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DEFICITS, DEBTS, AND GROWTH

A Reprieve But Not a Pardon

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Introduction

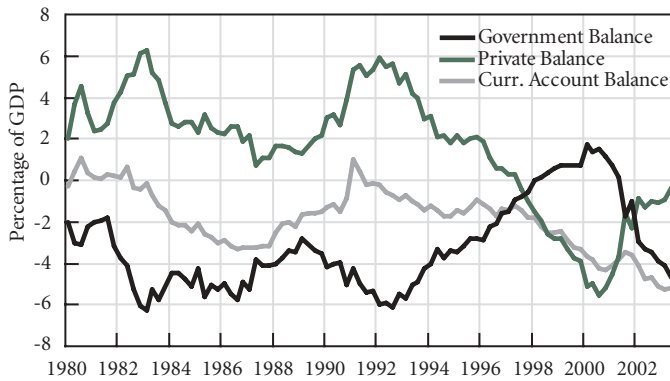
These are fast-moving times. Two years ago, the U.S. Congressional Budget Office (CBO 2001) projected a federal budget surplus of \$172 billion for fiscal year 2003. One year ago, the projected figure had changed to a deficit of \$145 billion (CBO 2002). The actual figure, near the end of fiscal year 2003, turned out to be a deficit of about \$390 billion. And in September, President Bush submitted a request to Congress for an additional \$87 billion appropriation for war expenditures, over and above the \$166 billion tallied so far. It is widely anticipated that even this will have to be revised upward by the end of the coming year (Stevenson 2003; Firestone 2003).

The Levy Economics Institute has long maintained that a large budget deficit was necessary to stave off a recession (Godley 1999; Godley and Izurieta 2001, 2002; Papadimitriou, et al. 2002). Our conclusion derives from the work of Distinguished Scholar Wynne Godley, who developed a macroeconomic model for the Levy Institute and used it to analyze developments in the U.S. economy. As early as 1998, Godley warned that a recession was in the offing and argued that only a radically altered fiscal stance would be able to counter it (Godley and McCarthy 1998). In 2001 we got our recession, and in 2002 the federal budget swung sharply from surplus to ever-growing deficits.

A year ago, when the overall government deficit was about 3.4 percent of GDP, we wrote that this was a step in the right direction, but that “much more will be needed” (Papadimitriou, et al. 2002, p. 2). Indeed, at that time we projected that a 3-percent real (inflation-adjusted) growth rate would require an overall borrowing requirement of about 5 percent. This is almost exactly the situation now. But it must be said that in a nation struggling with growing job losses and a host of other social problems, and in a world riven by extreme poverty and widespread

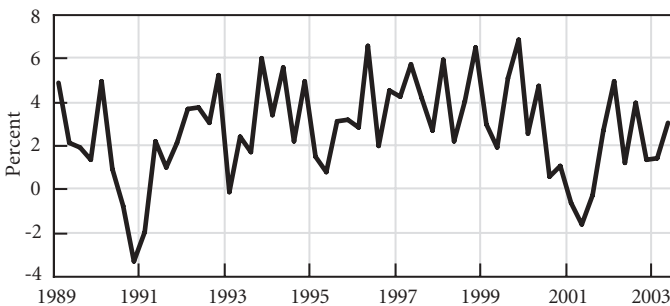
The Levy Institute's Macro-Modeling Team consists of Levy Institute President DIMITRI B. PAPADIMITRIOU, Senior Scholar ANWAR M. SHAIKH, and Research Scholars CLAUDIO H. DOS SANTOS and GENNARO ZEZZA. All questions and correspondence should be directed to Professor Papadimitriou at 845-758-7700 or dbp@levy.org.

Figure 1 The Three Balances in Historical Perspective



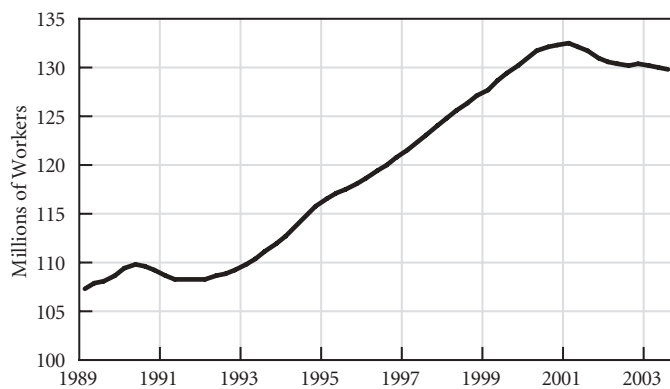
Sources: BEA and authors' calculations

Figure 2 U.S. Real GDP Growth, Quarter by Quarter at Annualized Rates



Source: BEA

Figure 3 Total Nonfarm Employment



Source: BLS (Current Employment Statistics Survey)

misery, the expenditures we had in mind were largely social, not military. We return to this issue at the end of this report.

Our argument in favor of significant budget deficits was based on the understanding that the expansion of the 1990s was fueled by a great buildup of debt, and that this would eventually give way to a severe recession unless offset by a strong fiscal stimulus. By 2000, the stock market bubble had burst. And by 2001, with the total government budget still in surplus, the real annual growth rate fell from 3.7 percent in 2000 to essentially zero percent in 2001. But then, through a combination of tax cuts and war expenditures, the government balance underwent the sharp reversal noted above. In this Strategic Analysis, we consider some of the effects of this extraordinary reversal in the government's fiscal stance.

The Current State of the Economy

The first and foremost macroeconomic consequence of the burgeoning budget deficit has been a jump in the growth rate of output. In August 2002, the CBO projected a real GDP growth rate of 3 percent for 2003, and 3.2 thereafter until 2007. But the CBO also projected that the federal government would be running a federal budget deficit of \$145 billion in 2003, which it expected to gradually dissipate over the next three years. In our own Strategic Analysis of that same year, we argued that the CBO's projected budget path would actually lead to a much lower rate of GDP growth, averaging only 1 percent or so over 2002 to 2006. Concomitant with this would be an unemployment rate rising to 7 to 8 percent from 2005 to 2006.

Conversely, we concluded that in order to achieve the GDP growth path projected by the CBO, it would be necessary to run a large and growing total government deficit. Moreover, because we felt that the total private (personal and business) sector was moving toward balance, we anticipated a rising current account deficit that would essentially mirror the rising government deficit.¹ Although our central focus is always on longer-term implications, it so happens that we estimated that in 2003 it would take a total government deficit of 5 percent to achieve the CBO's projected growth rate of 3 percent. Because we expected the private sector to be still running a deficit of roughly 1 percent in 2003, we also projected a current account deficit of 6 percent (Papadimitriou, et al. 2002, p. 7 and Figure 13).

By the end of the second quarter of 2003, the government deficit stood at 4.7 percent and the annualized growth rate

stood at 3.1 percent. Because the private sector as a whole was moving even more rapidly into balance than we had anticipated, down to a mere 0.4-percent deficit, the current account deficit stood at 5.2 percent. Figure 1 depicts the three sectoral balances, from 1980 to the third quarter of 2003. In this and all other similar figures, sectoral surpluses are displayed as positive numbers and deficits as negative numbers. Figure 2 depicts the actual quarterly growth rate of U.S. real GDP, at annualized rates. It brings out the still tentative nature of the recovery in growth since its bottom in 2001.

The economy is still in an unsettled position. Civilian nonfarm employment began dropping at the beginning of 2001, and has been essentially stagnant for some time (Figure 3).² In the meantime, real weekly earnings of production or nonsupervisory workers in the private nonfarm sector have also stagnated for the last three quarters (BLS 2003). Neither of these developments bode well for future growth in consumption expenditures.

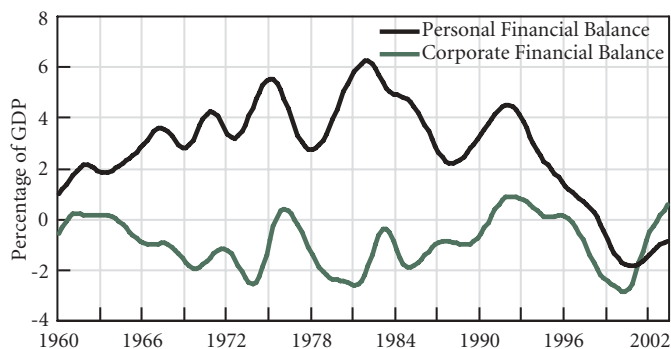
Moreover, although the private sector as a whole is quite close to balance, its two subcomponents behave quite differently. The corporate sector has moved into a small surplus (Figure 4), at least for the moment. Low interest rates have induced corporations to sharply accelerate the rate of growth of their borrowing in the bond market, from a rate of 2.2 percent in the fourth quarter of 2002 to 6.3 percent in the second quarter of 2003.

But the corporate sector has used these newly borrowed funds to pay down short-term debt and to reduce the stock of equities outstanding (Financial Markets Center 2003), while reducing capital expenditures in each successive quarter over this same interval. On the other hand, the personal sector (which comprises not only households but also noncorporate businesses and nonprofit organizations) is still running a deficit (Figure 4). Indeed, in very recent times, the personal sector's net buildup of debt has actually accelerated (Figure 5).

In itself, a continued deficit and even an acceleration of new borrowing by the personal sector should not be worrisome. But when one takes into account the high and still rising debt ratio in the personal sector, then the outlook looks quite troubling (Figure 6).

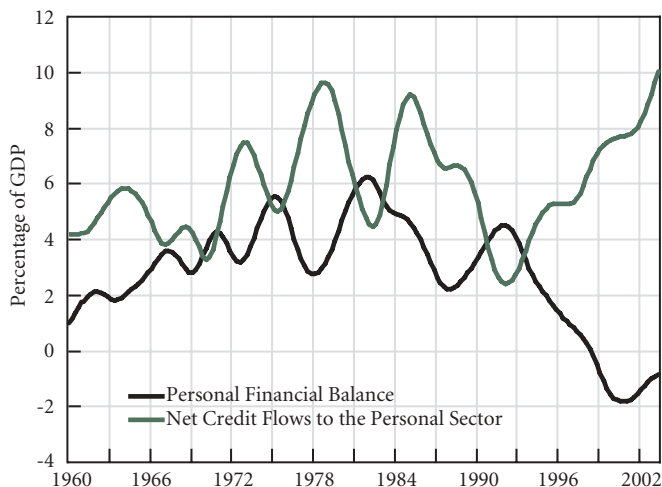
The household sector is the major component of the personal sector. And we know that the dramatic rise in household assets, particularly equities and housing, played a critical role in its ability to acquire new debt. But the collapse of the equity

Figure 4 Components of the Private Financial Balance in Historical Perspective (Smoothed*)



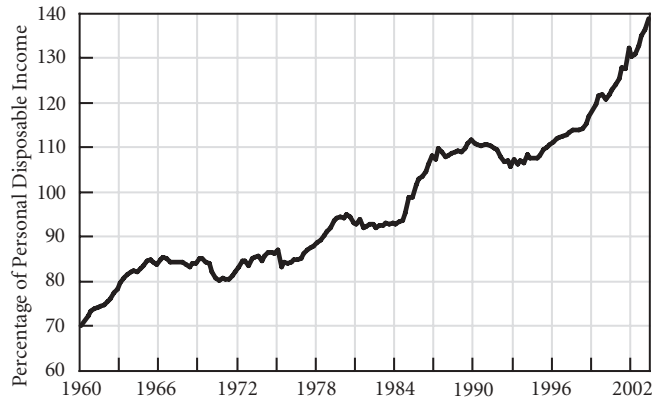
Sources: BEA, Flow of Funds, and authors' calculations
* Using an HP filter with smoothing parameter = 30

Figure 5 Personal Financial Balance and Net Borrowing (Smoothed*)



Sources: BEA, Flow of Funds, and authors' calculations
* Using an HP filter with smoothing parameter = 30

Figure 6 Personal Sector Debt Outstanding



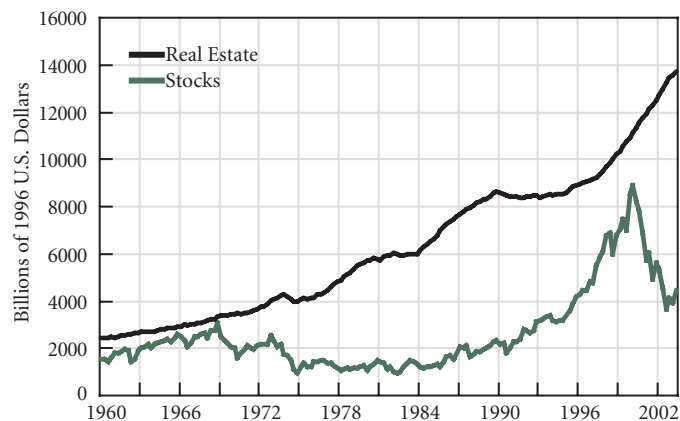
Sources: Flow of Funds and authors' calculations

Figure 7 Households' Net Worth Relative to Personal Disposable Income



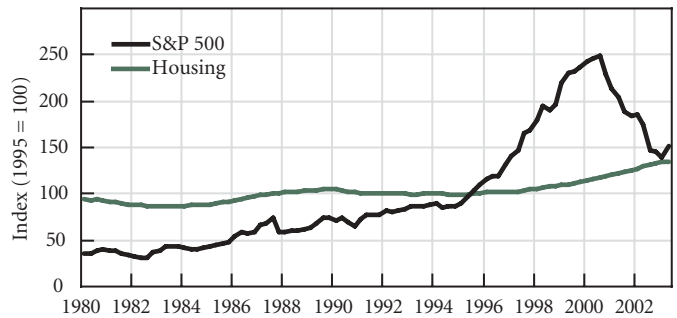
Sources: Flow of Funds and authors' calculations

Figure 8 Real Estate and Corporate Equity Owned by the Household Sector in Constant Prices



Sources: Flow of Funds and authors' calculations

Figure 9 Stock and Housing Prices Relative to GDP Implicit Deflator



Sources: BEA, Standard and Poor's, Office of Federal Housing Enterprise Oversight

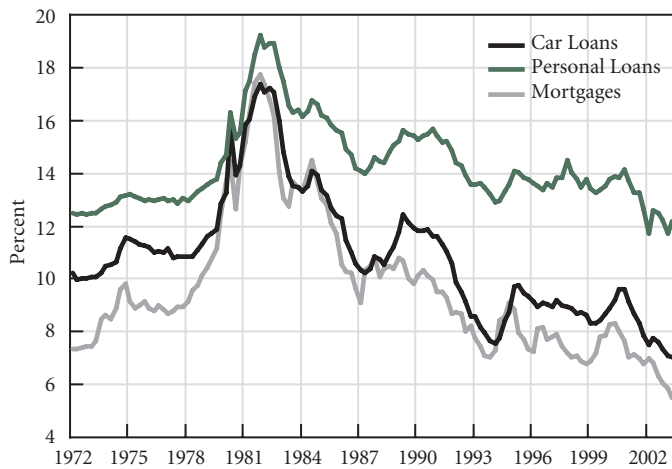
bubble in 2000 sharply reduced the net worth of the household sector. Figure 7 depicts this great reduction in the net worth of households, relative to the disposable income of the personal sector.

Dramatic as the fall in household relative net worth has been, it would have been considerably worse, had it not been for the steady rise in the total, real value of housing, as shown in Figure 8. This, in turn, as shown in Figure 9, was due to a continued growth in real housing prices.³

We know of course that the steady fall in interest rates throughout the 1990s (Figure 10) has been a central factor in the expansion of household debt. On one hand, this has led to a sharp increase in net new mortgage financing (Figure 11), which has in turn added fuel to the rise in real house prices and to the real value of housing. On the other hand, this same decline in interest rates has greatly eased the growing burden of debt service payments. In the case of mortgage debt, it turns out that the two effects, the rise in indebtedness and the fall in interest rates, have more or less canceled each other out since the beginning of the 1990s.

In the case of consumer debt, the latter effect has been a bit weaker than the former, so that the consumer debt service burden has risen from a low of 6 percent of personal income in the first quarter of 1993 to a high of 8 percent in the first quarter of 2003. For household debt as a whole, the debt service burden has been stable, albeit cyclically so, since the 1990s,

Figure 10 Nominal Interest Rates on Mortgages, 24-Month Bank Personal Loans and 48-Month Bank Car Loans



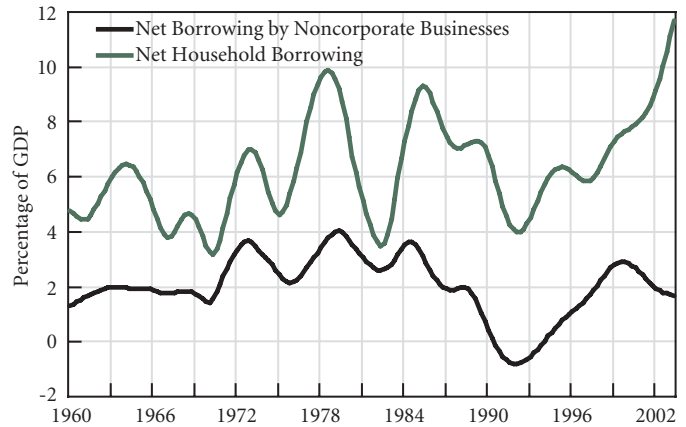
Source: Board of Governors of the Federal Reserve System

beginning a bit under 14 percent of personal income in 1990 and ending a bit over 14 percent in 2003 (Figure 12).⁴

The modest fluctuations in the household debt service burden might be taken to imply that rising household and personal sector debt does not pose a problem (Bernanke 2003).⁵ However, such a view would be mistaken, because it forgets that it has taken steadily falling interest rates to offset a steadily rising household debt burden. Interest rates are now at historic lows (recall Figure 10), and cannot perform this compensating function any longer. And therein lies the difficulty, for even if interest rates were to merely remain constant, the debt service burden would rise as fast as the relative level of debt itself. If the latter were to continue to rise, as it has since the mid-1980s (recall Figure 6), so too would the former, and it would soon become unsustainable. Needless to say, any rise in interest rates would only exacerbate the problem.

This has direct bearing on the notion that consumer spending is largely insulated from interest rate shocks, because by now almost all mortgage debt is at fixed rates (UBS 2003, p. 11). While it is true that a rise in interest rates will not affect past fixed rate debt, it will certainly make new debt more expensive to incur and more expensive to carry. The rate of increase of new debt, and hence the rate of consumer spending, is therefore likely to slow down, which has major implications for the potential rate of growth.

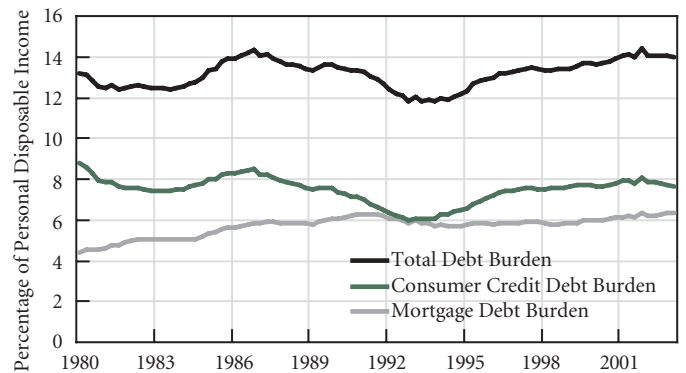
Figure 11 Net Flows of Credit to the Components of the Personal Sector (Smoothed*)



Sources: BEA, Flow of Funds, and authors' calculations

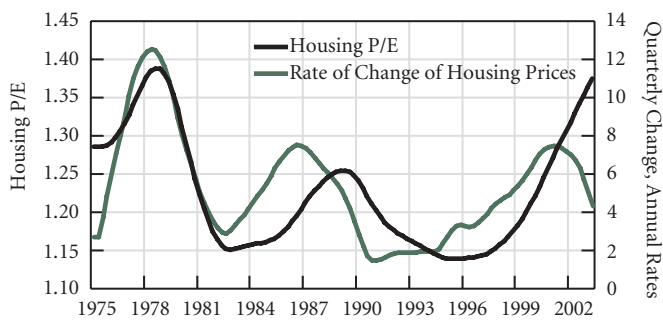
* Using an HP filter with smoothing parameter = 30

Figure 12 Households' Debt Service Burden and Its Components



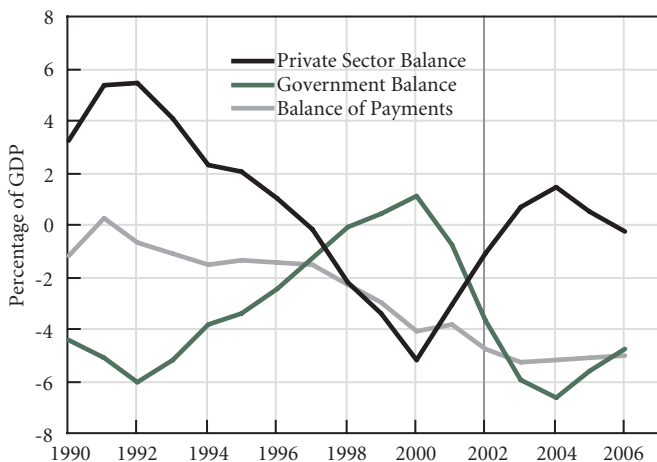
Source: Board of Governors of the Federal Reserve System

Figure 13 Housing Price/Earnings Ratio and the Rate of Change of House Prices (Smoothed*)



Sources: BLS, Office of Federal Housing Oversight, and authors' calculations
 * Using an HP filter with smoothing parameter = 30

Figure 14 Implications of the CBO's Projected Fiscal Policy



Sources: BEA and authors' calculations

There is the additional consequence that slower growth in mortgage debt is likely to lead to a slower growth in the demand for housing, and hence to slower growth in housing prices and in the value of housing. This would further reduce the growth of new household debt and of consumer spending. With the picture of equity and housing prices (Figure 9) in mind, the question is, is this likely to be an orderly retreat or, as in the previous case of the stock market, a rout? We attempt to shed some light on the matter by considering the relation between the rate of change of real housing prices and the "price/earnings" (p/e) ratio in the housing market (Leamer 2002).

In analogy to the stock market, the housing p/e is the ratio of the price of housing to its "earnings," the latter defined here as the actual and potential rental income.⁶ Figure 13 depicts the housing price/earnings ratio (black line) and the rate of change of real housing prices, both quarterly series being lightly smoothed to bring out the longer term patterns. Several things are evident over the available span of the quarterly data, which begins in 1975. First of all, the housing price/earnings ratio is already far above its previous peak in 1989, and is in fact close to its all-time peak in 1979. Second, the previous reversals in this ratio have come through a *prior* slowdown in the rate of increase of real housing prices, presumably in response to excessively high levels of the housing p/e.⁷ And third, in the present case, real housing prices have already begun growing more slowly since the last quarter of 2001. If the past is any guide, this presages a period in which housing will lose its luster as a household asset.

So in the end we stand at an unusual juncture. An extraordinary reversal in the government's fiscal stance has buoyed the economy and prevented a deep recession. Yet the growth of consumer spending is on shaky ground. Households have already suffered large drops in their relative net worth because of the collapse of the stock market bubble, and now it appears likely that the value of housing will grow more slowly, if not fall outright. Employment has actually fallen in the meantime. Moreover, the household debt *service* burden is already at a historic high even though interest rates are at historic lows. With interest rates unable to fall much more, further increases in relative household debt will be hard to sustain because they will directly raise household debt service burdens in the same proportion.

Things are no better in the corporate sector. Although corporations have been paying down short term debt and retiring equity, their debt has risen relative to both their equity and their net worth, their profits have declined, and their capital expenditures have fallen to the lowest level in five quarters (D'Arista 2003, p. 4). Finally, although the dollar continues to depreciate, this has only served to stabilize the current account deficit, which has hovered between 5.1 percent and 5.2 percent of GDP for the last three quarters. Nothing here suggests that the foreign sector is likely to undergo a substantial change in its behavior on its own. So we are left, once again, with a persistent need for substantial fiscal stimulus. This is the issue to which we turn next.

Renewed Growth and Expanding Debts: Some Policy Scenarios

We begin by considering the latest CBO projections (August 2003) for fiscal policy and economic growth (CBO 2003). In what follows, our focus is on the stimulus provided by the greatly expanded government deficits. But it is understood that the private sector also provides a modest stimulus at this point in time, on the order of about 0.5 percent of GDP, due to the combination of a personal sector deficit of about 1 percent and a corporate sector surplus of about 0.5 percent.

On the side of government balances, the CBO anticipates a federal deficit of \$382 billion for the fiscal year 2003, which ended in the third quarter of 2003. This is almost three times the actual deficit in the previous fiscal year. In addition to an anticipated rise in government expenditures, the CBO also projects a large fall in "personal tax and nontax receipts" of \$113 billion due to tax cuts. Given that the first three quarters of the fiscal year 2003 have exhibited federal deficits of \$64.15 billion, \$68.83 billion, and \$95.85 billion, respectively, this implies a projected deficit of \$153 billion in the third quarter of 2003 (the final quarter of the fiscal year). This is a jump of \$57 billion in one quarter alone, of which \$39 billion comes from tax cuts coming due in that time.⁸ For fiscal years 2004 to 2006, the projected federal deficits amount to \$474, \$335, and \$229 billion, respectively. In conjunction with projected rates of growth of nominal GDP, this implies federal deficits of 3.53 percent, 4.16 percent, 2.83 percent, and 1.83 percent of GDP, over fiscal years 2003 to 2006. The CBO also projects growth rates of real GDP, which it anticipates to be 2.3 percent in

fiscal year 2003, and 3.4 percent, 3.7 percent, and 3.5 percent in fiscal years 2004 to 2006, respectively, as well as corresponding rates of inflation.⁹

Our first simulation is what we call the baseline. The object here is to deduce the implications of the preceding CBO projections for the three ex-post sectoral balances.¹⁰ In producing this simulation, we utilized projections for the price levels and growth rates of individual U.S. trading partners, as published in *The Economist* (August 2, 2003),¹¹ as well as our own projections of growth in equity, house, and commodity prices. Taken together, these imply an increase in world growth to 3.7 percent in 2004, and 3.34 percent for 2005 to 2006, with a corresponding inflation rate of 2.1 percent for the whole period. Since we treat the question of the U.S. exchange rate separately (see Scenario 3, below), we took it to be constant here.

Figure 14 depicts this baseline scenario.¹² The green line depicts the path of the total government (federal, state, and local) budget balance,¹³ as derived from the CBO. This moves into a deficit of 6.6 percent by 2004, and then improves to a deficit of 4.8 percent by 2006. With the government sector providing the fuel for growth, the private sector is able to move into surplus, although that erodes as the government deficit is (assumed to be) reduced. On the other hand, the current account balance, which is calculated based on the other assumptions, remains at a historically high deficit of about 5 percent of GDP.

The scenario in Figure 14 depicts a substantial improvement over what might have transpired had the government not moved so sharply into deficit. The private sector moves into surplus by the end of 2003, and then gradually moves back to balance over the next two years. With this, the absolute level of private sector debt is temporarily reduced as part of the additional disposable income is used to pay down some debt.¹⁴

One cannot help noticing that over the short-term horizon, the results are quite auspicious. But over the longer term, the previous unsustainable patterns reassert themselves. As the government deficit is assumed to fall from its peak value, new private borrowing is required to keep the economy running at the pace predicted by CBO. Thus, after its initial decline, the private sector debt burden (debt/disposable income ratio) resumes its rising trend. This reversal is important, because the debt-burden ratio is already at an unprecedented level (see Figure 6 for the personal sector component). In the past its

rising trend was partially offset by dramatically falling interest rates, so that the debt service burden grew only modestly. But with future interest rates constant, or more likely rising, the debt service burden is likely to explode (see previous Figure 12).

Nor is the outcome for the foreign sector more encouraging, for with a current account balance stable at around 5 percent, the ratio of foreign debt to income will also continue to grow. For a long time now, foreigners have been willing to finance the U.S. current account deficit by holding U.S. dollars and purchasing U.S. financial assets. In the most recent period, “a whopping 42 percent of the funds borrowed by U.S. households, businesses, and government units” came from foreigners (D’Arista 2003, p. 5). As of now, foreigners hold 37.6 percent of outstanding marketable government debt (\$1.35 trillion), 12.9 percent of the holdings of agency securities (\$744.5 billion), 17.4 percent of corporate bonds (\$1.13 trillion), and 10.3 percent of corporate equities (\$1.36 trillion). But were they to reduce these holdings by even a small fraction, there would be significant adverse consequences for U.S. interest rates, credit availability, and the international value of the U.S. dollar (ibid, pp. 5–7). The interest rate impact alone could unravel the growth process by inhibiting both consumption and capital expenditures. The exchange rate impact is different, since in principle a depreciation of the exchange rate should improve the trade balance. We will return to that issue in Scenario 3.

The baseline scenario depicted above was designed to explore the potential consequences of CBO assumptions about future budget balances and future growth rates. But the budget path projections in particular have been criticized on the grounds that the CBO figures “significantly understate the likely size of future deficits because they do not fully reflect the future costs of policies currently in effect” (Kogan 2003). This is because the CBO is constrained to consider only those items that have been already mandated. Thus it has to assume that 2001 tax cuts will not extend beyond their expiration date. Nor can it account for likely future expenditures, such as additional military spending on Iraq and additional expenditures for Medicare prescription drug benefits (Kogan 2003, p. 1).

However, we are under no such restrictions. Consequently, in the next scenario, we change two assumptions. First, we modify the CBO’s fiscal assumptions by allowing for the likely extension of the tax cuts now in place, and by incorporating President Bush’s most recent request for an additional \$87

billion for the continued occupation of Iraq. Second, since we believe that the private sector debt burden is already dangerously high, we assume that it will essentially stabilize over the coming years. For this to happen, the private sector would have to move from its present modest deficit of about one percent to an eventual modest surplus of the same magnitude. As is evident in Figures 1, 4, and 5, the latter figure is quite plausible, since it is the very low end of its 1960 to 1990 historical levels.

Instead of assuming a hypothetical growth rate, we now deduce one from assumptions about the government and private-sector balances. In the previous scenario, we examined the path the private sector would have to follow, in order to give rise to the assumed (CBO) growth rates under the assumed (CBO) fiscal deficits. Now, given the assumed private sector behavior and an assumed expansion in fiscal deficits, we examine the growth rate that would then result.

Figure 15 depicts this second scenario. Here, the additional demand from government expenditures, coupled with the boost to private disposable income from the extended tax cuts,¹⁵ generates a higher growth rate in the economy. Unemployment consequently falls from its level of 6.3 percent in 2003 to about 4.8 percent by the end of the simulation period in 2006. However, this comes at a cost of not only a higher government deficit, now averaging roughly 7 percent of GDP over the simulation period, but also a record current account deficit reaching 5.9 percent by 2006.

The current account deficit emerging from the previous scenario is not sustainable over the long run, for all the reasons mentioned here and in previous Strategic Analyses (Godley 2003). One way it might be brought back to manageable proportions would be through a further depreciation of the exchange rate. Over the last four quarters, the U.S. effective exchange rate relative to the currencies of its trading partners (the Federal Reserve “broad” exchange rate) has declined by 6 percent. Our simulation experiments indicate that a similarly modest decline in the future would not be of much avail in changing the broad patterns. Consequently, in this last scenario, we consider what would happen if the broad exchange rate index were to fall by 20 percent over the next 10 quarters. This is a scenario we advocated in a previous Strategic Analysis (Papadimitriou, et al. 2002). It should be noted that such a fall is considerably less than that which took place after the Plaza Accords of 1985.

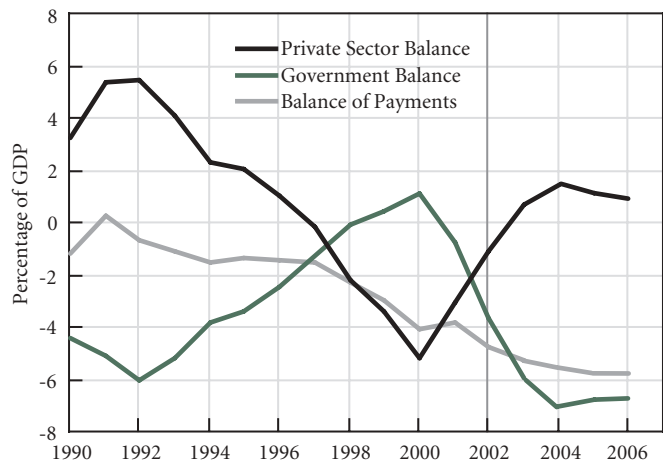
First of all, the private sector remains in modest surplus, and its debt burden actually declines slightly because faster growth raises incomes more rapidly (see Figure 16). Second, the devaluation is effective in reversing the trend in the current account deficit, so that it moves from its value of 5.3 percent in 2003 to about 4.5 percent by 2006. Although this slows down the rise in foreign debt relative to GDP, it is not likely to be sufficient to reverse the trend or to even stabilize it by 2006. However, there arises the possibility of a revival of inflation resulting from the greatly enhanced demand growth due to substantial demand injections from government deficits and reduced demand leakage from the foreign sector.

The three largest contributors to the U.S. balance of trade deficit are Japan, China, and Germany (Shaikh, et al. 2003), and an appreciation of their currencies would help move the U.S. exchange rate in the direction of Scenario 3. China in particular has maintained its exchange rate at a fixed rate relative to the U.S. dollar and has come under increasing pressure from the United States to abandon this peg. But Scenario 3 tells us that while an exchange rate depreciation would help, it would not be sufficient to bring the current account back to manageable proportions.

Of course, expansionary fiscal and monetary policy on the part of our trading partners would help. But it should be noted that in all of our simulations we have already factored in a fair degree of renewed growth on their part. As projected in *The Economist*, we assumed world growth of 3.7 percent in 2004, and 3.34 percent thereafter. What then is left, short of additional import restrictions and export subsidies?

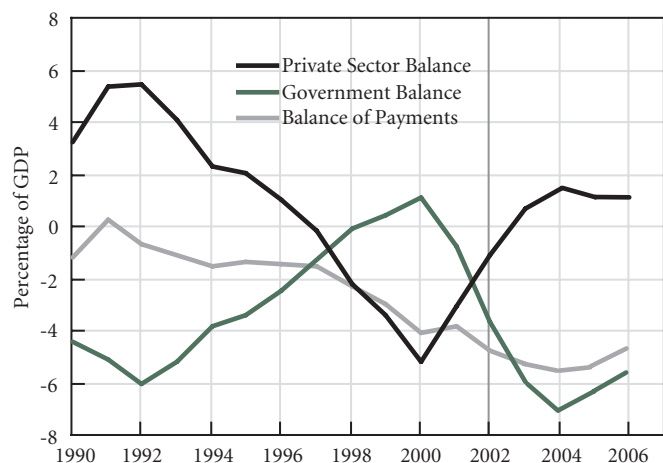
It is worth noting that with the exception of one year, the trade sector has been in deficit since the early 1980s. The large run-up of the U.S. exchange rate from 1980–85 inaugurated this pattern. But even though subsequent retracing of the dollar's path in 1985–87 temporarily eliminated the trade deficit, it came back with a vengeance. In this regard, it is striking that the great bulk of the current account deficit has always come from the trade deficit in manufactures (Figure 17). This has been driven by a striking divergence between the shares of manufacturing imports and exports, for while the share of imported manufacturing goods has risen more or less steadily since the mid-1960s, that of manufacturing exports debarked on a slower and more fitful course in the 1980s (Figure 18). At present, international trade in manufactures accounts for more than 80 percent of the U.S. current account deficit, even

Figure 15 Main Sector Balances Allowing for a More Realistic Path of the Government Balance



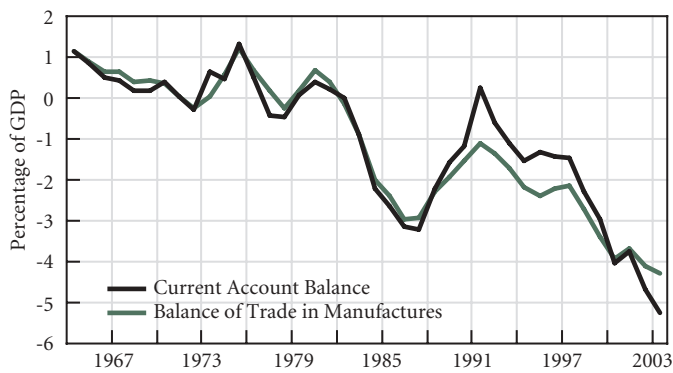
Sources: BEA and authors' calculations

Figure 16 Main Sector Balances Additional Effects of a Depreciation of the U.S. Dollar



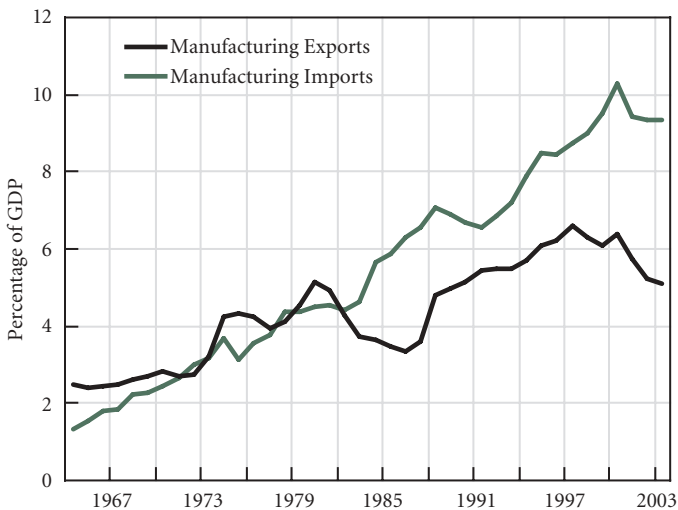
Sources: BEA and authors' calculations

Figure 17 Current Account Balance and Balance of Trade in Manufactures



Sources: BEA, Citibase, U.S. Census Bureau, and authors' calculations

Figure 18 Manufacturing Exports and Imports



Sources: BEA, Citibase, U.S. Census Bureau, and authors' calculations

though domestic manufacturing only accounts for about 14 percent of U.S. GDP.¹⁶

The ongoing divergence between import and export shares of manufactured goods is a result of markets lost to foreign competition and also of movement abroad by domestic producers. In the latter regard, recent studies estimate that over just the last 30 months, anywhere from 500,000 to 995,000 jobs, mostly in manufacturing, have moved overseas (Uchitelle 2003).

This brings us to a central point. Even exchange rate intervention and greatly expanded fiscal deficits will not be sufficient to address the long-term strategic difficulties of the U.S. economy. To address the underlying problems, it will be necessary for the government to embark on a systematic social policy of enhancing U.S. international competitiveness so as to stimulate export growth (*Cambridge Manufacturing Review* 2002), while using domestic job creation to fill in the remaining employment gaps. This means greatly increased support for education, training, research and development, physical infrastructure, and public health. For in the end, it is not only a question of the demand stimulus of government expenditures, but also of the social stimulus that can arise from their appropriate composition.

Notes

1. The balance of each sector is the difference between its receipts and its nonfinancial expenditures. A surplus therefore implies an acquisition of financial assets greater than that of new debt, and a deficit the opposite. As a matter of accounting the private sector balance and the government balance must add up to the current account balance. Hence, when the former is close to zero, the latter two will mirror each other.
2. The very most recent figures indicate that employment grew slightly in September, but at a rate less than the growth of new entrants to the labor force (BLS 2003).
3. Figures 8 and 9 display real variables, i.e., variables adjusted for inflation by means of the GDP deflator.
4. Recently revised figures from the Federal Reserve list "corporate student loans extended by the federal government and by SLM Holding Corporation (SLM)" as part of consumer credit, rather than as part of "Other" credit (Federal Reserve Board 2003a). This does not appear to

alter either total consumer credit or the corresponding interest service burden. Hence it does not affect our analysis or figures.

5. Bernanke notes with approval that falling interest rates have not only enabled households to acquire new debt without raising their debt service burden, but also to substitute cheaper debt for earlier more expensive debt, through the widespread use of mortgage refinancing. Since the debt service burden has thereby remained stable, he sees no particular problem on this account.
6. We use the Consumer Price Index (CPI) component called the “shelter index” here. Rent of primary residence (rent), owners’ equivalent rent of primary residence (rental equivalence), and lodging away from home account for 99 percent of the shelter index in 2001 (BLS 2002).
7. As housing becomes more expensive relative to its rental earnings, this presumably slows down the rate of growth of its demand.
8. CBO (2003, page 29). The text is referring specifically to the Economic Growth and Tax Relief Reconciliation Act and to the Jobs and Growth Tax Relief Reconciliation Act.
9. It should be noted that the CBO provides projections in terms of both fiscal and calendar years. We use the latter in our simulations, and for growth over 2003 to 2006 these are 2.2 percent, 3.8 percent, 3.5 percent, and 3.3 percent, while for inflation these are 1.5 percent, 1.4 percent, 1.8 percent, and 2.1 percent, respectively.
10. We derive general government budget balances by adding estimated state and local budget balances to the CBO’s projected federal balances. In addition, our measure of the government balance differs from the standard NIPA definition, because we include government investment and exclude consumption of fixed capital. Thus, for the second quarter of 2003, our measure of the government deficit is 1.2 percent higher, relative to GDP, than the standard NIPA definition.
11. We apply these growth projections to the various components of our measure of “world” GDP, whose derivation can be found in Dos Santos, et al. (2003).
12. Figures 14 to 16 depict annual data, and can therefore differ from figures that depict quarterly data. For instance, the actual private sector balance at the end of the second quarter of 2003 is a modest deficit (Figure 1). But in the baseline scenario (Scenario 1), which follows the CBO’s

assumptions, the annual average of the private sector for 2003 ends up being a surplus (Figure 14). This is because the private sector would have to run surpluses in the last two quarters of 2003 in order to generate the CBO’s assumed growth rates given its assumed fiscal path.

13. In regard to the state and local government balances, current deficits there are largely the effects of revenue drops due to the past recession and are likely to be remedied by growth and a small tax increase in fiscal year 2004 (CBO 2003, Box 2-1, “Are State and Local Fiscal Actions Offsetting Federal Fiscal Actions?”). On that basis, we assumed that present state and local government deficits would move back toward a small surplus (0.1 percent of GDP) from 2004 onward.
14. Thus, our simulation seems to validate the CBO assumption that “consumers are likely to save much of the money that they receive from the accelerated tax cuts . . . to rebuild their wealth” (CBO 2003, p. xi). But in our case this is an outcome of the simulation, not an a priori assumption, and it only holds temporarily.
15. Had we instead assumed that the private sector debt burden would continue to rise, the resulting growth rate would be even higher. But such an “explosive path” is even less sustainable than that in Scenario 2.
16. As of 2001, which is the latest available year, manufacturing comprised only 14.1 percent of total GDP (BEA 2003, Gross Domestic Product by Industry, 1987–2001). And as of the second quarter of 2002, the U.S. current account deficit stood at -5.28 percent, of which -4.32 percent represented the trade balance in manufactured goods.

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