

IV

Are the Imbalances Sustainable?

Is the United States “Living beyond Its Means” or an “Oasis of Prosperity”?

The current prosperity . . . has a precarious foundation. It is based to a very large extent on borrowing—both from America’s own future and from the rest of the world.

—C. Fred Bergsten, *America in the World Economy: A Strategy for the 1990s* (1988)

The fact that the U.S. remains an oasis of prosperity assures continued deterioration in its trade deficit, as imports grow amid weak foreign demand.

—James C. Cooper and Kathleen Madigan, *Business Week* (8 February 8, 1999)

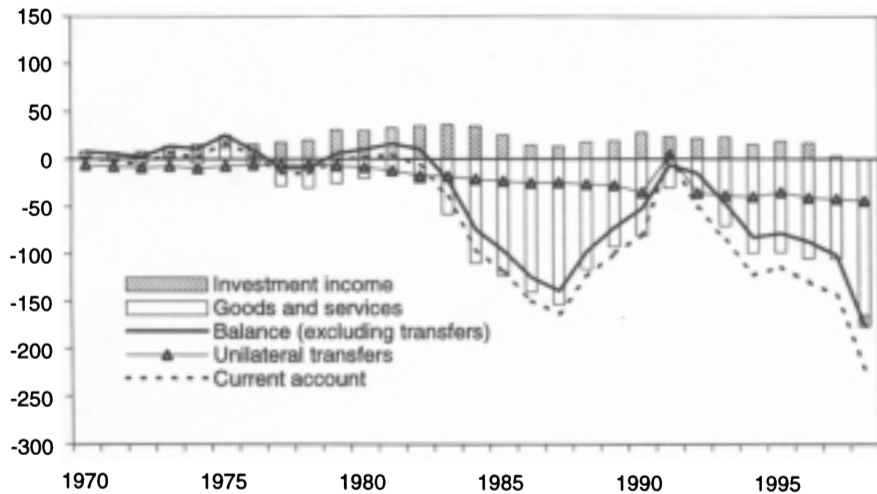
For nearly 20 years, the real goods and services trade balance of the United States has been in deficit. Such a persistent external deficit suggests to some that as a nation we spend more than we earn, continually borrowing to maintain an illusion of prosperity. Yet a corporation borrows to build a larger plant to reap future profits, and a student goes into debt to finance an education that will provide entry to a higher-paying job after graduation. Hence borrowing per se does not indicate profligate behavior.

Moreover, even though the trade balance has been consistently negative, when it narrowed nearly to balance (1991-92), the United States was in recession, and when it widened dramatically (last half of the 1990s), the United States experienced unprecedented growth (see figure 4.1).

How should we distinguish between the causes and consequences of the cyclical component of the deficit as compared to the causes and con-

Figure 8.1 Components of US external balance: Trade balance, net investment income, and current account, 1970-98

billions of US dollars



Source: US Department of Commerce, *International Transactions Tables*.

sequences of the persistent component of the deficit? There is a point at which borrowing (the counterpart of the trade deficit), even for good reasons, becomes too much. Has the United States reached that point? Specifically, in 1997 the net investment service account on the negative net international investment position turned from positive to negative, and the net payments are becoming ever larger (figure 8.1). How are these questions related to the sustainability of the deficit?

Chapter 2 outlined an approach to analyzing the external balance that focused on the domestic economy: external balance is the excess of domestic expenditure over domestic production or, expressed equivalently, domestic investment over national savings. When investment exceeds national savings, the remainder is financed by foreign savings. Similarly, if a nation wants to spend more than it earns, foreigners must be willing to accept its domestic assets in exchange for goods and services. The focus in chapter 2 on the behavior of domestic actors in the economy may have implied that foreigners respond passively to the demands of our national accounts—lending or not lending regardless of their own preferences.

This chapter offers a different, but related, perspective on the US external balance, this time with an explicit and dynamic role for foreign firms, consumers, and investors. By focusing on the forces that drive export and import *flows* instead of the *balance*, this alternative framework allows us to examine the effects of global versus national business cycles. In addition, this framework points to the importance of the *components* of the trade

flows (for example, consumer goods versus capital goods) in the long-run capacity of an economy to grow. Finally, this framework integrates the exchange rate and relative-price concepts elaborated in chapter 7.

Developing this framework is a first step toward addressing whether we are living beyond our means or are “an oasis of prosperity.”¹ This chapter focuses mostly on the cyclical underpinnings of the trade deficit, although the persistent trend is addressed as well. Chapter 10 switches the focus to address whether the persistent trend and its trajectory are sustainable over the long term.

Income and Relative Prices Affect Trade Flows

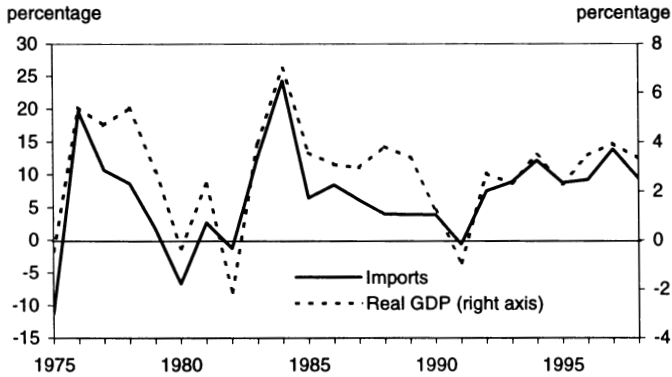
Two key factors that drive trade flows are income growth and changes in relative prices. Exports grow faster when foreign income grows faster and when the relative prices of exports to competing goods and services in the destination market fall. Imports grow faster when domestic income grows faster and when the relative prices of imports to domestic goods and services fall (figure 8.2).

The relationship between GDP growth and trade is very obvious in the data. But close examination reveals the role of relative prices as well. Relative prices have several components: the cost of production, the firm’s markup over cost, and the exchange rate, which allows a buyer to compare prices in a common currency (see chapter 7). The real exchange value of the US dollar summarizes these three factors. If costs and markups remain about unchanged, an appreciation of the dollar will reduce the price of imports into the United States and will make US exports more expensive in the destination market’s currency. Thus when the dollar appreciated in the periods of 1975-77 and 1981-85, for example, the growth rate of US exports was less than or fell relatively more than would have been expected on the basis of the growth of foreign income (for these years, the dotted line above the solid line in figure 8.2b). In contrast, when the dollar depreciated, as in the 1977-79 and 1986-89 periods, the price of imports into the United States tended to rise, so import growth was less than would have been expected on the basis of the growth of US income (the dotted line above the solid line in figure 8.2a). The price of US exports in the destination market currency tended to fall, making US exports more attractive there, and so exports grew faster than would have been expected on the basis of world income (the dotted line below the solid line in figure 8.2b).

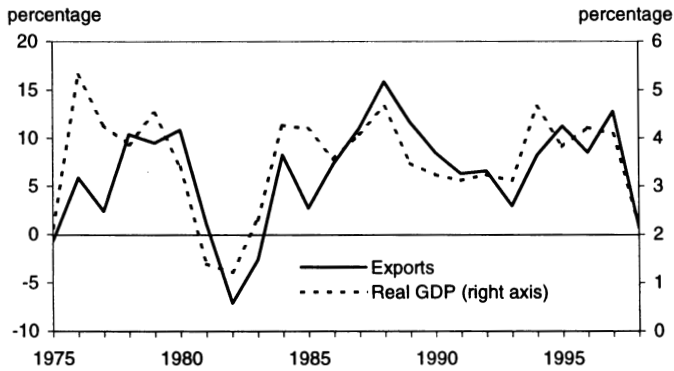
1. The phrase “oasis of prosperity” has been used by Alan Greenspan, the chairman of the Federal Reserve Board, in numerous speeches in 1998 and 1999 to describe the economic situation in the United States compared to its trading partners as well as to warn that the United States cannot remain such an oasis forever.

Figure 8.2 Economic growth, exchange rate, and trade balance, 1975-98

A. Imports and US GDP growth

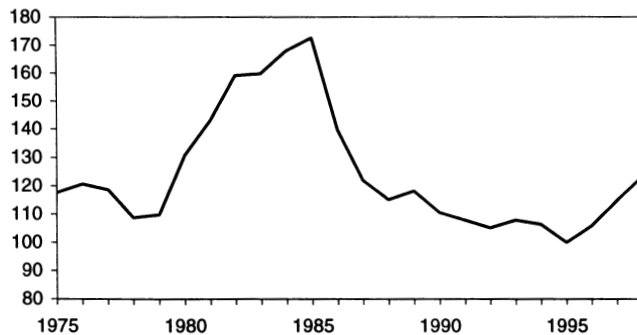


B. Exports and world GDP growth (excluding the United States)



C. Real effective exchange rate, WPI-base

1995 = 100



Note: World growth rate for 1998 is an IMF projection.
 Sources: US Department of Commerce, *Survey of Current Business*; IMF, *International Financial Statistics*; *World Economic Outlook*.

This income and relative price framework for analyzing trade flows is incomplete in the sense that income and the components of relative prices and the exchange rate are not modeled along with exports and imports. Feedback mechanisms between trade and both income and the relative prices clearly are important.² Moreover, this framework does not explicitly incorporate more fundamental determinants of trade, such as tastes and factor endowments.³ Finally, it does not incorporate the feedback effects of large trade deficits on the exchange rate, a topic reserved for chapters 9 and 10. Nevertheless, this framework has been quite effective in explaining most of the year-to-year movements in real exports and imports and therefore the balance of US trade.

Domestic interest rates and the dollar exchange rate are not modeled here along with trade flows, but they are key links between this framework and the savings-investment framework outlined in chapter 2. Foreign savings is not a residual balancing entry (as in the NIPA equation) but is affected by interest and exchange rates and expectations for them. Domestic investment is also a function of the domestic interest rate. So if foreigners want to invest in US assets because the rate of return to capital in the United States is high, the dollar will appreciate relative to what it would be otherwise, and the external deficit will be larger than it would be otherwise. By the same token, US interest rates will be lower than they would be otherwise, and US investment and income stronger. Thus there is consistency between the income-relative price framework analyzed in this chapter and the savings-investment framework analyzed in chapter 2.

Business Cycles and External Balance

Since trade flows depend on income growth here and abroad, US external balance is importantly influenced by the degree to which the domestic and foreign cycles of economic activity are synchronized. Figure 8.3 shows the US real trade balance and the year-to-year growth rates in foreign and US income. Two periods of cyclical behavior stand out. In the early 1980s and again in the early 1990s, US GDP growth slowed dramatically well before economic activity in the rest of the world slackened. As the United States entered recession, consumption and investment slowed and import growth fell, but exports to the world continued growing. As a result, the trade deficit narrowed. On the other hand, coming out of recessions, the United States burst into periods of sustained recovery while the rest of the world stagnated, and the trade deficit widened considerably.

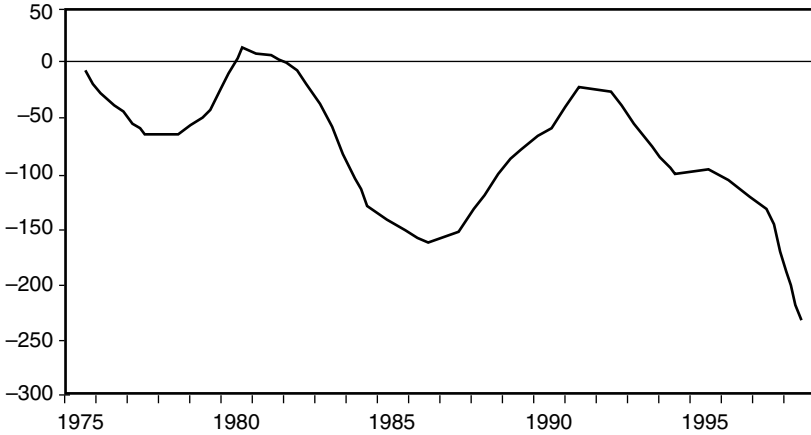
2. Chapter 5 discusses how trade competition and exchange rates affect productivity growth and domestic inflation, which are key underpinnings of income and relative prices.

3. How these are reflected in trade patterns and US trade characteristics is covered in chapter 3.

Figure 8.3 Relative growth and the trade balance, 1975-98

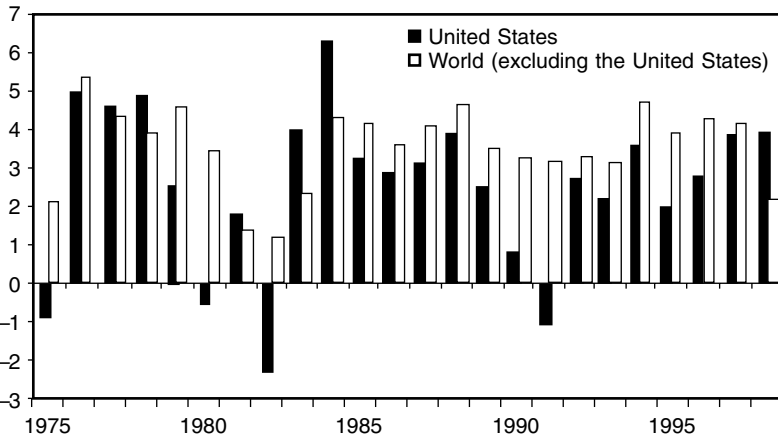
A. US real trade balance

billions of US dollars



B. US and world growth rates

percentage



Sources: US Department of Commerce, *Survey of Current Business*; IMF, *International Financial Statistics* (1997).

This behavior is also evident in the late 1990s. The US economy slowed in 1994, but then rebounded and continued to strengthen from 1995 through 1998 (and into 1999). The world growth rate remained steady in the early 1990s, dipping just a bit in 1995 and then, of course, dropping dramatically into the trough generated by the financial crises of 1997-98. Consequently, US imports have tended to rise faster than US exports, causing the trade deficit to widen.

Just as the trade balance is influenced importantly by the difference between income growth at home and abroad, the trade balance also reflects the internal imbalance between domestic demand and production.⁴ When domestic demand outstrips capacity to produce, as has been the case in the United States in the past several years, trade acts as a “safety valve,” allowing domestic demand to be satisfied without generating inflationary pressures on prices (figure 8.4). The trade balance also acts to cushion production when domestic demand is weak. For example, in the mid-1990s, when domestic demand was not growing as strongly, GDP growth and employment were supported by increased exports abroad.

Impact of Financial Turmoil on US External Balances

The most recent and dramatic example of the effect of changes in domestic and global growth on the US trade and current account balances is the period of financial turmoil and associated US policy responses⁵ (table 8.1). In early 1997, as the turmoil was brewing, the consensus forecast presented in the *OECD Economic Outlook*⁶ (June 1997 issue) suggested that both the United States and the OECD member countries as a group would grow more rapidly than they had in 1996, with the increase in the US growth rate expected to be significantly greater than the OECD average. Consequently, the OECD analysis projected a widening of the US external deficit: the US merchandise trade deficit for 1997 was projected to be \$205 billion, with the current account deficit at 2.3 percent of GDP.

At that time, the OECD projected that the expected robust growth in the United States would precipitate monetary tightening, which would slow the US economy substantially by 1998. Overall OECD growth was expected to retreat a bit too, but by far less than US growth, since the other member countries had not been growing as fast for so long. This constellation of US and OECD growth rates for 1998 was supposed to stabilize the US external deficit in 1998, with a merchandise trade deficit of \$215 billion and a current account ratio of 2.4 percent of GDP.

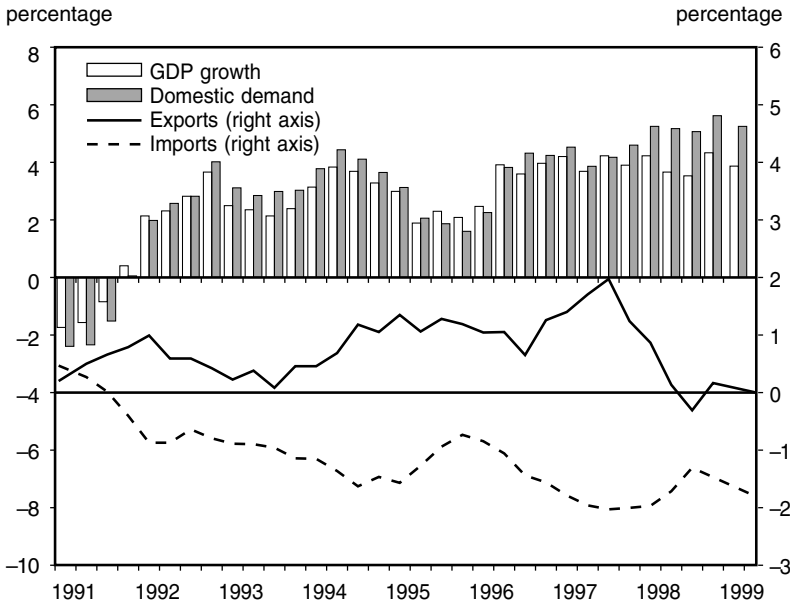
What actually happened is quite different. By the time the December 1998 forecast was issued (with much of the data for the year already available), forecasters dramatically reduced their expectations for OECD growth

4. This presentation is another approach to examining the NIPA framework outlined in chapter 2.

5. Included in the rubric “financial turmoil” are the banking and currency crises in several emerging markets in Asia, the policy failures in Japan, and the Russian defaults on loans. The introduction of the euro adds uncertainty to this period.

6. The consensus forecast from the OECD member countries is representative of many forecasts; its use here should not highlight any particular folly or accuracy on the part of the OECD.

Figure 8.4 Trade as the “safety valve,” 1991-99 (1Q)



Source: US Department of Commerce, *Survey of Current Business*.

in 1998. But the US GDP growth rate, partly in response to significant *easing* of US monetary policy (in contrast to the tightening that had been expected), was one and one-half times what it had been projected to be 18 months earlier, and domestic demand growth stood at more than twice the projected rate. Imports were flowing into the United States. The projected drop in OECD growth, precipitated in part by the falloff in demand in the Asian markets, worsened, and half a percentage point was lopped off the OECD growth rate. US exports were expected to slump—and they did fall, starting at the end of 1998 and into the first three months of 1999. The US current account for 1998 was estimated to widen to 2.7 percent of GDP with a merchandise trade deficit of \$256 billion, in contrast to the 2.4 percent and \$215 billion that had been projected in early 1997, before the series of crises began. Finally, the actual data show even more dramatically the impact of the crises. The falloff in exports hit merchandise hardest, with the actual deficit recorded at \$312 billion.

The forecasters have tended over the past 18 months to overestimate OECD growth and underestimate US growth. If this pattern continues, the external deficit will be significantly larger than currently projected. Indeed, forecasts based on data for the first quarter of 1999 project a merchandise trade deficit of \$340 billion for the year. The consequences of a continued large deficit are addressed in more detail in chapter 10.

Table 8.1 Projected growth and US external balance, 1997-99

	1996	1997	1998	1999
	Actual	Projected	Projected	
Prediction in June 1997				
OECD growth (percentage, year-over-year)	3.0	3.0	2.7	-
US growth (percentage)	3.4	3.6	2.0	-
US domestic demand (percentage)	3.6	3.9	2.1	-
US current account				
Share of GDP (percentage)	-1.8	-2.3	-2.4	-
Level (billions of US dollars)	-134.9	-187	-202	-
US merchandise trade balance (billions of US dollars)	-198.0	-205	-215	-
			Estimated	Projected
Prediction in December 1998				
OECD growth (percentage)	-	-	2.2	1.7
US growth (percentage)	-	-	3.5	1.5
US domestic demand (percentage)	-	-	4.9	2
US current account				
Share of GDP (percentage)	-	-	-2.7	-3.1
Level (billions of US dollars)	-	-	-229	-272
US merchandise trade balance (billions of US dollars)	-	-	-256	-286
			Actual	
OECD growth (percentage, year-over-year)	3.0	3.2	2.2 ^a	n.a.
US growth (percentage)	3.4	3.9	3.9	n.a.
US domestic demand (percentage)	3.6	4.2	5.2	n.a.
US current account				
Share of GDP (percentage)	-1.8	-1.9	-2.7	n.a.
Level (billions of US dollars)	-134.9	-155.2	-233.4	n.a.
US merchandise trade balance (billions of US dollars)	-198.0	-248.0	-311.9	n.a.

n.a. = not available

a. This figure is estimated.

The Puzzling “Income Asymmetry”

There is a puzzling relationship between relative GDP growth rates and US trade flows. Although US economic activity rebounded and has been quite strong during periods of economic expansion in the 1980s and 1990s,

Table 8.2 Estimated income elasticities of trade for the United States

Investigators	Data period	Income elasticities			
		Exports of goods and services		Imports of goods and services	
Houthakker and Magee (1969)	1951-66	0.99		1.51	
Hooper, Johnson, and Marquez (1998)	1960-96	0.80 (long-run)		1.80 (long-run)	
		1.80 (short-run)		1.00 (short-run)	
Cline (1989)	1973-87	1.70		2.44	
		Exports		Imports	
		Goods	Services	Goods	Services
Wren-Lewis and Driver (1998)	1980-95	1.21	1.95	2.36	1.72

its growth rate is still generally lower than the world growth rate (figure 8.3b). Yet the trade deficit has generally continued to widen. The puzzle—whereby the rest of the world grows faster than the United States but the United States still incurs a trade deficit—is a consequence of what apparently is a greater appetite for imports by US consumers and businesses than foreigners’ appetite for US exports. This has been a feature of US trade for the whole of the postwar period, but the implications for the trade deficit have been more apparent since the breakdown of the Bretton Woods system of fixed exchange rates.

Econometric analyses of the joint effect of income and relative prices on the US trade balance have consistently estimated that US imports and exports respond to about the same degree to changes in relative prices, but differ significantly in their response to changes in economic activity. A variety of estimation periods, different data, and several techniques yield broadly the same results (table 8.2). The estimated responsiveness of US imports to US economic activity is significantly larger than the responsiveness of exports to changes in foreign economic activity, particularly in the long run and for trade in goods. This “income asymmetry” implies that even if the United States and its trading partners grow at the same rate (and the exchange value of the dollar remains unchanged), the US real trade deficit widens. In addition, while the estimate of the income elasticity varies a bit, generally it is larger than 1, which means that as income rises, imports rise more than proportionately.

These results are particularly interesting in that, although they have persisted since economists started examining the relationships in the early 1960s (with data going back to the first postwar years), they violate long-run principles. That is, in a theoretical “long-run global equilibrium,” all countries will import at the same rate, since if a single country imported more than its share, it ultimately would consume the production of all

other countries. There is a similar “long-run internal equilibrium” within a country by which income and imports should grow at the same rate, since if income did not keep pace, a country would ultimately spend all its income on imports.

In the context of the United States, a persistently higher import elasticity for the United States would imply that the world would absorb US assets while the United States consumed all its production. Moreover, with an income elasticity of imports greater than 1, as the United States grew, more and more of its income would be spent on imports, and more and more of its production would be exported, until there was no longer any domestic consumption of domestic production. Neither of these cases makes sense; nor do we see a trend in that direction for world trade and finance. Yet the econometric estimates of the income elasticities are very effective when it comes to projecting changes in US exports and imports.

Much research has focused on trying to explain the sources of the income asymmetry. For example, some researchers suggest that there is a “missing variable” in their econometric estimation procedure, or mismeasured variables. Candidate variables include new global capacity to produce, entry of new international competitors into the global marketplace, and incorrect price measures. Although promising in some instances, none of this work has resolved the income asymmetry (see Hooper and Mann 1989; Mann 1991).

A different approach is to consider whether the income asymmetry might gradually disappear as the world’s economies mature and spend more on services and less on manufactured goods. Supporting this possibility is the observation that the income asymmetry is quite pronounced for US trade in goods, but is nearly absent (by one estimate even reversed) for US trade in services (see table 8.2). As foreign economies mature, some of their growing demand for services will spill over into purchases of US service exports. The share of service exports in total US exports of goods and services would increase, which would tend to increase the foreign income elasticity. Ensuring that these markets are open to receive US service exports will enhance the likelihood that this scenario will unfold. (For more on the service sector’s role in US trade flows, trade policy, and the sustainability of the trade deficit, see chapters 3, 6, and 10.)

Finally, a combination of the “missing variable” and “long-term changes” research shows that demographic factors can both significantly affect the estimated income asymmetry and point to a reduction of the asymmetry in the future. Including demographic factors (such as immigrants and the age distribution of domestic residents) into the equation for US imports reduces the income elasticity of imports to the unity value expected (Marquez 1998, 1999; Gould 1994). These two demographic factors make sense, and they also help to explain why the trade deficit persists now. Immigrants certainly have more information about products available abroad and may maintain their tastes for native products long after moving to a

new country. Foreign-born residents account for about 10 percent of the US population, twice the proportion of the 1960s. Ignoring a rising share of people who have a greater tendency to consume imports for any given income level would tend to bias upward the estimated relationship between income and imports. By the same token, older residents tend to consume a higher fraction of “domestic” goods and services such as health care. As this group grows as a proportion of the US population, income elasticity on imports of consumption goods would tend to fall.

Private Savings and the Components of Trade

In light of both historical behavior and recent developments, it is too simple to conclude that the existence of an external deficit means that the United States is living beyond its means. Changes in the external position are the product of both domestic and global forces. Nevertheless, after we have cut through the cyclical variations and considered possible structural change, two strands of evidence suggest longer-term problems, which might imply that a reduction in US spending will be necessary in the future to pay for our current period of consuming more than we produce.

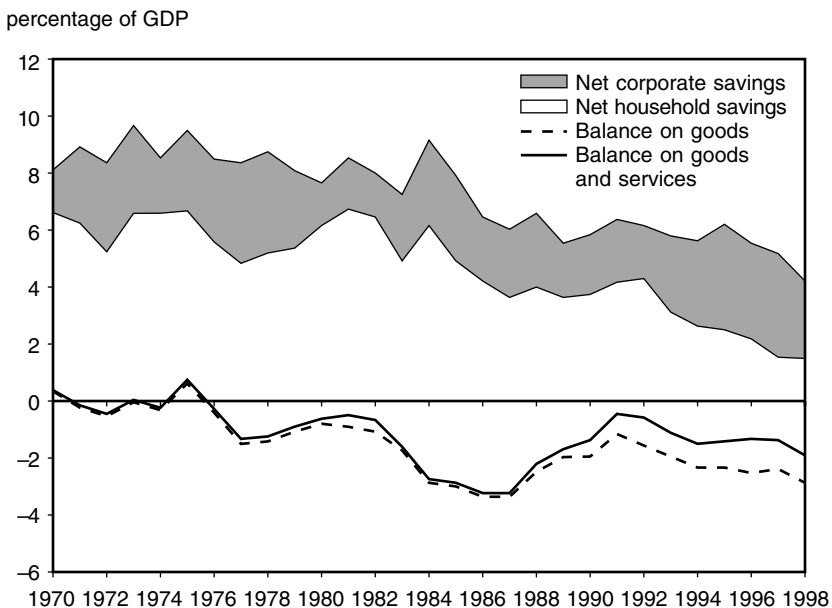
The Behavior of Private Spending

The first strand of evidence is found in the correlation between the decline in the private savings rate and the behavior of the trade deficit (figure 8.5). Although not a close relationship on a year-to-year basis, the rate of private savings has generally trended downward since the early 1980s, which is about when the persistent trade gap opened up. Indeed, the reductions in the trade deficit in 1981-82 and 1991-92 resulted more from a cyclical slowdown in investment than from an increase in private savings (see figure 2.5). In recent years, the rate of personal savings by households has fallen even more dramatically, as has the trade balance, most notably the merchandise component. Thus the declining rate of private savings, driven particularly by declining household savings, might help to explain the persistence of the external deficit.⁷

But national income and product accounting shows that the trade balance mirrors the balance between *national* savings and investment, not *private* savings and investment (see chapter 2). Why would the decline in private savings, particularly personal savings, appear to cause the trade deficit to widen more than an increase in government savings would tend to make the trade balance narrow? The main reason is that the marginal

7. For discussions of possible mismeasurement of the household savings rate, see the references cited in chapter 2.

Figure 8.5 Private savings and trade balance, 1970-98



Source: US Department of Commerce, *Survey of Current Business*.

propensity of the government to consume imports is less than that of private businesses and households—that is, government saving and personal dis-saving have different first-round effects. Changes in the behavior of private market participants have a greater effect on the trade balance.

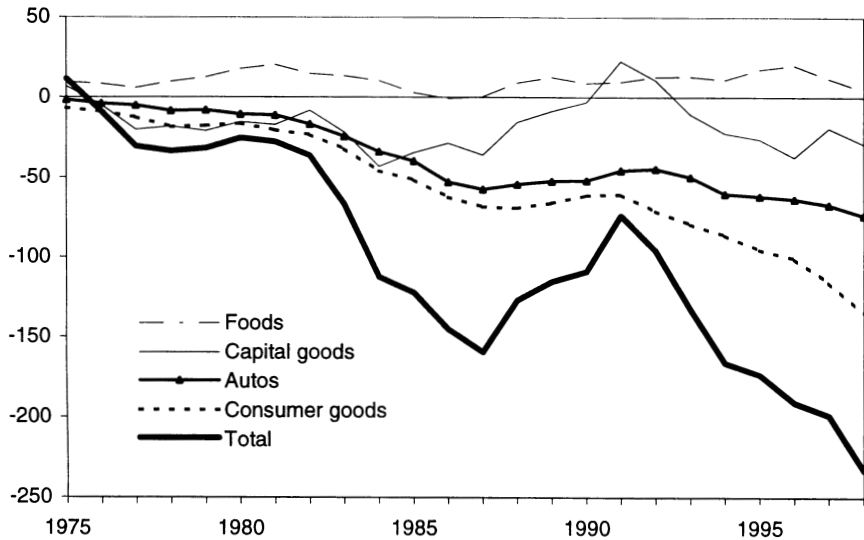
However, simply having a low savings rate does not necessarily imply difficulties in repaying what has been borrowed, as the examples of the corporation and the student at the beginning of this chapter suggest. What matters is what is being purchased by households and businesses when they buy instead of save. This requires examining the major components of trade as well as the overall pace of domestic consumption and investment.

The Components of Trade

Both the cyclical pattern and the persistent trend in the US trade balance are related to two key categories of trade in goods. First, recall that the behavior of the overall balance comes from the cycle and trend in the balance on merchandise trade (see figure 3.2). The cyclical behavior of the balance on merchandise trade comes from fluctuations in trade in capital goods and industrial supplies and materials, which are the two components most associated with the changes in businesses' demand for investment goods that occur over the business cycle. On the other hand, the per-

Figure 8.6 Balance on merchandise trade by sector, 1975-98

billions of US dollars



Sources: Bureau of Economic Analysis, *International Transactions Tables*, Historical Diskette; US Department of Commerce, *Survey of Current Business*.

sistent downward trend in the trade balance comes from a widening deficit in consumer goods and autos (figure 8.6). This suggests that consumers have been driving the trend not just by spending generally, but in particular by spending on imported consumption goods and autos. This pattern of spending on imported consumption goods matches domestic consumer spending habits, as evidenced by retail sales data. Such spending, however, does not appear to be of the sort that will finance the wherewithal to repay the associated borrowing.

Examining imports alone yields a somewhat different assessment (table 8.3). In the early 1980s, the fastest-growing component of imports was consumer goods and autos, at somewhat less than twice the rate of growth of merchandise imports over the period. In contrast, in the 1990s, import growth has been balanced between consumer goods and autos on the one hand and investment goods of capital machinery and industrial supplies and materials on the other. Returning to the analogy of the firm investing in plant and equipment, in the 1990s US imports seem to be of the type that will support the capacity of the United States to grow, which should create the wherewithal to make good on the financial investments purchased by foreigners as well as by domestic investors. This pattern of investment imports matches the robust investment demand in the United States in the 1990s.

Table 8.3 Growth rate of US merchandise imports
(percentage, period average)

	1982-87	1991-98
Total	7.9	8.0
Consumer goods and autos	16.8	8.1
Capital goods and industrial supply materials	10.4	10.0
Foods	5.2	6.0
Energy products	-7.8	0.3
Other	14.3	9.3

Source: US Department of Commerce, *International Transactions Tables*.

What are we to conclude from the data? Cyclical spending is robust, the rest of the world is growing slowly, and this is why the trade deficit has continued to widen. In comparison to the 1980s, the pattern of spending in the 1990s is better balanced between consumption and investment goods, so the cyclical widening of the deficit in the 1990s is of less concern than it was in the 1980s. Hence, for the time being, the United States is an oasis of prosperity. However, the underlying persistent trend decline in the external balance and its association with a persistent decline in personal savings are trends that cannot continue and that will sow the seeds of change in either incomes or relative prices (exchange rates)—points that will be addressed in the final chapter. Hence, from the long-term perspective, the United States is living beyond its means.

Conclusion

Summary

- At any point in time, the trade balance is a reflection of short-run cyclical behavior of income growth here and abroad as well as of trends in saving and spending. Thus a trade deficit by itself does not indicate that the United States is spending beyond its means.
- From the global perspective, the dramatic widening of the deficit in the late 1990s is fundamentally of a cyclical nature, being driven by a continued robust US economy while the rest of the world stagnates or drops into recession. Moreover, the impact of the differential in rates of growth of GDP on the trade balance has been augmented by an appreciation of the dollar of some 25 percent since mid-1995.
- From the domestic perspective, the trade balance acts as a “safety valve.” Imports satisfy robust domestic demand when it exceeds do-

mestic production, as it certainly has recently, and exports support domestic production when domestic demand is weak.

- The trend decline in the private savings rate, particularly of the personal household savings rate, appears to be importantly associated with the trend widening of the trade deficit. The improvement in the government savings rate in the late 1990s (from the shift into surplus of the federal budget balances) has not offset the decline in the private savings rate, because smaller proportions of government spending go to imported goods and services.
- In principle, a lower private savings rate could mean that certain kinds of spending are being undertaken that will raise the future growth rate of the economy, enabling it to service the debt incurred by the spending program. In the past decade, investment goods have increased as a share of trade, and the growth rate of investment and imports of investment goods all have been quite robust. Consequently, the trend widening of the deficit during the 1990s may be more easily financed by new capacity in the US economy in comparison to the widening trade deficit of the 1980s, which was associated with falling rates of investment.

Policy Discussion

- Statistical analysis has long documented an asymmetry in the relationship between US growth and imports versus foreign growth and exports that implies a persistently widening trade deficit. This asymmetry is particularly pronounced for merchandise trade, but it is less apparent (or reversed) for trade in services. Consequently, as foreign economies develop and begin to consume a higher fraction of services, US total exports should begin to grow even more quickly. Trade negotiations to liberalize the service sector would help to ensure that US companies have a fair shot at these developing markets.
- The United States is an oasis of prosperity that, to some extent, it has created by spending beyond its means. Much of the spending has been on investment in computers and information technology, which is increasing the long-run capacity of the economy to grow and hence is not profligate. Nevertheless, the trend decline in personal savings

and the dependence on wealth for consumption and consumer-goods imports creates a vulnerability. This consumption path cannot be maintained unless wealth growth and foreign savings continue on their present courses, which neither is likely to do in perpetuity.

