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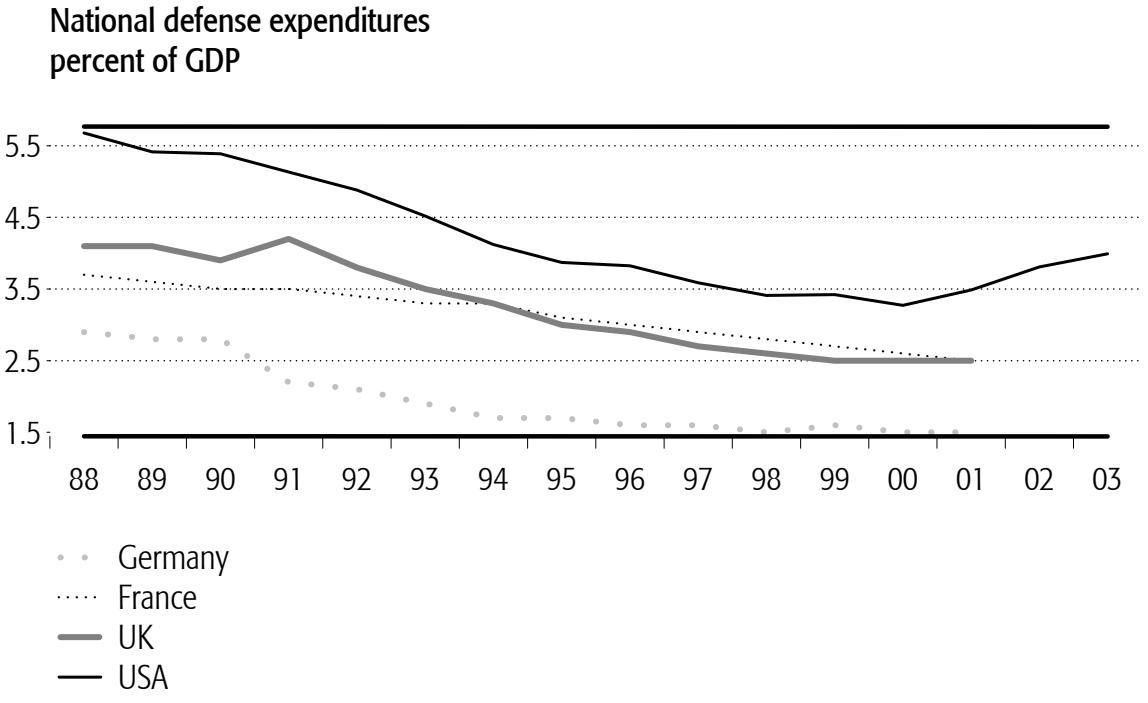
# America's lost peace dividend: some macroeconomic implications

## Introduction

Over the 1990s the industrial economies enjoyed a period of remarkable peace and macroeconomic stability. In reaction to the end of the Cold War most of these countries significantly reduced their expenditures on national security. For the US almost half of the cyclically-adjusted improvement in the federal budget balance during this period can be traced directly back to reduced expenditure in this category. But since 2001, a remarkable shift towards higher expenditure on national security has taken place. For the calendar year 2003, defense expenditure was already up by 0.7 percentage points of GDP on its 2000 trough. And this is unlikely to be the end. Excluding supplemental appropriations, current plans call for an increase in annual defense resources by 15 % in real terms between 2004 and 2009 (Holtz-Eaking 2003). This increase in resources has to be seen



not just as a response to the 9/11 terrorist attacks, though they have certainly accelerated the process, but within the framework of an overall transformation of the US armed forces from a "threat-based" to a "capabilities-based" strategy (Wolfowitz 2004) that was the underlying concept in the Pentagon's (DoD) Quadrennial Defense Report of 2001 (Department of Defense 2001).

In this paper we undertake an assessment of some major macroeconomic implications of this reversal in defense expenditures from a steeply downward-sloping path relative to GDP to a more constant ratio. Especially, we will try to assess whether the current approach for deficit-financing this process is superior or inferior to financing it by taxes. In this respect, we deviate from the bulk of most recent literature on the subject of interaction between peace and economic performance (cf. Gupta et al. 2002) which tries to empirically assess the costs of armed conflict in terms of forgone GDP. Instead we take up similar questions as John Maynard Keynes did in his 1940 essay "How to pay for the war" in which he argued a) that due to the adverse distributional effects of financing World War II by deficits that would arise from the inevitable inflation, higher taxes would be the more appropriate financing method and b) that price caps and rationing would undermine economic performance by distorting the optimal allocation of resources (Keynes 1940, King 1998).

We would also like to stress that the focus on the lost peace dividend does not imply any judgement on the appropriateness of the underlying political course. The concept of improved national security goes beyond our ability for economic quantification so any cost-benefit analysis is not included in our reasoning.

The paper is structured as follows: First, we outline our analytical framework which consists of a small monetary model for the US economy with endogenous money-supply and an exogenous fiscal policy based on 1990 to 2003 quarterly data. Second, we provide two simulations for the altered stance of fiscal policy as a result of higher defense expenditures. In simulation A we assess the effects of an entirely deficit-financed expansion of the defense budget. In simulation B the increased defense expenditures are completely balanced by correspondingly higher taxes. Third, we draw some conclusions on the appropriate stance of fiscal policy given the administration's determination to ratchet up defense spending.

## The analytical framework

The underlying framework for our analysis consists of a small monetary model for the US economy based on quarterly data from 1990 to 2003. The model includes 11 equations with 17 variables – an overview of the model is presented on the following page. Estimates have been made using a simple least squares procedure with a simple constant in each equation.

## Structure of the monetary model

| | | | | |
|---|---|---|---|---|
| **Macroeconomic outcomes** | Nominal GDP (GDP) | CPI inflation (CPI) | Money supply (M2) | 10yr Treasury Yield (bond) |
| **Macroeconomic process** | Fixed Investment (FI) | Residential Investment (RI) | Consumption Spending (C ) | |
| **Sectoral balances** | Nonfinancial Corporations (NCB) | Households (HB) | Current account (CA) | |
| **Policy variables** | Fiscal (Taxes (T), Expenditure (E)) | Monetary (Fed) | | |
| **External variables** | Oil price (Oil) | Exchange rate (FX) | World trade (WT) | |

**Variable interaction**

**(dependent variables in rows; independent variables in columns; x denotes interaction)**

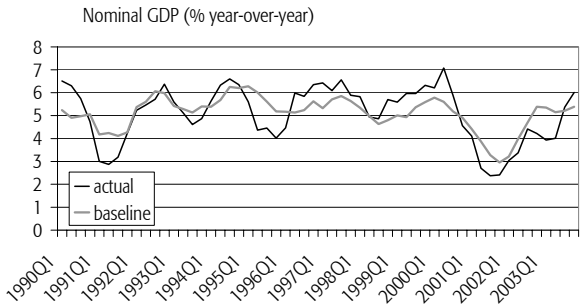
| | GDP | CPI | M2 | Bond | FI | RI | C | NCB | HB | CA | T | E | Fed | Oil | FX | WT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP | | | x | | x | x | x | | | | | | | | x | |
| CPI | x | | x | x | | | | | | | | | x | x | x | |
| M2 | x | | | x | | | | | | | | | x | | x | |
| Bond | | x | x | | | | | | | x | x | x | x | | | |
| FI | | | | x | | | x | x | | | x | x | | | x | x |
| RI | | | | x | | | x | | x | | | | x | x | | |
| C | | x | | x | x | x | | | x | | x | x | | | x | |
| NCB | | | | x | | | | | | | x | x | x | x | x | x |
| HB | | | | x | | x | x | | | | x | x | | | | |
| CA | x | | x | | | | | | | | | | | | x | x |
| T | Exogenous | | | | | | | | | | | | | | | |
| E | Exogenous (differentiated for direct and transfer expenditure) | | | | | | | | | | | | | | | |
| Fed | x | | | | | | | | | | | | | x | x | |
| Oil | Exogenous | | | | | | | | | | | | | | | |
| FX | Exogenous | | | | | | | | | | | | | | | |
| WT | Exogenous | | | | | | | | | | | | | | | |

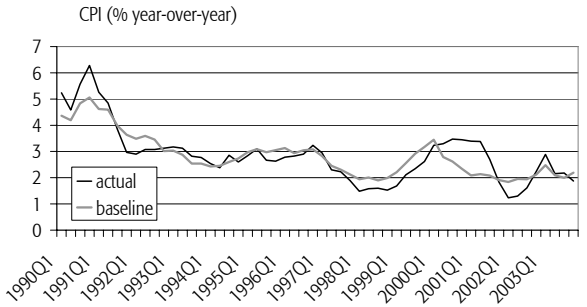
Our modeling approach differs somewhat from the traditionally used aggregate demand/aggregate supply models in several respects:

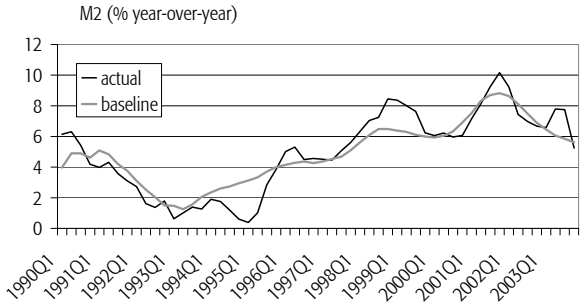
1. The introduction of an explicit equation for the money supply process based on derived demand cures one of the main flaws of the traditional IS/LM-model where the central bank controls the money supply. This implies an open market policy approach by central banks which poorly reflects the actual policymaking process in most industrial countries today (Bofinger/Reischle/Schächter 1999).
2. The financial balances in the private sector play a central role in both the shaping of the business cycle and the transmission process of both monetary and fiscal policy. The financial balance determines the private sector's ability to spend money, while the process of spending itself diminishes the sector's financial balance. And additionally, one sector's spending is another sector's income. E.g. a cut in income tax would be seen within the framework as a transfer of purchasing power from the public to the household sector. To what extent this is or is not spent in turn depends on the conditions prevailing at the time. This approach has been drawn from Wynne Godley's work on the sustainability of the US economic position (cf. Godley/Izurieta 2002). This kind of model setup also makes for a very high degree of path dependency in the model. While the equations exhibit a high degree of interaction, the feedback loops are usually not within the same period. For example, GDP growth affects today's money creation which in turn influences GDP with an average lag of four quarters.
3. The model is exclusively based on nominal variables, although the CPI-projection can then be used to derive real values. This approach has been used both for model consistency (there is not much sense in expressing financial balances in real terms) and convenience.

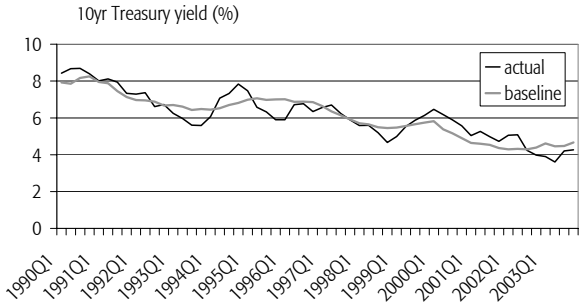
The charts on the next pages show the model output for an in-sample, dynamic simulation against the actual development during the 1990 to 2003 period. The comparison of the two makes it clear that the model is unable to cover the entire amplitude of the actual business cycle but captures the overall trend and turning points fairly well. An improved fit could have been arrived at if an additional business cycle variable such as the ISM or the Consumer Confidence index had been included as exogenous variables (we had used this approach when analyzing the impact of unconventional monetary policy – cf. Milleker 2003). However, we have refrained from this here due to the fact that changes in the macroeconomic conditions – such as a shift in fiscal policy – can, of course, be expected to influence these variables as well.

# Macroeconomic outcomes

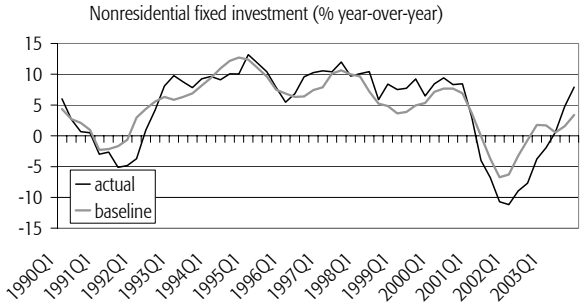


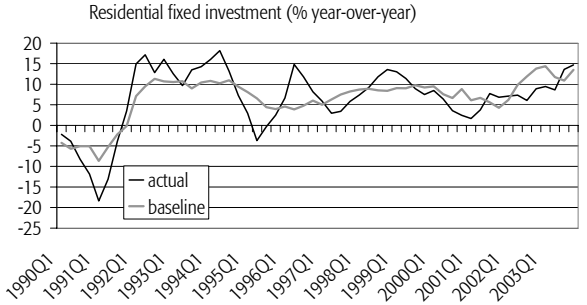



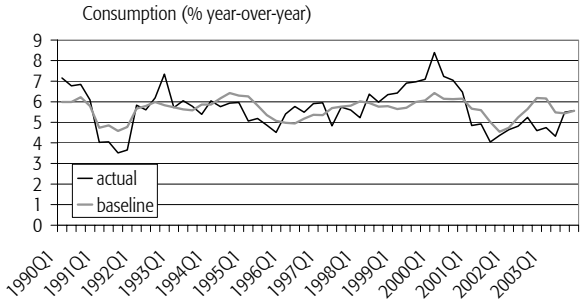



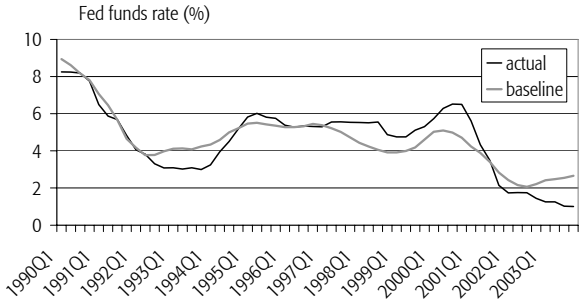



# Macroeconomic process



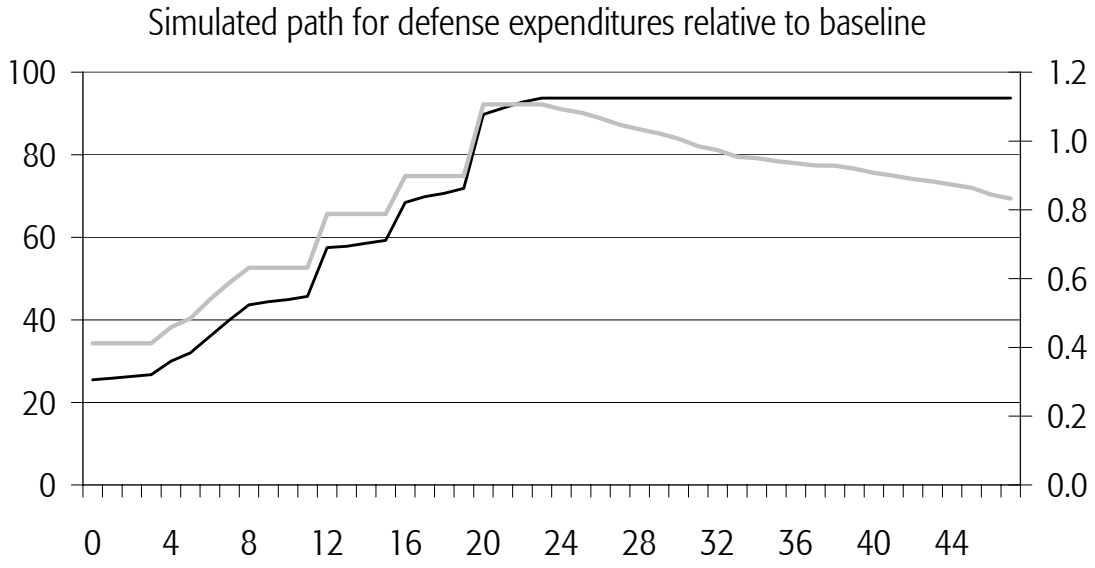



## Impulse definition and economic scenarios

For the further course of our analysis we have defined an impulse, i.e. increase in defense expenditures, that is roughly similar in size and duration as what lies in store according to the CBO estimate (Holtz-Eaking 2003). The selected period for the simulation is from 1992 onwards. Q1 1992 is henceforth denoted as period 0, which forms the starting point of the simulation. Absolute nominal defense expenditures rise relative to the baseline from zero in period -1 to USD 94bn in the 23rd modeled quarter and remain constant thereafter with the simulation running a total of 48 quarters (0 to 47). The bulk of the expenditure increases occurs at the beginning of each calendar year followed by minor increases during the year (reflecting adjustment for inflation). The following chart depicts the chosen simulation path both in terms of absolute USD values and relative to baseline GDP.

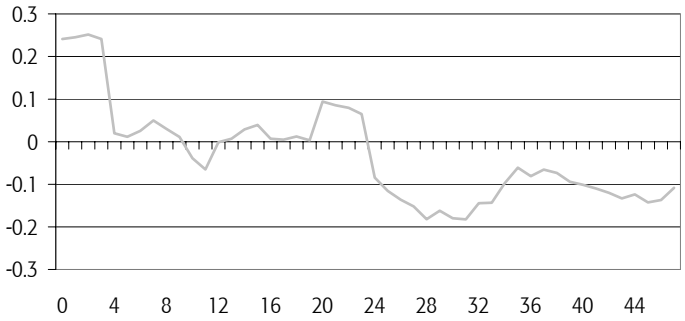



Along the altered expenditure path we calculated two simulations. In simulation A we have assumed that the government pays for the additional defense expenditures by incurring a higher deficit. In simulation B, however, we have assumed that any higher defense spending is immediately and fully offset by higher taxes, i.e. the federal deficit would remain unchanged. A graphic comparison of the economic outcomes of the scenarios can be found on the following pages.

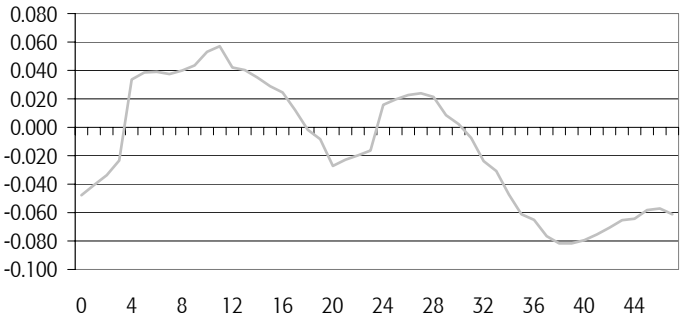
Each of the charts shows the deviation of the indicated scenario from the baseline on a quarterly basis. For the Fed funds rate and the bond yield in level terms, for all other variables as the change in the year-over-year growth rates. Once again 0 indicates the starting point of the simulation and 47 the end period.

# Macroeconomic outcomes: simulation A
# Deviation from baseline per simulated quarter

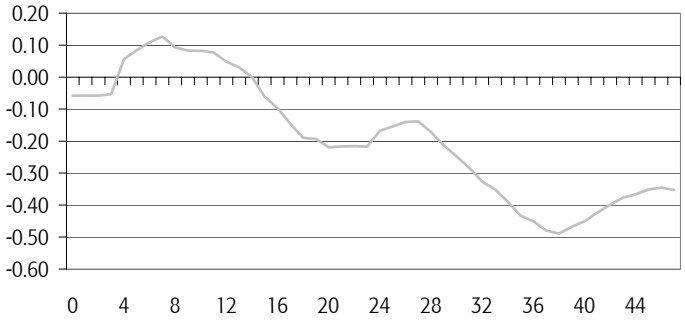
Nominal GDP (year-over-year, percentage points)



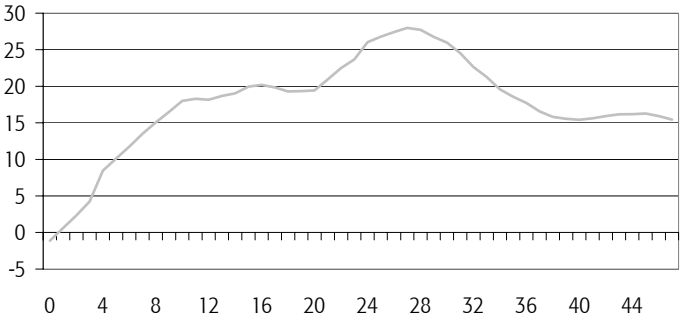

CPI (year-over-year, percentage points)



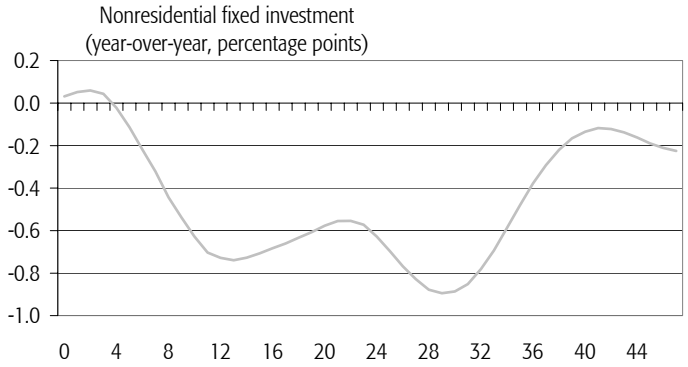

M2 (year-over-year, percentage points)

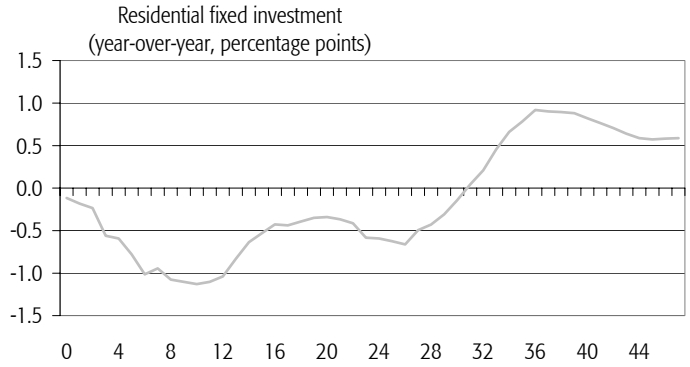


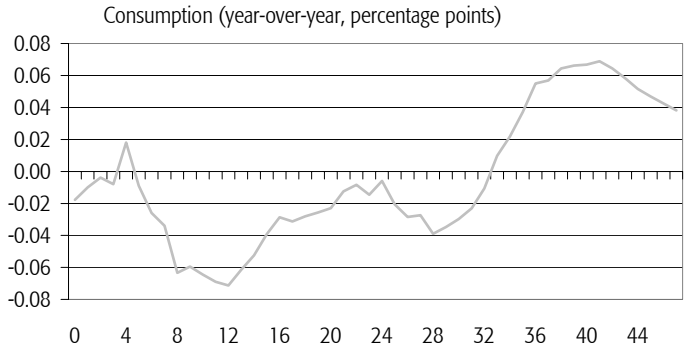

10yr Treasury yield (basis points)

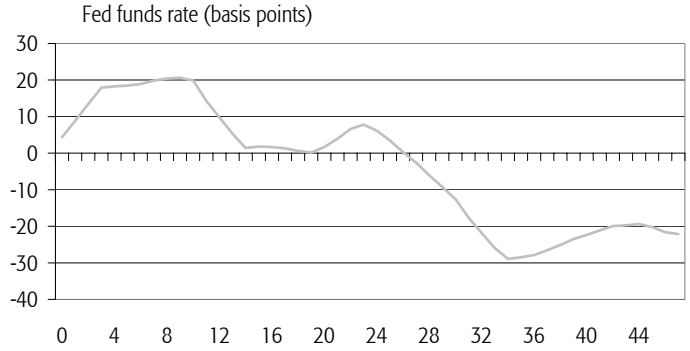


# Macroeconomic process: simulation A
# Deviation from baseline per simulated quarter



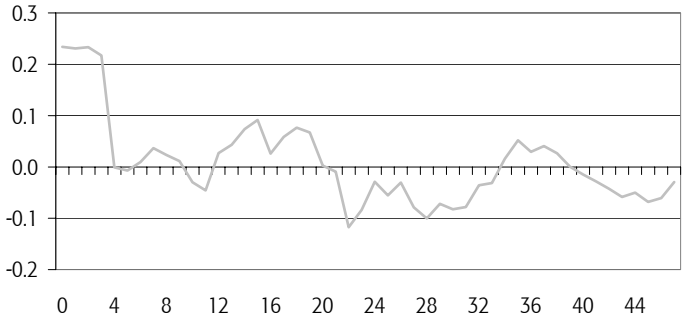



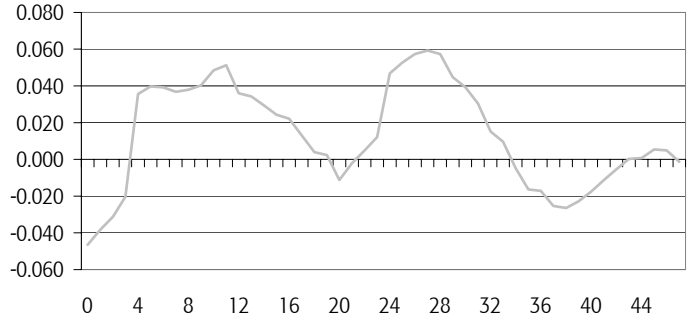



# Macroeconomic outcomes: simulation B
# Deviation from baseline per simulated quarter

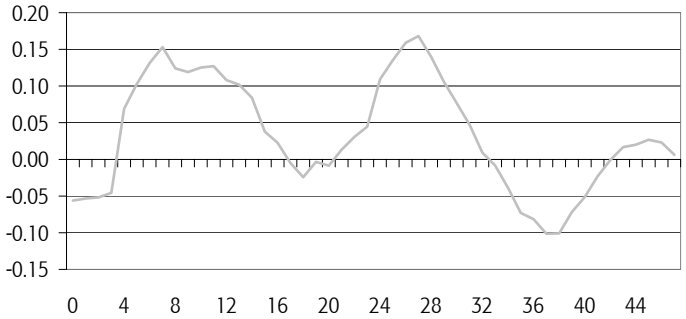
Nominal GDP (year-over-year, percentage points)



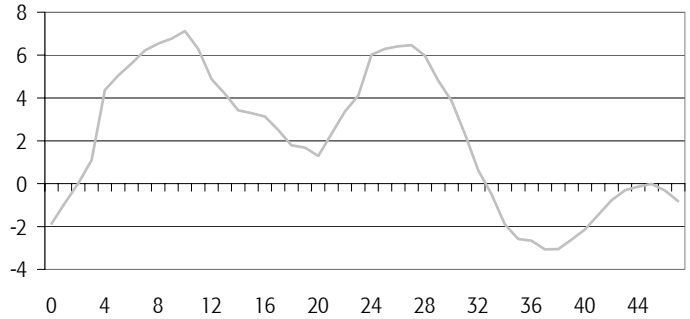

CPI (year-over-year, percentage points)



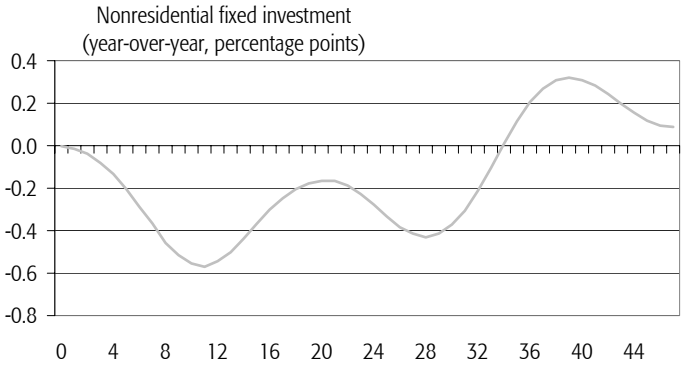

M2 (year-over-year, percentage points)

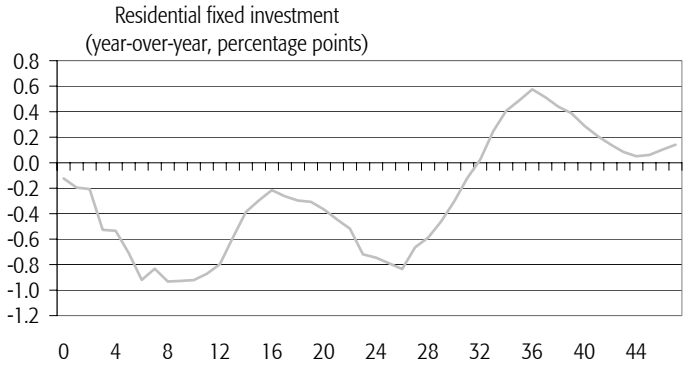


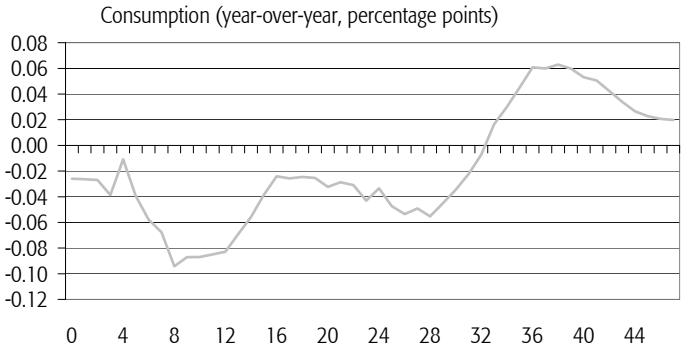

10yr Treasury yield (basis points)

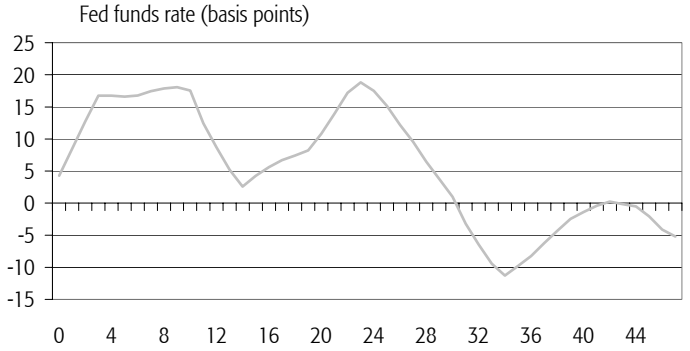


# Macroeconomic process: simulation B
# Deviation from baseline per simulated quarter



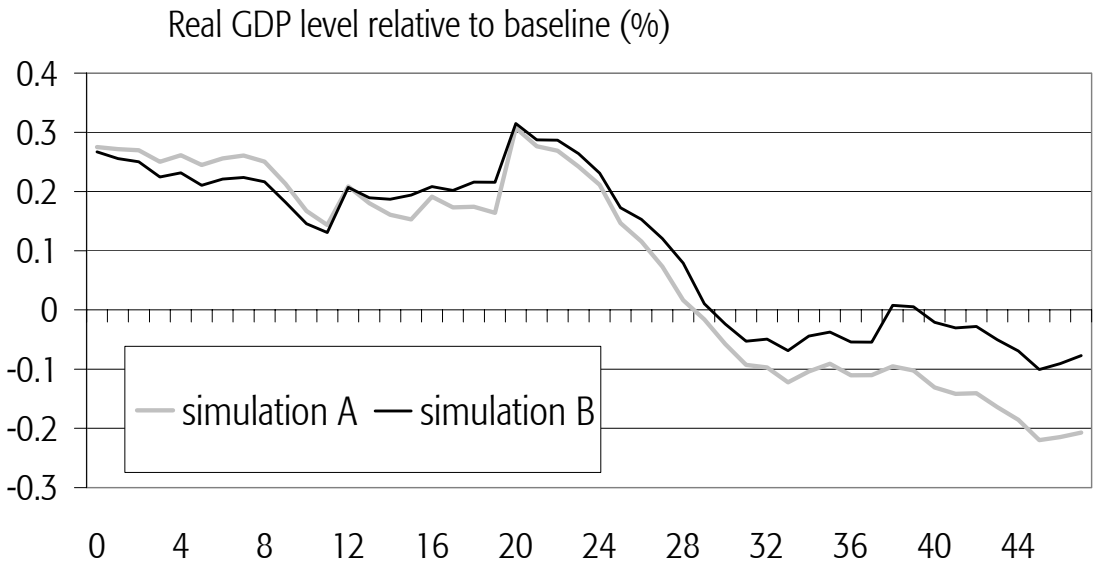
As can be expected, the rise in defense expenditure initially gives a boost to nominal GDP growth which is slightly larger in scenario A than in scenario B as there are no opposing impulses from the rise in taxes. Yet in both cases there is a price to pay later on. In the deficit scenario these negative effects come via a higher interest rate which causes private expenditures to be crowded out (i.e. the willingness of the private sector to spend is reduced). This effect is almost immediately felt for construction expenditures but - with a time lag - will also affect nonresidential fixed investment spending and consumption. As a result the private sector's financial balances are higher in this scenario due to both the elevated income level that results from the higher government expenditure and a reduced willingness to spend.

In scenario B the effects work through the direct withdrawal of purchasing power by taxes which reduces the private sector's ability to spend (though not necessarily its willingness to do so). The negative effects from higher taxation kick in almost simultaneously for residential and nonresidential investment spending and consumption. On aggregate, the households' financial balance is barely affected in our simulation, i.e. the reduction in purchasing power is fully balanced by reduced consumption, while the financial balance of the corporate sector is lower, indicating that the reduced ability to spend is not fully compensated by lower spending.

Our econometrics also show that on a net basis the secular increase of defense expenditures will hurt economic performance over the longer term. The reason for this is fairly simple: private sector expenditures on aggregate tend to have higher multipliers on GDP than public expenditures. However, we do have to admit that we have not tested the response to different kinds of direct government expenditures (infrastructure, defense etc.) but only differentiated between the direct and transfer type.

To what extent the increase in defense expenditures would hurt economic performance can be seen from the chart below. Here we have depicted the ratio of the CPI-adjusted (the CPI serves as a deflator) simulation results relative to the adjusted baseline in terms of percentage points. As we can see from the chart, real GDP is higher in both simulations relative to the baseline for as long as additional stimulus from higher spending is coming in. However, once this effect fades the countervailing forces of higher interest rates (scenario A) or higher taxes (scenario B) become dominant. However, two major differences can be found between the two scenarios. First, the nominal GDP tends to be higher in scenario B from the 12$^{th}$ quarter onwards. Second, the price level is lower for scenario B between the 10$^{th}$ and the 19$^{th}$ quarter.

Both effects combine to a lower real GDP level in scenario A relative to scenario B despite the fact that the endogenously modeled monetary policy sets a lower key interest rate in scenario A relative to scenario B from the 12$^{th}$ quarter onwards. Obviously, the reduced willingness to spend in the deficit case is more pronounced than in the tax case to an extent that more than compensates the reduced ability to spend.




## Conclusions

Our results give a strong indication that the intended secular rise in the US defense budget will have adverse economic consequences under the assumption that this rise will not have major positive external effects such as the creation of a more secure macroeconomic environment. If the latter aspect would indeed occur, the results would in all probability be more favorable towards increased spending on national security. Unfortunately, however, this effect does not lend itself to econometric testing so that we had to exclude it from our analysis.

But, from another aspect, our results – derived as they are under a ceteris paribus clause that would include any given amount of geopolitical uncertainty at any given time – are quite precise. Financing the rise in defense expenditures by higher deficits rather than higher taxes begets a more pronounced negative effect on economic performance over the longer-term. Our estimates suggest that a deficit-financed rise in national security expenditures roughly to the tune of what the DoD plans today would cost 0.1 percentage points of GDP (approx. USD 11bn) over the five-year horizon relative to the tax-financed alternative.

As the proposed course of policy cannot be viewed in terms of business cycle stabilization but indeed is a structural policy decision, our results argue strongly against continued deficit spending for this purpose even if this would mean rolling back some of the tax cuts enacted over the past four years. This issue is all the more pressing as the US budget outlook is so bleak as to result in continued deficits to the tune of 3 to 4 % of GDP over the entire 2005 to 2008 period if a) the tax cuts are made permanent and b) the proposed mid-term plan of the DoD is followed through (Milleker 2004). There is no way around it: permanent increases in spending should be mirrored by permanent streams of revenue.

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