Reconsidering Outward-oriented Development after the Asian Financial Crisis

Bruce E. Moon
Lehigh University

Abstract

The recent Asian financial crisis invites a systematic reconsideration of the evidence supporting the strategy of outward-oriented development. The dangers of relying upon foreign markets for goods and capital has escaped critique on the basis of previous studies that credit liberalization with substantial growth benefits, but that evidence is now seriously outdated. Furthermore, export expansion has received extensive attention as a source of growth, but the role of trade deficits in precipitating crises has been ignored.

This paper reviews past studies and presents a new statistical analysis to demonstrate that (1) outward-oriented development strategies have a propensity to generate balance of trade deficits, and (2) trade deficits dampen future growth at least as much trade expansion accelerates it.

> *"Some things matter whether or not they*
> *exist. The Loch Ness monster is one.*
> *National trade deficits are another."*
>   -Heyne (1983: 705)

In the major journals and textbooks of international and developmental economics, it is as if trade deficits do not exist; cites of the term are indeed as rare as sightings of ole Nessie. In trade ministries all over the developing world, by contrast, trade deficits emphatically *do* matter. After the Asian meltdown of 1997, it is more obvious than ever why.

For two decades mainstream economists and the international financial institutions have trumpeted the virtues of trade policy liberalization and the benefits of trade expansion. Developing nations have responded, driving standard measures of economic openness, such as imports plus exports, to unprecedented levels—50% of the GDP of the developing world in 1997 (World Bank, 1999: 222), but far higher in the showcase newly industrializing nations (NICs) of East Asia. At the same time, trade deficits (imports *minus* exports) have swelled to unprecedented levels as well—nearly 2.5% of GDP throughout the 1990s (UNCTAD, 1999:76-84), higher in the Asian NICs.[1]

Meanwhile, the most visible practitioners of outward-oriented development made headlines with spectacular economic crashes—Mexico in 1995, Thailand, Malaysia, Indonesia, and Korea in 1997. Despite achieving the goals established by dominant theory and encouraged by international financial institutions— to liberalize and to expand trade—these nations succumbed to the dangers of trade deficits. The broader result, less public but just as real, is that economic growth has disappeared from three quarters of the planet. (The bare facts, taken from a World Bank working paper, are displayed in the text box.) Was

> "What happened to growth in the developing world?
> ●In 1960-79, the median per capita growth in developing countries was 2.5 percent. In 1980-98, the median per capita growth of developing countries was 0.0%.
> ●In 1980-98, virtually no countries outside Asia registered per capita growth at or above the 1960-79 average of 2.5 percent. And then previously stellar East Asia had a deep recession at the end of the period—median change in GDP per capita in 1998 of *minus* 3.7 percent." (Easterly, 1999:2-3)

this combination of liberalized policy, the explosion of trade deficits, and economic crash simply an anomaly? Or are these three events linked more frequently than prevailing theories acknowledge? This paper asks whether outward-oriented development should be reconsidered in light of the Asian financial crisis. Specifically, are liberalizing nations prone to such trade deficits? If so, are trade deficits threatening to economic growth and predictive of crises?

Trade policy and economic theory

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[1] This figure excludes China and oil-exporting countries.

The liberalization of recent decades is only the most recent example of the oscillation between the two great theoretical visions that have shaped trade policy decisions for more than two centuries — liberalism and mercantilism. The former emphasizes trade expansion (imports +exports) as the "engine" of growth, while the latter emphasizes dependence and trade deficits (imports - exports) as a threat to various aspects of national development. Since the early nineteenth century, national policy has moved in broad swings of sentiment between the extremes of these two approaches. Free trade reached peaks in the late nineteenth century and again late in the twentieth, consistently undergirded by various currents of laissez faire theory. In between, policies to manage trade reached a peak in the protectionist 1930s.

Over the past half century, this pendulum motion has also characterized the trade policy choices of developing countries (Rapley, 1996), with substantial regional variations, such as import substitution industrialization (ISI) in Latin America in the 1950s and the "trading state" in Asia in the 1980s (Rosecrance, 1986). All have been influenced by empirical studies that combine theory and evidence. The statist manifestation of twentieth century mercantilism was informed first by Keynesian ideas and later by dependency notions. The latter arose from the influential claims of Singer (1950) and Prebisch (1950) concerning movements in the price and volume of primary products and the consequent need for protection of infant industries.

The subsequent return of the laissez-faire view owed much to the discrediting of ISI after the debt crisis of the 1980s, which also provided considerable leverage for international financial institutions to press their perspectives on debtor nations. Those perspectives were heavily influenced by a range of empirical studies designed to show that liberal economies more open to international trade and finance performed better than more sheltered ones. The precise identification of the winning combination of policies has been muddled in recent years, however, by the controversial appearance of mostly Asian nations, which intervene in the economy far too extensively to be considered liberal, yet emphasize the expansion of trade far too much to be considered mercantilist. Terms like "outward-oriented development" have frequently been employed to label such successful policy mixes, without being too specific about whether emphasis should be placed upon the actual expansion of international exchange (such as export growth) or upon policies that, among other (perhaps more significant) effects, *encouraged* such expansion (Greenaway, 1986). In turn, the identification of policies responsible for success engenders controversy since some commentators emphasized policy liberality (that is, the absence of barriers and incentives) and others emphasized the relative *balance* among incentives for exports, import-substitutes, and non-tradeables (Pritchett, 1996).

If the state role was contested in the 1990s, the value of trade as an instrument of national development has become an article of faith. However, the meltdown of highly trade reliant economies of Southeast Asia in 1997 has once more raised the profile of the dangers of trade deficits. States now appear to be reconsidering indefinite trade expansion as the centerpiece of development strategy and international economic institutions have undertaken soul searching concerning the liberal advice embodied in the Washington Consensus and the system-level reforms required to make it work. However, academic studies have not yet revisited the old themes of contrary theoretical traditions.

Recent events invite re-consideration of development theory in two respects. First, is the evidence available at the end of the twentieth century—after the Asian crisis—as favorable to the

"outward-oriented" thesis as that which informed studies conducted during the 1980s and early 1990s? Second, has the neglect of trade deficits, both a key element of early mercantilist theories and one important background condition of the 1997 meltdown, hampered our understanding of growth and distorted the advice given to governments in recent years? Put simply, should the incidence and likely consequences trade deficits be accorded a status equal to that of trade expansion in providing development counsel?

The mercantilist and radical concern over trade deficits

While trade expansion has been much analyzed recently, the role of trade deficits has been widely ignored. That is surprising because exports and imports differ not only in their determinants but also in their effects. Yet, they are treated as a conceptual whole by the many analysts who use trade openness (imports + exports) as a key variable.[2] Distinguishing these two components invites a focus on trade deficits (imports - exports).

Such a focus has a long history, especially if the more modern terms, "trade deficits and surpluses" are equated with their ancestral brethren, the "outflow and inflow of treasure". The obsession of classical mercantilists with the acquisition of "treasure" certainly has been much exaggerated by liberal interpreters such as Heckscher (1934), who parodied it as a "fear of goods," but a desire for an export surplus was undeniably a central mercantilist concern (Viner, 1948; Moon, 2000). The most famous of the 17th century German mercantilists, Johann Joachim Becher made it the third of his "mercantilist rules and axioms that it is always better to sell goods to others than to buy goods from others, for the former brings a certain advantage and the latter inevitable damage."[3] About 1628, Thomas Mun wrote, "...we must ever observe this rule: to sell more to strangers yearly than we consume of theirs..."[4] This emphasis on trade surpluses is not found in the best known of the neo-mercantilists, List and Hamilton, but was resurrected later, especially during the Great Depression of the 1930s.[5]

Since an excess of imports over exports implies that current consumption can exceed current production, trade deficits have not usually been regarded as a problem from the stand-point of immediate welfare. Indeed, they enhance it. Instead, the principal concerns over trade

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[2] Crowley et. al. (1998) observe that the same variable (total trade as a percentage of GDP) is used to measure quite different concepts in the economics and sociology literatures, even though both examine the effect of trade on growth. Economists call it "openness", considering it a proxy for the absence of trade barriers. It signifies the free flows of knowledge, technology, and market signals that result in greater allocative efficiency as well as the free flows of goods that produce Ricardian gains of trade through comparative advantage. Thus, openness is good. Sociologists call it "dependence", a proxy for domination, unequal exchange, extraction of surplus value, diminished self-sufficiency, vulnerability to external fluctuations, disarticulation and cleavages involving export-based elites. Thus, dependence is bad.

[3] *Politische Discurs*, 2nd edition (Frankfurt, 1673), Part III chapter I, as translated and quoted by Heckscher (1934:116)

[4] *England's Treasure by Forraign Trade*, chapter 4. Originally published in 1664, Heckscher (1934:116) quotes "a few pages before" p.27 of the 1895 Ashley edition.

[5] As in Keynes (1933: 236) famous declaration: "I sympathise, therefore, with those who would minimise, rather than those who would maximize, economic entanglements between nations. Ideas, knowledge, art, hospitality, travel—these are things which should of their nature be international. But let goods be homespun whenever it is reasonably and conveniently possible; and, above all, let finance be primarily national."

deficits have revolved around three other flows associated with them.

First, a net import of goods corresponds to a net "export" of employment opportunities, an effect thought to be more or less coterminous with the deficits themselves.[6] Of course, in the Ricardian world, which *assumes* full employment, employment effects do not arise, but policy-makers have universally seen trade deficits and unemployment as inextricably linked.[7]

Second, trade disequillibria imply a corresponding imbalance in the supply and demand for external currencies, a perspective associated with so-called "two-gap" models that address the potential for development to be de-railed by a foreign exchange "bottle-neck" (McKinnon, 1964; Chenery and Strout, 1966; Mills and Nallari, 1992). A trade deficit usually signifies a shortage of the hard currency required to import the foreign capital goods and technology necessary for long-term growth.[8]

Third, trade deficits (at least those that exceed available foreign reserves) imply a contemporaneous inflow of capital. This, in turn, creates a liability, a future stream of capital outflows. Thus, in the modern age, the effects of adverse capital flows have generally been thought to lag deficits, which complicates the task of identifying them. Indeed, trade deficits are sometimes referred to as "inter-temporal trade", the exchange of goods over time rather than across nations. Deficit nations are said to be consuming future goods in the present, suggesting that measures of the current income and welfare of such countries systematically overstate their actual performance. But those effects vary with the identity of the off-setting flows, since both the inter-temporal terms and the lag length are markedly different among the financing alternatives. For example, if the deficit is funded by a decline in official reserves, no time preference premium need be paid. If trade deficits are funded by borrowing, the "debt overhang" proposition suggests that heavy debt burden reduces the incentive to save and invest, with a corresponding slowdown in growth.[9] Foreign direct investment is thought to be a more permanent transfer than short-term portfolio investment (Sarno and Taylor, 1999).

For this reason, the effects of trade deficits are theoretically indeterminate in the liberal tradition, varying with the form of financing and the uses to which it is put. Trade deficits are less ambiguous in theories from the mercantilist and radical veins, in part because all trade deficits carry unmistakable implications of power, dependence, transfer of surplus value, distributional effects, potential instability and debt.[10] They create pressures which must be managed by policymakers as well as by private actors. It is an empirical question whether the management

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[6] Closely related to the employment question is concern over the growth of productive capacity, especially in industry, which has implications for long-term growth. However, this is usually seen in terms of the *composition* of imports and exports, as in List (1837), rather than the *balance* between their volumes.

[7] Employment concerns arise with all factors of production, not just labor.

[8] The constraints of the two-gap model are cited explicitly by Esfahani (1991) and implicitly by Riezman et. al. (1996) as a motivation for encouraging export growth. Exports ease the bottle-neck, either by reducing the trade deficit implicit in a given volume of imports or increasing the volume of imports possible given any particular sustainable trade deficit.

[9] This moral hazard argument assumes debt heavy enough to drive a wedge between the face value of outstanding debt and its market value (because full repayment is uncertain). Then nations will not reduce consumption in order to save because partial servicing of the debt will only benefit the creditor by improving the price of the debt in the secondary market (Hofman and Reisen, 1991).

[10] Giraldo and Mann (1989) report a correlation of .51 (t=3.1) between current account deficits as a percentage of exports in one year and net change in debt levels as a percentage of exports in the following year.

arrangements made are usually sufficient to contain those pressures. It is the hunch of mercantilists and radicals that they are not.

The invisibility of trade deficits

Nonetheless, despite historical experiences that seem to confirm the theoretical expectation that trade deficits can be harmful, judging from a library search, mainstream economists appear to have given very little thought to trade deficits. The term "trade deficits" appears only once in the index of the World Bank's *Best Practices in Trade Policy Reform* (Thomas and Nash, 1991) and in a leading textbook of international economics (Krugman and Obstfeld, 1988), and not at all in one in international finance (McCallum, 1996). A search of the website of the National Bureau of Economic Research turned up no references. A search of the monograph and periodical literature revealed a handful of studies clustered in the late 1980's. Most were dedicated essentially to a denial that there was anything to worry about, largely on the grounds that trade deficits were temporary and self-limiting.[11] (By this time the string of annual American merchandise trade deficits was approaching twenty.) Typical was the Heyne (1983) chapter that produced the quote with which this paper began. Even this limited attention was a blip on the screen and when the trade deficit failed to demonstrate staying power as a political issue in the context of controversies over U.S. competitiveness, the concept again drifted out of the academic consciousness.

It is striking that economists remain reluctant to admit the very existence of trade deficits, let alone their significance. Adam Smith remarked that "Nothing ... can be more absurd than this whole doctrine of the balance of trade" (Smith, 1776 [1937]: 456 [bk.IV, ch. III, pt. 2 par. 2]) In an inadvertent embodiment of the old joke that an economist is defined as one who sees that something works in practice and wonders if it will work in theory, Fisher (1990: 412) observed that "International economists have known that there are general equilibria in which there are imbalances of trade since David Gale's (1971) important contribution." Policy-makers have known this for an appreciably longer time.

There appear to be at least two reasons for this inattention. First, trade deficits have no clear standing within classical economic theory. Indeed, citing H. Robert Heller's (1973) "nine critical assumptions of the microeconomic theory of international trade," Lippens (1997) points out, "Trade is always and instantaneously balanced in this classical trading world." The essential impossibility of long-term trade deficits was established conclusively within the liberal tradition at least as long ago as David Hume's "specie flow adjustment mechanism" a half a century before Adam Smith. The specie (i.e. capital) flow associated with trade imbalances expand the money supply in one economy and shrink it in another, producing differential inflation that soon drives prices of tradeables to an equilibrium point at which supply and demand once again restores the balance between imports and exports. In the modern era of higher capital mobility, greater variety of financial instruments, and more sophisticated monetary policy, this equilibration can take a far more indirect path over a much longer time frame.

 Second, trade deficits can mean very different things in different contexts. Heyne (1983: 356) observes that "All concepts of a trade deficit harbor concealed concerns and disguised political judgements" because "every claim of a disequilibrium rests upon an analytic exclusion"

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[11] A group of Latin Americanists writing in the wake of the 1980s debt crisis are discussed below.

(p. 355) "Not only is the deficit a mere symptom of the problem, it is also a symptom of the problem's resolution." (P. 359) This is because two very different scenarios are thought to produce trade deficits. As Fisher (1990: 412) puts it, "Balance-of-payments accounting serves as a tedious reminder that a current account deficit is simply the sum of the capital account surplus and the loss of official reserves[, which] under a regime of flexible exchange rates ... is negligible."

Since the balance between the current account and the capital account is an accounting identity, the causal connection between them is open to different interpretations (Corden, 1994: chapter 6). One accords causal priority to the trade deficit, which is conceived as an indication of an excess of consumption plus investment over production. This requires an inflow of capital to "accommodate" the trade deficit and close the so-called "one gap" between desired investment and available domestic savings. Such a scenario, which implies over-consumption and/or under-saving, identifies the trade deficit as "bad" for long-term growth because it generates an accumulation of liabilities. If in the form of debt, future growth is reduced by the need to service it. If in the form of investment stocks, a flood of future claims creates future inflation and/or exchange rate devaluation and stagnation as capital flows reverse. The historical model is Latin America leading up to the debt crisis of the 1980's.

However, this conclusion must be tempered if the capital inflow supports growth-inducing investment rather than current consumption. This gives rise to the second interpretation, which accords priority to the surplus in the capital account. "Hence, the modern approach to modeling external disequillibria focuses upon the forces influencing the adjustment of an economy's stock of net foreign assets." (Fisher, 1990: 412) Under this interpretation, the trade deficit "accommodates" the capital account surplus, which is thus seen as "good" because it suggests the confidence of foreign investors and because it encourages future growth. This view has been especially popular in the U.S. since the massive annual American trade deficits began in the early 1970s, with seemingly small impact.[12] The historical image associated with this view is the "Asian miracle" of the 1980s. A common view suggests that levels of gross domestic investment should adjudicate the "good" vs. "bad" interpretations, a judgement bound to be affected by the southeast Asian financial crisis, because all of the affected countries had savings and investment rates well above the global average.

Trade and growth

Rather than eliciting concern, the orthodox economic view holds that imports should be welcomed because exposure to the competitive pressures of international trade stimulates growth. It encourages the efficient allocation of resources and introduces innovation and learning from abroad (Corden, 1971; Pack, 1988, Romer, 1986). Exports expand aggregate demand, encourage full employment of resources, and earn revenues to pay for the imports which enhance consumption and facilitate technological progress. The orthodox position is exemplified by Nurkse's (1961) characterization of trade as the "engine for growth" that drove the global

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[12] Contrarians note, however, that U.S. growth has been near the bottom of OECD countries for most of this time period and the value of the dollar has fallen dramatically against the currencies of surplus countries like Japan and Germany.

economy of the nineteenth century.[13]

Though it is not the principal purpose of this paper to contest the claim that trade expansion spurs economic growth, it is worth noting that this judgement is far from unchallenged. Senghaas (1985) observes that European development success was largely *internally* generated while Frank (1966) notes that Latin America grew most rapidly during periods of *de-linking* from the global economy. Many others have also cautioned against the potential dangers of trade dependence, particularly for contemporary Third World economies (Myrdal, 1957). Because their traditional exports frequently lie in sectors that offer unattractive demand prospects and limited inter-sectoral linkages (such as primary products and very low wage assembly), significant expansion of existing industries may be neither possible nor desirable (Prebisch, 1950; Cline, 1982). Meanwhile, a flood of imports from more established foreign firms may prevent the development of new domestic industries. Thus, trade dependence may lead to distortions which compromise future growth opportunities (Galtung, 1971; Frank, 1966; Emmanuel, 1972). Moreover, heavy reliance upon trade may leave a nation dangerously vulnerable to market disruption or political pressures, particularly if that trade is concentrated in a small number of products and a small number of trade partners (as is typical for small and poor economies). At the extreme, national autonomy may be compromised.

Political economists have issued warnings about three inter-related dimensions of trade. First, a large foreign trade sector may itself constrain future growth by strengthening dependence on external economies but limiting internal integration of the various parts of the domestic economy (Hirschman, 1958).[14] Second, growth prospects may be damaged not by trade itself but by the excessive specialization in a single export commodity which sometimes accompanies it (Nurkse, 1961).[15] Third, the particular product chosen as the specialization may be critical, with primary product exports usually singled out for criticism (Singer, 1950; MacBean, 1966; Robinson, 1979).[16]

In between these two positions is Kravis (1970), whose challenge to Nurkse's interpretation depicts trade as only a "handmaiden of growth". Kravis contends that trade was as much a consequence as a cause of growth, that trade was only one cause among many for economic growth, that it worked only for some nations under some conditions, and, most importantly, that "the mainsprings for growth were internal" (p. 859). In support of Kravis's

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[13] For further discussion the reader is directed to the many fine reviews of this literature available elsewhere (Krueger, 1995, Barro and Sala-i-Martin, 1995)

[14] The absence of domestic linkages constrains future growth by diminishing the stake of many economic actors in the domestic economy while encouraging them to look abroad for growth opportunities. Thus, many of the positive externalities, spin-off effects, and backward and forward linkages associated with development cannot be captured by the domestic economy and instead redound to the benefit of other nations.

[15] Relatively small fluctuations in supply or demand conditions within a single export industry can doom an entire nation's economy to severe instability while long-term changes in a single product can condemn an economy to stagnation or decline.

[16] See Delacroix (1977) for a review of the literature describing the limitations of primary product exports as a center-piece of development, which center on the relatively weak growth dynamic induced by isolated export enclaves as well as unfavorable secular trends in price and demand volume for these products.

pessimism about the role for exports, Lewis (1978) adds another analogy, "the engine of growth should be technological change, with international trade serving as a lubricating oil and not as fuel."

Detecting the growth effects of trade liberalization

Despite the enthusiasm for outward-oriented policies of trade liberalization and financial market opening, and even after dozens of studies designed to affirm the superior performance of economies which adopt them, the empirical evidence remains somewhat inconclusive. A wide variety of studies have been designed to show that growth is more rapid among states that take up strategies known variously as outward-oriented development or trade-led growth. Initially, this literature began from the premise of an unbreakable link among liberal policies, trade expansion, and economic growth. As it turns out, however, the evidence concerning each of the three bivariate linkages depicted in the accompanying figure is more equivocal than their proponents seemed at first to realize.

Liberal trade policies

Export Expansion

Economic growth
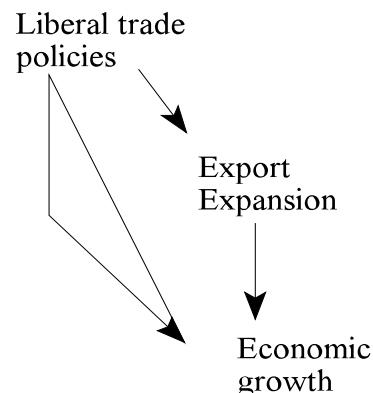
The linkage between liberal policies and export growth was initially regarded as so axiomatic that it was thought to require little demonstration. Some early studies did find growth to follow from policies associated with outward-oriented development (OOD), implicitly assuming that export expansion was the essential intervening mechanism.[17] But others did not. Empirically, the link between these policies and performance outcomes has proven to be problematic, because the economies with the highest trade levels frequently display little of the "outward" policy orientation suggested by the theory (Moon, 1998). In particular, high tariff levels coexist with high trade levels. Pritchett (1991, 1996), for example, has shown that trade levels are virtually independent of average tariff levels and the frequency of non-tariff barriers.

Thus, influential analyses have attempted to demonstrate the superior performance of OOD along two tracks. One has sought to demonstrate that trade expansion leads to growth, under the premise that trade expansion must be indicative of successful OOD policy, even if traditional measures like tariff rates do not show it. Later, the emphasis turned to the growth effects of liberality apart from its impact on exports. That has led to the strategy of building a more elaborate indicator of liberal policies by employing proxies of various kinds, especially the existence of distortions in prices plausibly related to them. It has proven remarkably difficult to characterize the OOD policy approach with enough clarity to measure reliably and validly the degree of "liberality" or "outwardness" of different countries at different times.[18] Partly this is due to the considerable variety of policies adopted by different nations in a wide range of substantive areas, all of which contribute to the bias in incentives for exports, import-substitutes, and non-

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[17] Krueger (1978) shows (1) that "non-traditional" exports expand when the real effective exchange rate (REER) devalues, (2) that export expansion produces GDP growth, and (3) that liberalization (such as the devaluation of REER) has no effect on growth independent of its effect on exports. Heitger (1986) shows that effective rates of protection are negatively correlated with GDP growth.

[18] It is especially difficult to distinguish "outward-oriented" policy from market-oriented domestic policy.

tradeables. But it is also due to the ambiguity and confusion inherent in the theoretical position itself.[19]

The motivation of this literature seems to have been to find an innovation in method, measurement, specification, or theoretical elaboration which would demonstrate that liberal trade arrangements were beneficial. The possibility that the claim itself may be mistaken or, more radical yet, that the perspectives of critics from mercantilist and dependency traditions may offer a valuable insight, does not seem to have been actively considered.

This paper explores whether these alternative theoretical currents have merit and whether they undermine the conventional wisdom of the laissez-faire dominated literature. While no empirical work has examined whether trade deficits lead to slower growth, studies of the determinants of currency crises and banking crises offer suggestive supporting evidence (Kamin, 1988; Edwards, 1989; Eichengreen et. al., 1995; Kaminsky and Reinhart, 1996; Sachs et. al., 1996; Milesi-Ferretti and Razin, 1998).[20]

The analysis will proceed in two steps. First, we will identify influential and persuasive studies in the liberal tradition and ask whether the data contained in them also offers evidence for the negative role of trade deficits suggested by the mercantilist and dependency traditions.[21] Essentially the analyses consist of adding trade deficits to existing models of export-induced growth. Second, we will enquire whether nations pursuing the open trade policies championed by liberals are especially vulnerable to trade deficits.

The effect of trade and trade deficits on growth

We begin by examining the studies that link exports with growth directly. What began as an operationalization of OOD soon took on a theoretical life of its own. Within this literature, there appears to be greater conviction that exports lead to growth than agreement about why it should be so or how it can be best demonstrated.[22] Growth accounting within

Liberal trade policies

Export Expansion

Economic growth

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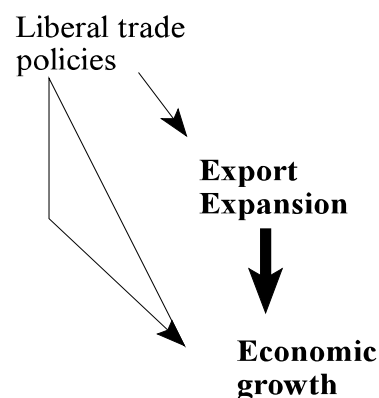
[19] Indeed, Krueger (1978) contended that "a regime could be fully liberalized and yet employ exceedingly high tariffs." Sachs (1987) "questioned the premise that trade liberalization is a necessary component of successful outward oriented strategies." (Quoted in Edwards (1993: 1360).

[20] For a review of currency crises, see Kaminsky et. al., 1997. See Demirguc-Kunt and Detragiache (1997) for a review of banking crises. Suggestive evidence also comes from studies that examine the effect of the corresponding capital flows. Afxenitou and Serletis (1996) investigate the effect of debt on growth, using six measures of debt levels. Borensztein et. al. (1998) show that foreign direct investment improves growth, in interaction with human capital. Dixon and Boswell (1996a,b) and Firebaugh (1996) also debate the effect of FDI.

[21] Four additional critiques of the outward-oriented development claims are beyond the length constraints of this study to address. First, OOD may promote growth but not real development, especially in generating inequality and weakening the public sector. Second, OOD may require initial conditions typically absent from LDCs that have not experienced long periods of self-sustained development (Helleiner, 1986). Third, OOD may require special external conditions not present in all time periods (Gray and Singer, 1988). Fourth, the fallacy of composition—especially the so-called "adding up" problem for primary and labor-intensive exports—make this policy self-defeating when pursued by large numbers of nations at the same time.

[22] That is, how it can be demonstrated in a broad gauge, cross-national, data-based model. Reviews of

(continued...)

a neo-classical production function has been the most dominant form of empirical analysis represented in the literature, though sometimes this is said to reflect a Solow-type theory and other times the modern endogenous growth theory usually associated with Romer (1986).

Research designs may be divided generally between purely cross-sectional designs (with variables measured at a single point in time), panel designs (which use cross-sections but measure growth over an interval), and time-series designs (including pooled samples).

The most recent study to use the purely cross-sectional type of specification is Frankel and Romer's (1999) piece in the *American Economic Review.* It is especially noteworthy not only because of Romer's prominent status as a proponent of the new growth theory but also because development studies appear so seldom in the flagship journal of the American Economic Association. They report OLS estimates for equation [1], estimated with 1985 data:

[1]
$$\ln Y_i = \alpha + \mathcal{B}T_i + c_1 \ln N_i + c_2 \ln A_i + \mu_i$$

where: Y_i = real GDP per capita
T_i = total trade (exports + imports) as a percentage of GDP
N_i = economically active population; and
A_i = total land area [23]

Their results, reported in the first column of Table 1, show that nations with higher levels of trade had higher per capita income levels in 1985. The parameter estimate is statistically significant, though the r^2 is quite low. Furthermore, the authors, sensitive to the criticism that cross-sectional designs invite inflated estimates of causation due to simultaneity bias, also performed an instrumental variable analysis designed to remove the endogeneity of trade. (The "instrument" is derived from the geographic and size elements of the standard gravity equation model frequently used to predict bilateral trade volumes.) The estimates are broadly similar to the OLS ones shown here and they report that on the basis of a Hausman test "the hypothesis that the IV and

	F&R	Replication		Extensions	
	1	2	3	4	5
Exports + imports	0.85	0.95		.91	.74
	(3.4)	(3.9)		(4.1)	(3.3)
Exports - imports			.027	.026	.045
			(4.5)	(4.7)	(5.7)
Ln population	0.12	0.12	-.074	.58	.48
	(2.0)	(1.8)	(-1.3)	(1.0)	(.1)
Ln land area	-.01	-.02	-.032	-.001	-.001)
	(.2)	(-.4)	(-.8)	(-.4)	(-.2)
Constant	7.40	5.39	9.23	6.45	7.45
	(11.2)	(4.9)	(11.1)	(6.2)	(7.1)
Sample size	150	124	124	124	123
R^2	.09	.12	.16	.26	.32

t-ratios are in parenthesis

Replication and extension of Frankel and Romer
Dependent variable: Logged GDP per capita, 1985

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[22](...continued)
case study work, an approach not considered here, are usefully surveyed in Edwards (1993).

[23] Y_i is RGDPCH from Penn World Tables (PWT) 5.6; T_i is OPEN (the ratio of exports + imports to GDP) from PWT; N_i is computed from PWT (RGDPCH*POP/RGDPW); and A_i is from Rand McNally (1993).

OLS estimates are equal cannot be rejected (t=1.2)" (p. 388) The parameter estimate for the key variable, trade share, is more than twice as large under the IV estimate as the OLS one, but the standard error is about four times as large. Thus, while the results suggest that the direction of causation runs from trade to growth, the parameter estimate "is marginally rejected at conventional levels (t=2.0)(p. 387). To verify that the results reported below do not reflect peculiarities of the data or sample, the second column reports the replication of the OLS analysis done for this paper.[24] Despite a different (smaller) sample, the estimates are nearly identical.

  Though total trade is a significant growth predictor, at least in the OLS estimates, do exports and imports have differential effects, as the mercantilists insisted? When the trade measure is replaced by exports alone, the resulting t value is 5.5 and the r^2 nearly doubles to .21. When imports are included alone, the t value is only 1.9 and the r^2 falls to .04. Since both exports and imports are associated with higher income, this hardly supports Becher's claim that "the former brings a certain advantage and the latter inevitable damage", but it does suggest that the mercantilists were right in viewing these two components of trade differently. Column 3 shows that a trade surplus (deficit) is a positive (negative) predictor of income level—and a better predictor than the size of the trade sector. That judgement holds when both the trade balance and the level of trade are included in the same equation, as shown in column 4. Furthermore, the column 4 parameter estimates for these two variables are almost identical to their values (reported in columns 2 and 3) when each is estimated separately. If the conclusion of Frankel and Romer is valid—that trade raises income— it must equally be said that trade deficits lower income. It may safely be ventured that both trade levels and trade deficits matter and that their effects are independent from one another (their bivariate correlation is -.12). Finally, an analysis of residuals revealed one nation (Lesotho) with a DFFITS greater than 3, indicating that it was an outlier and had a disproportionate impact on the estimates. In the analysis reported in the fifth column, it was removed, improving the fit of the entire equation and strengthening the estimate of the effect of trade deficits (while lowering that of trade levels).[25]

  A second research design found in this literature uses a panel approach to explain *changes* in income levels. The most frequently cited panel analysis is Levine and Renelt (1992), who estimate a series of panels over 1960-1989 and 1974-1989. Their central mission is to discover which of the variables postulated to explain growth do so robustly across alternative specifications. They begin with a control model composed of four variables found to be robustly related to growth. While they do not focus exclusively on the impact of trade, they report that trade levels are generally positively related to growth, though the relationship is seldom statistically significant. In the analysis of interest to us, they add the ratio of exports to GDP

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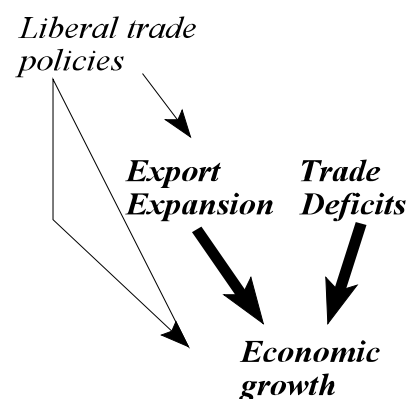
[24] All the data was obtained from the World Bank's World Development Indicators 1999 CD-ROM except A_i, which is taken directly from Frankel and Romer (1999).

[25] To better parallel the Frankel and Romer study, an instrumental variables analysis using the model discussed in the next section as a predictor of trade deficits is currently underway.

(averaged over the time period) to the standard control model. Specifically, they estimate equation [2], which we then replicate and extend below:

[2]
$$\Delta GDPpc = a + b_1 INV + b_2 GDPpc_{t0} + b_3 EDU_{t0} + b_4 \Delta POP + b_5 \frac{Trade}{GDP}$$

where:

    Δ GDPpc = growth in real per capita gross domestic product
    INV/GDP = average investment as a percentage of GDP
    $GDPpc_{t0}$ = beginning real per capita gross domestic product
    EDU_{t0} = beginning gross secondary school enrollment percentage
    Δ POP = population growth
    Trade/GDP = average trade as a % of GDP.[26]

Our replication, estimated over the 1974-89 period, produced results quite similar to those of Levine and Renelt and are not reported here: trade levels are modestly related to growth, but

	1	2	3
Exports + imports	0.17		0.19
	(1.0)		(1.1)
Exports - imports		0.23	.023
		(3.7)	(3.7)
GDP per capita, 1975	-0.23	-0.25	-0.25
	(-3.3)	(-3.9)	(-3.9)
Investment/GDP	0.61	0.82	0.76
	(4.6)	(7.0)	(5.9)
Enrollment, 1975	0.13	0.08	0.08
	(1.9)	(1.3)	(1.2)
Population growth	-1.26	-1.73	-1.81
	(-1.6)	(-2.3)	(-2.4)
Constant	0.49	1.58	2.05
	(.1)	(.4)	(.5)
Sample size	89	89	89
R^2	.43	.51	.52

t-ratios are in parenthesis

Replication and extension of Levine & Renelt
Dependent variable: ΔGDPpc, 1975-1997

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[26] Most of their analyses were reported using exports only, but they note that (p. 953): "If one substitutes imports or total trade for exports ... one obtains essentially the same coefficient estimate and coefficient standard error. Thus, researchers who identify a significant correlation using only an export performance measure should not associate this result with exports per se..."

with t-ratios in the range of 1.2, the estimates are not statistically significant.[27] A similar, though slightly stronger, result is obtained when total trade is replaced by the trade balance, just as occurred with the cross-sectional design reported above. Because of the availability of more recent data, however, we can now incorporate the experience of the 1990s, widely held to have been subject to different trade dynamics.

Table 2 reports the analysis when conducted from 1975 to 1997. In column 1, total trade is an insignificant predictor of growth, though the parameter estimate is positive, a result similar to the earlier time period. In column 2, trade is replaced with the trade balance. Its parameter estimate is highly significant and the overall fit of the equation improves substantially as well. The two-fold results are unmistakable. First, trade deficits retard growth. Second, the balance of trade is a better predictor of growth than total trade. In column 3, both trade measures are included together. The previous results are confirmed, and once again the parameter estimates change so little that we can easily see that trade deficits and trade expansion are virtually uncorrelated and their effects are independent of one another.

An alternative panel-design formulation of the trade-growth relationship examines the effect of *change* in trade levels rather than their average level over the period. Several studies have employed this approach, adding various other potential predictors. Michaely (1977) predicts average annual △GDP per capita on the basis of average annual △Exports/GDP alone. Burney (1996) predicts average annual △GDP (not per capita), using a production function that contains average annual △Exports/GDP as well as annual growth rate of population, investment, and energy production. Kormendi and Meguire (1985) do the same, but also include beginning year GDP per capita, but not energy production. Levine and Renelt (1992) estimate an equation similar to Kormendi and Meguire, but add secondary school enrollment. All estimate the relationship over different time periods. The results vary, with export growth showing a positive relationship, sometimes barely above statistical significance, sometimes not. But none examine the effect of trade deficits.

Table 3 illustrates the result of a simple model characteristic of that found in the literature for 1975-1997. Here the dependent variable is aggregate, not per capita, GDP. The openness measure is the average annual change in exports plus imports. This analysis does not use a trade balance measure completely parallel to that of openness, as the first two have done. Unlike trade as a percentage of GDP, trade balances fluctuate greatly from

	1	2	3
△Exports + imports	1.01		0.89
	(2.7)		(2.5)
Exports - imports		0.33	.031
		(3.5)	(3.4)
GDP per capita, 1975	-0.15	-0.25	-0.22
	(-2.9)	(-4.5)	(-4.0)
Investment/GDP	1.03	1.24	1.21
	(6.1)	(7.2)	(7.2)
Constant	-1.19	-0.33	-1.87
	(-.3)	(-.1)	(-.5)
Sample size	94	94	94
R^2	.38	.41	.45

t-ratios are in parenthesis

Panel analysis with change in trade levels
Dependent variable: △GDP, 1975-1997

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[27] The data source is the World Bank's *World Development Indicators* CD-ROM. Because it lacks real GDP data before 1975, the replication began in 1975, not 1974. This precluded an analysis of 1960-1989.

year to year, so a change from the beginning to the ending year would be highly responsive to the choice of end-points and not a very meaningful portrayal of the effect of the trade balance. Clearly better is the average value over the entire period, just as used in the previous table. Population and school enrollments, which produced very small effects, were omitted. Once again, trade deficits are more closely linked to growth than are trade levels, though both effects are present.

Thus, we see that three different research designs, different in many ways, generate the same conclusion: trade deficits are at least as good a predictor of growth as the overall trade level—and probably better. This affirmation of mercantilist and radical perspectives does not preclude the liberal position, however, because the effects of trade deficits and trade levels appear to be quite independent and both appear together. These results are quite robust: they recur over different time periods, with different research designs, different versions of the dependent variable, and with different additional predictors in the equation.[28]

In this connection, however, it is fair to report that a replication of a panel study by Ram (1985) produces a discordant result. He adopts a panel design in the framework of a production-function model, where exports are treated as a production input.[29] Interestingly, he expressly observes that "'two-gap' models of development suggest an important positive role of exports due to an attenuation of the foreign resource gap." (P. 415) This consideration would seem to suggest greater attention to the *balance* of trade than to its growth in volume, but he does not pursue this idea. He estimates the equation in a panel design of 73 less developed countries over two different time periods, 1960-70 and 1970-77:

[3]

$$\Delta Y = \beta_0 + \beta_1 \Delta L + \beta_2 \frac{I}{Y} + \beta_3 \Delta X$$

where:

ΔL = labor force growth,
I/Y = investment as % of GDP
ΔX = export growth

As pointed out by several commentators, this specification no doubt overstates the causal relationship between exports and growth because it does not allow for the definitional relationship between GDP and exports, namely that the latter are one component of the former — indeed, in some economies a very large component. Michaely's (1977) approach—to use the share of exports in GDP as the predictor rather than raw exports—is the conventional approach used by Kavoussi (1984) and most other studies.[30]

A final research design falls in the time-series family, but it poorly captures the main

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[28] Kormendi and Meguire (1985:152) observe that "The factors affecting economic growth can work through basically two channels - through the proportion of aggregate income devoted to capital formation (i.e. the investment-income ratio) and through the rate of return on capital, given the investment-income ratio ...To the extent a given variable works through the investment ratio channel, including [an investment measure] should attenuate the size and significance of its coefficient"

[29] This design is approximated by Burney (1996), who also includes energy growth as a predictor, which seems unwise inasmuch as energy consumption is often used as an alternative to GDP as a measure of development itself. Burney follows Tyler (1981), among others, in using growth in investment rather than the average investment share in GDP.

[30] Michaely (1977) does not, however, include labor and capital growth as additional predictors.

dynamics of interest here, because it uses annual data to focus upon very short-term effects.[31] Given the underlying policy question—to encourage trade or not—it is more relevant whether growth is most rapid in those *countries* where exports expand than whether growth is most rapid in those *years* when exports expand. Furthermore, the theories which underlie both the liberal view and the claims made here are inherently long-term. It is unfortunate that it is time-series designs which are most capable of dealing with a central concern that dogs all cross-sectional and panel designs—the inability to establish causal direction. The plausible theoretical claim that growth leads to exports follows from the elementary observation that competitiveness in international markets requires productive efficiency that can arise only in the context of the same accumulation of factor inputs, technology, and skills that are manifested, usually earlier, in domestic growth.

Most studies in the time-series vein pool several nations into a single estimation and employ Granger-causality to separate the effect of exports on growth from the effect of growth on exports. Beginning with Jung and Marshall (1985), who found evidence of an export-to-growth linkage in only 4 of 37 nations, most time-series studies that employ Granger-causality find that growth leads to exports at least as much as exports lead to growth.[32] Ram (1987) finds the export-to-growth effect in 38 of 88 nations, Ahmad and Kwan (1991), none in 47 African countries, Dodaro (1993) finds that exports lead to growth in only 7 of 87 LDCs while the reverse causal ordering appears in 13 cases. Riezman et. al. (1996) offers the most complete review of this literature and the most sophisticated empirical analysis. They find that exports lead to growth in 30 of 126 nations and the reverse causation appears in 25. Their methods also enable them to observe that the optimal lag length for detecting such causation appears to vary from eight to sixteen years.

Because of these weak results and the complexity of the analyses required, no rebuttal analysis using a time-series design was conducted for this paper. It seems unlikely that trade deficits would fare much better than trade levels in such a design because the theory underlying both claims implies quite long lags of causation, certainly far longer than the one-year lag implied by most Granger-causal models. Failure to find such patterns thus does not invalidate claims for an exports-to-growth linkage, but neither does it strengthen the relatively weak case built by the cross-sectional and panel designs surveyed above.

In fact, with even the causal interpretation of the rather weak statistical relationship between export growth and GDP improvement contested, it may safely be ventured that trade levels are not strongly and consistently linked to economic growth, though it does seem likely that a small effect is usually present. However, the evidence appears at least as strong that trade *deficits* are an important causal factor. After all, the evidence presented here is based upon models designed expressly to highlight the effects of trade levels, not trade deficits. No account is taken of the alternative means by which these deficits may have been financed. No discount is made of the economic growth that was built upon increasing levels of debt. It seems a fair appraisal to conclude that nations seeking development ought to avoid trade deficits with as much fervor as

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[31] The ideal solution—time-series with long measurement lags equivalent to the hypothesized long causal lags—are prevented by data availability.

[32] See Shan and Sun (1998) for a review of these studies and a summary of their findings. See Marin (1992) and Islam (1998) for a description of methods.

they pursue the expansion of exports.

The effect of outward-oriented development on growth

An alternative approach examines indexes of "trade liberality" as a predictor of growth, remaining agnostic as to the role of exports, especially in light of the "new growth theories" that emphasize that openness allows a nation to better absorb technological advances elsewhere, which may or may not show up as prior increases in exports (Romer, 1986). Indeed, Salvatore and Hatcher (1992) and Moon (1998) both show that export expansion plays a larger role in growth among inward-oriented than outward-oriented nations.

The earliest of these efforts (Greenaway, 1986; Alam, 1991) were dogged by the criticism that the evidence relied much too heavily on four Asian NICs (Moon, 1998). Later studies employed alternative measures of trade orientation, including Edwards (1998), Greenaway et. al. (1998), and Dollar (1992), which were in turn criticized in Pritchett (1996) and Falvey and Gemmell (1999). Perhaps the most damaging critique of these sstudies is that the various alternative measures of "liberality" are poorly correlated with one another. Harrison (1991) examines the relationships among five measures of "openness", only 1 of 5 which was significantly related cross-sectionally to actual trade levels at even the .15 level. Furthermore, only five of the fifteen correlations among these measures were significant at .15 and only 3 of those at .05. When she examined *changes* in openness, she found that only four of 21 correlations among alternative measures (including actual trade) were significant at .05. Other researchers report similar divergences. Dollar (1992: 532) constructs the most ambitious price-based measure of outward orientation and concludes that "[his] division of countries is highly consistent with the [Greenaway and Nam, 1988] categorization and with other studies." However, he cites a rank correlation with Greenaway and Nam of only .51 and with Leamer (1988) of only .41— even after removing 2 cases with *opposite* codings. Harrison notes (1991: 13) "The lack of a perfect (or even appropriately signed) correlation between all these measures is likely to indicate that they are not capturing the same aspects of 'openness'." Moon (1998) comments, "I would go further: there is little evidence that they are even measuring the same concept."

The most cited of the studies in this vein is Sachs and Warner (1995:22), who create a widely-used, if ought criticized, binary measure of trade liberalization by considering a nation "closed" if it has any of the following characteristics: (1) non-tariff barriers over 40% or more of trade, (2) average tariff rates of 40% or more, (3) a black market exchange rate premium of 20% or more on average during the 1970s and 1980s, (4) a socialist economic system, or (5) a state monopoly on major exports. Dollar (1992) and Sachs and Warner (1995) are subjected to a withering assault by Rodriguez and Rodrik (1999), who question whether "trade liberality" is conceptually coherent and empirically measurable, especially because it appears impossible to isolate trade liberality from broader aspects of economic policy. Furthermore, Rodriguez and
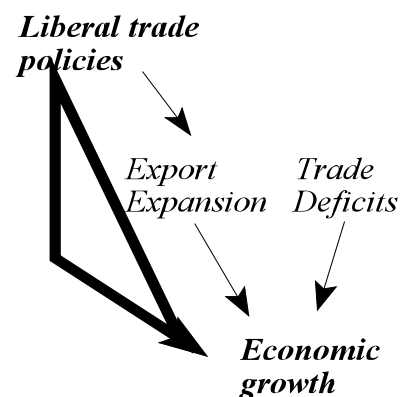
Rodrik makes a powerful case that these measures are themselves endogenous; that is, they measure successful growth in the past, not the policies likely to produce it in the future. It is of some consolation to supporters that Edwards (1998) finds that most of these measures are correlated positively with growth, while opponents note that Pritchett (1996) finds them of dubious reliability given that they are poorly correlated with one another.

Still, the Warner and Sachs measure represents the most widely used of these measures; thus any analysis concerning the propensities of outward-oriented development must account for results achieved with it. Using a panel design over the 1970-1989 period, they show a strong positive growth effect for openness among nations with a 1970 GDP per capita below $5000. The results are shown in the first column of the table. The second column reports the replication conducted for this paper, using a leaner model and a slightly altered measure of openness. The replication model uses secondary school enrollment, as most studies have done, rather than a combination of secondary and primary school. It omits a measure of government spending that had a marginal negative effect, measures of assassination and coups that had insignificant parameter estimates, and a measure of investment goods prices, all included in Sachs and Warner (1995). As suggested by Rodriguez and Romer (1999), the openness measure is the number of years during this period that the nation qualified as "open" by the Sachs and Warner criteria, while their original study coded a nation as open only if they were open during each of the nineteen years during this interval. The strength of the parameter estimates are broadly similar, especially for the key measure of openness, suggesting that results should be robust across the differences in specification and data sources.

In the third column, however, the results of the same model estimated for the 1980 to 1997 time period show a significantly diminished effect for openness. For the analysis reported in the fourth column, three additional variables found to be significant in the results reported earlier are added to the model: export growth during this period, average trade surpluses, and population growth. The results in column 4 show an insignificant parameter estimate for the openness measure of the wrong sign, together with results for both trade level and trade balance which are consistent with the results reported earlier in the paper.

Such a result is hardly sufficient to call into question the results reported by Sachs and Warner (1995) and others,

Replication and Extension of Sachs and Warner

	S&W	1	'80-'97	4
Openness	2.45	.036	.67	-.23
	(5.4)	(5.7)	(2.7)	(-.7)
Investment	5.66	.13	.16	.14
	(1.7)	(4.2)	(4.6)	(3.2)
Log GDP pc	-1.27	-.11	.15	-.06
	(-3.8)	(-2.6)	(.3)	(-1.3)
School enrollment	2.57	.26	.18	-.15
	(1.4)	(1.6)	(1.0)	(-.8)
Exports + imports				.20
				(1.9)
Exports-imports				.05
				(1.8)
Population growth				-.19
				(-4.7)
Constant	9.54	.05	-.43	.07
	(3.8)	(1.9)	(-1.4)	(2.0)
R^2	.54	.58	.46	.56
N	79	67	54	48

t statistics in parentheses

who have generally found this openness measure positively correlated with growth. Sample, specification, and data differences are large enough to account for substantial differences in findings. It does, however, raise the issue of robustness which Levine and Renelt (1992) have pressed concerning other effects associated with trade and finance variables. Moreover, because openness effects disappear in the presence of indicators of trade levels and trade balance, it invites inquiry into whether openness has a substantial impact on trade performance. Previous studies have found a small effect on trade levels, but little has been done with respect to trade deficits.

       If trade deficits are harmful to development, does trade liberalization encourage them, as suggested by the experience of the Asian NICs and Mexico? It seems plausible to think so because trade liberalization must surely cause imports to grow, while the impact on exports, as we have seen, does not appear very strong.

Liberal trade policies

Export Expansion   **Trade Deficits**

Economic growth

## The effect of outward-oriented development on trade deficits

       Only one previous study directly addresses the effects of liberalization on trade deficits. UNCTAD (1999: 95-98) estimates equation [4] in a pooled time-series analysis of 15 countries from 1970 to 1995:

$$\frac{TB}{GDP} = \alpha + \beta_1 \triangle GDP + \beta_2 Exports + \beta_3 LIB + \beta_4 \triangle GDP_{IC}$$

[4]
where:

     TB = Trade balance
     GDP = real gross domestic product
     $\triangle$ GDP = growth rate
     $\triangle$ GDP$_{IC}$ = growth rate of industrial countries
     Exports = exports purchasing power[33]
     LIB = dummy for liberalization

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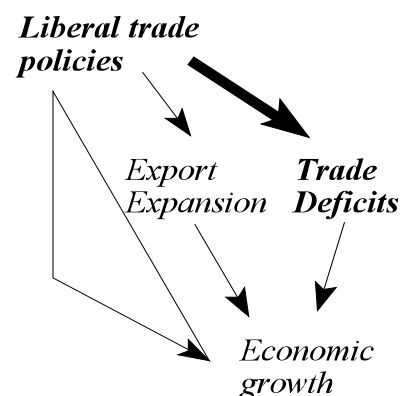
[33]using "income, rather than barter, terms of trade, in order to capture the effects of both relative prices and export volumes and to assess the impact of liberalization on import propensity (p.95)"

Their results, displayed in Table 4, suggest a strong tendency for open economies to run balance of trade deficits. Their dummy variable for liberalization is derived from three studies, including Sachs and Warner (1995). The remaining elements of the model control for known effects, especially the tendency of trade deficits to swell during periods of growth in the home country (when imports expand along with income) and to shrink when trading partners grow (since *their* imports expand). Column 1 displays the simplest model, but there is little change with the fixed effects model of column 2 that utilizes dummy variables for each nation, allowing a separate intercept for each.[34] Columns 3 and 4 appear to show that openness increases the impact of the other variables but the change in r^2 is small and the analysis omits the main effect, so it is hard to tell how substantial this effect really is. Column 5 introduces an instrumental variables estimation that reduces the size of these effects somewhat. Column 6 expands the sample to 52 countries by utilizing only the Sachs and Warner openness measure. These intriguing results are quite stable across the various specifications and estimation techniques.

UNCTAD study of trade deficits						
	Random	Fixed	Random	Fixed	2SLS	S-W only
$\triangle$GDP	-0.24	-0.24	-0.16	-0.15	-0.96	-0.10
	(4.35)	(4.30)	(2.47)	(2.38)	(2.45)	(2.83)
PPExports	0.02	0.02	0.03	0.03	0.01	0.07
	(4.60)	(4.60)	(6.96)	(7.05)	(2.90)	(13.90)
Liberalization	-2.68	-2.71				
	(4.92)	(4.97)				
Growth IC	0.75	0.75	0.65	0.65	1.28	0.66
	(4.94)	(4.94)	(4.25)	(4.23)	(4.45)	(5.51)
LIB x $\triangle$GDP			-0.20	-0.21		-0.23
			(1.7)	(1.81)		(2.99)
LIB x Exp			-0.02	-0.03		-0.05
			(5.23)	(5.24)		(9.64)
LIB x GrIC			0.72	0.73		0.80
			(2.48)	(2.52)		3.60)
Constant	-3.78		-5.37			-15.00
	(2.27)		(3.21)			(10.58)
r^2	.04	.68	.04	.70	.57	
N	416	416	416	416	416	1352

To increase confidence in these results, however, it is necessary to lodge the effect of openness within a better specified control model of trade balance determination. The best candidate for such a model appears to be Kahn and Knight's (1983) analysis of current account deficits (excluding official transfers and normalized as a percentage of exports). While they do not examine liberalization, they do consider the impact of various internal and external factors, and the model was later adapted by both Pastor (1989) and Giraldo and Mann (1989). Though there may be a considerable difference between the trade balance and the current account balance, a

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[34]It is not clear whether the estimates are corrected for auto-correlation.

similar model would be appropriate because many of the same forces affect each. Kahn and Knight estimated the following equation for 32 non-oil developing countries for 1973-1980 (256 observations). It incorporates the growth rate of industrial countries but, unlike the UNCTAD study, omits a term for the growth of the nation itself. In its place, they include a measure of fiscal deficits (actually the government budget *surplus*), reflecting the widespread belief that excessive government spending was heavily responsible for trade imbalances. They also included changes in the terms of trade, a measure of real world interest rates discounted by export prices, and a term for time trend. They used a separate intercept (dummy) for each country while estimating equation [5].

$$[5] \qquad \left(\frac{CA}{EXP}\right)_t = \alpha_1 lnTOT_t + \alpha_2 \Delta GNP_{IC} + \alpha_3 RIR_t + \alpha_4 lnRER_t + \alpha_5 \frac{GDEF}{GNP} + \alpha_6 Time$$

where:

           CA = current account balance (excluding official transactions)
           EXP = value of merchandise exports
           TOT = terms of trade
           ΔGNP_{IC} = real growth rate in OECD countries
           RIR = foreign real interest rate[35]
           RER = real effective exchange rate index
           GDEF = government fiscal deficits
           GNP = nominal GDP
           Time = linear time trend

Pastor (1989) estimates a similar equation for 19 Latin American countries over 1973-84, with several small differences in indicators.[36] He also added a term for the availability of foreign

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[35] The 3 month Eurodollar deposit rate adjusted for changes in the individual countries' export price index.

[36] He used U.S. growth in place of industrial country growth and the U.S. prime rate in place of LIBOR. He also employed a different version of the terms of trade index, and the real exchange rate is not trade-weighted but computed from the CPI of the country, the US CPI, and the nominal exchange rate.

capital, operationalized as the ratio of last year's net inflow of long-term capital to last year's GNP.

Giraldo and Mann's (1989) estimate a very similar model for 11 Latin American countries from 1973-84. They correct for autocorrelation, but do not report t values. The model behaves somewhat differently in 1980-84 from 1973-79, and differently in oil exporters.

The results for all three studies, shown in Table 4, are generally in agreement and the parameter estimates are as theoretically expected. The current account balance is enhanced by improved terms of trade, growth of trading partners, and a fiscal (government budget) surplus. The current account is driven to deficit by overvalued exchange rates, high interest rates, and, in Pastor's analysis, the availability of capital. Thus, this body of studies offers a reasonable control model for our study of the effect of trade liberalization on trade deficits.

Our analysis generally follows this control model and adds to it Sachs and Warner's (1995) measure of openness. Specifically, the model includes the growth rate of both the home country and a trade-weighted average of the growth rate of its trading partners, as well as the terms of trade index, the

Determinants of current account balances				
	K&K	P	P	G&M
Terms of trade	.53	.26	.23	0.15
	(4.5)	(2.8)	(2.5)	(**)
$\triangle GNP_{IC}$	1.45	2.17	1.90	5.30
	(1.9)	(3.5)	(3.2)	(**)
Interest rates	-0.35	-0.39	-0.39	-5.01
	(-2.9)	(-2.5)	(-2.5)	(**)
LnRER	-0.60	-0.67	-0.66	-0.76
	(-3.3)	(-6.6)	(-6.6)	(***)
Fiscal surplus	1.48	0.86	0.40	1.03
	(2.8)	(1.8)	(.8)	(*)
Time trend	-0.01	0.01	0.01	-0.14
	(-1.9)	(1.2)	(1.6)	(***)
Capital availability		-1.15	-0.71	
		(-4.0)	(-2.3)	
Lagged CA			1.22	
			(3.6)	
R^2	.91	.51	.54	.80
S.e.e.	.26			.24
N	256			
*/**/*** = statistically significant at .10, .05, .01				

government budget surplus, and two indicators of international interest rates, real rates in the United States and the change in real rates from the previous year, reflecting the observation that changes in those rates were responsible for the sizable capital flows that precipitated the crises in both Mexico and southeast Asia in recent years. Rather than include a separate dummy for each nation, a rather atheoretical approach, this analysis includes in its place the logged GDP per capita for each nation in 1970. This represents the hypothesized tendency for capital to flow from rich to poor nations in pursuit of investment opportunities, one of the bases of the claimed "convergence" effects found widely in the recent growth literature. All the data was obtained from the World Bank's Economic Growth web site. The analysis assumed a first-order autocorrelation process, with the rho estimated at .83. The results, displayed in Figure 5 are largely in accord with theoretical expectations. Most significant for our purposes, the openness measure of Sachs and Warner is a highly significant predictor of trade deficits even with these other factors accounted

for. The second column reports the result of adding a separate dummy variable for the year in which the nation became open, since this initial year is thought to be quite uncharacteristic of the experience of openness as a whole. Following Greenaway et. al. (1998) and Sachs and Warner (1995), a more elaborate analysis was performed to uncover any special dynamics surrounding the first few years of openness, but the results were largely insignificant for all years except the very first. Nor was the first year of closure or the few years prior to opening statistically distinctive.

Dependent variable: Trade surplus as % of GDP				
	1		2	
Openness	-2.31	(-3.5)	-2.84	(-3.9)
First year openness			1.33	(1.6)
Terms of trade	27.13	(11.0)	27.14	(11.0)
Growth	-12.26	(-4.9)	-12.16	(-4.9)
Partner growth	0.27	(2.2)	0.27	(2.2)
Fiscal surplus	0.97	(2.3)	1.00	(2.4)
Log GDP per capita	5.32	(8.2)	5.44	(8.3)
Log Real Exch rate	0.57	(.7)	0.50	(.6)
US real interest rates	0.29	(2.2)	0.30	(2.3)
$\triangle$US interest rates	-0.31	(-2.4)	-0.31	(-2.3)
Constant	-47.69	(-6.9)	-48.06	(-7.0)
R^2	.73		.73	
Rho	.83		.83	
N	1029		1029	
t statistics in parentheses				

Conclusion

This paper has provided evidence in support of the mercantilist and radical view that trade deficits are more integral to the development process than previous analyses have acknowledged. The liberalization process does tend to encourage trade deficits just as it is thought to expand overall trade. Those trade deficits may exert a dampening process on subsequent growth, even as trade expansion accelerates it. It is far from clear which of these two causal paths is the stronger, largely because one has been exhaustively researched while the other is just now emerging as a serious issue for research. But there appears to be no justification for the wide-spread view that trade deficits are insignificant epiphenomena.

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