

Does Openness Promote Growth?

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Several authors have suggested that there are economic benefits from government policies that encourage international trade, capital flows and the free exchange of ideas. For example, the elimination of tariffs is believed to lessen distortions in the economy and hence lead to greater efficiency. Another perceived benefit is higher growth. Indeed, it has been argued that the outstanding growth performances of a number of relatively open economies, such as Hong Kong and Singapore, indicate that one benefit from openness is high growth. This article critically appraises some of the theory and evidence on the relationship between growth and openness and concludes that the virtuous relationship between growth and openness is less than clear. Though some measures of openness are correlated with growth, this may be related to geographic factors rather than the openness of policy. However there is some theoretical and empirical justification for believing that some types of trade and capital policy (for example, low tariffs on imported inputs) promote growth and that openness may promote welfare in other ways.

The Role of Policy in Promoting Growth

Economic theory suggests that governments should be concerned with maximising the present value of social welfare, which is positively related to consumption. Hence one role of government is to introduce policies which reduce distortions preventing inputs being used as efficiently as possible. There may also be a role for government to promote growth. Growth is generally defined as the percentage change in GDP per capita (or a proxy for this) over some period of time. Whether growth defined in this way is desirable depends on the two elements of the definition.

First, GDP per capita is at best an imperfect measure of welfare because it ignores environmental and lifestyle factors that may contribute to welfare. However, as it is difficult to develop widely accepted measures of welfare that capture these non-material factors (or for that matter equity considerations), using GDP per capita is a readily available, generally accepted indicator of wellbeing. This is presumably because the amount produced by an individual is positively related to how much the individual can purchase and consume and generally welfare may be positively related to this type of consumption.

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Second, the dynamic aspect of growth is important. For example, lower growth would be preferred if this would lead to sufficiently higher consumption now. This could be because the future consumption arising from higher growth is not valued highly or because higher growth would lead to a large fall in present consumption. For example, oil-producing countries may find it optimal to concentrate on the production of oil to obtain high consumption now rather than specialising in industries that have greater potential for growth. However, concentrating on industries that have little potential for growth is unlikely to be optimal for many countries so in the context of this article, more open policy would generally be justified if it reduces distortions or increases growth.

Openness: Definition and Measurement

Understanding what is meant by openness is of key importance in addressing the relationship between openness and growth. A wide variety of measures have been used for openness. These include: the size of trade relative to GDP; the extent of trade tariffs; and the extent of exchange rate controls as proxied by the black market-official exchange rate differential. These measures suggest that 'openness' is related to the actual extent of international trade or capital flows and/or the potential for such flows. This broad notion of openness is somewhat vague and hence of limited use in policy discussions.

However, Harrison (1996) has argued that openness in a policy context is related to the neutrality of incentives. This suggests that a more open policy exists where there are less policy barriers to trade or capital flows. One issue raised by this definition is whether, say, export subsidy schemes, which increase the incentives to export beyond what is 'neutral', increase openness. This seems sensible, but as the literature tends not to deal explicitly with this type of openness, it will not be discussed in detail here.

Trade and capital barriers, which distort the neutrality of incentives and hence lead to less open policy, could include trade quotas, tariffs, capital controls or administrative requirements. Even with a clear understanding of what open policy is, in practice it can be difficult to measure policy openness because:

- barriers may not be binding (for example, some quotas) and hence their presence may have no impact on the accessibility of imports, exports or capital. For some barriers, particularly administrative ones, it may be difficult to assess their impact.
- often there are a wide variety of trade barriers that apply differently to different types of goods or capital as well as applying differently to exports and imports. This can make it difficult to calculate meaningful aggregate measures of either capital or trade openness.

Probably partly because of these difficulties, crude proxies for the openness of policy are often used even though a number of authors including Balassa (1965) and Corden (1966) have attempted to develop more sophisticated measures of

rates of protection. For example, the relative size of imports and exports to GDP is often used as a measure of trade openness. Though this measure of trade openness may be influenced by the openness of policy, it can also be influenced by other factors. For example, Singapore and Hong Kong are re-export centres for their regions partially because of their close proximity to important markets, like Malaysia and China. Hence, the size of the trade of these economies is not purely determined by policy factors and so a positive relationship between trade share and growth may reflect geographic factors in addition to policy. Giving credence to the claim that geographical variables are being erroneously omitted from the openness literature models, Barro and Sala-i-Martin (1995) observe that proximity to neighbours with high GDP per capita appears to be significantly correlated with growth performance.

Another example of crude proxies for the measurement of policy openness is the use of measures of the extent of exchange rate controls. Exchange rate controls, while reflecting policy openness, may be a policy response aiming to prevent capital flight due to a fragile financial system. Hence, a relationship between growth and exchange rate controls, suggested by a correlation between growth and the differential between the black market and official exchange rates, may be capturing the importance of sound financial policy rather than the significance of open policy in influencing an economy's growth rate.

These complications suggest that claim that certain empirical results indicate open policy promotes growth should be interpreted with care. The results may indicate that the broader and somewhat vague notion of 'openness' could be correlated with growth. However, depending on the measure used, this may not indicate that open trade or capital policies are useful in attaining higher growth.

Theory

There is a substantial theoretical literature about the relationship between openness, growth and welfare, though not all models unambiguously predict openness leads to higher growth. In partial and general equilibrium static models (for example, see Dowrick, 1994) the focus tends to be on static welfare, rather than growth, with the removal of trade restrictions generally increasing welfare and consumption. Estimates of the gains from reducing restrictions, at least multilaterally, can be obtained from many sources (for example, see Parmenter (1984) for general equilibrium estimates and Chand, McCalman and Gretton (1998) for the one-off impact on growth of a reduction in assistance). These results suggest that the removal of barriers would lead to higher GDP and hence higher welfare, as GDP is a proxy for consumption.

However this does not indicate that there will be a higher rate of sustained growth in an open economy. To assess whether this is the case, a dynamic model is required. Aghion and Howitt (1998) outline one such dynamic model where research is the source of growth (based on Rivera-Batiz and Romer, 1991a). Their basic model assumes that:

- the number of innovations is positively related to the stock of existing innovations;
- the flow of ideas is limited to being intra-national while the flow of goods is international; and
- production of final output uses differentiated intermediate goods, which do not become obsolete.

The model also assumes for simplicity that there are two equally sized economies. The basic model predicts that, following the opening of the two economies, there will be an increase in the level of production but not in the growth rate. The level increases because, with a doubling of the number of available intermediate inputs (because inputs can be imported), the output per worker in the manufacturing sector doubles. However, despite the returns to manufacturing sector labour doubling, the long-run growth rate does not change because there is no change in the relative incentive to research, which is the source of growth in the model. The incentive to research is unchanged, as the doubling of the returns to manufacturing sector labour is offset by a doubling of returns to labour in the research sector, as the market for newly designed goods is twice as large.

The incentives for research *will* increase with the opening of the economy, and hence growth will be higher, if: (i) ideas are allowed to flow between economies, as then the productivity of labour in the research sector is twice as large because of a doubling of the stock of knowledge in both economies (compared to the closed economy case); or (ii) the number of innovations is related to the number of intermediate goods (that is, equipment is critical to innovation rather than the stock of knowledge), as openness increases the number of available intermediate goods. Growth will increase if the pre-liberalisation stocks of knowledge are different across economies with ultimately all research being undertaken in the economy with the greater stock of knowledge and with one economy experiencing a decrease in its growth rate but not necessarily its welfare (Aghion and Howitt, 1998).

Young (1991) discusses a model where learning by doing explains how openness may influence growth. He suggests that when trade occurs, more developed countries (with a higher level of technological knowledge) will specialise in the production of high-technology goods due to comparative advantage. By assumption, there are more potential gains from learning by doing in the production of high-technology products than of low-technology products. Hence more developed countries, because they are specialising in the production of high-technology products, will tend to experience higher growth rates. Less developed countries, specialising in the production of less sophisticated goods, where the potential for learning by doing is largely exhausted, will tend to experience lesser growth rates. Based on this model, the impact of openness on growth is ambiguous depending on the potential for learning by doing in the product specialisation of the country. But it does suggest that in an open economy

there may be a role for government in directing production to sectors where there is greater potential for growth.

Even though greater openness may not necessarily lead to higher growth, there are a number of reasons for believing it may. Using the terminology of Rivera-Batiz and Romer (1991b), they are:

- the allocation effect where free trade has the ability to improve the allocation of inputs and hence an ability to influence an economy's ability to benefit from learning by doing;
- the integration effect where openness is associated with knowledge spillovers; and
- the redundancy effect where openness may reduce the duplication of research and development effort.

Another strand of the literature examines the importance of the availability of capital from foreign sources, rather than just open trade, on the growth process. Gundlach (1997) points out that in a Solow-Swan model the speed of convergence to steady state increases if capital is more mobile, essentially because of more rapid capital accumulation. A higher speed of convergence generates faster observed growth rates suggesting that open capital policies should lead to higher observed growth rates for countries approaching steady state from below. Lee (1993) suggests that the availability of foreign inputs and capital goods may be highly important for the growth of small, resource scarce economies. Thus, trade restrictions may hinder growth because it may be very costly to produce inputs locally (for example, due to large fixed costs associated with production). This suggests that open trade policies are important for the growth of small economies and is consistent with the high growth performance of some small, open Asian economies. Similarly, Lee (1995) developed a model where developing countries will experience lesser rates of growth if there is a tariff on imported capital goods, because tariffs hinder the rate of capital accumulation as, in the absence of tariffs, capital can be purchased more cheaply from developed economies rather than from domestic sources, where the cost of production is higher.

Though this suggests that there may be a role for capital in growth, it is important to realise any capital inflows have to be serviced and eventually repaid meaning that inflows may contribute more substantially to increasing output than real income. Also McKinnon (1989) has discussed the need for macroeconomic stability and prudent financial institution regulation for financial liberalisation to lead to positive outcomes. Some authors have also suggested that even if the ability to import intermediate goods is the source of growth, increased exports may also be important in providing foreign exchange to purchase these imports (Edwards, 1993). These complications suggest that the availability of imported capital is a necessary but may not be a sufficient condition for strong growth.

Other theories appear to provide further reasons for thinking that openness and growth may be related. For example, if: (i) more research leads to greater growth; (ii) research occurs during recessions because the opportunity costs are

lower (as suggested by Aghion and Saint-Paul, 1993); and (iii) a more open economy experiences recessions *less* frequently (because of the availability of alternative markets for its goods); then, a more open economy would be expected to experience lower growth.

The above studies suggest that openness need not necessarily lead to greater growth. However, greater openness may increase welfare in several other ways and so it may still be desirable for governments to pursue more open policies. For example trade can enable households to benefit from overseas product innovations. Also free capital markets can enable domestic residents to share in profits from foreign research and developments (Grossman and Helpman, 1991).

Evidence

Many studies have examined the relationship between growth and openness. Virtually all find a positive (or statistically insignificant) relationship. Though some studies have found a negative relationship between imports and productivity growth, Harrison (1996) points out that this may be because, first, it can be difficult to distinguish between the long-run productivity increases from imports and the fact that imports tend to be drawn to low productivity sectors due to comparative advantage and, second, import penetration often occurs during the low growth period of the cycle. This section reviews a number of studies and gives an overview of the conclusions and policy implications from a selection of the literature (a more extensive listing of studies can be found in Harrison, 1996).

Several cross-sectional studies have noted a positive relationship between openness and growth. But the definition of openness often limits the extent of useful conclusions for policy. For example, Sachs and Warner (1995) define a non-open (or closed) economy as one where there is one of the following:

- a certain level of non-tariff barriers;
- a certain average tariff rate;
- a country with a black market-official exchange rate differential that has substantially decreased (as exchange rate controls can be a form of trade or capital restriction);
- a socialist economy; or
- a state monopoly on major exports.

However, these conditions may not be binding barriers to trade (for example, a state monopoly on exports) or may reflect something unrelated to policy openness (such as financial instability in the case of the exchange rate differential). Even though Sachs and Warner find a positive relationship between this measure of openness and growth, it is impossible to discern which of these five factors are important in discouraging growth and hence to isolate which particular factors may influence growth.

A specific problem for cross-country studies (such as Sachs and Warner, 1995) is that country specific effects (like geography, national institutions and

cultural practices) may be influencing the results. This may lead to omitted variable bias problems. For example, the result that openness is related to growth may be driven by the high growth rates of a few countries like Singapore and Hong Kong. If their performance is due to omitted geographical factors rather than because of their policy openness, then the conclusion that open policies lead to higher growth may be incorrect. As Sachs and Warner do not examine the effect of geography or potential outliers, one cannot be confident about the robustness of the conclusion that 'openness', as idiosyncratically defined by the authors, promotes growth and cannot conclude that open trade policies promote growth. Levine and Renelt (1992) have also discussed that empirical studies should be interpreted warily as the results may be fragile to the specification of the included variables. However based on their analysis, 'openness' (as measured by exports as a percentage of GDP) is robustly correlated with investment as a share of GDP, which in turn is robustly correlated with growth, suggesting openness is related to growth.

Dowrick (1994) attempts to address some of the problems of many cross-sectional studies by, amongst other things, using a panel data approach. This allows country specific effects to be accounted for and a time specific error term to also be included, thereby potentially capturing the impact of worldwide economic shocks in particular time periods. Dowrick also attempts to deal with potential endogeneity by, for example, using openness at the beginning of the period as an independent variable (as this would be unaffected by growth during the period). However, while adjusting for the fact that small countries typically have exports and imports that are relatively large to GDP, his measure of openness is still an imperfect measure of trade policy as it ignores the importance of proximity to other markets.

Dowrick's results suggest that openness may have a positive impact on growth and investment. However, Taiwan, Korea, Singapore and Hong Kong appear to be critical for the conclusion that openness is correlated with growth. Dowrick suggests that the loss of statistical significance of openness when the Asian tigers are excluded from the growth regression does *not* undermine the contention that openness is important for growth, as these specifications make some allowance for country-specific effects. But the loss of significance may indicate that the interaction of openness with the institutional features specific to the Asian tigers is important for growth, rather than just openness. This implies that the growth experiences of the Asian tigers may not be easily replicable in other countries merely by promoting greater trade. Indeed, the promotion of pro-trade policies often coincides with other reforms (for example, of the labour and financial markets) and so an apparent relationship between open trade and growth could reflect the role of other omitted variables on growth. More recently Dowrick (1998) finds that openness does not appear to contribute to growth directly, though it is likely to have indirect effects on investment based on Levine and Renelt's results discussed above.

Harrison (1996) also used panel data to address the impact of different measures of openness on growth for developing countries and found some results

to be sensitive to the specification of the model. Nevertheless she concludes that generally greater openness is associated with higher growth. Harrison's only robust result is that the black market official exchange rate differential is negatively related to growth, suggesting that openness and growth are positively related. However, as discussed above, this may not reflect trade openness. In contrast, more direct measures of trade policy based on tariff and non-tariff barriers, and on commercial policies were not consistently significant. Thus, at least in developing countries, changes in commercial policies and tariff and non-tariff barriers may be insufficient to stimulate growth.

Another issue that is generally ignored is the direction of causality between openness and growth. This is important because, if growth is not caused by openness, it suggests that open policies are irrelevant for growth. Harrison's finding that black market exchange rate differentials and trade as a proportion of GDP cause growth (in the statistical Granger-cause sense) provides some evidence of a causal link between openness and growth. Frankel and Romer (1999) provide further evidence that the direction of causality is from openness to growth with their finding that trade share (as instrumented by various exogenous geographical variables) influences GDP per capita. Assuming that more open trade policies increase trade share, this suggests that more open policy would lead to at least a one-off increase in growth.

A problem with most empirical studies is that they use reduced form equations which are not derived from a structural model making it impossible to know the economic relationships implied by the results and often the appropriate policy actions for higher growth. One exception is Lee (1993), who estimates a regression derived from a specific economic model suggesting that import restriction on inputs should have a more significant impact on growth for smaller economies which are close to their trading partners. The regression results suggest that greater imported input tariffs and exchange rate controls (as indicated by the black market exchange rate differential) reduce growth. However, as Lee does not formally test whether the impact is greater for smaller economies, it is difficult to know whether his results are capturing the importance of open policies on growth for all economies and not just small ones. Another weakness is the absence of results on the impact of non-tariff barriers (due to data availability). Though Lee's approach is far from perfect, it does provide some empirical and theoretical evidence for suggesting that particular trade policies may have an impact on growth. This seems more intuitively appealing than approaches examining only the correlation between growth and very crude and aggregated measures of openness that may be very poor proxies for the openness of policy.

The evidence that financial capital mobility is important for growth is more limited. As the black market exchange rate differential is an indicator of the extent of capital controls, the evidence of Harrison and Sachs and Warner discussed above is suggestive that capital controls lower growth. However, this variable may also reflect financial instability or the degree of openness of trade (as exchange controls may also be a form of trade control). Consequently, on the

basis of this evidence it is difficult to conclude that open capital policies lead to greater growth.

Gundlach (1997) attempts to measure the mobility of capital more directly using regressions of domestic investment on domestic savings (where coefficients not significantly different from zero and from one are respectively an indication of openness and closedness). In this framework, an 'open' economy's investment plans are unconstrained by the extent of domestic savings. However, like the use of trade flows as a proportion of GDP to measure the openness of trade policy, this may not reflect the openness of capital policy. Based on Gundlach's results for a fairly limited selection of developing countries, it appears that openness increases a country's speed of convergence to steady state.

Conclusions

Open policy has the potential to improve welfare in a number of ways. For example, more open trade policies can lessen distortions and enable domestic households to enjoy a greater amount and variety of consumption. Greater growth is often suggested as another benefit. The empirical evidence suggests that, if anything, openness is positively correlated with growth. This implies that more open policies would help in achieving higher growth rates. However most studies use reduced form equations and crude measures of policy openness, making it difficult to determine what *specific* policies may be effective at promoting growth or whether omitted geographic factors may be influencing the results. The predictions from the theoretical literature on the impact of openness on growth are also ambiguous. While Lee's (1993) more satisfactory study concludes that tariffs on imported inputs reduce growth, particularly for small economies, further study of the impact of particular capital and trade policies on growth is needed to gain a better understanding of the appropriate policy actions to promote growth. This approach in practice may have difficulties isolating the impact of one policy change on growth as many changes often occur simultaneously (for example, general reforms to liberalise the economy).

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