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RESCUING THE RECOVERY: PROSPECTS AND POLICIES FOR THE UNITED STATES

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Introduction

The main arguments in this report can be simply stated:

If Congressional Budget Office (CBO 2013) projections of government revenues and outlays come to pass, the United States will not grow fast enough to bring down the unemployment rate between now and 2016. The public sector deficit will decline from present levels, endangering the sustainability of the recovery.

Net saving (saving less investment) by the private sector is slowly declining from its peak in the fall of 2008, and if this variable merely behaves in accordance with historical norms, weak private sector demand will put pressure on the economic recovery.

If confidence is restored in financial institutions and markets and lending returns to prebubble normal levels, private expenditure will continue to increase, helping the economy to sustain the recovery. Net saving will then gradually be restored to its pre-bubble level, with a slower reduction in the private sector's debt-to-GDP ratio.

A public sector stimulus of a little over 1 percent of GDP per year dedicated to physical infrastructure investment would help counter the continuing drop in private expenditure, reducing unemployment to a more acceptable level by 2016. The government deficit will not decline as rapidly, but will range between 5 and 6 percent.

A public sector stimulus of the same magnitude and duration but focused on export-oriented R & D investment will increase US competitiveness through export price effects, resulting in a rise of net exports, and slowly lower unemployment to less than 5 percent by 2016. The improvement in net export demand will allow the US economy to enter a period of aggregate demand rehabilitation, with very encouraging consequences at home.

R & D investment will arrest the long-term decline of the manufacturing sector and return the United States to its past preeminent and competitive position in the high-technology sector.

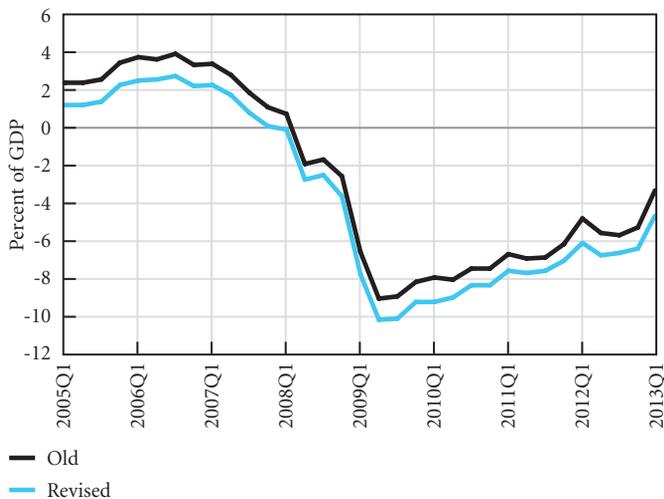
The policy measures simulated in this report would be strongly impaired if conditions in the household sector were such that the sector had to concentrate on paying down its debt. Indeed, this would be consistent with recent trends, and key financial ratios remain out of line with historical norms. Hence, the “deleveraging” process of the past six years, which has steadily reduced the ratio of aggregate household debt to GDP, is all too likely to continue.

In July, the US Bureau of Economic Analysis (BEA 2013) released a five-year revision of the national income and product accounts (NIPA), the basis for GDP data.¹ The revision incor-

porates both definitional and statistical changes. Briefly, new international accounting standards have led to the following changes in NIPA data released during the summer: (1) the addition to fixed investment of expenditures on R & D, the development of artistic originals, and some real estate transfer costs to capital investment; (2) a harmonization of the accounting treatment of wages and salaries; and (3) the use of accrual accounting for the transactions of defined-benefit pension funds. The projections for the paths of growth, employment, and the three sectoral financial balances make use of the revised data.

Figures 1 through 3 illustrate the changes in the three financial balances between the new and old versions of the NIPA series. The scales for Figures 1 and 2 are inverted so that a deficit for the private or public sector appears as a surplus, and vice versa. Figure 3 has an uninverted scale, so that deficits appear in that figure as negative observations. The NIPA data revisions have the effect of increasing the private sector balance and decreasing the public sector balance for the period shown in the figure, resulting in a downward shift in the former and an upward shift in the latter (see Figures 1 and 2). Figure 3 shows that the external balance, depicted on an uninverted scale, is greater in the revised figures than those computed from the pre-revision dataset. Owing to the offsetting effects of changes in the two domestic balances, this latter balance—which encompasses imbalances with all other countries in both trade and income payments—is not dramatically affected by the revisions.

Figure 1 Private Sector Investment minus Saving



Sources: Bureau of Economic Analysis (BEA); authors' calculations

Figure 2 Government Deficit



Sources: BEA; authors' calculations

Figure 3 External Balance



Sources: BEA; authors' calculations

From the standpoint of projecting future economic activity in the context of our modeling approach, the main trends in the three balances shown in the figures seem to be continuing much as before: (1) in spite of high unemployment and a modest recovery in output growth, the domestic private sector still appears to be gradually regaining its sea legs for deficit-financed spending, a process begun after the last recession; (2) the general government deficit has continued to plunge from its recessionary peak of more than 12 percent of GDP to slightly above 7 percent of GDP in 2013Q1, reflecting economic recovery as well as the pressures of the 2011 Budget Control Act and the ensuing spending sequester; and (3) the current account deficit has remained fairly steady for some time at around 3 percent of GDP, presenting a picture of stability.

Yet there are signs that the economy is still in deep trouble. It suffers from very low rates of employment per working-age person, and, given this situation, new jobs are being created at a rate that is far too slow. Falling official unemployment rates largely reflect a shrinking workforce (Nikiforos 2013a; Papadimitriou, Hannsgen, and Nikiforos 2013). Long-term unemployment in particular is very high, a situation that generally leads to a loss of work readiness over time.

The predicament we see in the figures so far is in the opposition between (1) the slow private sector deleveraging process since the financial crisis and real estate bust (seen in

Figure 1), as well as the unheralded trend toward eurozone-style austerity in the US government sector; and (2) the need to accelerate economic growth in order to bring down the unemployment rate, reverse the recent decline in household income, and increase state and local tax revenues.

In the United States, consumer credit is a key driver of household spending. This category of credit is reported in two subcategories: revolving credit and nonrevolving credit. The former subcategory includes credit card debt and home-equity lines of credit, while the latter includes student loans and loans for consumer durables, such as clothing, automobiles, trucks, and furniture. The rate of growth of nominal *nonrevolving* consumer credit has been strong relative to rates observed in the years immediately following the financial crisis of 2008–09, with the Federal Reserve's revised second-quarter number reaching 6.8 percent per annum. (Except where we indicate otherwise, the data in our figures is seasonally adjusted.) This increase followed a 7.3 percent increase for the previous quarter, according to revised figures. On the other hand, as of the time of this writing, the total amount of *revolving* credit was increasing at a slow rate, one of many factors that suggest to us that growth and job creation will probably remain very sluggish without a renewed fiscal push.

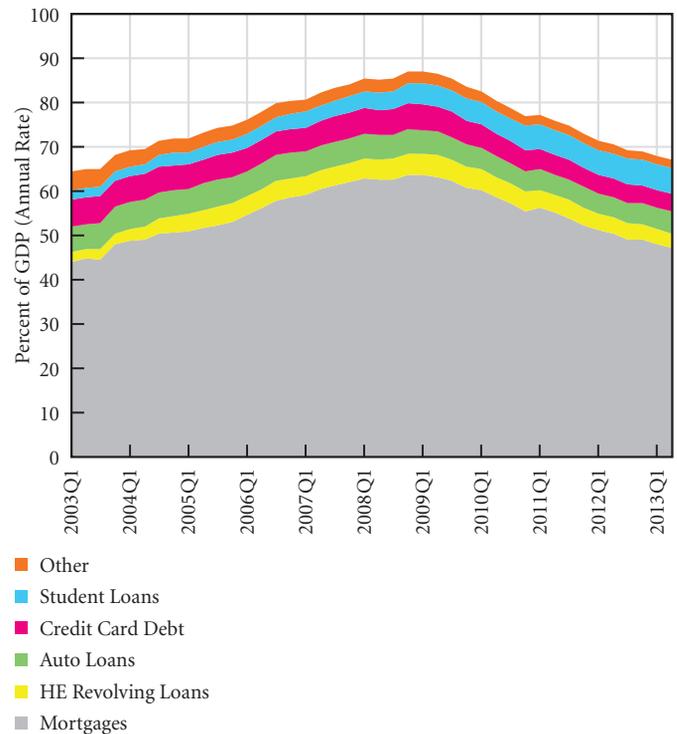
The Fed's low-interest-rate policies remain in effect for now, and it is clear that Janet Yellen, the incoming Fed chair, is likely to be concerned mostly about downside cyclical risks when it comes to macro policy decisions, given the current macroeconomic environment. The Fed brought some optimism to bond markets in the United States and the emerging markets with current chair Ben Bernanke's announcement in mid-September that the Fed would *not* yet begin reducing its monthly open-market purchases at the long end of the maturity spectrum. Most likely, the Fed will nonetheless begin to "taper" purchases by the end of 2013, though a report released after the meeting showed increased pessimism about growth and employment on the part of the Federal Reserve Board and the majority of regional Fed presidents (Federal Reserve Board 2013). On the other hand, the Fed's recently released meeting minutes for late July suggest that a minority of board members seek to lower its 6.5 percent threshold unemployment rate for hikes in short-term interest rates by a full percentage point.² Such an act, some think, would partially compensate for the anticipated tapering of purchases at the long end of the

maturity spectrum, helping to reduce strain on financial conditions. Benchmark mortgage rates, including rates on 30-year fixed-rate mortgages, had risen by approximately a full percentage point since May, when talk of an impending taper began, and upward pressure on these rates seemed to be eased by the Fed's new policy announcement. Nonetheless, nationally, monthly housing starts as well as purchases of existing homes continue to increase broadly, in a gradual but partial reversal of one of the trends that brought on the US recession of 2007–09. The monetary policy fright caused by discussion of future policy tapering has also caused ripples in emerging markets and in eurozone bond markets, where spreads appeared to be widening, at least until the Fed's recent announcements. For now, the tightening of credit conditions acts as a damper on a housing recovery that nonetheless remains well under way.

Some evidence for this proposition, along with the general weakness of household spending, is contained in Figure 4, which depicts amounts of six kinds of outstanding consumer debt in a stack diagram (see Federal Reserve Bank of New York Research and Statistics Group 2013). The dollar volumes of each type of debt are expressed as percentages of GDP per year. Despite the recovery in spending, the broad pattern of consumer deleveraging appears to continue when viewed from the perspective offered by the figure. The dynamics of the total amount of debt are dominated by the big decline in mortgage debt, shown in gray at the bottom, that occurred following the US financial crisis that hit in approximately 2008–09. Also among the notable trends is an increase in student loan debt, which is shown in blue.

The CBO's September report confirms other recent evidence in support of the notion that the federal deficit continues a sharp decline (see Figure 2). Detailed series in the report show a broad decline in outlays since the end of the 2007–09 recession. The spending sequester went into effect as of March 1, leading to \$85 billion in immediate, across-the-board cuts in discretionary spending, a category that amounts to approximately 8 percent of GDP, including both defense *and* nondefense outlays. A failure to agree on a continuing resolution to fund federal government operations in the new fiscal year led to a partial government shutdown over these and other issues beginning October 1. As this report goes to press, the shutdown appears to be ending.³ However, the broad, automatic sequester cuts are slated to stay in force for 10 fiscal years in

Figure 4 Consumer Debt by Type, 2003Q1–2013Q2



Sources: Federal Reserve Bank of New York Quarterly Report on Household Debt and Credit Data, August 2013; BEA; authors' calculations

all. The federal government has already implemented a large number of furloughs. These temporary reductions in hours can easily result in cuts of 20 percent or more in the employee's gross pay. Also, some federal contractors—private companies that perform multifarious tasks, including military procurement, for the federal government—are said to find themselves without business. Without a legislative compromise, these and other sequester-related job losses are more likely to become permanent, but the conservative-dominated House of Representatives threatens to block compromise in its efforts to minimize domestic government spending, focusing especially on defunding Obamacare.

A longer-term legislative compromise to fix the sequester—that is, get rid of these deep across-the-board cuts—could, unfortunately, entail cuts to many entitlement programs, such as Social Security and food stamps, that are part of mandatory federal spending. It is alleged by many serious commentators and think tanks that the long-term fiscal threat

represented by such programs is the key fiscal policy concern to focus on for now.

Hence, most of the long-term plans bandied about in congressional committee meetings and think tank–sponsored conferences—while laudable in many ways—are designed either to be revenue neutral or to increase revenues. In particular, the proposed tax reform plans now under discussion promise to work through increased efficiency, rationality, and simplicity, rather than the stimulative effects of tax cuts alone. From our standpoint as economists urging a change in the fiscal policy stance to stabilize the economy, we note a continuing policy bias in most of these proposals toward fiscal tightening, as well as a lack of sensitivity, in many cases, to urgent spending needs. Proposed long-run changes to social benefit (“entitlement”) programs made by the administration and most congressional leaders include, for example, reductions in Social Security benefits for nonpoor retirees or increases in contributions to these programs (McKinnon 2013), not to mention proposals for further cuts in food stamp eligibility and the like (Rosenbaum, Dean, and Greenstein 2013). In contrast, in keeping with our Keynesian, stock-flow consistent approach (e.g., Godley 1999), we do *not* consider any measures at this time that would have the net effect of tightening Washington’s fiscal stance, whether by raising tax rates, closing loopholes, or cutting expenditures.

The Benefits of Infrastructure Spending

Generally speaking, government investment tends to promote growth in the productivity of the total amount of resources utilized, a phenomenon studied by econometricians for many years (Aschauer 1989). Infrastructure in general, which includes bridges, dams, the electrical “grid,” levies, school buildings, tunnels, and so on, is still due for a huge overhaul, with the most recent report from the civil engineering profession conferring a D+ overall ranking on an A-to-F scale (ASCE 2013). One tends to forget the importance of infrastructure until there is a catastrophic failure, as in the Route 35W bridge collapse in Minneapolis; or, on a larger scale, Hurricane Katrina in the area around New Orleans. Hence, in scenario 1 below, we consider a plan to achieve higher growth and employment by means of an increase in spending to repair, renovate, and replace aging infrastructure.

Our argument is cast within the framework of the three balances in the national accounting identity. In more detail, our argument is, as always, framed within an analysis of the key financial balances in any advanced economy. The national accounting identity shows that in a three-sector model, the sectors’ financial balances (their income minus their expenditures) add up to zero:

$$(Private\ Sector\ Investment - Saving) + Government\ Deficit + External\ Balance = 0$$

Note that, as in Figures 1 and 2, we have written the first two terms on the left side of the identity so that a positive number indicates a deficit, implying that a negative value represents a surplus.

The identity shows that a change in one balance implies that one or both of the other balances must change. For example, we argued consistently in the years before the financial crisis of 2008–09 that the run-up in private sector investment minus saving (shown in parentheses in the identity above), which implied increasing private sector debt, would eventually come to a halt and decline. The latter overall trend, known more popularly as *deleveraging*, began in 2010 and has not been reversed in the household sector, as we saw in Figure 4. On the other hand, according to revised data, the overall private sector balance—that of businesses, households, and nonprofit organizations combined—has been positive since 2008, reflecting the relatively strong financial position of non-financial firms (see Figure 1). On balance, firms see little need to invest in new productive assets, as long as effective demand remains weak in the United States and most of the rest of the world. Hence, policymakers must increase demand flowing from either the government sector (by increasing autonomous spending, cutting tax rates, increasing transfers, or some combination of the three) or the external sector (by increasing exports or reducing imports).

An Export Strategy Led by R & D

The US current account deficit (the balance of trade and international income payments) remains fairly large, at just below 3 percent of GDP. One option for generating employment in the private sector without an unsustainable financial

bubble or boom would be to seek to generate new jobs in export-related industries. We do so in our scenario 2 by increasing spending in R & D in fields that hold promise for applications in the tradable goods and services sector. As the classic example of Silicon Valley illustrates, R & D work has acted as a catalyst to innovation in the United States, despite sharp cuts in recent years. A voluminous empirical literature finds that the returns to R & D expenditures are significant, and that a large share of the fruits of a given private firm's R & D efforts tend to go to other industries and firms (CBO 2005). Moreover, we now enjoy an improved ability to conduct an inquiry in this area: R & D activity is the largest change to measured US GDP, with the recently revised NIPA concepts treating this sort of spending as a form of investment.⁴ The new data unsurprisingly indicate that R & D spending by all levels of government has been on the decline as a percentage of GDP (see Figure 5).

Our proposed increase in R & D spending would directly help the economy in at least two ways: (1) as do other forms of government spending, it would increase the income generated by the government and its contractors; and (2) by leading to the discovery and adoption of new production techniques, it would reduce unit costs for producers. To provide our first look at the potential effects of R & D within the Levy Institute US macro model, we focus on a case in which spending leads to innovation specifically in the export sector, which would

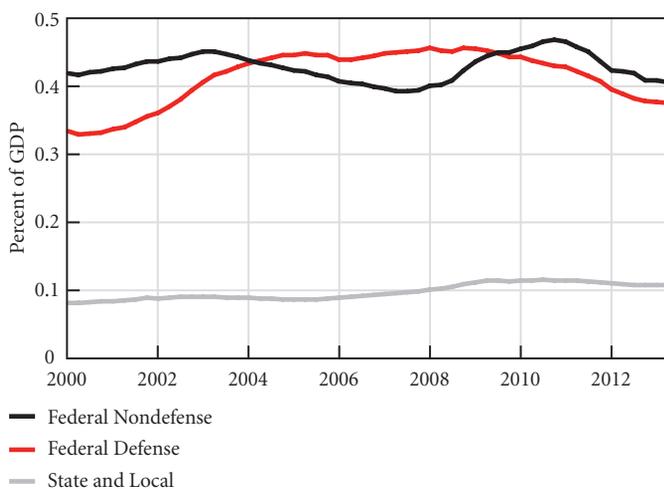
reduce the relative price of exports in foreign markets and hence yield a decline in the current account deficit. Furthermore, the approach adopted in this scenario would allow the domestic household sector to continue to mend its still-debt-laden balance sheet.

As we argued earlier, efforts to increase government spending significantly may not be feasible: the public sector lacks the political will to increase spending, given that (1) Washington remains convinced of the need to further reduce the federal deficit, at least in the “out years”; and (2) US states and localities are still suffering from slump-weakened tax receipts and a reluctance to take the step—politically unpopular in most parts of the nation—of increasing tax rates to alleviate revenue shortfalls.⁵

Hence, we turn to the external sector. Cutting imports quickly would require a disastrous fall in private sector income, while an export-oriented strategy would require some ability to find strong markets somewhere and maintain competitiveness. Both of these tasks are far more difficult than usual in the context of a deflationary world economy, a situation all too susceptible to the “beggar-thy-neighbor” dynamics of competitive devaluation—a situation sometimes dubbed a “currency war” by the press and some world leaders, who blame current-account problems on purportedly unrealistic and admittedly substantial revaluations in the currencies of their small- and medium-size economies (*New York Times* 2013).

Moreover, US “competitiveness,” a gauge of factors affecting the cost of exports in foreign currencies and of imports to US buyers, is strong, according to a recent ranking, though the nation slipped from number five to number seven in the world in this category out of 122 in the sample (WEF 2013).⁶ On the other hand, over the past 10 years or so there has been an extended real appreciation in the currencies of emerging-market countries such as Brazil, Indonesia, Russia, Romania, India, and China, a trend that has eroded their competitiveness, substantiating the concerns mentioned earlier.⁷ The US dollar is fairly weak in goods-for-goods terms according to data such as those shown in Figure 6, especially when compared to the currencies listed toward the top of the figure; that is, those undergoing the most dramatic long-term, real appreciation. Hence, there is little sign of a large or growing US disadvantage in overall competitiveness that would justify calls for redress in the area of macroeconomic policy.

Figure 5 Gross Government R & D Investment, 2000Q1–2013Q2



Sources: BEA; authors' calculations

At the same time, any effort to increase competitiveness would run up against a plethora of governments around the world that *have already* been working in this policy direction because (1) they face sizable debt burdens; (2) much of their debt is denominated in a foreign currency, a pegged local currency, or a common currency, the euro; and (3) future international loans to the governments in question are conditioned on harsh austerity measures in most cases.

The United States, possessing its own unpegged currency, does not face this situation.⁸ In the States, arguments about the need for austerity measures make for a moot debate: the government sector deficit has been falling as a percentage of GDP largely because of a cyclical upturn, and the CBO now projects this trend to continue, knocking away the thin reed of

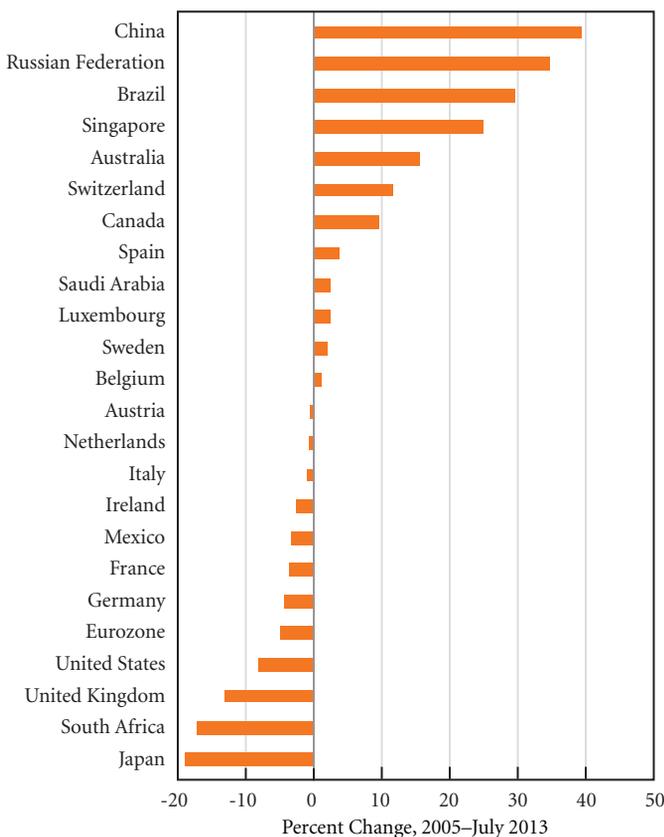
rhetoric supporting retention of the spending sequester.⁹ Hence, the United States cannot claim to have the same imperative as crisis-torn eurozone nations to implement nominal wage cuts and raise productivity.

Nonetheless, given the deflationary bias observed in the international economy, US competitiveness will probably tend to erode unless current policies are replaced, reversing stagnation in manufacturing and other export-related sectors. Hence, to some extent, export growth is an imperative for the United States as well. The hope is for a positive-sum game. Looking at matters in yet another way, given a lack of political will in Washington to repeal sequester spending caps, the case can be made that an increase in exports is the only way to simultaneously meet the self-imposed fiscal restrictions, sustain strong US GDP growth, and allow US trading partners that have internationally acceptable currencies of their own to avoid fiscal austerity.¹⁰ Indeed, we have argued many times before that an export-oriented approach represented an urgent hope for the United States, since we saw no sustainable option based on private sector demand growth (e.g., see Godley, Izurieta, and Zezza 2004).

Historically, the era of high US current account deficits coincides neatly with a period that saw a decline in manufacturing as a share of the value-added of the economy, as Figure 7 illustrates. There are very high hopes in the new smartphone industry, which apparently is beginning to reach a mass customer base; but it is not clear how many industries hold such promise as sources of new export jobs and earnings. For example, there are reports that Europe is attempting to reduce its steel-producing capacity, and many big national producers are reeling under heavy debt burdens.¹¹ It is crucial that growth in demand at the aggregate level be restored before this sector can sustain job creation at required levels.

Moreover, the manufacturing sector is building from a relatively small initial level. According to establishment survey data from the US Department of Labor, manufacturing industries now account for only a small share of US employment: approximately 11.7 million full-time equivalents (FTE), or 9.4 percent of total employment expressed in FTEs. This situation obtains partly because of the phenomenal rate of labor-productivity growth achieved by US manufacturers, even relative to their international competitors, since the 1970s and 1980s (see Hatzius 2013); partly because of the increasing market

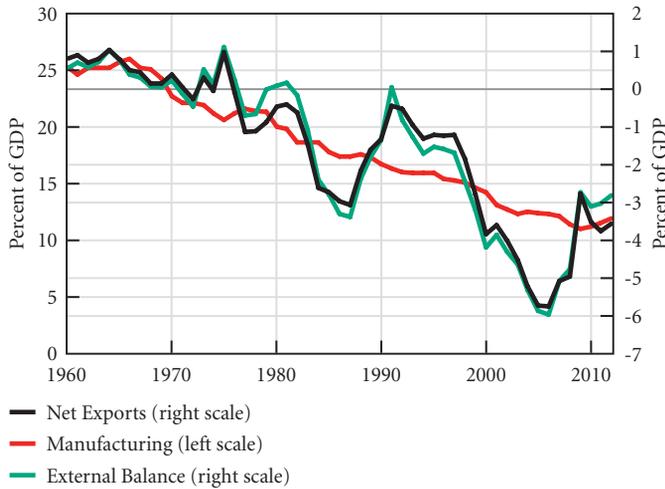
Figure 6 Real, Effective Exchange Rate Revaluation



Note: Data extracted September 20, 2013. Revaluation is the percent change in the real, effective exchange rate relative to the 2005 base year for the series.

Sources: Interagency Group on Economic and Financial Statistics; authors' calculations

Figure 7 Manufacturing and External Balance



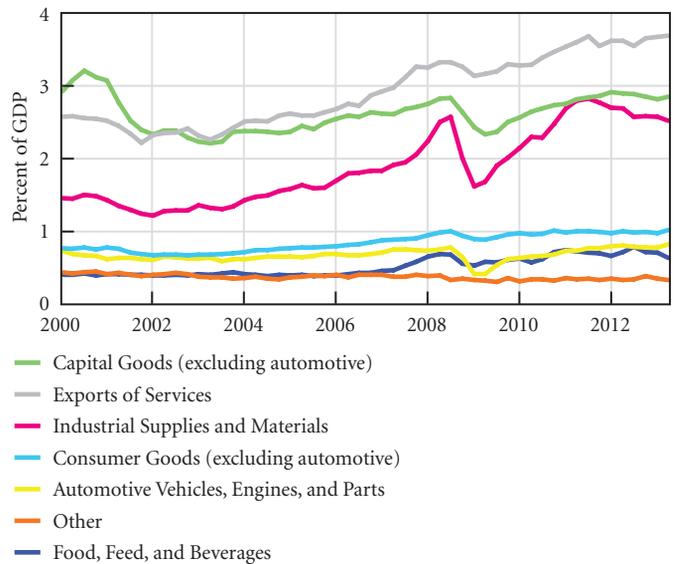
Sources: BEA; authors' calculations

share held by these competitors; and partly because of the many immutable factors that have kept exports plus imports relatively small as a percentage of US GDP.¹²

As a group, the small absolute size of the US export sector means that it must grow at a very rapid rate in order to achieve a given reduction in the size of the current account deficit as a percentage of GDP and to make a significant dent in the unemployment rate. Indeed, it has been noted that rising labor costs in some Asian countries, as well as new sources of inexpensive fossil fuels, could lead to an “insourcing” boom (Fishman 2012) or manufacturing renaissance of sorts (Hatzius 2013) in the United States. But can one point to a significant share of industries where US manufacturers stand a chance of becoming low-cost producers for the world? Figure 8 divides US gross exports into major types of products: automotive; capital goods, excluding automotive; consumer goods, excluding automotive; foods, feeds, and beverages; industry supplies and materials; and services. The picture prompts two observations:

- (1) Product groups differ in the degree to which they move in sync with the business cycle, with industrial supplies and materials displaying the greatest amount of procyclical volatility among the seven series.
- (2) Most of the groups are growing slowly, if at all, with the aforementioned industrial supplies and materials

Figure 8 US Exports by Type of Product, Quarterly, 2000Q1–2013Q2



Note: Data revised as of July 31, 2013.

Sources: BEA; authors' calculations

and services aggregates growing most rapidly, on average, over the period shown in the figure. A more detailed look might suggest that the effects of various nonconvexities, including technological-foothold effects and interindustry and interfirm externalities), account for the fact that these groupings tend to be either static, on the one hand, or rapidly growing, on the other, at any given time and in any given region. Also, it has long been argued that certain sectors, especially the manufacturing sector, have an inherent advantage over the long run because they undergo technical progress most rapidly, allowing them to reduce the inputs needed for a given amount of output, or because demand for them increases as countries grow more wealthy (e.g., Kaldor 1985, 7–30; Baumol 2012).

Also, citing examples such as Silicon Valley in northern California, some work indicates that industries closely linked to R & D enjoy high external economies when they are clustered in a given geographic region. Moreover, private sector-based innovation is far more likely to occur when it is catalyzed by a

high level of public sector investment in R & D (e.g., Mazzucato 2012; Hicks and Atkinson 2012).¹³ Finally, R & D spending in both public and private domestic sectors tends to be rather procyclical, exacerbating business cycle fluctuations, unless policies are implemented to stabilize R & D efforts.

In scenario 2 below, we take the tack of trying to increase export competitiveness by stoking innovation in export-oriented industries, a route that might yield new products and cost-saving production techniques. Our proposed means is a shot of government investment in R & D, currently scheduled for deep cuts under the sequester's across-the-board budgetary axe. R & D, defined by John Cornwall (1977) as “the conscious application of resources to develop inventions into a form that has commercial value” (105), has been touted by the presidential candidates from both major parties in the most recent presidential election (Plumer 2013) and by leaders in business and academe (Reif and Barrett 2013). Government R & D tends to be pure rather than applied, but experts note that even a small dose of government R & D—say, \$2 billion annually—aimed at complementing manufacturing innovation could bring tangible benefits to US industry (Pisano and Shih 2012). For reasons of limited space, we cannot take up the issue of R & D spending itself in great detail in this report (see appendices 1 and 2 of Papadimitriou et al., forthcoming), but we can only note widespread support for saving these activities from congressional cuts by the best-financed think tanks advising the Washington elite, with conference titles such as “Innovating American Manufacturing: New Policies for a Stronger Economic Future” providing a sense of the message—and reasonably sound rationale—being touted.

Sufficient Demand Growth in the External Sector?

Given that our concerns center mostly on aggregate demand, one key question mark in any export-oriented plan is the strength of demand in the rest of the world, represented in our model by a variable for trading-partner GDP (Shaikh, Zezza, and Dos Santos 2003). The so-called emerging markets are said to be entering a period of slower growth, a thought that is being borne out in 2013Q2 GDP data for the BRICs (Brazil, Russia, India, and China). In the case of China, reports suggest that this sea change reflects a long-term planning decision that now is a time to turn gradually toward a

higher consumption-to-investment ratio.¹⁴ Since rumors of an early tapering of QE3 rocked markets last spring, some emerging-market countries have found themselves buffeted by significant capital outflows and currency declines, and the heightened financial concern has led to broader gloom in the affected securities and derivatives markets and contributed to downward revisions in emerging-market growth forecasts. On the other hand, as indicated earlier, these may represent the culmination of what appears to be a long wave of real appreciation in India, Taiwan, and South Africa. Meanwhile, the eurozone as a whole saw real growth reach an estimated 1.2 percent for the quarter—still far less than the figures for the aforementioned emerging-market countries (e.g., 4.4 percent in India in 2013Q2), but a modest breakthrough into positive territory nonetheless (Popper 2013). Yet growth remains deeply negative and unemployment extraordinarily high in much of Europe. Moreover, owing to the tight fiscal strictures to which the euro crisis has led, fiscal policy in the eurozone still has a strong contractionary bias, leading to legitimate fears of a downward fiscal spiral in those countries using the euro (for details, see Hannsgen and Papadimitriou 2012).

Turning to the climbing bond yields that signaled the beginning of the euro crisis in 2012, the good news is that the European Central Bank (ECB) has decided to support eurozone bond markets with loans to banks in the largest of the member-countries. These efforts have worked to great effect for the sovereign debt of Italy and Spain, resulting in steadily declining spreads. The bad news is that these measures have not acted as effectively to narrow other “peripheral” eurozone interest rate spreads, and, moreover, strong pressures exist to adopt and adhere to austerity measures in return for ECB open-market purchases (Norris 2013). As suggested above, this policy approach invariably leads to wage deflation, which in turn tends to undermine aggregate demand (Keynes 1936, ch. 18 and 19). In many ways, this seems similar to the deflationary world economy described by John Maynard Keynes in the 1920s and 1930s, a point documented by a huge report from the International Labour Organization (ILO 2013), which found that approximately 200 million people are unemployed worldwide (31). Hence, if an export-oriented approach were needed, it would be one that takes into account barriers presented by insufficient worldwide aggregate demand. For this reason, we do not offset the R & D spending in scenario 2

with new taxes, instead allowing it to generate a net loosening of the fiscal policy stance.

The Story So Far and Implications for Fiscal Policy

A projection of current economic trends based on our model will provide a benchmark against which to compare the results of two policy scenarios. The parameters in the model are set as in previous analyses, with the *World Economic Outlook* report issued in April by the International Monetary Fund (IMF 2013) providing baseline world economic growth forecasts. Interest rates and the nominal effective exchange rate of the dollar are not expected to change appreciably from their current values. Using the projected government spending and revenues from the CBO, the model's base-run simulations for the three balances and real GDP growth rates appear in Figure 9. Consensus economic growth forecasts have grown weaker since the CBO issued its report, so it must be kept in mind that the picture presented in the figure is likely to be on the optimistic side. All subsequent simulations start from this baseline.

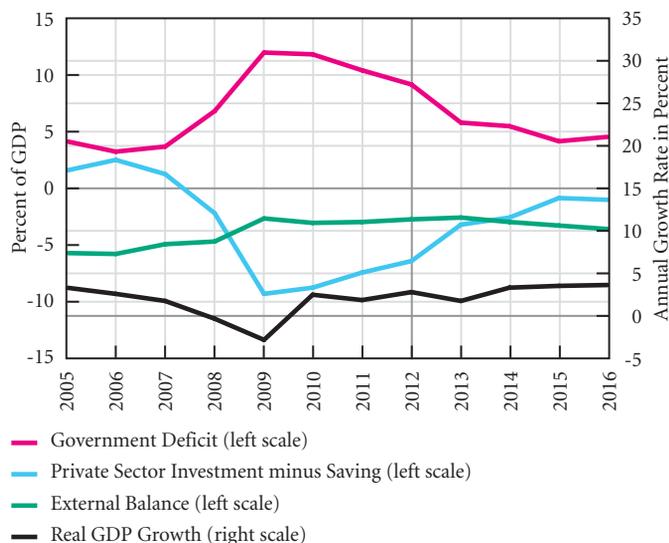
We report the results of our projections from 2013 through 2016. As shown in Figure 9, the current account deficit increases

slightly and then declines through the remainder of the projection period. Private sector investment minus savings continues to reflect the deleveraging process, meaning that this sector's income is greater than its outflows and, by implication, the continuing decline of its indebtedness as a percentage of GDP. Yet some signs show the easing of this process, resulting in a rise in private sector investment minus savings as a percentage of GDP that comes to a halt by the end of the projection period.

Turning to the government deficit, the projection of current trends denotes the continuing movement toward fiscal consolidation into next year and the year after that. The decline in the deficit is projected to flatten out in 2016, the final year of the simulation period. This has been heralded as an achievement of sorts, but as we have argued above, it is likely to prove disastrously inappropriate in the face of a large output gap and high unemployment rate. Another line in the same figure shows a convergence of the real GDP growth rate to around 3.5 percent as the projection period ends.

Finally, Figure 14 (page 13) shows the path of unemployment extending the weak labor-market recovery, with the official unemployment rate standing at only slightly less than 7 percent at the end of the simulation period.

Figure 9 US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–16



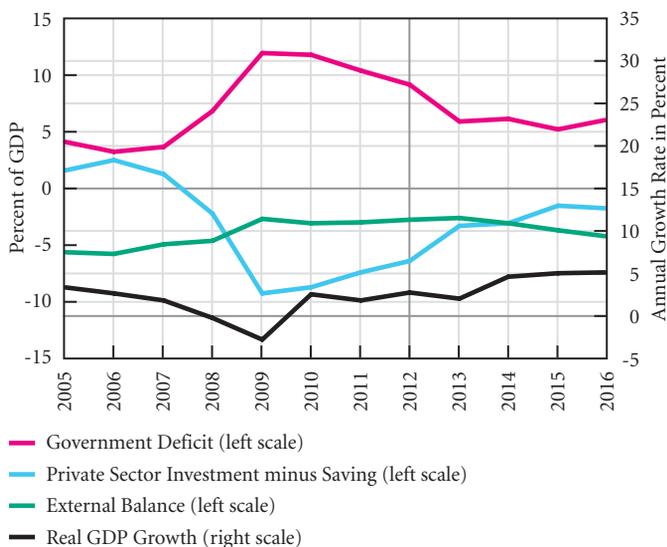
Sources: BEA; authors' calculations

An Increase in Government Infrastructure Spending

In the Levy Institute's Keynesian, stock-flow consistent model, a loosening of fiscal policy is expected to cause an increase in economic growth. As explained in Nikiforos (2013b) and in a previous strategic analysis report (Papadimitriou, Hannsgen, and Nikiforos 2013), the increased GDP growth rate gives rise to a decline in the unemployment rate, once withdrawals from the labor force are taken into account. We simulate the effects of an increase in government infrastructure spending of \$160 billion, or approximately 1 percent of GDP, relative to the baseline, in each year of the simulation. The focus is to reduce the unemployment rate more quickly than the policies posited in the baseline scenario.

The results indicate substantial improvement. As shown in Figure 10, private sector net borrowing is somewhat higher by less than 1 percent throughout the projection period, reflecting a dynamic multiplier effect in which increased government

Figure 10 An Increase in Government Infrastructure Spending: US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–16



Sources: BEA; authors' calculations

spending works its way through the economy. The government deficit does not decline as rapidly, reaching about 6 percent of GDP—and a hint of an upward-turning inflection point—by the end of the simulation period. The third path in the figure shows that the current account deficit is a bit higher than in the baseline, a fact that follows ineluctably from the aforementioned higher deficits of the domestic government and private sectors (Godley 1999). Moreover, as the figure shows, the real GDP growth rate converges to approximately 5 percent toward the end of the simulation.

Finally, Figure 14 (page 13) shows the path of the unemployment rate falling below 6 percent by 2016. The fiscal stimulus and its multiplier effects result in an improved recovery vis-à-vis the outcome of the baseline, which is depicted in the same figure.

Simulating an Increase in Export-oriented R&D Spending

What if we assumed that the macroeconomic effects of a change in government spending depended on the particular types of spending that were changed? As mentioned earlier, there is currently much talk, fostered by think tanks and political and

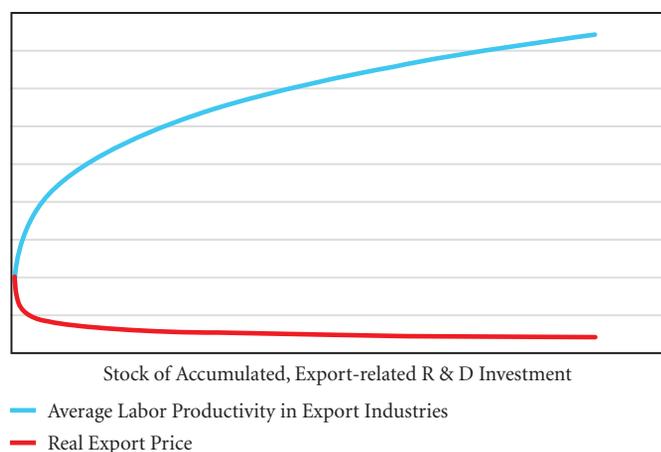
educational leaders, that it makes sense to increase spending on R & D, or at least to save government R & D from the effects of automatic cuts imposed by the sequester. A round figure of \$40 billion per quarter, or \$160 billion at an annual rate, is used as an amount of extra spending to add to baseline expenditures throughout the projection period. To recapitulate, the idea is that such spending would have the added effect of raising average productivity in industries catering to export markets, resulting in a fall in US export prices relative to the overall US price level. We assume that this spending is aimed exclusively at reducing domestic costs of production, although in reality the effects might also include bringing novel products to market overseas.

The R & D is relevant in the context of the Levy Institute model as a means of increasing exports, offering a helpful complement to the Keynesian effects of fiscal stimulus. To simulate the impact of R & D it is necessary to show, in some way, the effects of technological innovation on productivity and costs in industries that produce for export. Toward that end, productivity in these industries is an increasing function of their existing “stock” of accumulated R & D. Figure 11 depicts such a relationship. It shows productivity rising as the stock of export-relevant R & D increases. The principle illustrated in the figure seems consistent with the reasoning behind the BEA’s move to include R & D in NIPA as a form of fixed investment (see also Papadimitriou, Hannsgen, and Nikiforos 2013).

Next, we assume that unit costs, and hence the real export price, fall roughly in inverse proportion to productivity. Finally, completing the chain of reasoning in this scenario, the real export price is one of the variables that determine the path of export volume over time.

The relationship depicted in Figure 11 is almost universally thought to be positively sloping by those who study this area. Broadly speaking, however, the academic literature cannot provide a single precise estimate of the parameter that governs the shape of the relationship shown in the figure—the size in percent of the effect of a 1 percent increase in the stock of R & D. The CBO report referred to earlier summarizes decades of study and analysis in this literature. It finds the range of estimates regarding the effect of R & D spending to be quite wide, and dependent upon the type of study and the data used: “The core of the empirical literature on R & D

Figure 11 Assumed Relationship between R & D Accumulation and Export-sector Performance



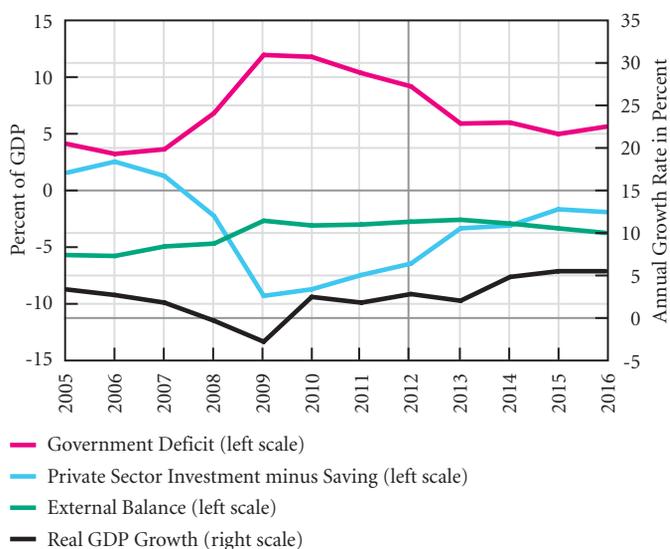
Source: Authors' calculations

comprises studies that estimate the private return to R & D by using data at the firm or industry level, and their results, though not uniform, are the most consistent across studies. They seem to form the basis for the consensus that the elasticity of R & D is positive and significant (that is, it differs significantly from zero)” (CBO 2005, 14).

Hence, to the extent that a case exists for a quantifiable productivity payoff to R & D, the CBO finds it in this “core” of the academic work on the subject. The report’s authors conclude that estimates of the output response to a 1 percent increase in the accumulated stock of R & D knowledge ranges from 0 to 0.6 percent.¹⁵ Presumably, the best answer would depend on the type of R & D contemplated, but we assume here that government R & D funding would be increased for a fairly broad range of fields, both pure and applied. This leaves us somewhat free to set the assumed effect without great concern for exactness.¹⁶

Simulation results for an export-oriented R & D government spending scenario show that the private sector increases its spending more than before, resulting in a pathway for its sectoral balance exceeding 2 percent by the end of the projection period (see Figure 12). Higher levels of imports in this scenario reflect the fact that the assumed change in relative prices affects exports, but not imports. Consumers enjoy higher incomes as a result of increased exports and government

Figure 12 Simulating an Increase in Export-oriented R & D Spending: US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–16



Sources: BEA; authors' calculations

spending, and more of this increase is spent on imported goods and services than in the case of a nominal depreciation, which generally raises the real price of imports, at least at first. Turning to the government deficit, the figure shows that assumed effects of R & D on exports reduce the fiscal impact of increased spending vis-à-vis the simple infrastructure public investment simulated before, in which no productivity effects were assumed. On the other hand, the projected pathway for the government deficit shows that it still exceeds baseline projections. Figure 12 shows a steady and very gradual rise in the current account deficit throughout the simulation period, reflecting increased export volume. Similarly, the same figure depicts real GDP growth gradually nearing 5.5 percent by the end of the projection period, a bit higher than at the end of the previous scenario. Finally, the downward path of unemployment appearing in Figure 14 is steeper than in the baseline or the infrastructure simulations, with this activity-related variable falling to less than 5 percent by 2016.

Implications of Increased R & D Spending plus Continued Household Deleveraging

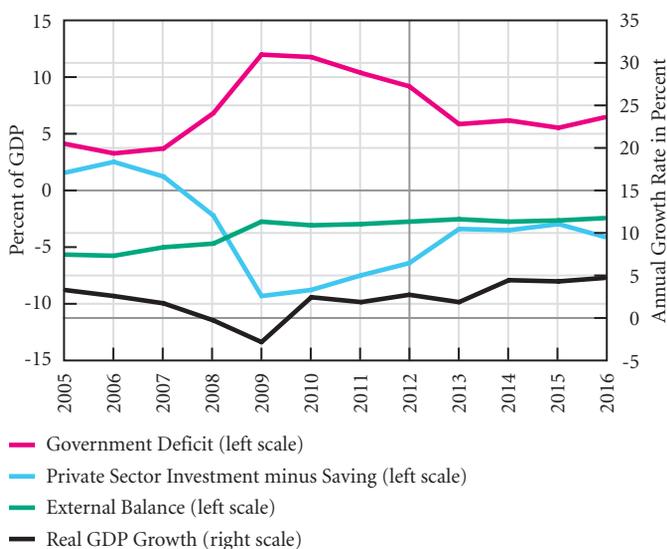
Household deleveraging may continue far more strongly than projected in the baseline simulation. As discussed, we find that growth is reasonably strong, but this outcome requires renewed household and business borrowing, a rather shaky premise assumed in all of the previous simulations. Here, we try to make the case for some macroeconomic pessimism, then report the results of a simulation with the same policy of R & D spending (an increase of \$160 billion annually) but with additional household deleveraging, as outlined below.

Following the work of Wynne Godley (1999), we think it reasonable to argue that historical norms are relevant as benchmarks for household indebtedness ratios. Anwar Shaikh (2012), using NIPA data for 1947 to 2010, presents evidence that the private sector generally tends to maintain small positive financial balances over the long run. Developing a line of argument that he attributes to Nancy and Richard Ruggles (1992), he explains that households save mostly to invest in durable consumer goods, while firms retain earnings primarily to invest in capital goods. Hence, the private sector deficit, which equals the difference between savings and investment

sectorwide, would find an average of approximately zero over the long run. Therefore, the run of years of negative private sector net saving running from the late 1990s through the late 2000s would prove to be a short-lived exception. Indeed, as we saw earlier, household debt as a percentage of GDP is still declining relative to the peak reached in the fall of 2008. Moreover, Figures 9, 10, and 12 illustrate that the private sector as a whole has maintained a positive financial balance since approximately the beginning of the 2007–09 recession.

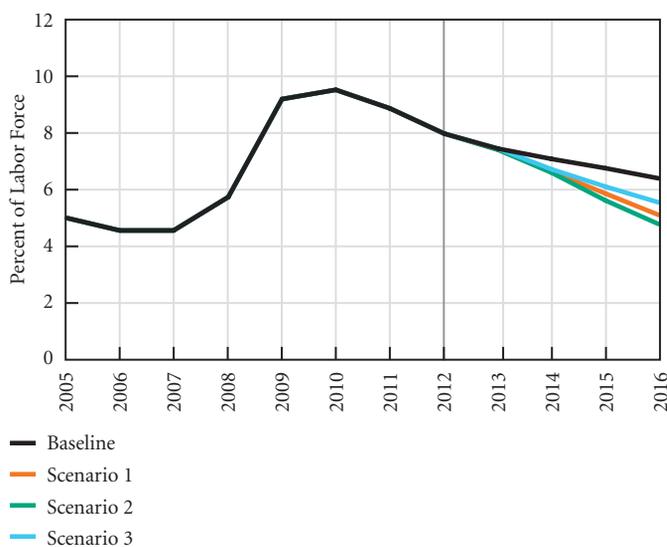
In this scenario, we break with the CBO (2013) report in making an assumption that household deleveraging continues in this way, with US households focusing on forestalling new purchases of goods and services in order to reduce their debt. This assumption is embodied in lower projected amounts of private sector borrowing relative to those assumed in all previous scenarios. Figures 15, 16, and 17 depict debt-to-GDP ratios in the baseline and all three scenarios, including the accelerated path of scenario 3. Figure 15 shows the ratio for the whole private sector careening downward toward 1.5 as of last year. This trend reflects both rising GDP and falling nominal debt. The base-run scenario leads to a leveling out and gradual turning up of the line for the debt-to-GDP ratio, with

Figure 13 Implications of Increased R & D Spending plus Continued Household Deleveraging: US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–16



Sources: BEA; authors' calculations

Figure 14 Unemployment Rate, Actual and Projected, 2005–16



Sources: Bureau of Labor Statistics; authors' calculations

rebounding consumption acting as the driving force. After that, in decreasing order, the debt-ratio paths are: scenario 1, scenario 2, and the new scenario 3.

The lines for scenarios 1 and 2 in Figure 17 indicate somewhat reduced private sector leverage relative to the baseline, owing to the effects of higher GDP growth, which increases the denominator of the debt ratio. The line for scenario 3 falls still more rapidly, more or less extending the downward trend that began with the start of the most recent US recession.

Figure 15 (for the entire private sector) and Figure 16 (for nonfinancial corporations) show that the assumed added deleveraging takes place solely in the household subsector. Indeed, as illustrated in Figure 16, weaker economic growth rates under the assumption of household deleveraging bring *higher* debt ratios for the corporate nonfinancial sector by the end of the scenario, showing the effects of lower sales.

Figure 13 shows the economy headed for higher deficits, with an upturn in the government sector deficit. This is, of course, a response—generated by the model—to slow growth. Private sector investment minus saving traces out an upward hump, turning downward by the end of the simulation period. The current account balance is higher than before, meaning that the reduction in private sector deficit spending is suffi-

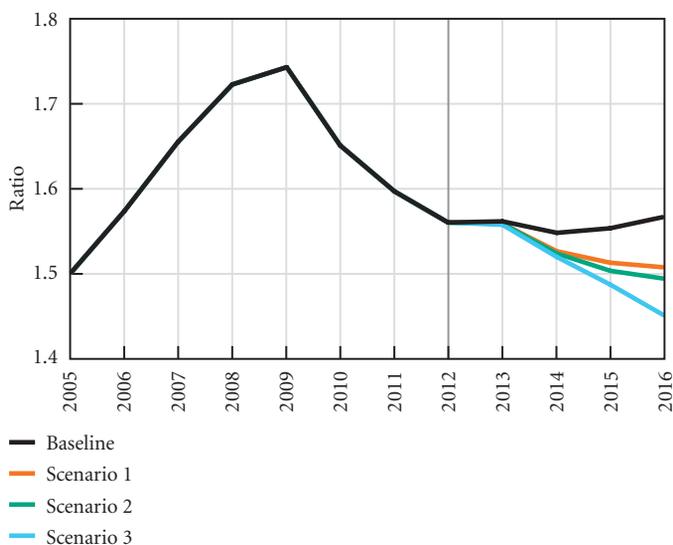
cient to outweigh the adverse fiscal impacts of lower economic growth rates, also shown in the figure. Finally, real GDP growth again flattens out as the projection period unfolds, but this time it fails to reach even 5 percent per year.

Turning back to Figure 14, one can see that the unemployment rate is higher under scenario 3 than in the previous two scenarios, revealing the importance of household consumption spending in the US economy. Nonetheless, the fiscal-stimulus and export-price effects are still operative for the projection period, in that the unemployment rate lies entirely below the one generated in the baseline simulation, following a relatively straight downward path to about 5.5 percent by 2016.

Conclusion

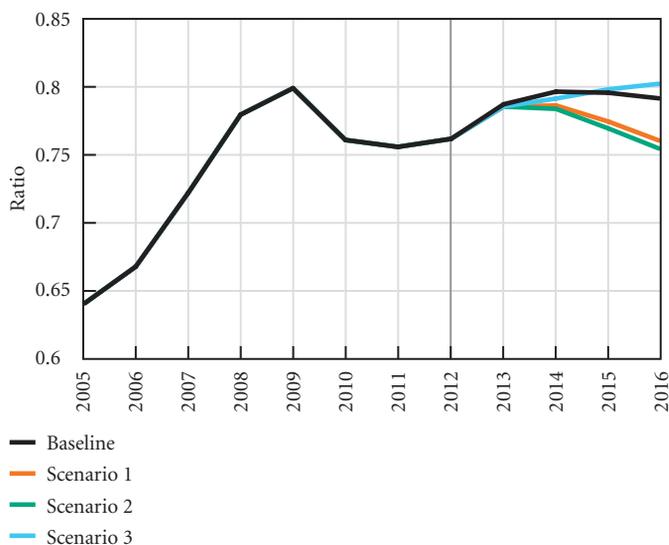
The range of strategic policy options for the United States is limited. Bringing down the stubbornly high unemployment rate and reversing the decline of household fortunes are urgent priorities. Accelerated economic growth and increased aggregate demand will not come about from private expenditures while the household sector continues its deleveraging trend. Rescuing the recovery will require using expansionary fiscal and monetary policies.

Figure 15 Private Sector: Debt-to-GDP Ratio, Actual and Projected, 2005–16



Sources: Bureau of Labor Statistics; authors' calculations

Figure 16 Nonfinancial Corporations: Debt-to-GDP Ratio, Actual and Projected, 2005–16

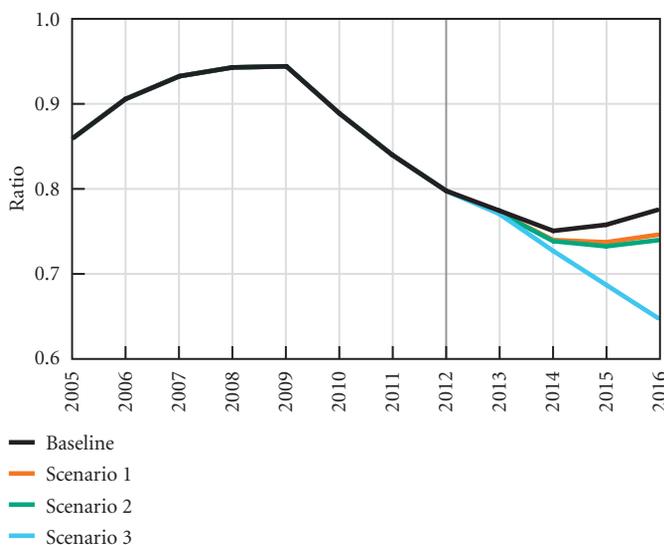


Sources: Bureau of Labor Statistics; authors' calculations

Our baseline scenario may be considered a business-as-usual case characterized by anemic growth and employment in the years ahead. At the moment, the showdown over the congressional debt ceiling and budget—a piece of political theater combining ideological shifts and European-style austerity—has placed all policy decisions on hold. The protracted stalemate and partial government shutdown will have enormously detrimental consequences for both the US and the global economy.¹⁷

What must come to pass, perhaps obviously, is a change in the fiscal policy stance biased toward either infrastructure and/or R & D investment. (Of course, here we leave to one side other possibilities that are not considered above, such as an increase in publicly funded care work; we have addressed this possibility in previous reports [e.g., Papadimitriou, Hannsgen, and Zezza 2011; Papadimitriou, Hannsgen, and Nikiforos 2013].) Our scenario considering increases in R & D expenditures convinces us that restoring US price competitiveness, especially long overdue in the high-technology manufacturing sector, will increase export demand at a relatively small cost of about 1 percent of GDP in new stimulus annually to 2016.

Figure 17 Households: Debt-to-GDP Ratio, Actual and Projected, 2005–16



Sources: Bureau of Labor Statistics; authors' calculations

Notes

1. The changes to the NIPA data are discussed in detail in BEA (2013) and other documents available at www.bea.gov/national/an1.htm#2013comprehensive.
2. The “forward guidance” on interest rates would continue to be subject to the additional condition that projected inflation stay below 2.5 percent over a one-and-a-half-year horizon, and that “inflationary expectations continue to be well anchored” (FOMC 2013, 10).
3. The budgetary impact of the spending sequester and the run-up to the October budget showdown are documented in press accounts such as Banco (2013), Lawder (2013), Rampell (2013), and Weisman and Lowrey (2013).
4. Lee and Schmidt (2010) provide an explanation of the treatment of R & D investment in the BEA’s older satellite accounts, and analyze the effect of making these activities a part of GDP—a move carried out by the agency earlier this year.
5. Most US states and localities are prevented from running ongoing deficits of their own by constitutional restrictions at the state level.
6. More generally, in open-economy macroeconomics, competitiveness is a measure of the real exchange rate in tradable goods rather than an index number measuring the factors that affect potential competitiveness in a variety of industries. A useful formula might be PfE/Pd , where Pf is the price of imports in foreign currency, Pd is the price of exports in domestic currency, and E is the nominal exchange rate, measured as the domestic price of foreign currency (Thirlwall 2002). An alternative formula might use price indices for baskets of foreign and domestic tradable goods as Pf and Pd . In practice, using such variables raises both conceptual and data-availability issues. The relevant equations in our own model use real export and import prices, along with world GDP (see Shaikh, Zezza, and Dos Santos 2003).
7. See *Roubini Monitor* (2013b). Figure 6 is based on a figure in this post.
8. For our view of the situation in a country with this sort of currency dilemma, see Papadimitriou, Nikiforos, and Zezza (2013).
9. In various papers, the authors have supported repealing the spending sequester outright (Hannsgen and Papadimitriou

2012) or making it conditional on the attainment of a reasonably low unemployment rate (Papadimitriou, Hannsgen, and Nikiforos 2013).

10. In a previous report, we analyzed the effects of adopting nonselective import tariffs under the World Trade Organization's rules of the day. Under the key national accounting identity, the effects of increasing exports versus cutting imports are similar in that they both raise net exports, which are defined as exports minus imports. In the present report, we look at only the effects of promoting exports.
11. See, for example, the "Lex" column in the *Financial Times* (print edition), October 12, 2012, and August 15, 2013.
12. One example would be the large interior of the United States relative to the size of the coasts and the variety of climates, soils, topographies, et cetera within its boundaries, which enable it to meet many of its own food and energy needs with domestic production.
13. Mariana Mazzucato, University of Sussex, and Levy Institute Senior Scholar L. Randall Wray have received an INET grant for their work on innovation and finance. A discussion of evidence in the theoretical and empirical literature on the productivity-improving effects of R & D will be provided in an appendix to a forthcoming working paper based on this report.
14. For an attempt to separate cyclical and structural movements in macroeconomic time series, see, for example, *Roubini Monitor* (2013a).
15. For completeness, we note that the other sorts of estimates come from studies that use aggregate data rather than firm-level data, as well as those that seek to measure social, rather than private, returns. The CBO report states that such estimates tend to be smaller, though, as noted above, the CBO finds them to be relatively wide ranging and imprecise (CBO 2005, 21–28). The CBO reports a "range of measures of the central tendency of the estimate," from 0.1 to 0.2. In a footnote, the CBO attributes this reported range to an article by Zvi Griliches (1988). As nonspecialists in the field of technological change, we can seek at best an overall sense of the range of findings of major and relevant econometric studies.
16. The effect of the flow increase in R & D also depends upon the rate of depreciation of the existing R & D stock,

along with other assumptions. Wendy C. Y. Li (2012, 22) finds a range of estimates for different industries based on BEA-NSF data, with pure scientific research enjoying a fairly low depreciation rate of about 16 percent. We find that a path for the real export price such as the one we assume is consistent with a simple calculation in which there are no lags in applying innovations, and where depreciation is within the range found by Li's study. We intend to provide additional details and background research in a future Levy Institute working paper.

17. The scenario outlined in Nikiforos (2013b) augments the analysis in this report.

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