



Tax Policy Center
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The Economic Effects of Long-Term Fiscal Discipline

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Do Deficits Matter?

- **Over the past two years, the long-term budget outlook has deteriorated markedly.**
 - **The net debt/GDP ratio projected for 2011 has risen by 33 percent of GDP.**
- **The Bush Administration and others think that concerns over fiscal discipline are misplaced.**
 - **Glenn Hubbard, CEA Chairman: “I don’t buy that there’s a link between swings in the budget deficit of the size we see in the United States and interest rates...There’s just no evidence.”**
- **The Administration is considering substantial new tax cuts.**



On the Other Hand...

Many others believe deficits have significant effects on interest rates, including:

- **CEA (Reagan)**
- **CEA (George H.W. Bush)**
- **CEA (Clinton)**
- **The Chairman of the Federal Reserve Board**
- **The Congressional Budget Office**
- **The General Accounting Office**
- **The International Monetary Fund**
- **Professor Martin Feldstein, Harvard University**
- **Professor Gregory Mankiw, Harvard University**
- **Professor John Taylor, Stanford University, currently Treasury Department**
- **The Committee for Economic Development**



Overview of paper

- This paper examines the relationship between long-term fiscal discipline and economic performance, with two main results.
- First, as almost all economic research and standard textbooks suggest, declines in budget surpluses (or increases in budget deficits) reduce national saving and therefore reduce future national income, regardless of their effect on interest rates.
- Second, simple correlations, careful empirical research, macro-econometric models, and the views of leading economists and policymakers all indicate that increases in expected future deficits raise long-term interest rates.



Overview, continued

- A reduction in the projected budget surplus (or increase in the projected budget deficit) of one percent of GDP will raise long-term interest rates by between 50 and 100 basis points.
- We focus on the long-term effects of deficits. The short-term effects of temporary deficits in a slack economy may differ substantially from the long-term effects of persistent deficits.



Macro accounting identities

- **National saving = private saving + public saving**
- **National saving = domestic investment + net foreign investment (=national investment)**



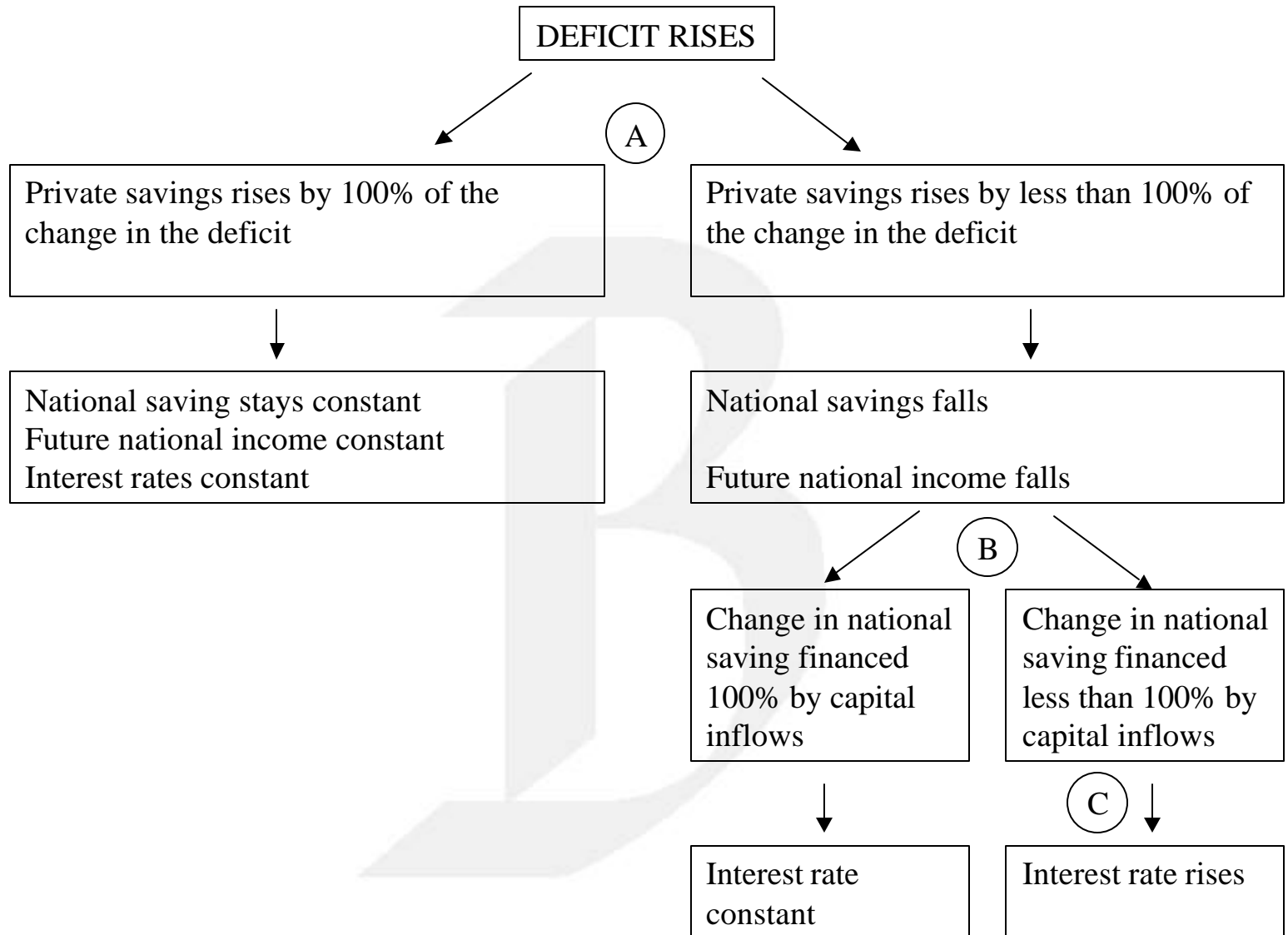
Implications of identities

- An increase in the budget deficit (a decline in public saving) reduces national saving unless it is fully offset by an increase in private saving.
- A reduction in national saving must correspond to a reduction in national investment.
- A reduction in national investment reduces future national income, other things equal, because it reduces the capital stock owned by Americans.



How does the saving-investment identity come back into alignment following a reduction in S ?

- Interest rates may rise.
- Capital inflows from abroad may increase.
- Unless increase in budget deficit is entirely offset by increased private saving, it must produce a reduction in domestic investment or net foreign investment. It must therefore reduce the capital stock owned by Americans and reduce national income, regardless of effects on interest rates.





Effect on future income

- **Between January 2001 and August 2002, debt/GDP in 2011 rose by 33 percent of GDP (CBO).**
- **If 25 percent of the decline is offset by a rise in private saving, net assets owned by Americans in 2011 falls by 25 percent of GDP ($=0.75*33.3$).**
- **If the rate of return to capital is 6 percent, GNP in 2012 falls by 1.5 percent ($=.25*.06$).**
- **The reduction in GNP is the equivalent today of about \$1,500 *per year* for each household in the United States.**



What about how the deficit is used?

- The analysis above considers only the effects of reduced budget surpluses or increased budget deficits *per se*. It shows that, other things equal, smaller budget surpluses reduce future national income relative to what it would otherwise be.
- A full analysis should account for the effects of the spending programs or tax reductions financed by the reduction in the surplus.



The 2001 tax cut

- Raises future national income by reducing marginal tax rates on labor supply, human capital, private saving and investment
- Reduces national income by reducing public and national saving.
- The net effect is small at best, possibly negative.



Estimates of net effect of 2001 tax cut

- **Gale and Potter (2002):** little or no net effect on GDP over the next 10 years and could even reduce it, and that GNP is likely to fall
- **Elmendorf and Reifschneider (2002):** personal income tax cuts in the 2001 law reduces long-term output and has only a slight positive effect on output in the first 10 years.
- **Auerbach (2002):** reduces long-term size of economy unless financed entirely by spending reductions -- that is, unless it has no net effect on the surplus or deficit.
- **CBO (2001b):** may raise or reduce the size of the economy, but net effect is likely to be less than 0.5 percent of GDP in either direction in 2011

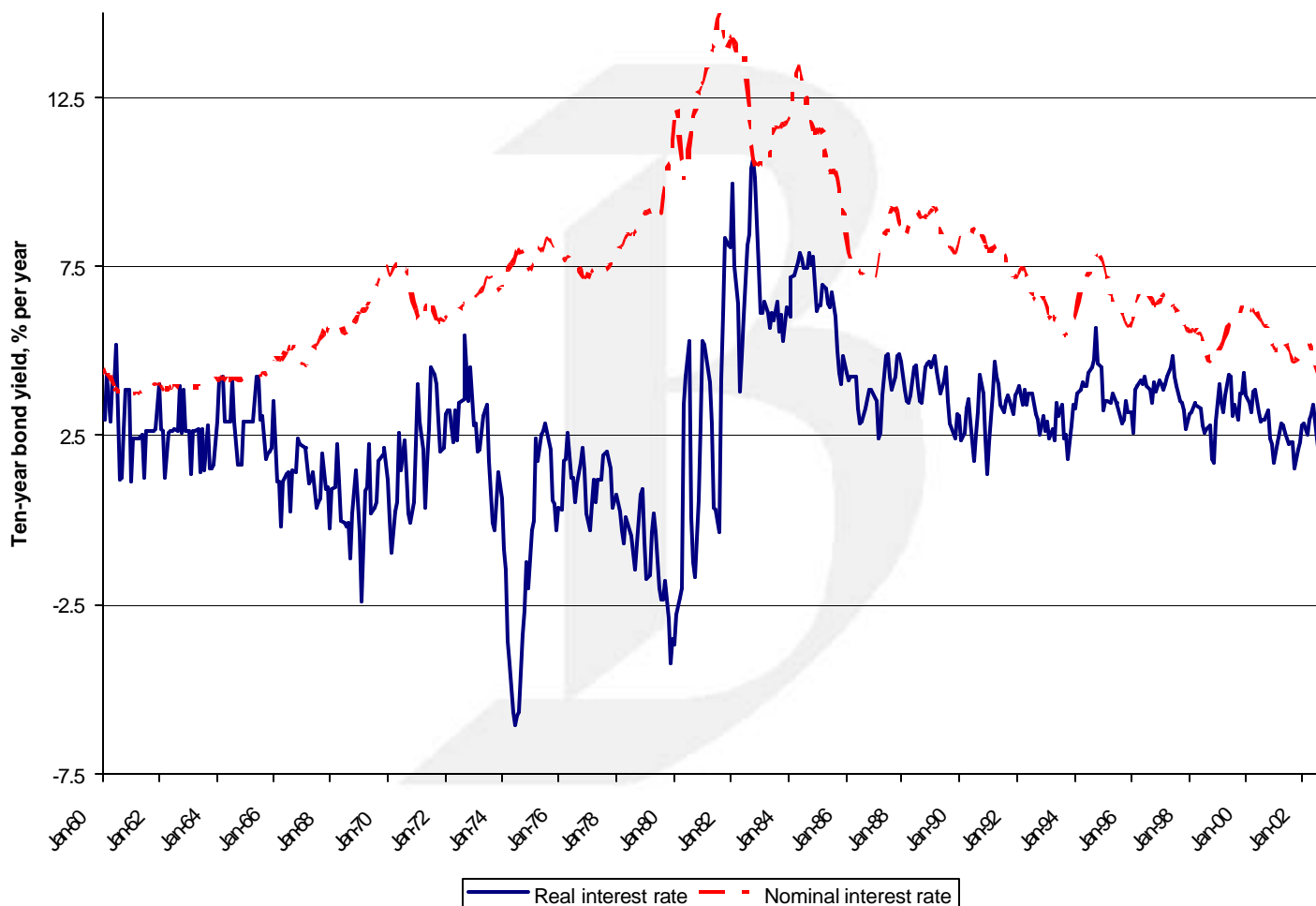


Future budget surpluses and long-term interest rates

- The key relationship: anticipated future deficits and current interest rates
- Because financial markets are forward-looking, examining the effect of this year's deficit on interest rates is unlikely to be informative
- Anticipated deficits may well raise long-term rates relative to short-term rates, so looking at just long-term rate may be uninformative

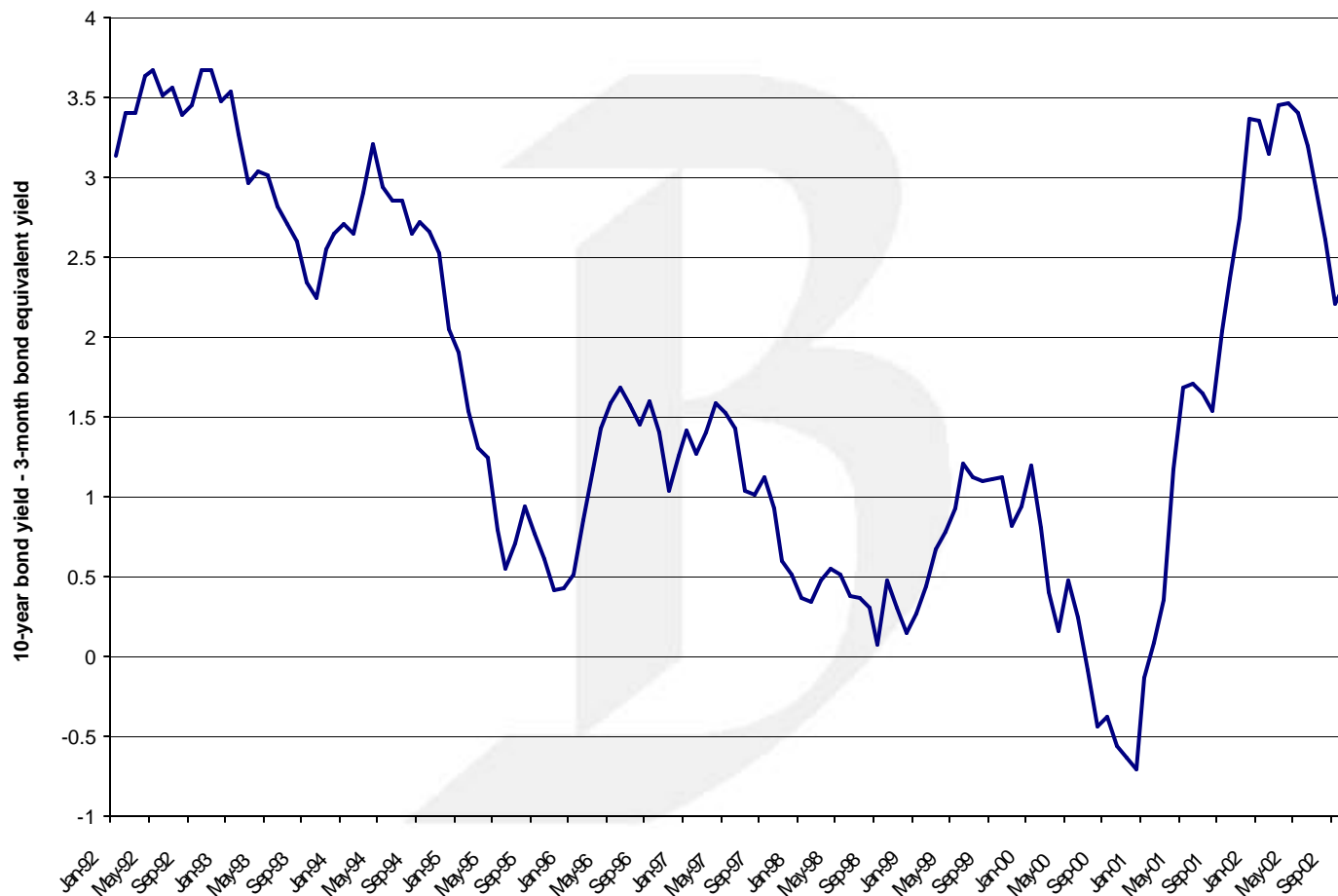


Nominal and real interest rates





Interest rate spread (long rate-short rate)





Deficits and interest rates





Views on deficits and interest rates

- *Wall Street Journal*: “The notion that deficits cause interest rates to rise is a fiction...There wasn’t any empirical evidence to support this argument when Mr. Rubin trotted it out, and there still isn’t.”
- Hassett (2001): “almost every recent study that has been published on this topic has failed to find any link between moderate increases in deficits and rises in interest rates.”



Views on deficits, cont.

- Taylor (1995): “Economic research – both theory and econometric models – provides evidence that lower budget deficits will lower real interest rates, increase investment, and thereby increase productivity growth and real incomes.”
- Ball and Mankiw (1995): “To sum up: government budget deficits reduce national saving, reduce investment, reduce net exports, and create a corresponding flow of assets overseas. These effects occur because deficits also raise interest rates and the value of the currency in the market for foreign exchange.”



Evidence on deficits and interest rates

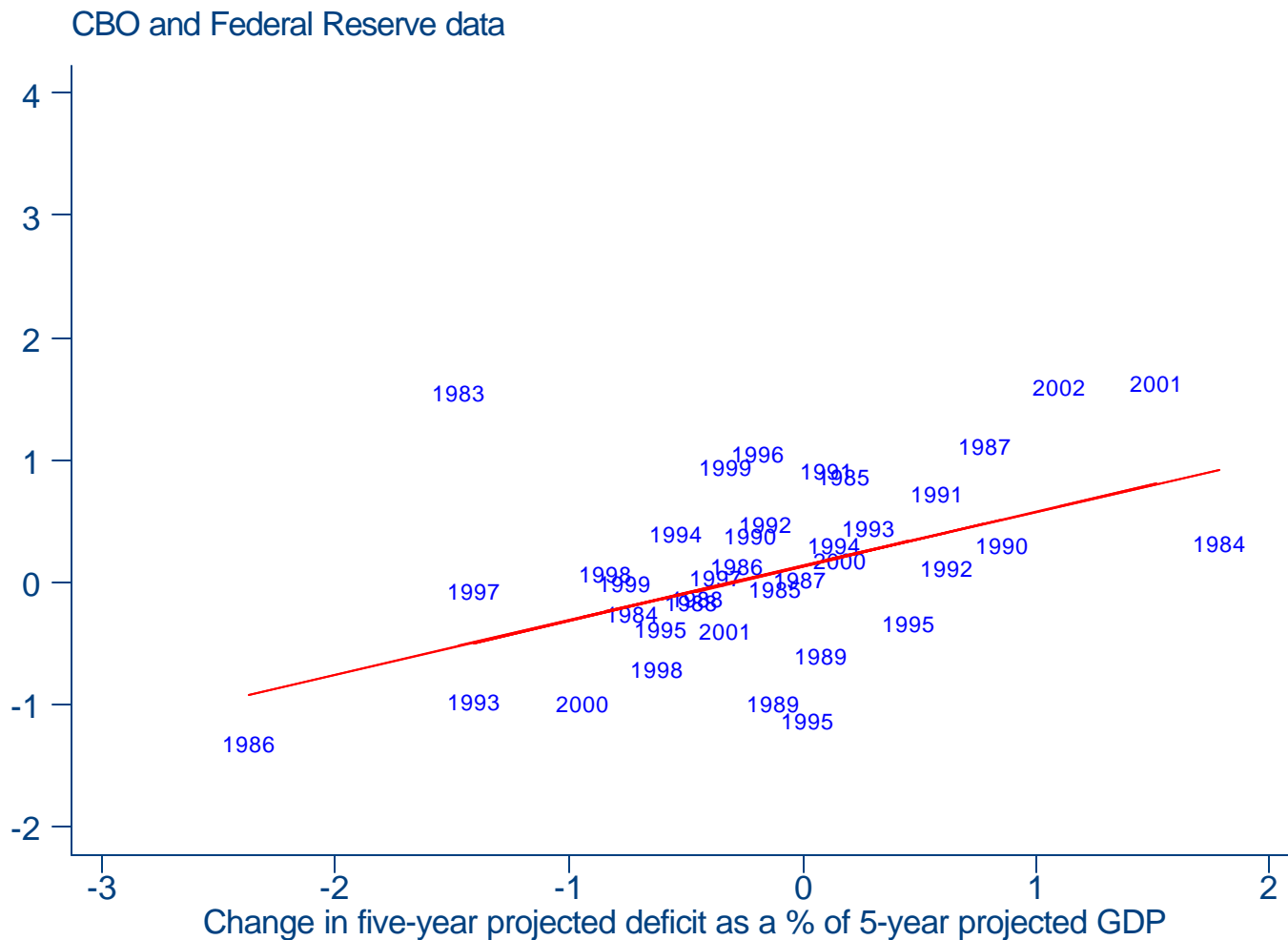
Four types of evidence:

- **Scatter plots**
- **Simple economic models**
- **Structural macro models**
- **Econometric studies**



Change in projected deficits and change in interest rates

Change in 5-year bond yield minus 3-month bond-equivalent yield





“Back of the envelope” approach

- **Council of Economic Advisers (1994):** Applied Solow model. Results suggest that long-term fiscal deterioration since January 2001 would raise real interest rates in the long term by well more than 200 basis points.
- **Ball and Mankiw (1995):** Results suggest that the recent deterioration in the budget outlook would raise real interest rates in the long term by 112 basis points.
- **Hubbard (2002):** Repealing the tax cut would reduce interest rates by 35 basis points. Similar methodology to Ball and Mankiw, but focuses solely on tax cut and assumes sunset.
- **Problem with this approach:** Implicitly ignores existence of forward-looking behavior by market participants, underestimates the impact of permanent tax changes on interest rates.



Structural macro models

- **Large-scale macro-econometric models are used by the Federal Reserve, CBO, and others for projections and analysis**
- **Careful attention paid to explaining interest rates**
- **Can use these models to examine how interest rates move when the path of budget deficits is changed**



Results from macro models for increase in primary deficit equal to 1% of GDP

Model	Policy	Effect on 10-year bond yield after one year (basis points)	Effect on 10-year bond yield after ten years (basis points)	Year analysis was published
CBO	Spending	27	92	1995
DRI	Spending	110	210	1988
Federal Reserve (FRB/US)	Tax	50	70	1999
Federal Reserve (FRB/US)	Spending	41	20	1999
Macro Advisers	Tax	100	143	1998



Summary from macro models

Average of results for increase in deficit of 1 percent of GDP:

- **For tax and spending changes combined, 10-year interest rates would rise by about 50 basis points after one year and 100 basis points after 10 years**
- **For tax changes alone (including scenarios that assume long-term increases in taxes to offset shorter-term reductions), 10-year interest rates would rise by about 40 basis points after one year and 60 basis points after 10 years**



Summary from macro models, cont.

Removing 2010 sunset on tax cut passed last year: 1.5-1.9% of GDP

Applying 60 basis point estimate per 1% of GDP in tax cuts, repealing the sunset would raise interest rates in the long term by 90 to 115 basis points ($=60 \times 1.5$ to 60×1.9)

Increase of 100 basis points on a 30-year, \$200,000 mortgage would increase the mortgage payment by roughly \$1,500 per year.



Reduced-form econometric literature

- Tries to examine connection between interest rates and deficits observed in historical data
- Difficult to do -- lots of variables moving around
- Updating a survey conducted by Barth et. al in 1991, we found 58 studies that have examined this issue



Econometric literature

	Positive	Mixed	Insignificant	<i>Total</i>
<i>Total</i>	28	11	19	58

- Taken as a whole, mixed evidence (not no evidence)
- Elmendorf and Mankiw (1999): “Our view is that this literature...is not very informative.”
- Bernheim (1989): “it is easy to cite a large number of studies that support any conceivable position.”



Key: *Projected* deficits

Feldstein (1986): “it is wrong to relate the rate of interest to the concurrent budget deficit without taking into account the anticipated future deficits.”



Separating the studies by their deficit measure

Measure of deficit	Positive	Mixed	Insignificant	<i>Total</i>
<i>Expected or unanticipated deficit</i>	<i>12</i>	<i>4</i>	<i>1</i>	<i>17</i>
VAR dynamics	2	2	6	<i>10</i>
Current deficit/debt	14	5	12	<i>31</i>
<i>Total</i>	<i>28</i>	<i>11</i>	<i>19</i>	<i>58</i>



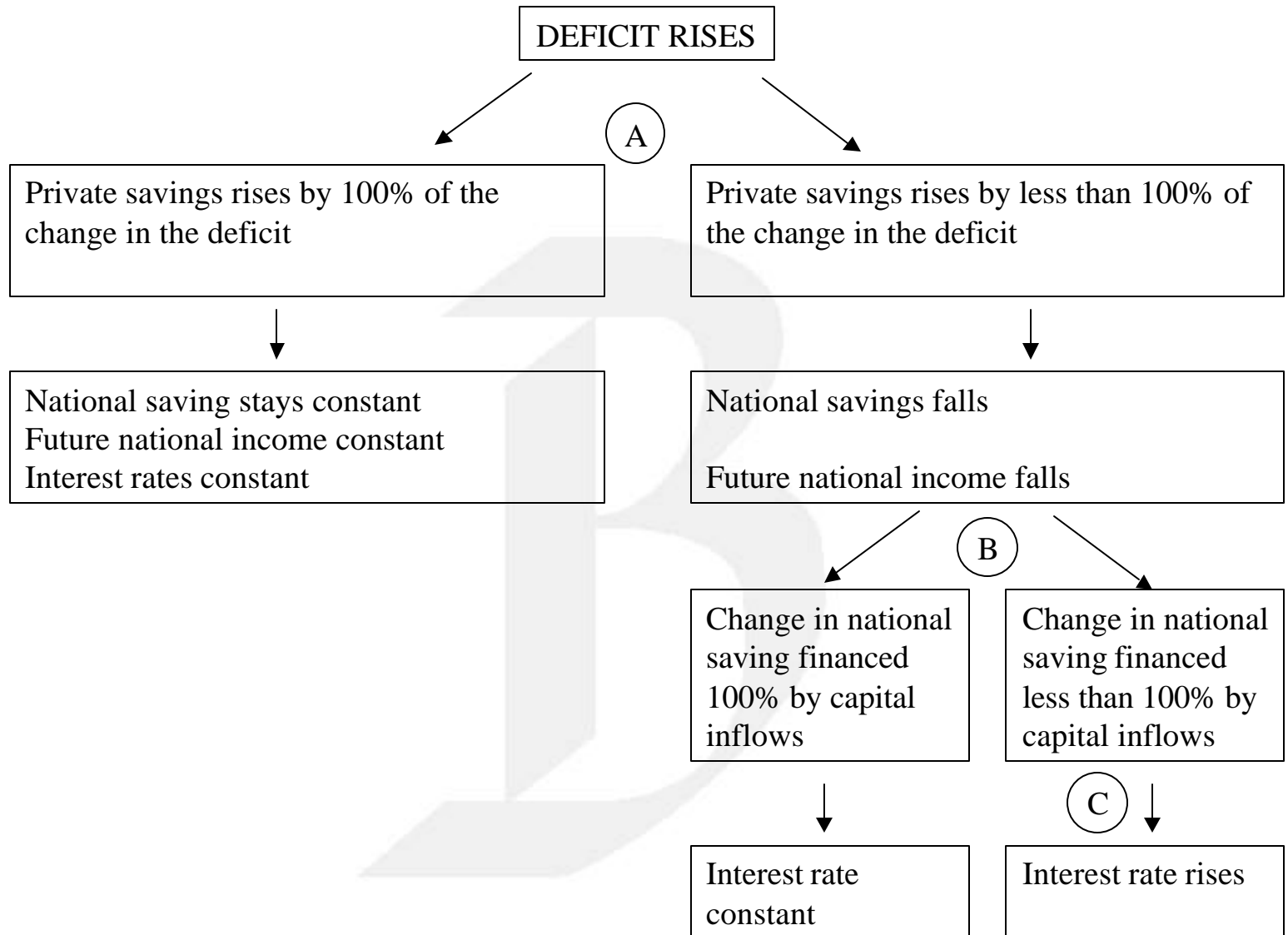
Examples of recent studies using projected deficits

- Elmendorf (1993) uses DRI projected deficits and finds that an increase of one percent of GNP raises five-year bond yields by 43 basis points
- Canzoneri, Cumby, and Diba (2002) use CBO projected deficits and find that an increase of one percent of GDP raises 5-year rates by 53 to 60 basis points relative to short rates



Conclusions

- **Studies that (properly) incorporate deficit expectations find significant connections between deficits and interest rates.**
 - **Of 17 papers, 12 find statistically significant linkages and 4 find mixed effects. Only one fails to find any effect.**
- **Macro models used by Fed, CBO, and others show that deficits affect interest rates.**
- **Reasonable estimate: 1 percent of GDP increase in deficit raises long-term rates by 50 basis points after 1 year and 100 basis points after 10 years**
- **Burden of proof should be on those who claim no evidence**





Conclusions, cont.

- **Interest rate issue is partially a red herring**
- **Key point: unless they are fully offset by increased private saving, which almost no economist believes, deficits reduce national saving.**
- **A reduction in national saving must reduce domestic investment or increase borrowing from abroad.**
- **All else equal, increased budget deficits reduce future income. That reduction in future income is the true cost of a failure of long-term fiscal discipline.**