

# Deficits in trade, Deficits in development?

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Paper prepared for the Annual Meetings of the International Studies Association, March 1-5, 2005, Honolulu.

## **Abstract**

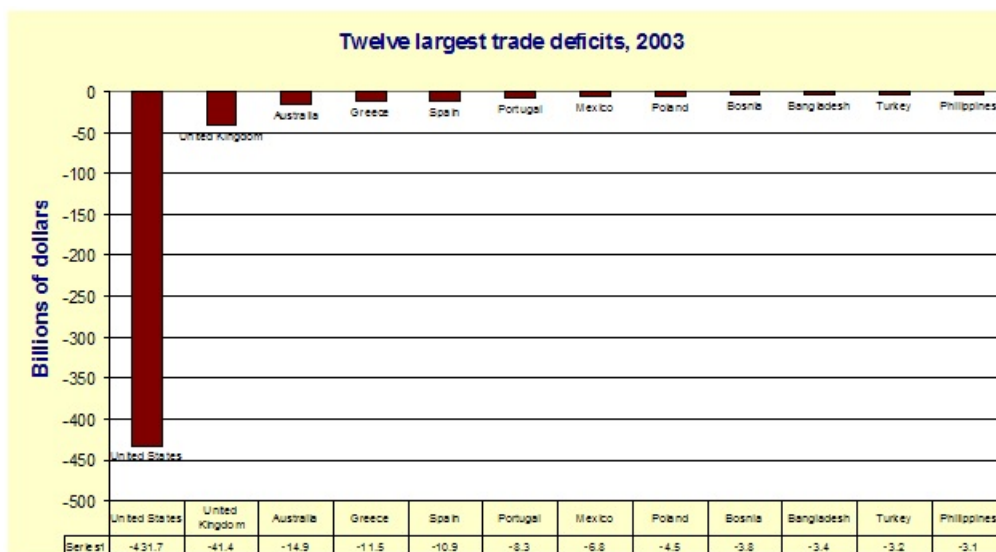
Trade liberalization represents hope for the poorest nations to alleviate poverty, but if the expansion of trade *volumes* brings benefits, the accompanying expansion of trade *deficits* brings dangers. This study confirms the negative consequences of trade deficits for growth prospects via several different models culled from the literatures on trade, debt, and capital flows. It explores the non-linearities and interaction effects associated with various theories, finding support for some of them.

The paper is centered around statistical analyses that reveal the effect of trade deficits, but it is framed by the huge U.S. trade deficit that looms in the background.

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## Introduction

The United States has been running an annual trade deficit of historic magnitude recently, \$617 billion in 2004 alone and headed higher.<sup>1</sup> Let us pause briefly to gain some perspective on this astonishing number. Figure 1 shows that in 2003 the U.S. gap was more than ten times larger than that of Great Britain, which was itself, at \$41 billion, the largest annual trade deficit of any nation in history except the United States, which now occupies places 1 through 24 on the all-time list. Australia's \$15 billion deficit, third-largest in the world in 2003, barely exceeds the U.S. *weekly* deficit, which has grown by more than a quarter since 2003. The massive U.S. trade deficit, at roughly three times the entire GDP of all of sub-Saharan Africa, poses both a policy challenge and a moral dilemma.



First, these excess imports permit foreigners to obtain employment and profits from production that might otherwise benefit U.S. citizens. Second, the capital flows used to balance trade deficits create future claims on the American economy, which will have to be satisfied out of future earnings. As Peter Morici, professor of business at the University of Maryland, puts it, the deficit is the "single most important tax on U.S. growth and burden on American working families." (Becker, 2005)<sup>2</sup>

Apart from their economic effects, we can no longer ignore the normative implications of these deficits and the political fallout that they induce, both at home and abroad. To balance this year's trade deficit, the richest country in the world is soaking up more than \$2000 per person in foreign capital, depriving other economies of scarce funds needed for investment. The U.S. capital sponge is absorbing more than twice as much as

<sup>1</sup> This is the merchandise balance. Factoring in the \$48 billion surplus in services, the balance on goods and services is a \$560 billion deficit.

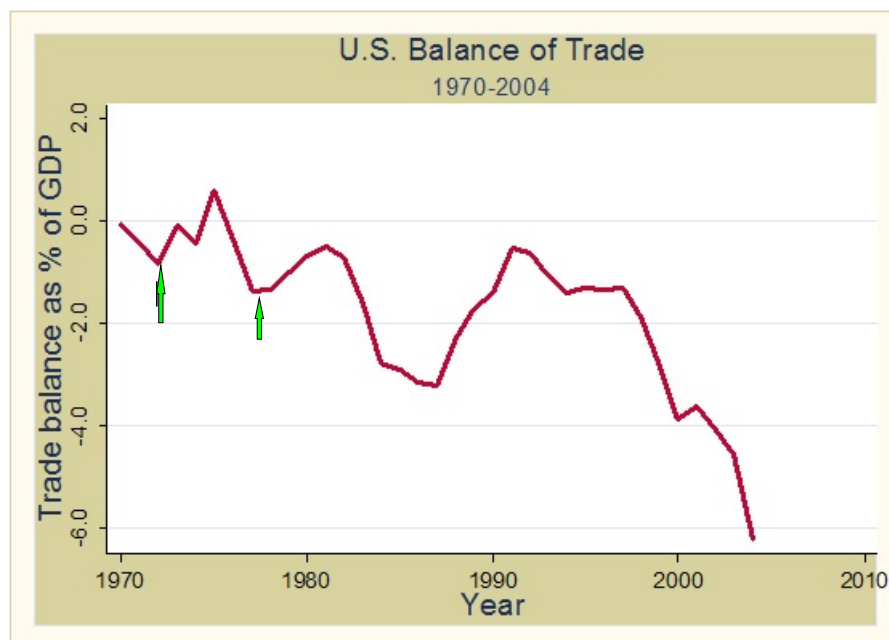
<sup>2</sup> In the same article, Dan Griswold of the Cato Institute, dismisses "alarmist concerns about the size of the trade deficit." Treasury Secretary John Snow sees it as indicative of American growth. Others emphasize that it should be seen as a positive evaluation of the economy's strength because the deficit would not arise unless foreign investors remained willing to bet that the American economy was able to service it without collapsing. Mann (2002:131) summarizes the contrasting interpretations as "living beyond its means" vs. an "oasis of prosperity".

the \$250 billion flowing to the poor nations and their five billion people (about \$50 per person). Unlike the U.S. figure, this represents the *gross* flow of capital; on a net basis, capital *outflows* from poor countries have exceeded *inflows* since 1999 (IMF, 2004: chapter 4). As the scarce resources desperately needed for global growth are increasingly concentrated in the U.S., the resentments of others build, with calamitous consequences for America's image, moral standing, and security.

The trajectory of this pattern is illustrated in Figure 2, which has resulted in the U.S. going from the world's leading creditor nation to its largest debtor, with more than a \$3 trillion gap between assets and liabilities in America's international investment position. With a sense of nostalgia, we can find in Figure 2 the once-alarming bottoms reached in the oil crises of 1973 and

1979, now dwarfed by subsequent red ink. These deficits subsidize the current generation of consumers at the expense of future generations that will be saddled with the debt rung up by those who refuse to pay for current consumption out of current income. In the process it squanders the legacy of the sustainable economy bequeathed to them by previous generations and erodes the reputation for fiscal and monetary responsibility that leads trust-sensitive foreign

investors to finance these deficits, thus magnifying the risk of serious collapse (Bivins, 2004; Obstfeld and Rogoff, 2004).



It is said that America's global hegemony makes its deficit unique in source and consequence, that it is an exception to the rule (Mann, 2002; Velasco, 2002; Rochon and Vernengo, 2003). Maybe so. But it remains important to establish what that rule is. A paucity of scholarship on trade deficits leaves current analysts and commentators without an adequate frame to interpret what is surely among the most significant features in the contemporary political economic landscape. Absent a serious study of past trade deficits, policymakers now traverse this increasingly dangerous mine field without any guidance from the previous experience of countries that have faced such deficits. This paper offers some preliminary evidence on the consequences of trade deficits. It seeks to illuminate the

experience of other nations' struggles with trade deficits, the better to understand the challenge that lies before us - and other nations digging a similar hole.

### **The invisibility of trade deficits**

Surprisingly, neither trade nor current account deficits have been subjected to rigorous empirical scrutiny by economists. They have usually appeared on the agenda of the economics literature only in periodic waves, the product of particular real-world events: the trade deficits that ushered in the debt crisis of the early 1980s, the deficits that contributed to the Asian financial crisis of the late 1990s, and, most recently, as shown in Figure 2, the worrying string of U.S. balance of trade deficits that have exploded since the late 1990s.<sup>3</sup>

These historical episodes have intruded upon a reticence among either theoretical or policy-oriented economists to address the significance of trade deficits. Within standard economic theory, trade deficits are most often thought of as epiphenomenal, the consequence of other, more theoretically important, economic variables. For example, the Mundell-Fleming model (Fleming, 1962; Mundell, 1963) conceives them as short-term responses to fiscal and monetary policies within a framework of IS, LM, and BOP curves. Monetary approaches to the balance of payments regard the current account as the residue of capital flows driving the exchange rate, with the trade deficit registering the sluggish response of real variables to financial ones (Taylor, 1990). They are often seen as the inevitable product of savings and investment decisions (Chinn and Prasad, 2003), wherein long-term imbalances reflect a gap between available productive investments and prevailing domestic savings propensities. Short-term imbalances occur because economic agents smooth consumption (or investment) when shocks disturb income (Ghosh and Ostrey, 1995). Medium-term imbalances signal anticipation of future changes in income and serve as an indicator of time preference (Glick and Rogoff, 1995). Finally, since current account imbalances can reflect the deviation of virtually any macroeconomic variable from its long-term equilibrium, the semi-permanent "shocks" that can cause them include technological advances, structural reforms, or even demographics, among other considerations. Milesi-Ferretti (2001) exemplifies the view, stating that "the current account is the quintessential endogenous variable, and it is determined not just by public policy but also by private agents' saving and investment decisions."

Because they are so easily thought of as *consequences*, trade deficits have not been regarded as autonomous causal agents by policy analysts or empirical researchers.<sup>4</sup> For example, Knight and Scacciavillani (1998:4) muse that

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<sup>3</sup> Edwards (2001) describes the evolution of economic thought over the last twenty-five years as "from 'deficits matter,' to 'deficits are irrelevant if the public sector is in equilibrium,' back to 'deficits matter,' to the current dominant view 'current deficits *may* matter.'"

<sup>4</sup>This stance is ironic, since the few empirical studies that have sought to actually account for variation in trade balances and the current account have found well-fitting models extremely elusive (Moon, 2001).

“the very question ‘Do current account imbalances matter?’ seems odd at first glance. After all, the external current account balance is not a policy variable, like the monetary stock or the fiscal position. Nor is it an ultimate policy target like the inflation rate or the level of output or employment.”<sup>5</sup>

Moreover, their lack of theoretical standing has allowed trade deficits to be ignored as independent variables in empirical studies as well.<sup>6</sup> Even if they were found to explain variance, the underlying causal mechanism could be seen to lie elsewhere, with deficits standing only as an intervening variable. The one exception to this pattern is the literature that considers the sustainability of trade deficits, an explicit recognition that trade deficits may sometimes take on a life of their own. This is so by definition, since

“a current account deficit is “sustainable” if neither it, nor the associated foreign capital inflows, nor the negative net international investment position are large enough to induce significant changes in economic variables, such as consumption or investment or interest rates or exchange rates.”Mann (2002:134)

We begin our survey of the limitation of liberal treatments of trade deficits with a probe of the overly narrow focus of the sustainability question.

### **The sustainability of trade deficits: beyond orthodox perspectives**

Most liberal analysts of trade deficits have fixated on the question of their sustainability. Since trade deficits can lead to explosive debt and resultant crises, they are right to do so (Demirguc-Kunt and Detragiache, 1997; Reisen, 1998b; Milesi-Ferretti and Razin, 1998; Kaminsky, Lizondo and Reinhart, 1997). Such studies focus on the pure mathematical criteria by which such deficits should be considered “unsustainable”, namely the point at which the time series explodes exponentially as a percentage of GDP.<sup>7</sup>

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<sup>5</sup> Instead, “The current account is what policymakers often refer to as an ‘intermediate target,’ that is, a variable which is both a broad reflection of the stance of macroeconomic policies and a source of information about the behavior of economic agents.”

<sup>6</sup>Another explanation is that attention to trade deficits may invite uncomfortable consideration of policies designed to constrain the goods and financial markets that produce them, a heresy for liberal economists. The liberal case for international capital flows goes beyond the recognition that they allocate scarce investment to its most productive use, allow investors to pool and hedge risks with a diversified portfolio, permit consumption and/or investment smoothing in the face of temporary shocks, and allow poorer countries with inadequate savings to benefit from foreign savers. “The other main potential positive role of international capital markets is to discipline policymakers who might be tempted to exploit a captive domestic capital market. Unsound policies - for example, excessive government borrowing or inadequate bank regulation - would spark speculative capital outflows and higher domestic interest rates. In theory, a government’s fear of these effects should make rash behavior less attractive.”(Obstfeld, 1998:3).

<sup>7</sup>The statistical techniques used to determine sustainability criteria have advanced at a very impressive speed, incorporating almost immediately state-of-the-art diagnostics involving unit roots, stationarity, and co-  
(continued...)

But they are lulled into complacency by the assurance of these models that quite large deficits are formally sustainable, making three fundamental errors of omission that invite the contribution of a political economy perspective. First, they fail to address risk in the face of the inherent uncertainty of market behavior, especially near the boundary conditions of sustainability. Second, in ignoring the trade-offs required to sustain deficits, they beg the optimality question that has dogged policy-makers, especially in the poor countries that run the largest deficits and have the least leeway in coping with them. Third, by failing to address considerations of how to return to balance eventually, they confuse postponing a problem with successfully solving it. In sum, in asking whether deficits were sustainable, economists forgot to ask whether they were optimal - or even, on balance, desirable.

First, risk and uncertainty – not precise estimation – must sit at the center of any analysis of sustainability. That is because trade deficits are ordinarily background conditions that form part of the structure within which the market and political actors behave. Their structural effect is thus a diffuse and long-term influence on what amounts to inherently unpredictable herd behavior. To avoid banking-, financial-, exchange rate-, and solvency-crises, deficits must be kept at a level which is “sustainable”, but that is a more contested term than seems apparent at first. The simplest tractable understanding relies on an intertemporal solvency constraint such that the ratio of net external liabilities to GDP remains constant or at least does not explode within a given time horizon (Calderon et. al., 1999). However, a more theoretically incisive version is plainly impossible to render in such concrete terms: “society’s choices about savings and investment balances are consistent with the amount of financing that the rest of the world is prepared to lend or borrow at prevailing interest and exchange rates.”(Knight and Scacciavillani, 1998: 23) Given future uncertainties, one can never tell if that level will turn out to be zero – or when. No one can tell when investors will panic, but we know that trade deficits make them far more likely to do so.

Second, these analyses do not address the vexing question of how the painful adjustments required to sustain (let alone reduce) these deficits could be managed politically, even if they produced growth and avoided crisis. The pressures generated by this “discipline of the balance of payments” forces governments into policies that may be distinctly sub-optimal, not just for growth but for social outcomes like inequality and the provision of basic human needs, national concerns like social justice and political stability, or state imperatives like autonomy and external dependence. As trade deficits complicate credit availability, all government spending programs and revenue plans come to turn on the external balance, which will impose a decided contractionary bias with distinctive distributional implications. When trade deficits force policy actions to eliminate them,

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<sup>7</sup>(...continued)  
variance principles, for example.

programs favoring the most vulnerable people are the most vulnerable.<sup>8</sup>

Third, the formal models that rest upon the permanent income (i.e. consumption smoothing) hypothesis are dangerously incomplete. They imply that deficits will be reversed in the future - and that debt will thus disappear. However, no attention is paid to the actual process by which that will be accomplished, especially the politically unpopular and economically painful state policies that will be required. Thus, there is real doubt that these imbalances will be easily reduced, eliminated, or reversed. As put by Cashin and McDermott (1998: 29):

“In the presence of persistent current account deficits, at some future (unknown) point in time, balance of trade surpluses need to occur. However, this is a long-run condition and *is bereft of any direct behavioral content.* (italics added) As a result, intertemporal solvency imposes too few restrictions on the path of the current account and external debt to provide a reliable guide to policymakers of potential problems with a country’s external position.”

This is especially troubling because as investor tastes and judgements change, the current account – which is inherently sticky – must move very rapidly to reduce the debt levels that are suddenly considered excessive.

The key question should be “do trade deficits lead to development outcomes that are more positive or more negative than would have occurred without them?” Political economists see three consequences awaiting nations with excessive current account deficits: financial and economic crisis, policy-making and economic distortions, and long-term stagnation. The latter is the subject of the empirical analysis of this paper.

### **Assessing the benefits and costs of trade deficits**

From a narrow economic perspective, the issue concerns the relationship between capital flows and investment as it evolves over time. The value of capital inflows is plain. Since growth is driven by investment, and investment is constrained by domestic savings, future growth and current consumption require a trade-off in a closed system. That is especially painful economically and difficult politically in poor countries where near-subsistence incomes sharply limit savings under any set of policies. Capital inflows remove the constraint, allowing both current consumption and investment to grow unconstrained by current domestic savings. Of course, removing the *current* savings constraint simply introduces a different trade-off, this time with *future* savings. Current capital inflows strongly predict future capital outflows, which must be financed by future savings. Riding the tiger in this way assumes that growth induced by capital flows will be sufficient to

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<sup>8</sup> It has been recognized since at least Ricardo (1817/1951: 247-9) that high public debts risked future prosperity by inducing the rich and their capital to emigrate. Cited by Obstfeld, 1998: 19. The poor have less power of exit.

generate marginal savings that make the process self-financing.

But will it? In economic theory, the critical determinants are the social rate of return on invested foreign capital (which must be high enough to promote marginal savings at or above the private cost of foreign capital) and the dampening effect on domestic savings by the capital inflow (which must be very low).<sup>9</sup> It may not be. Capital inflows do not create a one-to-one initial increase in investment, as a substantial portion is diverted to private consumption and both consumption and reserve accumulation by government (Bosworth and Collins, 1999). The magnitude of that portion varies with conditions and the form of the capital flow itself. Moreover, most capital inflows should be expected to eventually reverse – with interest – so that the benefits from investment-spurred growth are always in a race to exceed the costs of the capital acquisition (i.e., interest on loans or repatriation of profit). There is no free lunch, except in the very narrow sense that it is always possible that you will die before the check arrives. Clearly, the variables determining the net effect are so many and varied that the outcome is better evaluated empirically than assumed theoretically. It seems almost certain that it will vary over time, since there is no reason to expect the lags of costs and benefits to be the same. Most likely, the costs will be felt most heavily as the debt comes due, considerably lagging the benefits.

Studies have found that debt does indeed reduce subsequent growth. For example, Pattillo et. al. (2004), find that doubling debt will reduce output growth by about 1 percentage point for high debt countries. When they decomposed the channels responsible, they found approximately one-third occurs via physical capital accumulation and two-thirds via total factor productivity (TFP) growth, the residual from a growth accounting framework built on a Solow-type model.<sup>10</sup> In effect, the explanation eludes the narrow analysis of orthodox theory, since TFP has no clear empirical referent and no universal interpretation (Krugman, 1998).

## **A political economy analysis**

Political economists seeking escape from the narrow confines of liberal thinking on such questions are naturally drawn to theoretical perspectives more encompassing of political and economic considerations. The danger of trade deficits is a theme associated with both the oldest of theoretical traditions — mercantilism — and the newest — the anti-globalization movement heir to the anxieties of structuralist and dependency theories.

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<sup>9</sup> The return must also be transformed smoothly to a form that facilitates repatriation of profits or repayment of loans.

<sup>10</sup> The new analyses conducted for this paper do not explicitly address the question of whether trade deficits exert their influence via the investment channel or through other mechanisms. Some of the equations include investment as a separate predictor, which in some sense helps to exclude the investment channel as the most significant avenue, and others do not. Because the investment channel requires a more intricate long-term model to capture the presumed time-varying effects of immediate capital inflows and eventual capital outflows, this is a question for future study.



Mercantilists have long been wary of trade deficits, not least because they have generally identified less with pure theorists and more with policy-makers seeking to navigate the straits of the dangers represented by deficits.<sup>11</sup>

Trade deficits are far more central to the views of both political economists and policy-makers themselves. Both see the balance of trade as a pivotal target of development policy. For the latter, a deficit is often viewed as an indicator of policy failure, regardless of its source, because it poses a problem to be solved. Thus, the former note that even if only an accounting artifact, a deficit carries important signaling information to international financial institutions and investors, thus driving the behavior of agents that possess significant power to shape economic and political outcomes. In this critical sense, trade deficits are authentic causal determinants in their own right, playing a critical role in the development of poor nations, both as a direct influence on the macro economy and as a significant constraint on national planning that channels foreign dependence and biases policy choices.

Trade deficits are an element of power/dependence/domination relations, that impose real costs and/or force trade-offs with values of autonomy, democratic responsiveness, and various social outcomes (Vernengo, 2004).<sup>12</sup> Deficits constitute a policy bias of such disproportionate influence that most policy-makers regard them as a most unwelcome inheritance, though in recognition of the differences between their short- and long-term consequences, they do not necessarily avoid incurring deficits themselves. They increase external dependence and reduce autonomy, shifting the fate of the nation to external factors that cannot be controlled, such as international interest rates which both endanger floating rate debt and induce capital outflows by changing the rates of return available elsewhere.

Trade deficits place pressure on governments to do things they would not otherwise do.<sup>13</sup> Some of those things may be beyond the capacity of governments –

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<sup>11</sup>The concern is hardly new: 2,000 years ago Emperor Tiberius, concerned over Rome's increasingly adverse balance of payments with India, complained that "the ladies and their baubles are transferring our money to foreigners." For a brief history of the mercantilist view, see Moon (2000a, 2001).

<sup>12</sup>Such concerns for trade deficits were once a central element of the mercantilist trade policies that dominated all nations' thinking for centuries (Moon, 2000a). However, with the advent of liberal theory trade deficits were consigned to the role of a temporary phantasm by Hume's species flow adjustment mechanism. Even after changes in national and international monetary systems have revealed Hume's argument to be simplistic and anachronistic, trade deficits fit awkwardly into liberal theory, and have been considered unworthy of serious study, except in the rare circumstances that they became unmanageable.

<sup>13</sup>There is a canary question. "Do trade deficits produce the effects that follow from them or rather - like the canaries that warn miners of dangerous gas levels - are they simply an easily measured indicator of forces building toward dangerous conditions?" That is a question more interesting for theorists - who might try to partition the variance with an instrumental variables approach - than for policymakers. For example, if fiscal deficits are known to lead to trade deficits, does it really matter so much whether a variance decomposition exercise

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especially the kinds of governments that experience high trade deficits. Without adequate government regulation and without strong private financial institutions, volatile capital flows may be quite destabilizing. When not sterilized by competent and adequately financed monetary authorities, capital inflows can increase the money supply and induce inflation, appreciate the currency to the detriment of export and import-competing competitiveness, weaken the finance sector, increase debt and/or other liabilities, and induce crisis by creating uncertainty, risk, and vulnerability to both investor-generated or speculator-generated panics. This scenario places institutions under great pressure, to which they will sometimes respond badly or miscalculate the uncertainties. For example, Kaminsky et. al. (2004) cite repayment pressures to explain pro-cyclical fiscal policy, which exacerbates capital flows which are ordinarily strongly pro-cyclical as well. Where regulatory structures are strong and the financial sector well-developed, of course, the threat is less. Outcomes are not certain, but the scope for failure widens under the pressure of deficits.

The choice faced by states may be import compression (and the resultant recession and social repercussions) or crisis (manifested in currency collapse, debt default, capital flight, or worse). Empirically, concerns are centered on suggestions that nations experiencing trade deficits endure slower economic growth, suffer greater poverty, and encounter more frequent systemic crises than other nations. This paper addresses only the first of these, but extended analyses are under way.<sup>14</sup>

### Previous related studies

The literature has only just begun to analyze rigorously the developmental effects of trade deficits (Moon, 2000b, 2001). However, the family of economic phenomena that surround them have been better analyzed. Because these different theoretical approaches and research traditions give priority to different foci, what little empirical research exists has not cumulated very easily. But their three separate literatures offer templates for our analysis that allow us to attack the trade deficit problem from various angles.

The first of these concerns the positive growth effects attributed to trade volumes. The only two previous papers directly formulated to address the dangers of trade deficits

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<sup>13</sup>(...continued)

identifies one or the other as the principal correlate of slow growth or systemic crisis?

<sup>14</sup>An additional danger (Moon, 2000b) cannot be further pursued here: that the failure to take into account the long-term damage done by rising debts significantly distorts the apparent short-term record of nations that adopt neo-liberal development policies. The policies of the Washington Consensus champion trade volume expansion and either tolerate trade imbalances or praise them for the accompanying capital inflows. Since the post-1980 globalization-era advent of neo-liberal theory, trade volumes have exploded, but so have trade deficits — to nearly 2.5% of GDP throughout the 1990s (UNCTAD, 1999:76-84). Both may be associated with the stagnation nearly universal throughout the developing world during this period. For example, Bosworth and Collins (2003) note that output per worker grew 2.5% per year from 1960-1980, but only .8% from 1980 to 2000.

have been built upon existing models of export-induced growth (Moon, 2000b, 2001) . They identified influential and persuasive studies in the liberal tradition and then demonstrated that the same data also offered evidence for the negative role of trade deficits suggested by the mercantilist and dependency traditions. Essentially the analyses consisted of adding trade deficits (imports *minus* exports) to models already containing trade volumes (imports *plus* exports).

A second relevant literature contains studies that deal with the stocks that trade deficits accumulate over time, namely debt and other liabilities.<sup>15</sup> Questions of sustainability of a given external balance have usually targeted debt levels because trade deficits are found to make crises more likely (Erturk, 2003; Reisen, 1998; Pattillo et. al., 2004).

A third source of templates consists of several studies that have considered the developmental effect of the various contemporaneous flows that finance trade deficits - especially distinguishing foreign direct investment, official aid and private transfers, portfolio investment in equity and debt instruments, and short-term capital (Milesi-Ferretti et. al., 1996, 1998; Demirguc-Kunt et. al., 1997; Dixon and Boswell, 1996). Most expect capital flows to speed development, but there are doubters (Gourinchas and Jeanne, 2003; Brooks, 2004). We now utilize each of the literatures in turn to generate models that allow us to test the effect of the trade balance on subsequent growth.

### **The view from trade volume studies**

The empirical literature devoted to demonstrating that open economies grow faster is huge and features a variety of research designs.<sup>16</sup> For brevity, only two are offered here. See Moon (2000b, 2001) for others. The purely cross-sectional type of specification is represented by Frankel and Romer's (1999) piece in the *American Economic Review*, made 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. A similar analysis was reported originally in Moon (2000b), but it is replicated here (with improved data) to present a new instrumental variables approach directly parallel to theirs. They report both OLS and IV estimates for equation [1], estimated with 1985 data:

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<sup>15</sup> Of course, if trade deficits do contain adverse future consequences, analyses which use short- to intermediate- term growth in *gross* domestic product as the adjudicator of the relative benefits of alternative policies may overstate the welfare effect. Better would be a measure of *net national* product that discounts accumulated future liabilities. Also, deficits may promote growth but not real development if they generate inequality and weaken the public sector.

<sup>16</sup> Their 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). They may use trade volumes or measures of trade policy as independent variables.

$$[1] \quad \ln Y_i = \alpha + \beta T_i + c_1 \ln N_i + c_2 \ln A_i + \mu_i$$

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<sup>17</sup>

Their results, illustrated in column 1 of Table 1 show that nations with higher levels of trade had higher per capita income levels in 1985. My replication in column 2 shows a very similar result with a different sample. However, my column 3 extension 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, supporting Becher's early mercantilist claim that "the former [exports] brings a certain advantage and the latter [imports] inevitable damage". In column 4, the two variables are included together, demonstrating that the effect of a favorable trade balance is larger than the effect of trade volume, but that they co-exist, with very little impact on the parameter estimates of one another.

Frankel and Romer also perform an instrumental variable analysis, using as an instrument a variable constructed from a prior gravity model involving population and economic size. That result is shown in the first column of Table 2, alongside my replication with the smaller sample required by missing data on the trade balance and the instruments necessary to test its effects. Both confirm the original results of the OLS estimation shown in

**Table 1-Replication and extension of Frankel and Romer (OLS)**

Dep. variable: Logged GDP per capita, 1985)

	F&R	Repl	Extensions	
	1	2	3	4
Exports + imports	0.85 (3.5)	1.19 (3.2)		1.12 (3.3)
Exports - imports			.029 (4.9)	.029 (4.9)
Ln population	0.12 (1.9)	0.15 (1.9)	-.01 (-.2)	.10 (1.3)
Ln land area	-.01 (-.2)	0.01 (.2)	-.06 (-1.1)	-.001 (-.2)
Constant	8.15 (24.6)	7.81 (19.2)	9.22 (42.8)	8.17 (21.6)
Sample size	150	123	123	123
R <sup>2</sup>	.09	.12	.17	.24

t-ratios are in parenthesis

**Table 2-Replication and extension of Frankel and Romer (IV)**

Dep. variable: Logged GDP per capita, 1985)

	F&R	Repl	Extensions	
	1	2	3	4
Exports + imports	1.96 (2.2)	3.27 (2.2)		3.74 (2.1)
Exports - imports			.099 (3.8)	.064 (2.3)
Ln population	0.19 (2.2)	0.34 (2.0)	-.12 (-1.0)	.30 (1.4)
Ln land area	.09 (-.9)	0.16 (1.6)	-.10 (-1.1)	.12 (.9)
Constant	6.89 (6.6)	5.73 (4.0)	9.91 (23.5)	5.94 (3.1)
Sample size	150	107	107	107

t-ratios are in parenthesis

<sup>17</sup>  $Y_i$  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).

Table 1 – that nations with higher levels of trade are richer. Column 3 similarly confirms the results of column 3 of Table 1 when the equation is re-estimated using as an instrument a linear combination of real GDP per capita, previous year's growth rate, and the fiscal balance, a model culled from several studies of the determinants of trade deficits (Moon, 2000b, 2001; UNCTAD, 1999; Kahn and Knight, 1983; Pastor, 1989; Giraldo and Mann, 1989; Debelle and Faruquee, 1996; Reisen, 1009; Chinn and Prasad, 2000; Celderon et. al., 1999, 2000)<sup>18</sup>. It shows again that the trade balance is a better predictor than the trade volume, a conclusion also confirmed by the results of column 4 where the variables are included together in a last IV analysis.

A second research design found in the growth regression literature uses a panel approach to explain *changes* in income levels. For many years, the most frequently cited panel analysis was Levine and Renelt (1992), whose model I have previously used to show that trade deficits retard growth and that the balance of trade is a better predictor of growth than the volume of trade (Moon, 2001).

The heir to Levine and Renelt (1992) is Bosworth and Collins (2003), who combine growth accounting, which is theoretically steeped but non-causal with growth regressions, that seek causation with limited theory. Like Levine and Renelt a decade earlier, they sought to establish a baseline of robust findings to serve as a control model, allowing the addition of other variables within a controlled setting. Their basic result (Table 8, col. 4) serves as the baseline from which we consider the impact of trade deficits. It appears in Table 3 below as column 1, which shows the results of a regression of 84 nations over the period 1960-2000. They estimated equation

$$[2] \quad \Delta YL = \alpha + \beta_1 Y_{t0} + \beta_2 LE_{t0} + \beta_3 Geog + \beta_4 ICRG + \beta_5 FBal + \beta_6 Inflation + \beta_7 SW + \beta_8 \log Pop_{t0} + \beta_9 TradeInst + v$$

where  $\Delta YL$  = growth in output per worker;  $Y_{t0}$  = initial income per capita (PPP, % of US);  $LE_{t0}$  = initial life expectancy;  $Geog$  = a geographical index composed of tropical land area and days of frost;  $ICRG$  = an index of institutional quality;  $Fbal$  = average fiscal balance, 1960-2000;  $Inflation$  = average change in CPI, 1960-2000;  $SW$  = Sachs-Warner (1995) openness measure;  $\log POP_{t0}$  = log of initial population;  $TradeInst$  = trade instrument from Frankel and Romer (1999)

The last two of these predictors are curious additions to this specification, but they are very helpful to our effort. Bosworth and Collins (2003: 153) do not attempt to defend theoretically the inclusion of the population and Frankel-Romer trade instrument variables, saying only that they are included "at the suggestion of one of discussants." Their principal purpose would seem to be to serve as instruments for trade levels. That was the purpose stated by Frankel and Romer (1999: 381), who also observe that "it is difficult to think of

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<sup>18</sup> A better instrument can no doubt be constructed, but data limitations shrunk the sample even further when a broader analysis was performed.

important ways that proximity and size might affect income other than through their impact on how much a country's residents interact [i.e. trade] with foreigners and one another." Yet trade levels are not included in this equation!

However, Bosworth and Collins do report (2003:158) that when trade levels are added to the model, "we found these measures to be positively correlated with growth when the number of conditioning variables was limited, but inclusion of the full set of conditioning variables reduced the coefficient on the trade variable to near zero, sometimes turning it negative." They must have had in mind something like Column 2, which shows our result when trade as a percentage of GDP averaged over 1960-2000 is added to the control model and both the Frankel-Romer and population measures are included as instruments. Trade's effect on growth is not only negative, but statistically significant as well. Column 3 shows the result when the average trade balance was added to the model, replacing trade volume. Clearly, positive trade balances are associated with the GDP growth; trade deficits with the reverse.

Many other designs are possible, but on the basis of these studies, it appears that the mercantilists were right in viewing these two components of trade differently. Several research designs, different in many ways, were seen to generate the same conclusion: trade deficits *are* associated with significantly slower subsequent growth. Furthermore, they are at least as good a predictor of growth as the overall trade level—and probably better. 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. If the conclusion of the original studies is valid—that trade raises income—it must equally be said that my replications and extensions establish that trade deficits lower income.<sup>19</sup> This affirmation of mercantilist and radical perspectives does not

**Table 3- Replication and extension of Bosworth and Collins**

	B & C		Repl
	<u>1</u>	<u>2</u>	<u>3</u>
Average trade level		-.01 (-2.5)	
Average trade balance			.17 (2.3)
Initial income	-6.24 (-10.7)	-6.37 (-9.1)	-6.49 (-6.5)
Life expectancy	0.06 (5.0)	0.06 (4.2)	.034 (1.7)
Geography index	0.48 (3.9)	0.59 (4.0)	.92 (4.1)
Institutional quality	2.34 (3.6)	2.41 (3.2)	.15 (.1)
Budget balance	0.07 (2.3)	0.02 (.5)	0.02 (.3)
Inflation	-.01 (-1.1)	-.01 (-1.9)	-.01 (-1.1)
SW Openness	0.48 (1.7)	0.94 (2.8)	1.37 (2.6)
log Population	0.28 (4.7)		
Trade Instrument	3.55 (3.0)		
Constant	-6.00 (-4.9)	-.72 (-1.0)	1.76 (1.2)
Sample size	84	82	82
R <sup>2</sup>	.77	.68	.35

t-ratios are in parenthesis

<sup>19</sup> See Moon (2000b, 2001) for similar findings.

preclude the liberal position, however, because the negative effects of trade deficits and the positive effects of trade levels appeared to be quite independent and both appear together.

Since the underlying control models were adapted from studies designed for a different purpose, however, we cannot rest solely on those results. We turn now to a different set of templates.

### The view from debt studies

Trade balance and debt levels are such closely related concepts that it is reasonable to expect that models that use a measure of one of them to predict growth could also be used as a template for studies using the other.<sup>20</sup> Indeed, the IMF debt studies from which we borrow models are motivated by arguments similar to those discussed above. Pattillo et. al. (2002, 2004) cite debt overhang theories that postulate that at high levels of debt, the risk of non-payment will discourage future investors, fearing that actions taken to repay the debt (or outright default) will harm the investment climate and undermine future returns. They suggest that the negative effect of debt on growth could occur either through reduced investment or reduced total factor productivity, but they offer little unpacking of what the latter might mean in this case. It seems probable that one component of the latter is the sub-optimal policy mix of actors put under stress by trade deficits. Uncertainty about the dispensation of debt (perhaps by taxation of capital, reducing government investment, or inflating it away) reduces investment, particularly long-term growth-producing investment, while also mis-allocating the investment that does occur toward short-term trading activities (Alesina & Tabellini, 1989; Tornell & Velasco, 1992) .

Pattillo et. al.'s use of a three year period as the unit of analysis within a pooled time-series cross-sectional design represents a different statistical form than in any of the studies above. By estimating equation [3] with the variables averaged over a three-year period, they achieve a smoothing effect without sacrificing all of the time-series information:

$$[3] \quad \Delta GDP_{pc} = \alpha + \beta_1 \log GDP_{t0} + \beta_2 \Delta TOT + \beta_3 FBal + \beta_4 Trade + \beta_5 \log Pop + \beta_6 Ed + \beta_7 Invest + \beta_8 Debt + \mu$$

where GDP = the purchasing power parity adjusted GDP per capita in logs; TOT = terms of trade adjustment; FBal = the budget balance; Trade = the sum of exports and imports as a percentage of GDP as in the above studies; Pop is the population in logs; Ed = secondary school enrollment percentage in logs; Invest = the logged value of gross fixed capital formation; and Debt = four different measures of debt (two are in net present value terms

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<sup>20</sup> By an accounting identity, the current account balance must equal change in the net international investment position. As an empirical matter, the correlations between the trade balance and the current account balance are very high, but the first preliminary attempt to build a kind of "perpetual inventory" model of debt from accumulated annual deficits was not very successful.

and two are nominal; each is normalized either by GDP or export revenues).

Their initial findings from an OLS estimate of the linear model (2002: Table 4) are displayed in column 1 of Table 4. The replication performed for this paper is illustrated in column 2. There are various differences in some parameter estimates, but despite different data sources, a slightly different time period, and a much smaller sample necessitated by missing data, the replication shows a broadly similar fit, especially with the key debt variable. The two IMF studies report several other estimation methods, all of which show that debt levels are associated with slower growth. The effect appears stronger with a fixed effects regression, but weaker and non-significant with an instrumental variables approach and a SYS-GMM estimation.

Column three reports a new analysis in which the trade balance replaces the debt measure, testing whether trade deficits and debt have similar growth effects. They do. The similarity between columns 2 and 3 is highlighted by the similar strength displayed by the debt and trade balance variables, the former being somewhat stronger and of opposite sign, as would be expected. Again, we see that trade deficits are associated with slower growth – and not only over long periods of time during which they accumulate to sizable levels of debt. However, because the issue of lags cannot be well addressed with a design that includes variables smoothed over time, that question is pursued in a yearly panel design below.

**Table 4- Replication and extension of IMF**  
 Dep. var: growth in real GDP per capita

	PRR	Repl	Extension
	1	2	3
Debt/GDP	-0.55 (-2.5)	-0.67 (-2.7)	
Trade balance			0.03 (2.3)
Initial income	-1.94 (-6.8)	-0.51 (-2.0)	-0.21 (-1.3)
Δ Terms of trade	0.04 (1.9)	3.22 (1.6)	3.78 (2.1)
Δ Population	-4.56 (-4.0)	-1.43 (-3.4)	-0.67 (-2.9)
School enrollment	1.15 (4.5)	0.24 (.7)	.14 (.5)
Investment	3.35 (6.3)	3.97 (7.3)	4.34 (9.0)
Budget balance	0.16 (4.2)	0.13 (3.6)	0.11 (3.9)
Trade level	0.01 (1.2)	0.00 (.0)	0.00 (1.0)
Constant	15.66 (4.9)	-3.89 (-1.7)	-10.06 (2.2)
Sample size	630	354	500
R <sup>2</sup>	.30	.26	.25

t-ratios are in parenthesis

Indeed, the design of the studies considered thus far does not facilitate an answer to four questions whose answers will sharpen our understanding of the effects of trade deficits on growth. First, are there identifiable critical values beyond which the effects of trade deficits turn deadly. Second, under what conditions are these effects present or intensified? That is, are some kinds of trade deficits worse than others? Third, do trade deficits have



different impacts among different nations or at different times? Fourth, does it matter how trade deficits are financed?

### **How much is too much? (trigger points, critical values, non-linearities)**

The IMF design does enable us to investigate curvilinearity; indeed, the possibility that non-linear effects are present is a strong motivation for their study. It seems eminently reasonable to expect to find non-linearities in predicting growth, perhaps in the form of critical values, inflection points, or structural breaks. As noted above, the literature on deficit sustainability is dominated by the expectation of non-linearities in predicting crises. In particular, it is widely expected that there exists a critical value beyond which trade deficits are extremely dangerous, although even the approximate location of that point is highly contested.

Efforts to determine the limits on deficits include such criteria as the 5% of GDP offered as the danger point by Larry Summers in the aftermath of the 1994/95 Mexican crisis and subsequently labeled "conventional wisdom" by Milesi-Ferreti and Razin (1996). Another "oft-quoted rule of thumb" is a debt/GDP ratio of 40% (Reisen, 1996: 191). Still another is the warning to maintain the ratio of the annual deficit to total debt at a level equivalent to the growth rate minus the interest rate on that debt. However, Pitchford (1995: 126) labels all these criteria "folklore", instead urging a more elaborate, theoretically explicit model, the simplest of which is the "arithmetic of insolvency",  $CA/Y = (\Delta Y/Y) * (NFA/Y)$ , where the danger point for the current account as a percentage of GDP is the product of the growth rate and existing net foreign asset holdings<sup>21</sup> (Debelle and Faruqe, 1996:3,fn3).

However, most such models estimate optimal current account deficits, resulting debt levels and future trade surpluses that are an order of magnitude greater than historical experience establishes as the maximum achievable, let alone sustainable. Edwards (2001), for example, cites estimates of steady-state trade surpluses of 45% of GDP, an optimal current account deficit of 60% of GDP, and debt equal to 15 times GDP, among other wildly implausible results. Meanwhile, he notes that even the more conservatively estimated danger point of 5% of GDP was met in only 12 of 35 nation-years during 1990-96 in southeast Asia and in only 3 of 10 in two previous years, yet that did not prevent the East Asian financial crisis. The limitations of the "arithmetic of solvency" and "flow equilibrium" approaches to sustainability are also described by Calderon et. al. (1999: 2-4) and Milesi-Ferretti and Razin (1996). The most sophisticated of the private sector models, that of

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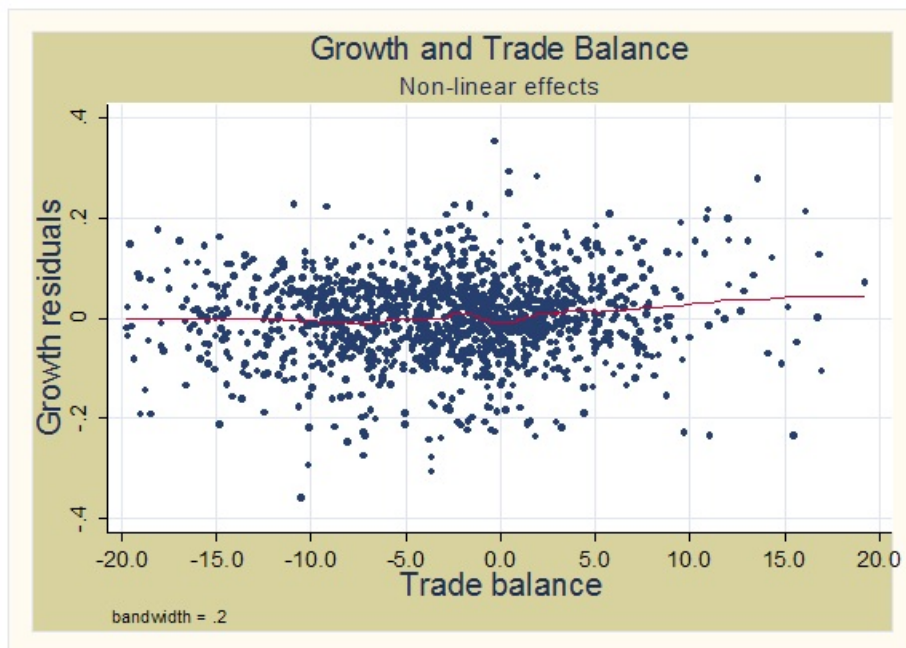
<sup>21</sup> To illustrate, suppose that net external debt is equal to 50% of GDP and macroeconomic growth is 4% per year. Then, because  $CA/Y = .04 * .50 = .02$ , a current account deficit equal to 2% of GDP can be sustained indefinitely. If growth is higher, the sustainable current account deficit is higher. For example, a 10% growth rate would allow a CA deficit of 5% of GDP to sustain a debt of 50% of GDP. Higher debt permits a higher sustainable CA deficit. A 100% of GDP debt and growth of 4% a year permits a CA deficit of 4% of GDP to be sustainable.

Goldman-Sachs, estimates much smaller numbers (Ades and Kaune, 1997) .With the notable exception of China – whose estimated “sustainable” deficit is an improbable 11% of GDP – the estimated levels are very modest, ranging from 1.9 to 4.5% of GDP. Although they identify a “short run sustainable level” whose range is broader, it still exceeds 4% of GDP in very few countries.

The IMF studies do find a non-linear relationship between debt and growth that seems to support the existence of identifiable danger points. In Pattillo et. al. (2002), they use a quadratic specification, which reveals an inverted U-curve such that the optimal value of debt occurs at about 20% of GDP in net present value terms. Beyond that point, its *marginal* effects become negative, with its *average* effect remaining positive until it reaches about 40% of GDP.<sup>22</sup> However, the fit of the quadratic specification is only a very modest improvement over the linear one. Perhaps for that reason, in the follow up study (Pattillo et. al., 2004), they employ spline regression, which permits a structural break such that the parameter changes at an identified critical value. They report difficulty in identifying that critical value with clarity, but when they choose the point found in their earlier study, they do find the expected significant slope differences. The effect of debt on growth is positive at low levels and negative at higher levels.

Replications of their studies confirmed all these conclusions. Both a quadratic specification and a spline regression produced a modest improvement of fit, and the two methods produced virtually identical parameter estimates. These results suggest that the effect of trade deficits on growth may also be curvilinear, although we would expect opposite signs.

In fact, our analysis in which the trade balance replaces debt in an otherwise identical equation also shows a faintly U-shaped curve as both spline and quadratic formulations improve the fit. Specific parameter estimates are not reported, however, because several alternative specifications fit about equally well and the slight



<sup>22</sup> These results may be compared to Cohen (1997), which finds that debt greater than 50% of GDP and greater than 200% of exports should be considered excessive because it makes debt rescheduling more likely - and that expectation lowers growth. Elbadawi et. al. (1997) find debt of 97% of GDP is growth-maximizing.

improvement from the linear form reported in Table 4 is markedly smaller than in the debt analyses. Moreover, the statistical results may be misleading because they tend to suggest a considerably more curvilinear relationship than is apparent when the data are examined visually. For example, only a very faint non-linearity can be seen in the lowess smoothing of Graph 3, which is generally indicative of the other results. Certainly, there is nothing like an identifiable point of inflection and confidence even in this general shape must be very low. In any case, the curvilinearity that does appear, however faintly, is not the expected one, where trade balances below -5% of GDP or so, produce especially poor outcomes.

### The view from capital flow studies

We now move to capital flow studies in which the growth-inducing effects of various types of capital flows have been investigated, usually through a cross-sectional time-series design with a measurement interval of one year. Below, we address that literature directly when we investigate whether the effect of trade deficits are determined primarily by the means used to finance them, but for the moment we merely borrow its characteristic model form. It offers the advantage of many more degrees of freedom than the type of cross-sectional designs discussed previously, with the result that we are also able to consider more flexibly questions concerning the variations in circumstances which might alter the effect of trade deficits.

We begin with a control model that encompasses other known growth effects culled from various studies (Borensztein et. al., 1998; Bosworth and Collins, 1999; Soto, 2000; Loungani and Razin, 2001; Razin, 2002) and a research design with sufficient degrees of freedom to permit extensive interaction effects. We use [4]:<sup>23</sup>

$$[4] \quad \Delta GDPpc = \alpha + \beta_1 \Delta GDPpc_{t-1} + \beta_2 Invest + \beta_3 Trade + \beta_4 Interest + \beta_5 \Delta Pop + \beta_6 \Delta TOT + \beta_7 \Delta RER + \beta_8 FinStruct + \beta_9 TB + \mu$$

where  $Growth_{t-1}$  = previous year's growth; Invest = gross fixed capital formation as % of GDP; Trade = exports + imports as % of GDP; Interest = the U.S. t-bill rate; Pop = population growth in previous year; TOT = previous year's change in terms of trade; RER = previous year's change in real exchange rate; FinStruct = an index of financial structure and financial depth; and TB = trade balance.

Table 5 illustrates the results when identical predictor sets are used to estimate subsequent growth rates over one year and five year intervals, which are used to identify any differences that may exist between the immediate effects and the medium term ones.

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<sup>23</sup> Growth regressions are notoriously non-robust across alternative specifications and are especially sensitive to omitted and included variables. That is why the previous analyses have built upon existing models. This particular specification is ad hoc, based upon data availability and has not been subjected to either appropriate diagnostics or sensitivity tests. Caveat emptor!

The estimates are OLS. Generally speaking, five year growth is more predictable, even though there is evidence for the decay of some immediate effects that are expected to be more transitory. The results for the variables that constitute the control model are generally as expected. The lagged growth rate,  $Growth_{t-1}$ , which is used to control for omitted factors, is the most consistent short-term predictor. Investment levels drive growth, especially over the longer term, which is also more rapid in an environment of low interest rates in accordance with business cycle considerations. Population expansion and real exchange rate appreciation depress growth. Improved terms of trade produce only a small boost, which quickly fades. The only surprise is the strong negative parameter estimate for financial structure, which several recent studies have found a potent positive influence on growth (Levine, 1997; Beck et al., 1995; Braun and Raddatz, 2005). As we have seen before, nations with higher overall levels of trade grow faster.

In the finding of greatest interest, we see again that trade balances are a significant influence on growth, providing still another research design that produces the result expected by our political economy-based argument. It is also noteworthy that the strongest effect occurs over the somewhat longer-term, as would be expected if, as suggested above, the lags associated with the *costs* of deficits are markedly longer than the lags involving the benefits. A more elaborate treatment of lags would carry the paper beyond reasonable bounds of length.

This design also allows us to explore interaction terms that capture the conditions under which it is sometime thought that trade deficits may have opposite effects. For convenience, we may divide these into the questions of “when” and “where” deficits take on different growth effects.

**When (what kind of?) are trade deficits bad?**

Trade deficits can mean very different things in different contexts. The source of this ambiguity, as Fisher (1990: 412) puts it, is that “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

**Table 5- Growth in panels**  
growth in real GDP per capita

	<u>1 year</u>	<u>5 year</u>
Trade balance	0.00 (2.2)	0.00 (3.6)
Trade level	0.00 (3.2)	0.00 (2.9)
Investment	0.00 (7.1)	0.01 (13.0)
Financial structure	-0.01 (-2.9)	-.07 (-6.9)
Δ Terms of trade	0.01 (1.5)	-0.00 (- .1)
Δ Population	-0.01 (-4.4)	-0.03 (-5.4)
Δ Real exchange rate	-0.02 (-3.7)	-0.03 (-1.7)
T-bill rate	-0.00 (-4.8)	-0.01 (-6.3)
$Growth_{t-1}$	0.00 (9.5)	0.01 (6.5)
Constant	-0.01 (-1.0)	-0.08 (-2.9)
Sample size	1144	1007
$R^2$	.24	.32

t-ratios are in parenthesis

exchange rates ... is negligible." Taken as a whole, the ledgers always balance, though the individual components — however one chooses to divide or aggregate them — do register imbalances that can be described as surpluses or deficits. Heyne (1983: 356) thus 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" (p. 355).<sup>24</sup>

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, centering on two very different scenarios thought to produce trade deficits (Corden, 1994: chapter 6). One, which informs this study, accords causal priority to the trade deficit itself, 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, future stagnation or crisis occurs 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 disequilibria 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. Furthermore, the application of modern portfolio theory places the cross-border flow of funds into a framework of investor preferences for various classes of assets in which sizable imbalances can persist indefinitely.

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. The historical image associated with this view is the "Asian miracle" of the 1980s, in which capital inflows played a large role in sustaining growth and persisted as long as Asian investments were perceived to offer higher rates of return than were available elsewhere.

In empirical terms, several approaches have been taken to adjudicate the "good" vs. "bad" interpretations. As noted, many of these turn on the theoretically-important distinction concerning whether the capital inflows are funding consumption or investment. For our purposes, we can think of each of these claims as consistent with an interaction

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<sup>24</sup> Furthermore, "not only is the deficit a mere symptom of the problem, it is also a symptom of the problem's resolution." (p. 359)

effect between trade balances and other variables, which can be tested empirically. For example, Corden's Distinction introduced above implies that trade deficits should be good when investment levels are high – as in Asia – and bad when investment levels are low – as in Latin America. That is, the interaction term between the trade balance and the investment rate should be negative.

That distinction between the effects of consumption versus investment, when added to the ideological antagonism toward state spending of the Thatcher revolution in Britain, reduces to the now much-maligned "Lawson's Doctrine", named after her Chancellor of the Exchequer, Nigel Lawson. He famously noted that current account deficits don't matter if they are not funding fiscal deficits (Reisen (1998). A scholarly sheen on Lawson's Doctrine calls it the "new" view on the current account: "[A]n increase in the current account deficit that results from a shift in private sector behavior – a rise in investment or a fall in savings – *should not be a matter of concern at all* (Corden 1994, p. 92, emphasis added)." Lawson's Doctrine implies an interaction with the fiscal balance. The effect of a trade deficit should be negative only in the face of a budget deficit, which would manifest itself as a negative growth coefficient for the interaction between the trade balance and the fiscal balance.

Larry Summers (1996, p.46), then the US Deputy Secretary of the Treasury, rejected this view, opining that "current account deficits cannot be assumed to be benign just because the private sector generated them." He has, however, consistently acknowledged that variable interpretation of trade deficits are appropriate in different circumstances: "There are classic tests for knowing when a rising current account deficit should concern us and when it is less alarming." (Summers, 2004: 46) But he has offered several different versions of those tests. In 2004, speaking of the U.S., he said that "A current account deficit that finances investment in industries producing goods traded abroad, for example, is more tolerable."<sup>25</sup> This "two gap" reasoning about currency markets is simple: trade deficits produce future liabilities (and downward pressure on the home currency) which can be repaid only with foreign-currency denominated export revenues. We dub Summer's Rule the expectation that trade deficits are a drag on long-term growth unless exports are growing, which implies a negative coefficient on the interaction term between trade balances and export growth.

Challenging these views are more structural considerations. The Asian crisis has renewed interest in the idea that investment levels can be too high as well as too low. When domestic savings rates are already high enough to meet the financing needs of growth-enhancing projects, excess capital from abroad cannot be absorbed. Instead it fuels asset inflation or unproductive investment that acts as a drag on the economy if not an outright

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<sup>25</sup>In 1996, responding to the Asian currency crisis, he noted that "close attention should be paid to any current account deficit in excess of 5% of GDP, particularly if it is financed in a way that could lead to rapid reversals." We have previously discussed the critical value approach and we treat the method of financing in the following section.

risk of crisis. This Absorption Constraint suggests an interaction with domestic savings rates, such that trade deficits are growth-inducing when domestic savings are low and growth-retarding when they are high, resulting in a positive coefficient for the interaction term between trade balances and savings rates.<sup>26</sup>

Finally, we have from dependency perspectives the observation that the effect of most macro-economic phenomena depend critically on factors well beyond the affected nation. Rather than seek domestic conditions to adjudicate the positive and negative effects of trade deficits, the distinction is more likely to lie in global conditions. In particular, when global interest rates are high, foreign financing and therefore trade deficits are exceptionally costly. When interest rates are lower, it is far easier to generate growth that permits the repayment of loans. Thus, the Liquidity Effect suggests that the interaction term between trade balances and world interest rates should be positive.

Also, trade deficits which arise from ebbing global demand, as during global recessions, are more likely to easily (perhaps automatically) reverse when global growth returns to trend. Such cyclical deficits should be less damaging than those incurred despite an expanding global economy, because the latter are more resistant to improvement. Because trade deficits should harm growth prospects more when global growth is high, this Global Business Cycle perspective implies a positive interaction between global growth and trade balances.

Table 6 displays the results of including each of these interaction effects in separate analyses to simplify interpretation. Only the t values are reported to conserve space. It is immediately apparent in the one-year panels that the only significant interaction effects occur with savings and investment rates. Neither the interaction effect nor the incremental  $r^2$  were significant in the other analyses. Export growth produced a significant

**Table 6- Interaction effects in one- and five-year panels**  
 Dep. var: growth in real GDP per capita, next one/five years

t values	One year growth rates				Five year growth rates					
Variable (t)	Trade balance (t)	Interaction term (t)	N	R <sup>2</sup>	N	R <sup>2</sup>	Variable (t)	Trade balance (t)	Interaction term (t)	
	2.2		1144	.2398	1007	.3157		3.6		
Fiscal balance	.6	1.2	1.5	971	.2007	900	.2577	.3	-.7	.2
Savings rate	2.2	-2.2	-3.1	1144	.2522	1007	.3635	-5.4	4.0	-8.0
Investment rate	1.7	9.8	-10.2	1144	.3036	1007	.3518	7.9	8.3	-7.4
Global growth	1.7	2.7	-1.8	1144	.2450	1007	.3216	-2.9	3.5	-1.0
T-bill rate	-4.8	1.0	-.3	1140	.2412	1007	.3164	-6.3	2.1	-1.0
Export growth	1.3	2.0	-1.2	1143	.2445	1006	.3593	-1.4	3.6	-7.6

<sup>26</sup>This would seem to imply the converse of the Corden Distinction, but it would probably be better modeled as non-linear.

interaction in the five-year panel.

The savings rate enters with a significant parameter estimate and flips the sign of the trade balance, indicating that both domestic and foreign savings contribute to growth in the short run. This is surely plausible, but the negative sign on the interaction term indicates that the positive effect of trade deficits (negative effect of trade surpluses) is most pronounced in the face of high domestic savings. This mutual reinforcement is the opposite of the anticipated Absorption Effect in which high savings would negate the benefit of capital inflows and exacerbate their costs. In the five-year panel, the negative parameter estimate of the interaction term is even stronger, but this time it is in the presence of a negative main effect for both domestic and foreign savings. It is not immediately obvious what causal dynamic is at work here. The multicollinearity no doubt present in an equation with investment as well as domestic and foreign savings could be affecting these results, but no tests have been performed.<sup>27</sup> A much stronger interaction effect is found involving investment rates in both panels; indeed, they are so large that they significantly increase the  $r^2$  of both estimations. These interactions are in line with Corden's Distinction in which trade deficits that enhance investment levels are positive, while those that fuel consumption are negative.

Contrary to Lawson's Doctrine, there is no apparent interaction between the trade balance and fiscal balance. Indeed, neither of the main effects nor the interaction is significant, though it must be noted that missing data does erode the sample on this test. Nor did the interactions involving global market conditions produce a significant finding. Finally, a significant interaction does appear in the five-year panel that is supportive of Summers' Rule: trade deficits in the presence of export growth are growth-enhancing.

### **Where are trade deficits bad?**

Most of the above arguments suggest that the growth effects of trade deficits vary most dramatically over time, especially The Global Business Cycle and Liquidity Effects, which are entirely systemic and by affecting all countries in the same way would seem likely to create era effects. An alternative view focuses on a more enduring attribute of nations, the depth of its financial structure. A number of commentaries on recent crises invoke the importance of the depth of financial markets and the quality of the regulatory structure in explaining why capital flows have been disruptive in some nations and tolerable in others.

A growing theoretical literature emphasizes that a well-developed financial sector will be far more efficient in channeling investment funds into productive investments than

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<sup>27</sup> The inclusion of all three is nowhere near producing a singular matrix, however. The accounting identity involves investment, domestic savings, and the current account. The investment measure used throughout is gross fixed capital formation, not total investment. The trade balance differs from the current account because it omits transfers and net foreign income.



one with limited market depth, fewer financial intermediaries, less diversified lending portfolios, and less sophisticated structural arrangements (Levine, 1997; Levine et. al., 1999; Braun and Raddatz, 2005). A stronger public sector will have central banks better able to sterilize excessive inflows, control outflows through monetary policy, adjust disequilibria through reserve actions, and underwrite transition costs and limit friction. They will be better able to insulate the economy through counter-cyclical policies, regulate financial intermediaries and the markets within which they operate, and alert decision-makers both public and private to necessary adjustments before they reach crisis proportions. Foreign investors are likely to maintain greater trust in such a system, enabling deficits to be sustained much longer. Several studies have found that a measure of Financial Structure, like the one we adapt from Beck et. al. (1999) above, accounts for a substantial fraction of growth. Recall that the initial results of Table 5 produced a significant anomalous negative coefficient.

These same arguments strongly suggest a interaction effect between financial structure and trade deficits, such that deficits are tolerable when financial structures are solid, but dangerous when they are not. This implies that the coefficient of the interaction term between trade balances and financial structure should be negative. Table 7 shows a dramatic impact of including this interaction term, but the coefficient is again of the wrong sign! Apparently, trade balances are especially good (and trade deficits are especially bad) when financial structures are strong, contrary to expectations. One interpretation is that foreign capital is unnecessary when a well-developed financial system exists to raise and allocate domestic capital. In that case, unnecessary trade deficits and capital flows are destructive, whereas deficits and the capital flows associated with them may be more necessary in an environment of weak financial intermediation.

### Does it matter how deficits are financed?

Finally, the question arises as to whether the effect of trade deficits depends on the means that are used to finance them. In effect, this asks whether trade deficits are an

**Table 7- Interactions with financial structure**

Dep. var: growth in real GDP per capita

	1 year		5 year	
Trade balance X	.00		0.01	
Financial structure	(11.1)		(13.9)	
Trade balance	0.00	0.00	0.00	0.00
	(2.2)	(5.2)	(3.6)	(8.0)
Financial structure	-0.01	0.02	-.07	-.02
	(-2.9)	(.8)	(-6.9)	(-2.6)
Trade level	0.00	0.00	0.00	0.00
	(3.2)	(2.8)	(2.9)	(3.2)
Investment	0.00	0.01	0.01	0.01
	(7.1)	(4.4)	(13.0)	(9.5)
Δ Terms of trade	0.01	0.01	-0.00	-.01
	(1.5)	(1.6)	(-.1)	(-.2)
Δ Population	-0.01	-0.00	-0.03	-.03
	(-4.4)	(-3.9)	(-5.4)	(-5.0)
Δ Real exchange rate	-0.02	-0.02	-0.03	-.04
	(-3.7)	(-4.2)	(-1.7)	(-2.3)
T-bill rate	-0.00	-0.00	-0.01	-.01
	(-4.8)	(-3.6)	(-6.3)	(-5.1)
Growth <sub>t-1</sub>	0.00	0.00	0.01	0.01
	(9.5)	(8.5)	(6.5)	(5.5)
Constant	-0.01	-0.00	-0.08	-.04
	(-1.0)	(-.1)	(-2.9)	(-1.7)
Sample size	1144	1144	1007	1007
R <sup>2</sup>	.24	.31	.32	.43

t-ratios are in parenthesis

appropriate focus at all.

Orthodox theorists expect the growth effects of trade deficits to 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 (Turner, 1991). 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.<sup>28</sup> Foreign direct investment is thought to be a more permanent transfer than short-term portfolio investment (Sarno and Taylor, 1999). Short-term capital is considered dangerously "hot money" (Rodrik and Velasco, 1999). In part because of these differences, 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 can also be seen through the lens of political economy theories not so sensitive to alternative means of closing the gaps. From this perspective, all trade deficits are power relationships, and most of the political effects do not vary with the source of financing. From the political economy perspective, it is the trade balance that is the central constraint seen by policymakers. Trade flows are much more persistent than capital flows and harder to turn around in the short-run. They are also more easily controlled by governments, more closely connected to the real economy, and have greater impact on individuals through both goods and labor markets.

The various types of capital flows may well carry different development effects, but the choice among them is seldom freely made by governments. A government determined to finance its trade deficit through one kind of flow often finds itself committed to another. Portfolio inflows can be transformed into short-term debt with remarkable speed in the face of capital flight and even foreign direct investment changes form at the volition of the investor, not the government. One look at the changing patterns of capital flow over time makes it clear that the major determinant of the form of flow and its timing is not internal to the country that runs the trade deficit. Sometimes global capital sloshes around the world in search of a home, whereas at other moments in the business cycle, it is quite scarce and expensive.

As a result, trade deficits may occur at a precise moment in time, but they create long-term flows that are quite unpredictable in size, timing, and composition. Thus, because governments control the size of the financing gap with much greater assurance than the material to be used to fill it, it is important to be able to identify the effect of trade deficits in general, before fine tuning responses to it. If governments anticipate that a deficit

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<sup>28</sup> 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).

will be adjusted through future FDI, but they later find that it requires debt, they will have sought the wrong empirical evidence for judging the wisdom of incurring the initial deficit.

Soto (2000) provides evidence that the composition of the capital flows are a critical factor in determining their effect on growth. In an analysis of 44 developing countries over the 1986-1997 period, a dynamic panel with yearly data shows that FDI and portfolio equity flows are robustly and positively correlated with growth, that portfolio bond flows are unrelated, and that in economies with under-capitalized banking systems, bank-related inflows are negatively correlated with growth. Rodrik and Velasco (1999) emphasize the negative effects that short-term flows may have on the economy. Other empirical studies have focused mainly on foreign direct investment, finding its effect more positive than other forms (Borensztein *et al.*, 1998; de Mello, 1999; Mody and Murshid, 2005).

To ascertain the value of disaggregating the effect of trade balances, the test is performed in two steps. First, beginning again from the model of equation [4], we replace the trade balance with five accounts that together balance it: transfers and income from within the current account, the financial account, the errors and omissions category, and reserve transactions.<sup>29</sup> In the one-year interval, the improvement in  $r^2$  from this addition is modest: from .2398 to .2576. The coefficient for the financial account is the only significantly positive one ( $t=2.8$ ) and the only one whose significance exceeds that of the trade balance in equation [4] ( $t=2.2$ ). The income category was the only significant negative coefficient ( $t=-2.1$ ). The remainder lie in between, statistically insignificant from one another, as determined by a series of Wald tests. In the five year panel, the  $r^2$  moved from .3157 to .3487, a somewhat bigger improvement. Here again the largest positive coefficient was that of the financial account at  $t=4.1$ , but the reserve account was at  $t=2.2$ . Again, the income account was significantly negative ( $t=-3.6$ ).

The positive effect associated with the financial account invited a second step, to disaggregate its three major components: foreign direct investment, portfolio capital, and "other" investments, the latter of which is usually interpreted to be dominated by loans.<sup>30</sup> The increase in missing data entailed by this step produced a significantly different sample, barely half as large as before and one that did not very faithfully reproduce the findings of Table 5. While this does erode somewhat our confidence in the following results, they are sufficiently strong to warrant presentation.

The components of the financial account do produce very different effects on growth. It is revealed that the positive effects of the financial account identified above are solely the consequence of foreign direct investment, In the one-year interval, the coefficient

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<sup>29</sup> (The capital account, for which a great deal of missing data exists, is omitted.) When the trade balance is regressed on these five, the resultant  $r^2$  of .97 confirms the accounting identity.

<sup>30</sup>Though formally an accounting identity, empirically these three components explain over 99% of the variance in the capital account.

for the FDI term was actually negative and insignificantly different from zero, but still significantly larger than the large negative coefficients of portfolio and loans. Over the five year interval, the FDI showed a positive t of 4.8, compared to -4.8 and -6.6 for the other two elements of the financial account.

Transfers were highly significant spurs to growth over both intervals, their effects statistically indistinguishable from FDI on the basis of Wald tests. These two are clearly different than the others. In the five year interval, there are two clear groups of accounts: FDI and transfers are both forms of capital flows that produce growth, whereas portfolio capital, loans, income from abroad, and reserve transactions all produce a negative effect. Errors and omissions lie in between, significantly different from both.

In sum, there is reason to distinguish both transfers and foreign direct investment from the other means of financing trade deficits, but these three elements of the balance of payments are generally held to be driven by quite different and quite autonomous forces. FDI decisions are made more by foreign corporations than governments and transfers are initiated by both workers abroad remitting payments and foreign governments. Neither is ordinarily regarded as an accommodating transaction to fill a trade balance, as are loans and portfolio investment. Thus, while acknowledging the importance of treating transfers and FDI in a more autonomous way, there is still an important role to be played by the analysis of trade deficits.

## **Conclusion**

The current U.S. trade deficit is the largest in history, by a wide margin. Do the special circumstances of its hegemonic status inoculate the U.S. from the consequences felt by others in similar circumstances? Perhaps. Generally speaking, trade deficits tend to compromise the development of the economy, but the effect is neither strong nor consistent. It is reasonably likely that the debt engendered by U.S. trade deficits will erode future growth through a slow bleed, and it is also possible that an outright calamity lies ahead. Both are included in the experience of other countries, but so too is continued prosperity. We do not yet know enough to determine which path is most likely, but the search continues.

## **Bibliography**

- Ades, Alberto and Federico Kaune. 1997. "A New Measure of Current Account Sustainability for Developing Countries." *Goldman-Sachs Emerging Markets Economic Research*.
- Afxentiou, Panos and Apostolos Serletis (1996) "Growth and Foreign Indebtedness in Developing Countries: An Empirical Study Using Long-term Cross-Country Data," *Journal of Developing Areas* 31 (Fall): 25-39.
- Beck, Thorsten, Asli Demirguc-Kunt, and Ross Levine (1999) "A New Database on Financial Development and Structure," June
- Becker, Elizabeth (2005) "04 Trade Deficit Sets Record, \$617 Billion," *New York Times*, February 11, 2005
- Bivens, L. Josh (2004) "Debt and the Dollar," *Economic Policy Institute Issue Brief #203* December 14, 2004.
- Borensztein, E., J. De Gregorio, and J-W. Lee (1998) "How Does Foreign Direct investment Affect Economic Growth?," *Journal of International Economics* 45: 115-135.
- Bosworth, Barry and Susan M. Collins (1999) "Capital Flows to Developing Economies: Implications for Saving and Investment," *Brookings Papers on Economic Activity* 1, Brookings Institution, pp. 143-69.
- Bosworth, Barry and Susan M. Collins (2003) "The Empirics of Growth: An Update," *Brookings Papers on Economic Activity* 2: 113-206.
- Braun, Matias and Claudio Raddatz (2005) "Trade Liberalization and the Politics of Financial Development," *World Bank Policy Research Working Paper* 3517, February.
- Brooks, Sarah (2004) "Explaining Capital Account Liberalization in Latin America: A Transitional Cost Approach," *World Politics* 56(April): 389-430.
- Calderon, Cesar, Alberto Chong, and Norman Loayza (2000), "Determinants of Current Account Deficits in Developing Countries," *World Bank Policy Research Working Paper* 2398, July.
- Calderon, Cesar, Norman Loayza, and Luis Servan (1999), "External Sustainability: a Stock Equilibrium Perspective," *World Bank Policy Research Working Paper* 2281, October.
- Chenery, Hollis B. and A.M. Stout (1966) "Foreign Assistance and Economic Development," *American Economic Review* 56 (September): 420-435.
- Chinn, Menzie and Eswar S. Prasad (2000) "Medium-term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration" *National Bureau of Economic Research Working Paper* #7581 March.
- Corden, W. Max. 1994. *Economic Policy, Exchange Rates, and the International System*. Oxford: Oxford University Press, and Chicago: The University of Chicago Press.
- Crowley, A.M., J Rauch, S. Seagrave, and D.A. Smith (1998), "Quantitative Cross-National Studies of Economic Development: A Comparison of the Economics and

- Sociology Literatures", *Studies in Comparative International Development* 33, 2: 30-57.
- DeBelle, Guy and Hamid Faruquee (1996) "What determines the current account? A Cross-sectional and panel approach," International Monetary Fund Working Paper #126
- De Mello, L. (1999), "Foreign Direct Investment-led Growth", *Oxford Economic Papers* 51(1): 133-51.
- Demirguc-Kunt, Asli and Enrica Detragiache (1997) "The Determinants of Banking Crises: Evidence from Developed and Developing Countries".
- Dixon, William J. and Terry Boswell (1996a) "Dependency, Disarticulation, and Denominator Effects: Another Look at Foreign Capital Penetration," *American Journal of Sociology* 102, 2 : 543-562.
- Dixon, William J. and Terry Boswell (1996b) "Differential Productivity, Negative Externalities, and Foreign Capital Dependency: A Reply to Firebaugh," *American Journal of Sociology* 102, 2 : 576-584.
- Dollar, David (1992) "Outward-oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985," *Economic Development and Cultural Change* 40, 3: 523-44.
- Easterly, William (1999) "The Lost Decades: Explaining Developing Countries' Stagnation 1980-1998," Washington, DC: World Bank Policy Research Working Paper.
- Edwards, Sebastian (2001) "Does the Current Account Matter?" in Sebastian Edwards and Jeffrey Frankel, eds. *Preventing Currency Crises in Emerging Markets* (University of Chicago Press, 2001) NBER conference on "Crisis Prevention," Florida, January 11-13, 2001.
- Erturk, Korkut (2003) "On the Changing Nature of Currency Crises," University of Utah, Dept. of Economics Working Paper 2003-02.
- Firebaugh, Glen (1996) "Does Foreign Capital Harm Poor Nations? New Estimates Based on Dixon and Boswell's Measure of Capital Penetration," *American Journal of Sociology* 102, 2: 563-575.
- Fisher, Eric O'N. (1990) "Sustainable Balance of Trade Deficits" *Journal of Monetary Economics* 25: 411-430.
- Frankel, J. A. and D. Romer (1999) "Does Trade Cause Growth?", *American Economic Review* 89, 3: 379-399.
- Gervaise, I. (1720) *The System or Theory of the Trade of the World*. London.
- Ghosh, Atish R. (1995) "International Capital Mobility Amongst the major industrialized countries: too little or too much?," *Economic Journal* 105: 107-128.
- Ghosh, Atish R. and Jonathon D. Ostry (1995) "The Current Account in Developing Countries: A Perspective from the Consumption-smoothing Approach," *World Bank Economic Review* 9, 2: 305.
- Giraldo, German and Arthur J. Mann (1989) "Latin American External Debt Growth: A Current Account Explanatory Model, 1973-1984," *Journal of Developing Areas* 24 (October): 47-57.
- Glick, Reuven and Kenneth Rogoff (1995), "Global vs. Country-Specific Productivity Shocks and the Current Account," *Journal of Monetary Economics*, pp. 159-192.

- Gourinchas, Pierre-Olivier and Olivier Jeanne (2003) "The Elusive Gains from International Financial Integration," National Bureau of Economic Research Working Paper 9684.
- Greenaway, David (1986) "Characteristics of Industrialization and Economic Performance Under Alternative Development Strategies"
- Greenaway, David and Chong Hyun Nam (1988) "Industrialisation and Macroeconomic Performance in Developing Countries under Alternative Trade Strategies" *Kyklos* 41,3: 419-435.
- Harrison, Ann (1991) "Openness and Growth: A Time Series, Cross-Country Analysis for Developing Countries," World Bank Policy Research Working Paper Series #809.
- Heckscher, Eli F. (1934) *Mercantilism*, Volume 2. London: Allen and Unwin.
- Heyne, Paul (1983) "Do Trade Deficits Matter?" *Cato Journal* 3 (Winter 1983/1984): 705-716. Reprinted in James A. Dorn and William Niskanen, eds. *Dollars, Deficits, and Trade*. Boston: Kluwer, 1989.
- Hofman, Bert and Helmut Reisen (1991) "Some Evidence on Debt-related Determinants of Investment and Consumption in Heavily Indebted Countries," *Weltwirtschaftliches Archiv* 127 (2): 281-299.
- Hume, David (1752) "Of the Balance of Trade," in *Essays, Moral, Political and Literary* (ed. D. Rotwein), London
- International Monetary Fund (2004) Global Financial Stability Report: Market Developments and Issues September 2004.
- Kaminsky, Graciela, Saul Lizondo, and Carmen Reinhart (1997) "Leading Indicators of Currency Crises" Policy Research Working Paper 1852, Washington: World Bank
- Kaminsky, Graciela L., Carmen M. Reinhart, and Carlos A. Végh (2004), "When it rains, it pours: procyclical capital flows and macroeconomic policies," Working Paper 10780, National Bureau of Economic Research, September.
- Keynes, John Maynard (1933/1982) "National Self-Sufficiency," *The Collected Writings of John Maynard Keynes*, vol. 21. London: Macmillan
- Khan, Mohsin S. and Malcolm D. Knight (1983) "Determinants of Current Account Balances of Non-oil Developing Countries in the 1970s," *IMF Staff Papers* 30 (December): 819-842.
- Knight, Malcolm and Fabio Scacciavillani (1998) "Current Accounts: What is their relevance for economic policymaking?" International Monetary Fund Working Paper WP/98/71.
- Levine, Ross (1997) "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, June 1997, 35(2), pp. 688-726.
- Levine, Ross, Loayza, Norman, and Beck, Thorsten (1999) "Financial Intermediation and Growth: Causality and Causes", World Bank Policy Research Working Paper 2059, February 1999.
- Levine, Ross and David Renelt (1992) "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review* 82, 4 (September): 942-963.
- Lippens, Robert E.(1997) "Are trade deficits that bad?" *Business Economics* April 1997.
- List, Friedrich (1837/1983) *The Natural System of Political Economy*. London: Frank

- Cass.
- Locke, John (1691) "Some Considerations of the Consequences of the Lowering of Interest, and Raising the Value of Money" in *Several Papers Relating to Money, Interest, and Trade*, London.
- Loungani, Prakash and Assaf Razin (2001) "How Beneficial Is Foreign Direct Investment for Developing Countries?" *Finance and Development*, June 2001, Vol. 38, No. 2, pp. 6-10.
- Mann, Catherine (2002) "Perspectives on the U.S. Current Account Deficit and Sustainability," *Journal of Economic Perspectives* 16, 3 (Summer): 131-152.
- McKinnon, Ronald I. (1964) "Foreign Exchange Constraints in Economic Development," *Economic Journal* 74 (June): 388-409.
- Mendoza, E.G. (1994) "Terms of Trade Uncertainty and Economic Growth: Are Risk Indicators Significant in Growth Regressions?," Board of Governors of the Federal Reserve System, International Finance Discussion Paper 491. Washington, DC.
- Milesi-Ferretti, Gian Maria and Assaf Razin (1996) *Current-account sustainability* Princeton studies in international finance: 81 International Finance Section, Princeton University.
- Milesi-Ferretti, Gian Maria and Assaf Razin (1998) "Sharp Reductions in Current Account Deficits: An Empirical Analysis," *European Economic Review* 42: 897-908.
- Mills, Cadman Atta and Raj Nallari (1992) *Analytical Approaches to Stabilization and Adjustment Programs*. Economic Development Institute Seminar Paper 44. Washington: World Bank.
- Mody, Ashoka and Antu Panini Murshid (2005) "Growing Up with Capital Flows," *Journal of International Economics* 65: 249-266.
- Moon, Bruce E. (1998) "Exports, Outward-oriented Development, and Economic Growth," *Political Research Quarterly* 51, 1 (March): 7-37.
- Moon, Bruce E. (2000a) *Dilemmas of International Trade*, revised edition. Boulder: Westview Press.
- Moon, Bruce E. (2000b) "Reconsidering Outward-oriented Development after the Asian Financial Crisis," Paper prepared for the Annual Meetings of the International Studies Association, March 14-18, Los Angeles.
- Moon, Bruce E. (2001) "The Dangers of Deficits: Reconsidering Outward-oriented Development," Paper prepared for the International Studies Association - Hong Kong conference, "Globalization and its Challenges in the 21<sup>st</sup> Century," July 26-28, 2001, Hong Kong.
- North, D. (1691) *Discourses Upon Trade*, London.
- Obstfeld, Maurice 1998 "The Global capital market: benefactor or menace?" *Journal of Economic Perspectives* 12 (4): 9-30.
- Obstfeld, Maurice, and Kenneth Rogoff. 2004. "The unsustainable U.S. current account position revealed." National Bureau of Economic Research, Working Paper No. 10869. Cambridge, Mass.: NBER.
- Pattillo, Catherine, Hélène Poirson, and Luca Ricci, 2002, "External Debt and Growth," IMF Working Paper 02/69 (Washington: International Monetary Fund).



- Pattillo, Catherine, Helene Poirson, and Luca Ricci (2004) "Through What Channels Does External Debt Affect Growth?" in *Brookings Trade Forum 2003*, Susan M. Collins and Dani Rodrik, Editors, Brookings Institution Press 2004.
- Pastor, Manuel, Jr. (1989) "Current Account Deficits and Debt Accumulation in Latin America: Debate and Evidence," *Journal of Development Economics* 31: 77-97.
- Pitchford, John (1995) *The Current Account and Foreign Debt*. London: Routledge.
- Rapley, John (1996) *Understanding Development: Theory and Practice in the Third World* Boulder: Lynne Reinner Publishers.
- Razin, Assaf (2002) "FDI Contribution to Capital Flows and Investment in Capacity," Working Paper 9204, National Bureau of Economic Research, September.
- Reisen, Helmut (1996) "The Management of Capital Flows: Lessons from Latin America and Asia," in Ricardo Hausmann and Helmut Reisen, eds., *Securing Stability and Growth in Latin America: Policy Issues and Prospects for Shock-prone Economies*. Paris: Organisation for Economic Co-operation and Development, pp. 177-198.
- Reisen, Helmut (1998a) "Sustainable and Excessive Current Account Deficits" *Empirica* 25, 2: 111-31.
- Reisen, Helmut (1998b) "Domestic Causes of Currency Crises: Policy Lessons for Crisis Avoidance" OECD Technical Paper #136 (June)
- Rochon, L-P. and M. Vernengo (2003), "State Money and the Real World: Chartalism and its Discontents," *Journal of Post Keynesian Economics*, 26 (1), Fall, pp. 57-67.
- Rodrik, Dani and Andres Velasco (1999) "Short-Term Capital Flows," National Bureau of Economic Research Working Paper 7364, September.
- Rodriguez, Francisco and Dani Rodrik (1999) "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence," National Bureau of Economic Research Working Paper 7081 (April) Cambridge, MA.
- Romer, Paul M. (1986) "Increasing Returns and Long-run Growth," *Journal of Political Economy* 94, 5 (October): 1002-1037.
- Sachs, Jeffrey D. (1987) "Trade and Exchange Rate Policies in Growth-oriented Adjustment Programs" in Vittorio Corbo, Morris Goldstein, and Mohsin Khan, eds. *Growth-oriented Adjustment Programs* (Washington: IMF)
- Sachs, Jeffrey D. and Andrew Warner (1995) Economic Reform and the Process of Global Integration, *Brookings Papers on Economic Activity* 1: 1-118.
- Sarno, Lucio and Mark P. Taylor (1999) "Hot money, accounting labels and the permanence of capital flows to developing countries: an empirical investigation," *Journal of Development Economics* 59: 337-364.
- Shaikh, Anwar M., Gennaro Zezza, and Claudio H. Dos Santos (2003) "Is International Growth the Way Out of U.S. Current Account Deficits? A Note of Caution," Levy Institute.
- Smith, Adam (1937 [1776]) *The Wealth of Nations*. Reprint. New York: The Modern Library, Random House.
- Soto, Marcelo (2000) "Capital Flows and Growth in Developing Countries: Recent Empirical Evidence" OECD Development Centre Working Paper No. 160, July

2000

- Summers, Lawrence (2004) "America Overdrawn," *Foreign Policy* 143 (July/August):46-50
- Taylor, Mark P. (1990) *The Balance of Payments: New Perspectives on Open-economy Macroeconomics*. Aldershot, England: Edward Elgar Publishing Limited.
- Tsanacas, Demetri, Krishna M. Kasibhatla, and John Malindretos (2000) "A survey of the Monetary Approach to International Finance," in Augustine C. Arize, Theologos Homer Bonitsis, Ionnis N. Kallianiotis, Krishna M. Kasibhatla, and John Malindretos, eds., *Balance of Payments Adjustment: Macro Facets of International Finance Revisited*. Westport, Connecticut: Greenwood Press, chapter 2, pp. 15-32.
- Turner, Phillip (1991) "Capital Flows in the 1980s: A Survey of Major Trends," *Bank for International Settlements Economic Papers*, no 30.
- UNCTAD (1999) *Trade and Development Report 1999*.
- Van Wijnbergen, Sweder (1992) "Trade Reform, Policy uncertainty, and the current account: a non-expected-utility approach," *American Economic Review* 82, 3 (June): 626-633.
- Velasco, A. (2002) "Dependency Theory a Generation Later," *Foreign Policy* 133 (Nov. Dec.): 45-47
- Vernengo, Matias (2004) "Technology, Fiancé, and Dependency: Latin American Radical Political Economy in Retrospect," University of Utah, Dept. of Economics Working Paper 2003-02.
- Viner, Jacob (1948) "Power versus Plenty as Objectives of Foreign Policy in the Seventeenth and Eighteenth Centuries," *World Politics* 1, 1 (October): 1-29.
- World Bank (1999) *World Development Indicators 1999* Washington: World Bank.