to the standard production model (capital, labour and land as inputs). Without technological progress, per capita output does not rise. In the short run, an increase in the savings rate can cause per capita economic growth to increase. But because of diminishing returns to capital, in the long run it grows only at the rate of exogenously given technological progress. Therefore, government economic policies in the steady-state economic growth model only affect the growth rate when an economy is in transition from one steady state to another. Neoclassical growth theory has been used to analyze growth patterns across a wide group of developing and developed countries.

The neoclassical model essentially focuses on capital accumulation. By increasing savings and investment, a country can increase the amount of capital that it leaves to future workers. Therefore, this will result in an increase in productivity and income. Eventually, each generation saves just enough to replace the capital that it has depleted. At this point, income per capita can only grow as fast as the technology it has access to in order to improve, i.e., the "exogenous factor". This results in the conclusion that countries with similar levels of technology will converge to a given steady-state level. However, historical experience has shown a divergence of income per capita between countries, particularly between developing, newly industrialized and modern economies.

Furthermore, Freeman⁷ in a useful review article, argues that when it comes to formal neo-classical mathematical models of growth, the "black box" takes the form of a residual factor in an aggregate production function. This residual comprises both technical and institutional change. From Solow's original study on, most of the formal neoclassical models have shown that the residual apparently accounts for a greater part of growth than the simple accumulation of capital and labour force growth. In the last two years, work of the "growth accountants" like Young⁸ at MIT, has shown that this residual is perhaps not as large as once thought, but it still remains. Neoclassical theory cannot completely explain why the growth experience of many countries has shown not just accumulation of more inputs - capital and labour - but also rapid and sustained increases in the overall productivity of these inputs.

As the Solow type model's convergence was not noted empirically, and the

⁷ Chris Freeman, "Innovation and Growth", in eds., Mark Dodgson and Roy Rothwell, The Handbook of Industrial Innovation (Edward Elgar, Aldershot, 1994).

⁸ Alwyn Young, "Growth Without Scale Effects", NBER Working Paper No. 5211, August 1995.

steady-state nature of the process did not seem realistic, in the mid 1980s a new group of theoreticians began to look at "new growth theories". In part, this was also due to frustrations with the lack of policy impact available under the neoclassical model (the powerlessness of fiscal and monetary variables). Romer's 1986 seminal paper was the beginning of this new school of endogenous growth theory⁹.

5. New or Endogenous Growth Theory

According to Fagerberg's excellent survey of the literature, the major figures in the new theory, Romer, Lucas and Scott, all "follow the Arrow-Kaldor route and assume that new investments (in physical and/or human capital) lead to technological progress in the form of learning by doing. This is assumed to be external to the firm, so that there are constant returns to scale at the firm level, but increasing returns to scale at the aggregate level."¹⁰

Endogenous growth theory suggests an explanation of why the anticipated convergence of economic performance amongst countries of the neoclassical model has not taken place: the beneficial external, economy-wide effects of capital accumulation outweigh the eventual limiting consequences of increasing capital per worker within a given firm. In a nutshell, the overall marginal productivity of capital does not decline with increasing GDP per capita.

Many of the new endogenous growth models incorporate mechanisms whereby economic and social policies are able to generate a link between policy and growth in the steady state. Some are even able to generate a link between policy and growth in the long run by assuming aggregate production functions that exhibit non-decreasing returns to scale. Romer's 1986 paper saw technological change as endogenous by assuming that it is a public good and that private capital investment raises the level of technology for the society at large. The positive externality associated with private investment leads to a production function with increasing returns to scale. Thus, the steady-state growth rate increases when the

⁹ Paul Romer, "Increasing Returns and Long-Run Growth", Journal of Political Economy, Vol. 94, No. 5 (October 1986).

¹⁰ Jan Fagerberg, "Technology and International Differences in Growth Rates", Journal of Economic Literature, Vol. XXXII (September 1994).

investment rate rises. In Lucas' 1988 model,¹¹ externalities arise from increases in human capital because investment in human capital enhances the productivity of both the recipients of such capital and the society at large. Hence, policies that enhance public and private investment in human capital affect long-run economic growth. Endogenous growth models clearly show that macroeconomic and microeconomic policies can affect long-run economic growth through their effects on physical and human capital accumulation.

It is now generally recognized that human capital development enhances economic growth. Indeed, endogenous growth models have shown that the decision of individuals to invest in human capital enhances technological progress, thus providing a link between human capital accumulation and growth of per capita output in the steady state. Therefore, policies that promote human capital development would be expected to contribute to per capita growth. Technological advance can result from purposive R&D activity and may even be rewarded by some form of ex post monopoly power. If there is no tendency for the economy to run out of ideas, then growth can remain positive in the long run. Because of distortions related to the creation of new goods and methods of production, the long-term growth rate can also depend on governmental actions such as taxation, provision of infrastructure and protection of intellectual property rights.

Further work by Romer, Grossman and Helpman, Aghion and Howitt assume that there is a separate technology sector in the economy that supplies the other sector(s) with new technologies. Producers buy the new technology from the technology sector, and in return they receive an exclusive right to the use of the technology. These producers must charge a price above marginal cost for what they produce, i.e., there is imperfect competition, because otherwise they would not generate enough income to cover their costs, including the initial investment in new technology. However, in addition to the private, proprietary component, innovation also has a public component (externality) that facilitates--raises the productivity of--all subsequent innovation projects. This counteracts the tendency toward decreasing productivity of new investments in innovative activity, and allows innovation--and hence growth--to go on. In these models, the rate of growth depends on the amount of resources devoted to the innovation activity (R&D), the degree to which new technology can be privately appropriated (degree of monopoly), and the time horizon (degree of patience) of investors. High growth also implies high growth in physical capital, but in these models this is a result, not

¹¹ Robert E. Lucas, "On the Mechanisms of Economic Development", Journal of Monetary Economics, Vol. 22 (1) (July 1988).

a cause, of technological progress .

5.1 Moving Out of the Steady State

Zilibotti¹² argues that the main feature which distinguishes endogenous growth from traditional neoclassical models is the existence of an autonomous engine of growth. In the Solow framework, long-run growth is not sustainable in the presence of a fixed supply of some non-reproducible factors which enter the production function, because the marginal productivity of the reproducible factor would fall to zero as the accumulation proceeds. The convexity of technology is not sufficient to generate the traditional result of a long-run stationary equilibrium trajectory.

On the other hand, modern growth theory has examined a number of economic mechanisms which might sustain the marginal productivity of capital, as accumulation proceeds. Among these already mentioned are learning-by-doing externalities (Romer), accumulation of human capital (Lucas), intentional innovation and financial development. If the basic model is adjusted at lower levels of accumulation so that technical progress only augments the reproducible factors, it is possible to obtain an analytical framework which fits Rostow's classic description of take-off and development for certain types of economies.

One of the problems of the standard convergence, non-convergence analysis is that Rostow's underdevelopment traps, where some economies never move forward into the growth phase at a particular take-off period, are more difficult to explain. Perhaps some synthesis of Solow growth in the steady state along with Romer's endogenous self-sustained growth might be possible to explain these Rostovian "leaps", that is, moving from one steady state path to another (take-off) through the process of endogenous growth.

5.2 Synthesis and Diffusion of Technology

In some ways, of course, Romer's and others' work was not quite as new as they might have seemed. Even as far back as the 1960s, there had been attempts to develop models in which technological progress had been endogenized. Basically, there were two different ideas that were developed in this (earlier) literature, one that emphasized learning (a positive externality of other economic activities),

¹² Fabrizio Zilibotti, "A Rostovian Model of Endogenous Growth and Underdevelopment Traps", *European Economic Review*, 39 (1995).

and another that considered technological progress as an output from a separate technology-sector in the economy. The most recent models follow in these footsteps.

In the last few years, proponents of neoclassical models have shown that the contribution of human capital to growth is consistent with the predictions of the Solow-Swan framework when the latter is augmented to include such capital. For example, Mankiw and Romer model human capital accumulation as an exogenous process and show empirically that the underlying production function exhibits diminishing returns to scale in reproducible factors of production. In an earlier Staff Paper, Mueller argued that: "The shortage of complementary human capital could be what is preventing some countries from achieving higher growth rates. Appropriately targeted education is the key to improving the quality of labour. Evidence suggests that development of human capital is highly correlated with growth rates in developing countries."¹³

The implications of the new growth theories for differences in growth and welfare across countries that trade with each other are discussed in most detail by Grossman and Helpman.¹⁴ They show--within a traditional neoclassical general equilibrium setting--that if technological spillovers are international rather than national in character, and a "perfect" international capital market prevails, consumers in all countries tend to be equally well off in terms of welfare (although there may be differences in the growth of output). However, when these assumptions are relaxed, the possibilities for diverging patterns multiply. Hence, there could be a role for the dissemination of technology (which clearly is not freely available at present).

Trade and foreign direct investment can also generate positive spillovers via the flows of knowledge (and transfers of technology) that they generate. The literature has not always been in agreement on whether foreign trade accelerates growth. Mueller¹⁵ gives a detailed presentation showing that, in general, diversion of resources from domestic production to export production may be beneficial for

¹³ Richard E. Mueller, "Determinants of Economic Growth in Developing Countries: Evidence and Canadian Policy Implications", Policy Staff Paper No. 94/08, April 1994.

¹⁴ Gene L. Grossman and Elhanan Helpman, Innovation and Growth in the Global Economy, MIT Press: Cambridge, 1991.

¹⁵ Mueller, op. cit.

growth. But, while correlation is almost always observed, causation has not been proven to date. Instinctively, we believe this is the case, and a recent Industry Canada Occasional paper concludes that "the more a country trades overall, the more it gains from the research and development of its partners. The evidence seems to support the view that trade has a favourable effect on productivity".¹⁶

All new growth theories share some common properties, such as the importance of the "idea gap" (lack of knowledge to create value) versus the "object gap" (not enough roads, factories, etc.). Still, there is an important difference in content between the initial models, in which technological progress is assumed to be totally external to firms, and the later models that assume technological progress to result from intentional activities by firms. In some work, this assumption has been extended to countries themselves, explaining the importance of a domestic research and development capability.

Recent work by Helliwell¹⁷ has shown that perhaps differences in growth patterns cannot all be explained by endogenous growth based on national spillovers from domestic accumulation of human or physical capital, because in the Asian context it shows few signs of returns to scale. Helliwell goes on to argue that, where convergence is taking place, it is happening through the international transfer of knowledge which can best be analyzed using theories of production and distribution of knowledge. He also goes on to mention two other potentially important factors: democratization and social capital. That is, institutions and the policy environment might actually have an impact, even in theory, on growth patterns.

Some of the most interesting work being done in the growth theory field is related to how institutional structures can inhibit the diffusion of new technologies. Perez¹⁸ argues that each new "wave" of strong worldwide demand, characterized by huge upswings of investment, is characterized by a dominant technological style. The match with growth theory is that those nations which prove most adept in making institutional innovations that match the technological change are likely to

¹⁶ Pierre Fortin and Elhanan Helpman, "Endogenous Innovation and Growth: Implications for Canada", Industry Canada Occasional Paper No. 10, August 1995.

¹⁷ John F. Helliwell, "Economic Growth and Social Capital in Asia", Paper prepared for the Industry Canada Conference on the Asia-Pacific Region in the World Economy, Vancouver, December 1995.

¹⁸ C. Perez, "Technical Change, Competitive Restructuring and Institutional Reform in Developing Countries", World Bank Strategic Planning and Review, Discussion Paper No. 4, December 1989.

grow faster, catching up or forging ahead. Those that suffer from institutional drag may experience a prolonged mis-match between their institutions (both government and industry) and the growth potential of new technologies. Recent evidence showing large increases in net private capital flows to certain developing countries may be evidence that many countries in the developing world are taking advantage of the diffusion of technology and catching up (convergence).¹⁹ Yet many remain trapped in a low demand level stage, with little hope of improving their lot.

Essentially, depending on one's beliefs about modelling, the debate starts to fold in on itself. In a recent Brookings paper, Mankiw²⁰ argues that a closer look at the empirical problems of neoclassical models shows that they have a problem adjusting for human capital. Mankiw argues that, in a typical country, about two-thirds of all labour income derives from investments in improving workers' skills, much higher than normally estimated in a production function because technology is relatively freely available. If this is taken into account, some of the empirical problems of convergence disappear. For his part, Romer makes the point that returns to education in poor countries should be much higher if this were the case and that a "reverse brain drain" would be the result.

Thus, we have the classic situation in economic theory. Two strongly held positions, and camps, led by famous theoreticians. Neither can explain the empirical question completely as to why some economies grow faster than others, yet the theory is converging, with both neoclassicists and endogenous growth advocates admitting that the key theoretical underpinnings of both point to the importance of investment in human capital and the benefits to poorer countries of access to and the transfer of technology.

6. Theory: The Macroeconomic Contribution of Aid

Within the general debate on "development", growth is seen as a necessary, but not always a sufficient criterion for development success. "Development" must also contribute to equity and poverty reduction, at least in due course. Aid therefore also seeks to have an impact on this broader conceptualization of development, not just on growth. For the purposes of the analysis in this Paper,

¹⁹ "Private Capital Flows to Developing Countries Suffer Setbacks, But Recover", IMF Survey, November 20, 1995.

²⁰ Gregory Mankiw, "The Growth of Nations", Brookings Papers on Economic Activity, September 1995. The Brookings Institution.

however, aid is primarily used to transfer additional resources to a recipient country, which can have a positive impact on growth through a number of areas. Aid could possibly provide extra resources to supplement domestic savings, or could ease a specific constraint within an economy such as a balance of payments constraint. Aid could also be used to increase investment in a specific country. In addition, aid may be used to lay a foundation for the growth of exports, which statistically has been shown to improve economic growth, albeit with the caveats mentioned above. The contribution of aid can either be quantitative (i.e., through infrastructure investment) or qualitative, by improving the relative inputs in the production function. This could take the form of improving labour skills through education or technical assistance, or efficiency gains by implementing new technological processes.

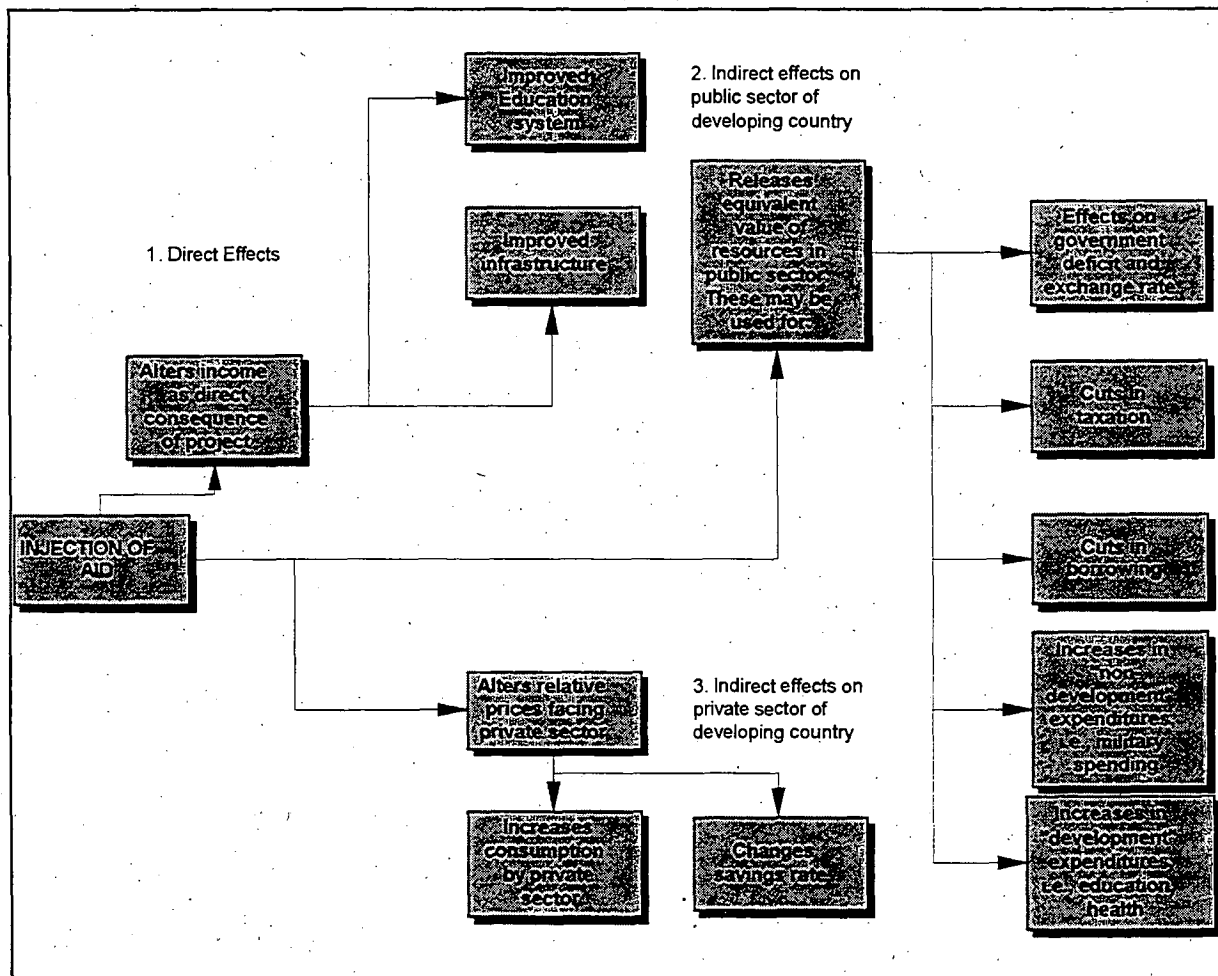


Figure 2 Channels Through Which Aid Inflows May Affect the Recipient Economy (adapted from Mosley; for full citation see footnote 22 below)

This can lead us to the conclusion that foreign assistance can be an important contributor to reinforcing a growth path for a developing economy, although it may also simply permit the diversion of domestic funding to either government or private consumption (see Figure 2). Traditional neoclassical growth theory argues foreign assistance helps to increase investment and possibly savings in the short term, leading to short-term GDP increases. In the longer term, neoclassical growth theory has a role for aid by transferring new technological "paradigms" which allow a country to move on to the next steady-state growth path. New or endogenous growth theory argues that aid works through improving inputs, particularly labour through better education, learning by doing and technological transfer. Naturally, both sides of the growth theory debate believe that this assistance must be of the right type, and targeted efficiently.

In an accounting framework, where the current account deficit of the balance of payments equals the difference between national savings and investment, the effectiveness of foreign assistance on domestic economic performance cannot be determined in advance. The increase in disposable income resulting from an inflow of foreign assistance could be either invested or consumed (see Boone's empirical findings below), depending largely on the perceived permanence of the higher level of foreign savings. Thus, uncertainty regarding the permanency of aid inflows could discourage private investment. At the same time, the large increases in public sector investment frequently associated with foreign aid, even in the form of grants, can have a negative impact on domestic savings over the medium term by often leading to a deterioration in the fiscal position. In addition, the success of foreign aid, and the absorption of higher levels of aid in particular, is likely to depend to a large extent on the capacity of governments to use the aid efficiently. It is conceivable that once the absorptive threshold of foreign assistance has been reached, additional inflows of foreign aid could become counterproductive.

A branch of the literature on the real exchange rate has noted that foreign aid can sometimes have an undesirable effect on economic performance. When a part of foreign aid is spent in the non-traded goods sector, the ensuing upward pressure on the domestic price of non-traded goods causes the equilibrium real exchange rate to appreciate, thus harming external competitiveness. Moreover, the resulting improvement in the profitability of the non-traded goods sector induces labour to move out of export-oriented activities (such as export agriculture) into service-oriented activities. A fall in labour supply in agriculture puts upward pressure on labour costs in agriculture, thus lowering the profitability of this sector. The resulting decline in external competitiveness hurts export performance and, in

turn, economic growth. In fact, an IMF Occasional Paper²¹ notes that aid can create a vicious circle of poor export performance and aid dependency. However, an inflow of foreign assistance does not have to be, and often is not, undesirable. Foreign assistance can also have beneficial effects if it helps the development of economic and social infrastructure, thereby complementing private sector activities. The extent to which foreign aid is beneficial depends on whether the positive effects of aid inflows dominate their undesirable effects.

At the microeconomic level, foreign assistance would be expected to affect the labour-leisure choice of individuals and, therefore, domestic saving efforts. Aid makes it possible, on average, for individuals to maintain a given level of income and consumption without having to offer the same number of hours of work (effort) as before the inflow of aid. That is, aid can lower the opportunity cost of work, thereby encouraging economic agents to substitute work efforts with leisure. This potential adverse effect of aid on domestic savings would be more pronounced if the inflow of foreign assistance were perceived to be permanent. However, if at the macroeconomic level aid were to help the development of the social and physical infrastructure-- boosting employment and raising the productivity of the labour force and physical capital--real income would rise. Thus, by potentially raising real income, aid can boost domestic savings. Hence, while the direct effect of foreign aid on domestic savings can be negative, the indirect effect could be positive.

Given the varying assumptions about the contribution of aid to savings, investment and growth, what are the specific lessons from new growth theory? The answer would seem to be to concentrate on investment and on education/technical assistance.

7. Theory: Why Countries Are Aid Donors

On purely theoretical terms, Mosley's taxonomy²² of the theoretical case for aid is most useful, for in it one can see the implications from our discussion on growth theory above. Mosley argues that richer governments use aid for:

- the redistributive function, whereby rich states transfer resources to poorer

²¹ Michael T. Hadjmichael, et al., "Sub-Saharan Africa: Growth Savings and Investment, 1986-93", IMF Occasional Paper 118, January 1995.

²² Paul Mosley, Foreign Aid: Its Defense and Reform, University Press of Kentucky, 1994.

states to improve the welfare of the latter's citizens;

- the allocative function, which supplements the inadequate capital investment in poorer countries that the private sector provides (see Figure 3). The RR' axis is the minimum tolerable rate of return on investment and XX' is the actual (ex post) rate of return. MM' is the minimum (ex ante) rate of return anticipated by private investors. OA is the quantity of private investment based

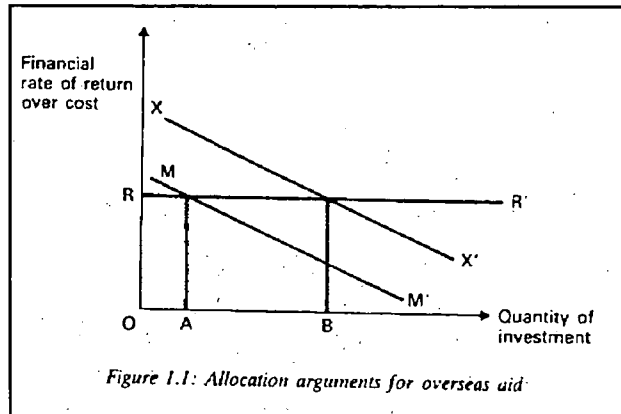


Figure 3

on pessimistic assumptions about risk. Learning by doing and human capital formation will lead to MM' and XX' rising over time (elements of endogenous growth theory here). Thus, richer governments can augment investment available to poorer countries, which in time will lead to more accurate assessments by private investors; and

- the stabilisation function, which argues that aid flows can raise total systemic demand, relieve unemployment and ultimately increase total trade flows, while at the same time hopefully improving the potential for more responsible government in the recipient country.

This taxonomy is consistent with our earlier theoretical analysis of the macroeconomic contribution of aid, which in turn fits into the discussion of endogenous growth. Aid can lead to increased investment in both physical and human capital, which leads to increasing returns to scale of inputs. As noted in the section on innovation, aid can also fulfill a role in transferring technology to maintain the "endogenous engine" of growth.

8. Practice: The Question of Aid Empirically

As Ryrie²³ points out, the moral and political arguments for supporting aid aimed at development are sound and valid...whether or not we honestly believe that aid can and will produce successful results in practice. But in the end, issues of practicability are the key. In order to clarify the goals of this Paper, the basic test of development success must be economic growth. To that end, poorer countries must eventually follow the path to rapid market-led development or be left behind.

In a review of empirical studies, Cassen et al., put forward the following conclusions about the effects of assistance.²⁴

- for samples of countries, regression analysis shows both positive and negative effects of aid on growth;
- there are sizeable regional differences as well as temporal ones;
- more study is needed on the effect of aid on the productivity of capital (here new growth theory would argue for the effects on productivity of labour as well);
- most studies show a negative relationship between aid and savings, which is less clear when consumption aid is accounted for (similar to Boone's results below);
- cross-section studies show weak relationships between aid and investment, while individual country studies show slightly more positive results;
- there is little evidence to show that aid reduces tax efforts in recipient countries, or increases deficits on a systematic basis; and
- no conclusions can be drawn about whether aid promotes self-reliance, i.e., a capacity for growth without aid.

As can be seen from the above conclusions, the role of aid in contributing to

²³ Ryrie, op cit.

²⁴ Robert Cassen and Associates, Does Aid Work?, Clarendon Press, Oxford, 1986.

sustained economic growth remains as much of a question for empiricists as for theorists. The contribution of Boone in recent synthesized pieces is very useful, in that he argues that five decades of large-scale foreign aid programmes have not had a significant impact on economic growth in recipient countries. In Politics and the Effectiveness of Foreign Aid, he examines the importance of the political regime for the effectiveness of aid programmes.²⁵ Categorising countries into three alternative regimes according to the interest groups they support, Boone uses the empirical results of various regression techniques to analyze the impact of foreign assistance. In aiming to maximize citizens' welfare, all regimes are shown to direct aid towards consumption rather than investment or growth. Measuring distribution by way of performance indicators - infant mortality, primary schooling ratios and life expectancy - aid is shown to have been ineffective in improving basic human development regardless of how democratic or liberal the political regime.

Further empirical testing suggests that all political regimes allocate foreign aid in favour of a high income political elite rather than the poor. Where liberal democratic regimes are found to experience around 30% lower infant mortality, Boone explains that democracies allocate aid no differently but the poor in these countries have significantly more power and political influence. He therefore maintains that some short-term aid programmes, when used to support liberal democratic regimes, may sufficiently empower the poor to lay foundations for a self-sustaining reduction in poverty.

Boone maintains that long-term poverty represents government failure and lack of investment opportunities rather than capital shortages. He concludes that foreign assistance programmes must reduce distortionary economic policies and promote political stability in recipient countries if aid is to lead to investment and growth.

In "Multilateral Aid, Politics and Poverty," Boone and Faguet draw on Boone's research to examine the effectiveness of public infrastructure investment through multilateral aid programmes and to suggest new directions for foreign assistance in the future.²⁶ They suggest that, in the existing system, where neither market mechanisms nor borrowers play a discriminating role in the establishment

²⁵ Peter Boone, "Politics and the Effectiveness of Foreign Aid", NBER Working Paper 5308, October 1995.

²⁶ Peter Boone and Jean-Paul Faguet, "Multilateral Aid, Politics and Poverty", London School of Economics, September 1995.

of investment criteria, quality control and the monitoring of lending, foreign assistance has not represented an efficient method of public infrastructure investment. They point to aid programmes to Sub-Saharan African countries that led to severe levels of indebtedness as the clearest example of the failure of foreign assistance to cause growth.

The Boone and Faguet paper further argues that political circumstances are key to the success of foreign assistance programmes, particularly during and after periods of political or economic crisis. In these situations, the government can exploit its mandate to carry out rapid, self-sustaining economic changes before more stable political patterns are entrenched and their ability to introduce major reforms is diminished. Aid should therefore be highly conditional and used as an incentive for change. They also suggest major infrastructure programmes should be phased out of aid activity. Programmes should be more short and medium term in range and aimed directly at reducing poverty, particularly during periods of revolution and crisis. Aid donors should take a more passive role in selecting investment projects, allowing market conditions to figure more significantly in the flow of foreign private investment.

As Mosley and others note, inter-country statistical analyses show conflicting results about the impact of aid on growth. What does seem to hold, in a variety of studies, is that if the proper policy environment exists, and there is a political will to tackle questions of debt, appropriate exchange rates and tariff regimes, then aid and growth have a positive correlation. On the question of causality, the literature is less clear. Finally, other studies have shown, in a single country case, that aid may have an impact, but only when the aid effort is large, and the recipient country possesses some of the attributes mentioned above.²⁷

Thus, on examination of the empirical evidence, where admittedly the technical problems of modelling the impact of aid on a macroeconomic basis can bias the results, the jury remains out. What does seem clear, however, is that as an input in the basic neoclassical model, aid is probably "wasted" in many cases, either because it is not targeted properly, cannot be absorbed efficiently or the requisite policy environments do not exist in the recipient countries. Endogenous growth theory seems to suggest that aid would be better used in concrete technical assistance programmes to enhance skills through investment in education and training, and perhaps most importantly in assisting the transfer of technology.

²⁷ For a more detailed examination of the literature, see Cassen and Associates, Does Aid Work?, Clarendon Press, Oxford, 1986, Mosley, op. cit., and Boone, op. cit.

9. Canadian Official Development Assistance

No topic has had as much attention over the last few years than Canada's aid programme, and the way that we do foreign assistance. In poll after poll, Canadians have shown support for continuing Canada's aid programme.²⁸ Yet, there has been so much public and bureaucratic criticism of CIDA, and of the

Table 1

Top ten recipients of Canadian bilateral official development assistance (\$million) selected years

	1975-76	1980-81	1985-86	1989-90	1993-94
India	98.90	Bangladesh 74.40	Bangladesh 100.10	Bangladesh 125.30	China 60.30
Pakistan	63.90	Pakistan 38.10	Indonesia 74.90	Indonesia 52.40	Bangladesh 43.10
Indonesia	36.70	Sri Lanka 37.80	Pakistan 66.70	SADCC 39.10	India 34.90
Bangladesh	29.50	India 29.50	India 45.50	Pakistan 36.50	Indonesia 34.50
Tanzania	24.40	Tanzania 29.20	Jamaica 28.80	China 35.20	Phillipines 34.10
Ghana	17.60	Egypt 22.10	Sri Lanka 26.50	Jamaica 33.30	SADCC 32.40
Niger	17.50	Cameroon 20.20	Niger 26.30	Cameroon 32.90	Ghana 26.50
Tunisia	16.40	Sahel 19.60	Tanzania 24.30	Ghana 32.60	Mali 23.80
EAC	15.70	Turkey 18.90	Kenya 22.40	Tanzania 30.60	Senegal 19.80
Malawi	14.90	Indonesia 17.90	Senegal 20.60	Morocco 28.40	Egypt 16.20
Total top ten	335.50	307.70	436.20	446.30	325.90
Total bilateral	521.70	581.50	816.20	1026.30	766.90
% top ten	64.30	52.90	53.40	43.50	42.50

Source: Morrison, op. cit., CIDA, Various Annual Reports

criteria and delivery mechanisms for dispensing aid, that this public goodwill is often forgotten.

Canada's official development assistance to developing countries has been substantial over the last thirty years (see Table 1 for bilateral government-to-government assistance), peaking at over \$2.1 billion in fiscal year 1991/92 on a

²⁸ The Foreign Affairs survey on foreign policy activity (November 1995) showed 89 per cent of respondents expressed support for the continuance of a foreign aid programme. In terms of public perception of Canada's international reputation, foreign aid ranks second behind peacekeeping as Canada's most important contribution to the world.

country-to-country basis. We have also seen an increase in our multilateral assistance envelope through our commitments to the international financial institutions, as well as important expenditures on humanitarian assistance and food aid. In terms of the scope of this study, the official government-to-government assistance ("traditional aid") is most revealing in determining the geographical distribution of our assistance.

From the 1960s on, Canada has traditionally been a "dispersionist" donor, i.e., not just targeting a few countries.²⁹ Policy decisions made in the last few years have seen a tightening of the core group of recipient countries, all of course being made in a shrinking budgetary environment. Given the present government cutbacks, and envisaged belt-tightening in the near future, development assistance can be expected to suffer further cuts. In this environment, further tough decisions about individual recipient countries should and can be expected.

As Boone has noted, in a few cases aid has actually contributed substantially to economic growth. In looking at the Canadian aid experience over the last ten years, an interesting story can be ascertained. In Table 1, a list of Canada's top ten aid recipients in selected years over the last two decades is presented. Some countries are nearly ever-present, whereas others were dependent on political issues of the day or something else. Some countries such as Bangladesh, Indonesia, India and Pakistan have been major recipients of Canadian development assistance over the last two decades, by virtue of their population size and historical aid profile. Others, such as Ghana, Mali and the Phillipines have resurfaced in the 1990s as their governments commenced political and economic reform. Some of the countries above have experienced strong growth, while others have been caught in the low-growth trap. Clearly, Canadian aid by virtue of the small totals involved did not have a major effect on these growth patterns. But Canadian aid has been better directed as of late, both in terms of the geographic distribution and its composition. Are there any further lessons which could illuminate our approach?

Without meaning to sound deterministic, and given that the stated aim of our assistance programme is to reduce poverty, several points can be made. First, countries with good growth records generally have the right kind of policies (structural adjustment, liberal tariff regimes, democratization, etc.) and aid works

²⁹ For an excellent detailed discussion of "The Choice of Bilateral Aid Recipients", see David Morrison's chapter by that name in Cranford Pratt, ed., Canadian International Development Assistance Policies: An Appraisal, McGill-Queen's University Press, Kingston, 1994.

best in those countries. Stable macroeconomic conditions are also necessary for enhancing the benefits from foreign assistance in an environment of heightened competition for limited donor resources. In addition, the empirical findings indicate the positive contribution to growth of improvements in human capital (both directly and indirectly through its impact on population growth) and progress toward policy liberalization.

In attempting to target aid where the potential for success is greatest, we must take into account that this potential is partially determined by the presence of reasonable macroeconomic policies and a commitment to efficient (market-driven) resource allocation on the part of the domestic authorities. Targeting aid to such good performers (if such a practice were to become widespread amongst the major donors) would have the added systemic benefit of re-inforcing the incentives for other, currently mis-managed developing countries to follow such "good" policies. Put another way, the appropriate strategy is to avoid the moral hazard problem of rewarding unproductive policies and behaviours.

If we take the recommendations from the Christie/Preston and Dimic Policy Staff Papers (see footnote 4 above), and attempt to categorize recipients into specific groups, where aid would "work the best", we can add the conclusions from our reading on new growth theory as a further criterion. Christie/Preston make the point that our aid strategy should be based on two approaches for two different sets of countries. To paraphrase, humanitarian and poverty assistance for one group, development/technical assistance for growth for the other. This second group, according to Dimic's typology generally has in common commitments to democracy, sustainable development and sound economic policies. When Dimic factors in "Canadian interests" to his matrix, a list emerges of countries that could form the core of Zone 2 partners described by Christie/Preston.³⁰

New growth theory, in attempting to explain why the paths of certain countries deviate, and stressing the importance of improvements to human capital and the need for education further edifies the results of the previous two Staff Papers. For one of his development criteria, Dimic uses the UNDP human development index. In some empirical work on innovation and new growth theory, proxies such as R&D intensity, educational achievement and others have been shown to correlate well with productivity gains, leading to economic growth.

³⁰ For comparison purposes with Table 1 above, the countries Dimic identifies are: Mexico, Brazil, Colombia, Uruguay, Jamaica, Chile, Venezuela, Trinidad and Tobago, Honduras, Bolivia, Indonesia, China, Malaysia, Thailand, India, Philippines, Egypt, Botswana, Madagascar and Ghana.

Further work on identifying likely recipients of Canadian assistance is obviously needed. Dimic's paper could act as a base, with further criteria reflecting the theoretical motivation behind endogenous growth theory as useful additions.

By stressing the importance of delivery, and the type and distribution of aid, the new growth theory also could have an impact on deciding which countries fit into the Zone 1 and 2 groups identified by Christie/Preston, as well as the appropriate delivery mechanisms in each case. The challenges of retailoring our aid programme to fit these new realities have already been accepted by CIDA, which has adjusted to the changing reality and understanding of development by focussing on improvements in human capital, by encouraging a "market-based" environment and by taking into account government performance. The next steps will be to refine this approach further.

10. Conclusions and Policy Recommendations

- Canadian development assistance has adapted reasonably well to changing circumstances. The choice of recipient countries and of appropriate policy instruments (e.g. CIDA's Industrial Cooperation Programme) has also changed to reflect the times. As donor budgets continue to shrink, ours included, even tighter targetting will be required.
- While maintaining our traditional short-term focus on humanitarian and disaster relief, Canadian development assistance should become even more focussed on a few specific countries that can use it well. These countries should be identified by certain criteria, one of which is the ability to maintain a growth path, which could lead them out of the aid recipient class.
- Neoclassical growth theory argues that foreign aid can "replace" domestic capital in the capital accumulation process. Canadian aid should become even more focussed on training and education, and encouraging a market-based environment more propitious for learning by doing. One of the most efficient forms of aid may be that which raises the level of human capital which is applied to the creation and management of an appropriate policy environment.
- International assistance should be even more tightly targeted in large part on improving the export capabilities and the functioning of domestic markets of recipient countries, through improving two-way market access, strengthening intellectual property and commercial law regimes, and helping recipient countries to participate in markets more efficiently.

- International assistance should be focussed even more on improving the research and development capabilities of recipient countries. Research and development also contributes to increasing human capital, and hence to rising economic growth rates. Existing arrangements with regard to access to technology could also be reviewed.
- Even more in-depth study of those priority countries that Canada has selected is needed, both to determine the absorptive capacity of those economies and the priority areas for targeting our aid. Government policies do count, and conditionality (for economic and political policies) should be supported.

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