

Classroom Etiquette

- No reading the newspaper in class (this includes crossword puzzles).
- Limited talking – No Texting.
- Attendance is **NOT REQUIRED**.
- Do **NOT** leave in the middle of the lecture.

(From a recent paper by Chari and Kehoe)

Three key developments in academic macroeconomics have shaped macroeconomic policy analysis: the *Lucas critique* of policy evaluation due to Robert Lucas (1976), the *time inconsistency critique* of discretionary policy due to Finn Kydland and Edward Prescott (1977), and the development of quantitative dynamic stochastic general equilibrium models following Finn Kydland and Edward Prescott (1982).

The broad consensus on the conduct of policy is:

- 1. Monetary policy should be conducted so as to keep nominal interest rates and inflation rates low.*
- 2. Tax rates on labor and consumption should be roughly constant over time.*
3. Capital income taxes should be roughly zero.
4. Returns on debt and taxes on assets should fluctuate to provide insurance against adverse shocks.

There are many different aspects to fiscal policy. For example,

1. Stabilization (countercyclical) fiscal policy.

2. Political business cycle – political economy.

The latter is at the interface between economics and political science – how do interest groups influence policy decisions? We will not discuss this.

Stabilization (countercyclical) fiscal policy.

This is certainly relevant for an economics class – but we will not discuss this in great detail. Why? -

The majority of the economics profession is in agreement that countercyclical fiscal policy is usually best left to the automatic stabilizers rather than discretionary policy.

Automatic stabilizers – the countercyclical nature of taxes and transfer payments that affect aggregate demand.

Examples: income taxes and unemployment benefits.

Problems with discretionary fiscal policy:

1. Uncertain lags – by the time policy is implemented, already out of recession.

(Timely, Targeted and Temporary??)

2. Changing fiscal policy, i.e. tax rates on investment and/or income, increases uncertainty in the economy. Not a proper role for government.

3. Monetary policy can react more quickly and more effectively (but there are limits (maybe)).

Dave Backus, prof. at NYU (letter to Mankiw) – skeptical about fiscal policy:

- Bad timing. Right now, most forecasts call for continued shrinkage in the first half of 2009, modest growth in the second half, when the stimulus starts to come online, and faster growth in 2010, when spending hits high gear. This is, of course, the classic argument against countercyclical fiscal policy: it's hard to get the timing right.
- Small multiplier. Let us say that for every dollar of extra government spending, GDP goes up m dollars, where "m" is the multiplier. Undergraduate textbooks, including your favorite, sometimes suggest m is large. The evidence is fuzzy, to be sure, but to me it suggests a multiplier around one, maybe smaller. Even stimulus cheerleader Paul Krugman only claims 1.1. If that's the case, the impact of government spending (say 700b over two years) is barely enough to reverse the decline in GDP we expect to see over the next two quarters.
- Long-term budget issues. I don't spend much time in Washington, but I thought the mainstream view among government economists was that our retirement and health-care programs were likely to bust the budget over the next 2-3 decades. Recent directors of the CBO under both Republican and Democratic Congresses have made this point, and I hope I wasn't the only one listening. The US is not Argentina, but it still seems a little incongruous to advocate massive increases in spending when the long-term problem is paying for spending already on the books.
- It's the financial system, stupid. Japan in the 1990s is a Rorschach test for macroeconomists, so I can't claim everyone sees this as I do. But my take (borrowed from Anil Kashyap) is that Japan demonstrated that the real issue in financial crises is the financial system. If we don't fix it, no amount of fiscal stimulus will make much difference. That's one of the reasons I'm optimistic about the US right now: unlike Japan, we faced our problems, ugly as they were, and have acted decisively to correct them.

The Stimulus Evidence One Year On

Over five years, my research shows an extra \$600 billion of public spending at the cost of \$900 billion in private expenditure. That's a bad deal.

By ROBERT J. BARRO FEBRUARY 23, 2010 WSJ

The first anniversary of the Obama stimulus package generated a lot of discussion about whether and how much the package (originally estimated at \$787 billion but now priced at \$862 billion) moderated the recession. These are complex questions, and their answers require more than merely counting the quantity of goods and services that the government purchased or the number of people that the government hired. We need to ask whether the government's spending reduced or enhanced private spending and whether public-sector hiring lowered or raised private hiring.

This requires an empirical model based on the history of past fiscal actions in the U.S. or other countries. The administration must have such a model, but my own analysis makes me skeptical about the numbers they've reported about GDP increases and saved jobs.

For spending, the main results come from fluctuations in defense outlays associated with major wars such as World War I, World War II and the Korean War.

Although stimulus packages usually concentrate on nondefense outlays, the information from defense spending is useful for two reasons. First, the defense-spending multiplier can be precisely estimated from the available data and, second, this multiplier provides a reasonable gauge (and likely an upper bound because of the strong wartime boost to labor supply due to patriotism) for the effects of nondefense government purchases.

I estimate a spending multiplier of around 0.4 within the same year and about 0.6 over two years. Thus, if the government spends an extra \$300 billion in each of 2009 and 2010, GDP would be higher than otherwise by \$120 billion in 2009 and \$180 billion in 2010. These results apply for **given taxes** and, therefore, when spending is deficit-financed, as in 2009 and 2010. Since the multipliers are less than one, the heightened government outlays reduce other parts of GDP such as personal consumer expenditure, private domestic investment and net exports.

For taxes, I estimate that the multiplier is around minus 1.1. Hence, an increase in taxes by \$300 billion lowers GDP the next year by about \$330 billion.

My estimates allow me to assess the 2009-10 fiscal-stimulus package, which I characterize as roughly \$300 billion of added government purchases in each of 2009 and 2010. I assume that, as of 2011, government spending goes back down to its 2008 level, although I could assume—perhaps more realistically—that the added spending is permanent.

I suppose that taxes do not change in 2009-10, so that the incremental spending is deficit-financed. The spending multipliers that come from my research imply that GDP rises by \$120 billion (or 0.8% of GDP) in 2009 and \$180 billion (or 1.2% of GDP in 2010)—all compared to the baseline of no stimulus package. These results imply that other parts of GDP fall by \$180 billion in 2009 and \$120 billion in 2010.

But these calculations are not nearly the end of the story, because the added \$600 billion of government spending leads to a correspondingly larger public debt. These added obligations must be paid for sometime by raising taxes (unless future government spending declines below its 2008 level, an unlikely scenario). I suppose that the government collects an additional \$300 billion of taxes in each of 2011 and 2012. The timing of the future taxes does not matter for the main calculations—the key point is that the government has no free lunch and must collect the extra taxes eventually. Since I assume a tax multiplier of minus 1.1, applying with a one-year lag, the higher taxes reduce GDP by \$330 billion in each of 2012 and 2013.

We can now put the elements together to form a "five-year plan" from 2009 to 2013. The path of incremental government outlays over the five years in billions of dollars is +300, +300, 0, 0, 0, which adds up to +600. The path for GDP is +120, +180, +60, minus 330, minus 330, adding up to minus 300. GDP falls overall because the famous "balanced-budget multiplier"—the response of GDP when government spending and taxes rise together—is negative. This result accords with the familiar pattern whereby countries with larger public sectors tend to grow slower over the long term.

The projected effect on other parts of GDP (consumer expenditure, private investment, net exports) is minus 180, minus 120, +60, minus 330, minus 330, which adds up to minus 900. Thus, viewed over five years, the fiscal stimulus package is a way to get an extra \$600 billion of public spending at the cost of \$900 billion in private expenditure.

New Keynesian versus Old Keynesian Government Spending Multipliers

John F. Cogan, Tobias Cwik, John B. Taylor, Volker Wieland*

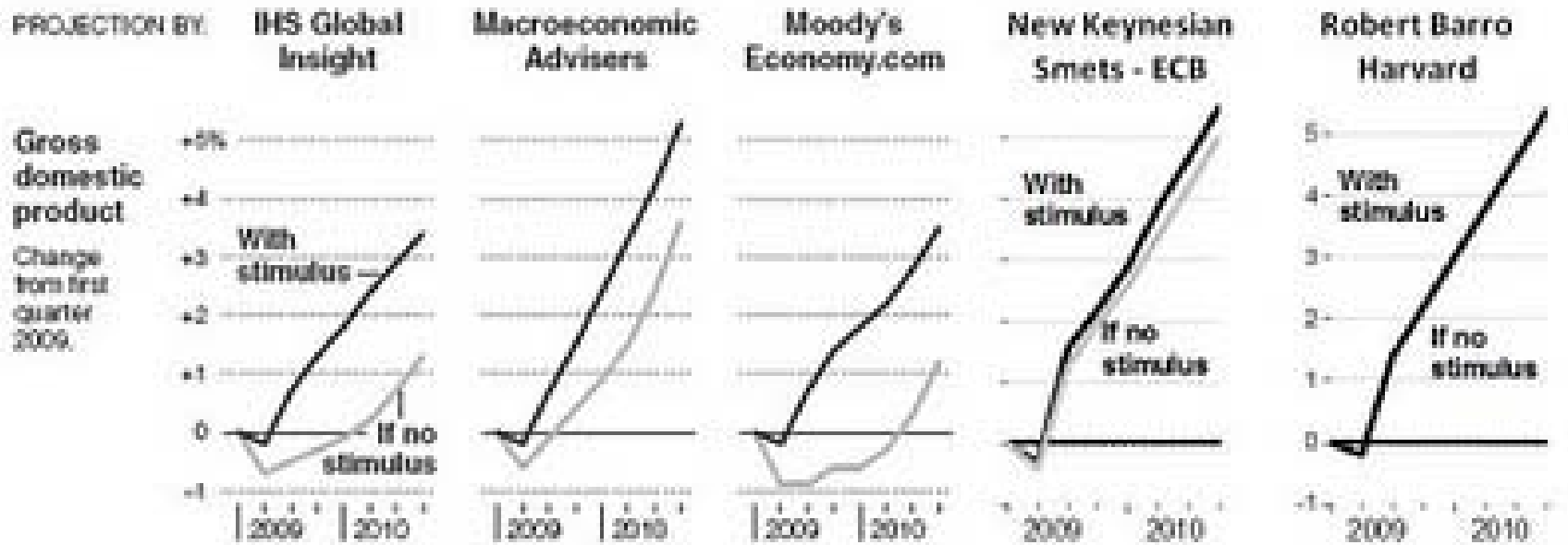
January 8, 2010

Abstract

Renewed interest in fiscal policy has increased the use of quantitative models to evaluate policy. Because of modelling uncertainty, it is essential that policy evaluations be robust to alternative assumptions. We find that models currently being used in practice to evaluate fiscal policy stimulus proposals are not robust. Government spending multipliers in an alternative empirically-estimated and widely-cited new Keynesian model are much smaller than in these old Keynesian models; the estimated stimulus is extremely small with GDP and employment effects only one-sixth as large and with private sector employment impacts likely to be even smaller. We investigate the sensitivity of our findings with regard to the response of monetary policy, the zero bound on nominal interest rates and the inclusion of an empirically-relevant degree of rule-of-thumb behaviour in the new Keynesian model. In addition, we relate our findings using estimated structural macroeconomic models to the recent literature using reduced-form regression techniques.

A comparison of the path of GDP in response to the stimulus package.

The Bottom Line: More Research is Needed!



What are (perhaps) the most pressing fiscal policy issues facing the US today?

- Social Security
- Medicare

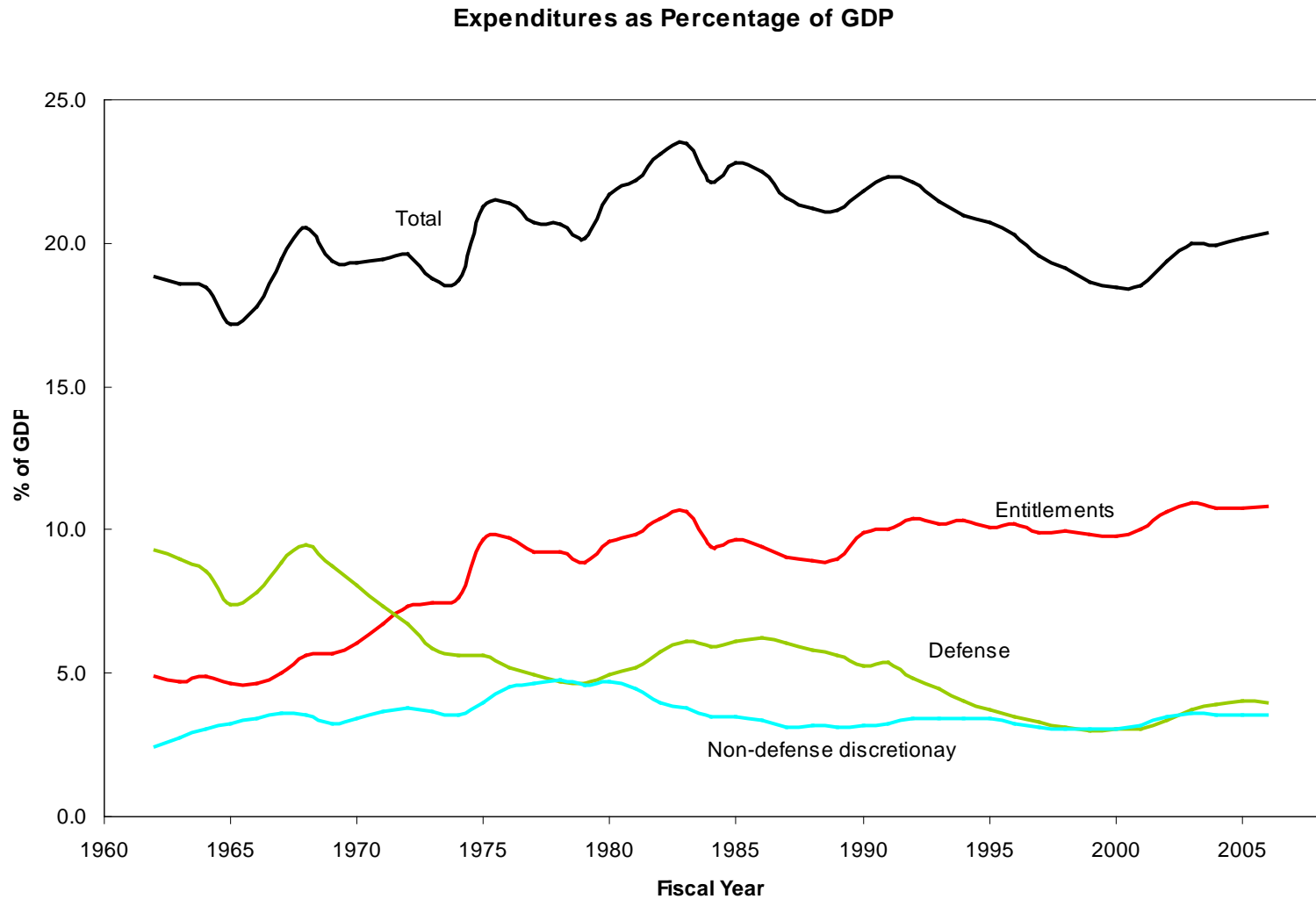
Before discussing these, first some look at
historical trends in fiscal policy
(article by Auerbach)

- Spending – discretionary and entitlement programs
- Revenues - corporate and individual income tax
- Deficit – on-budget, total

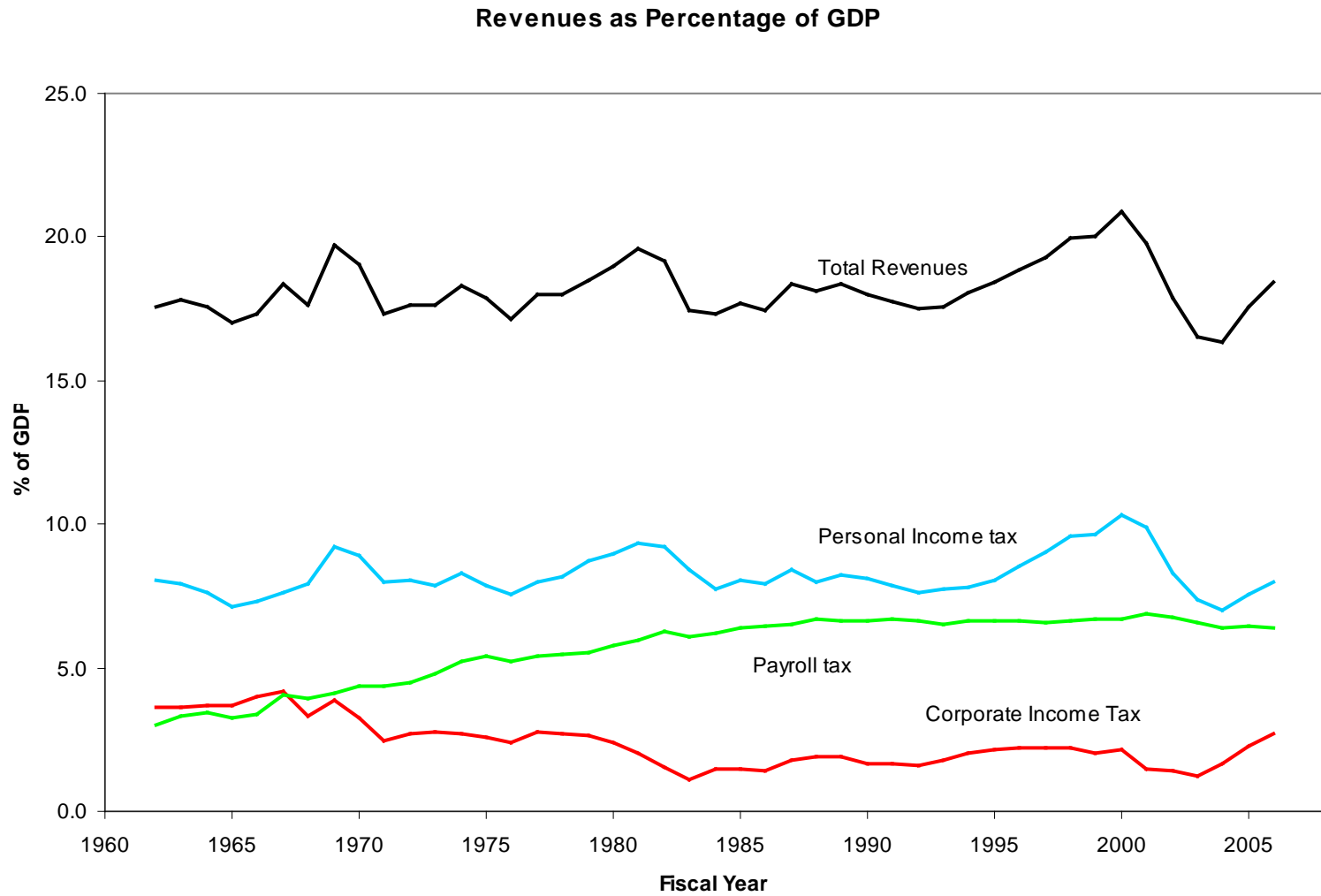
ALL MEASURED AS % OF GDP

Expenditures have remained relatively constant.

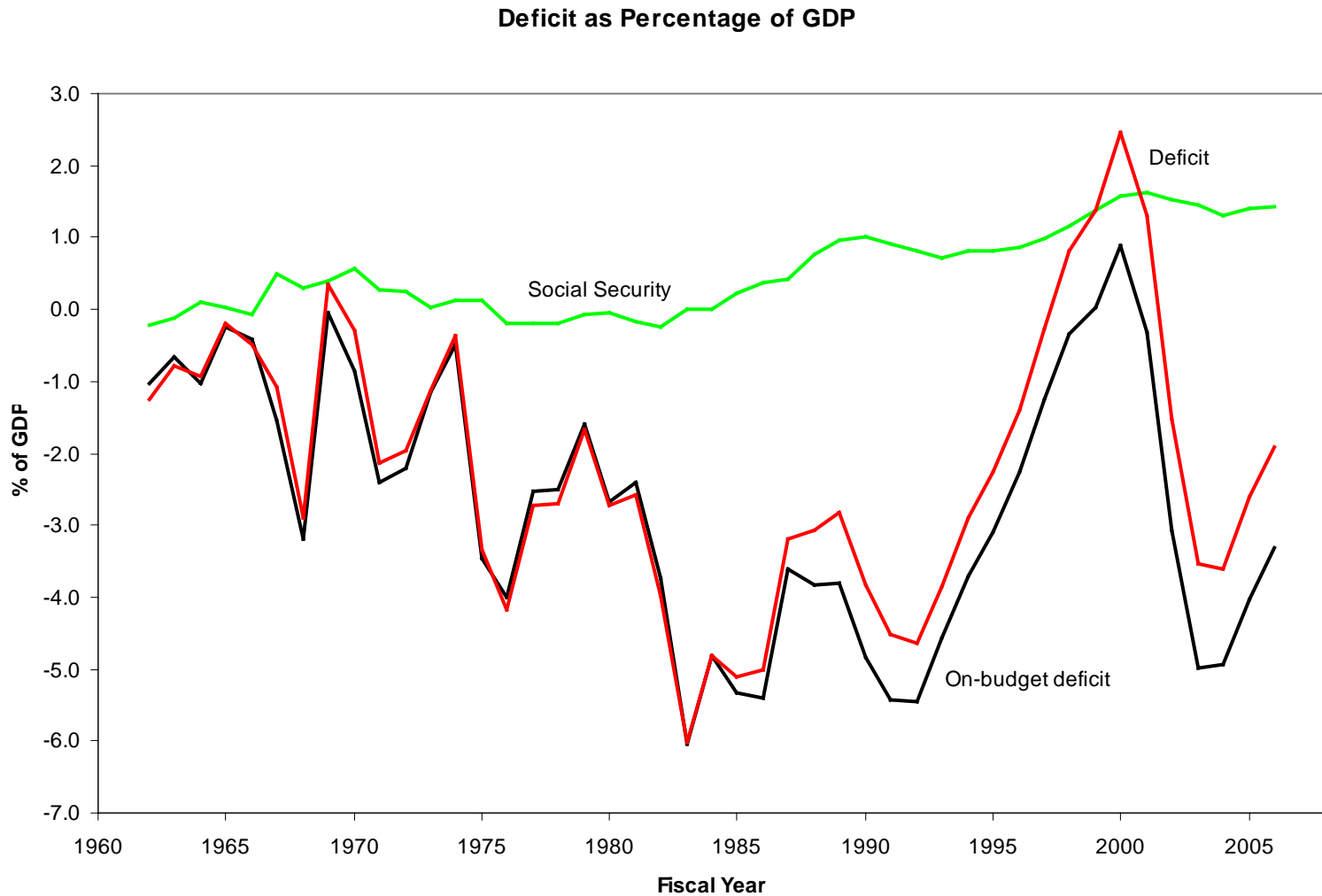
But: composition has changed dramatically.



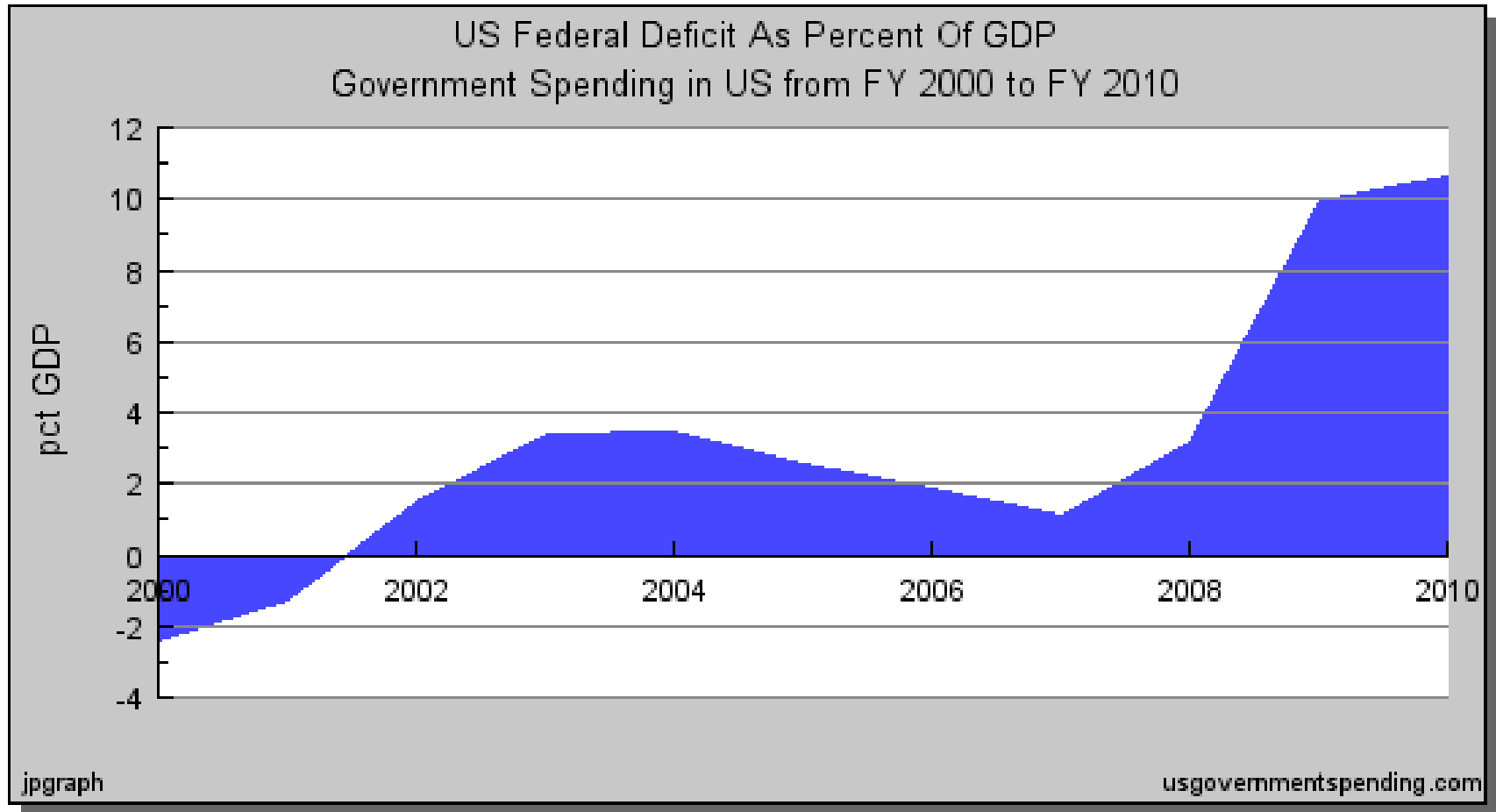
Revenues have remained relatively constant.

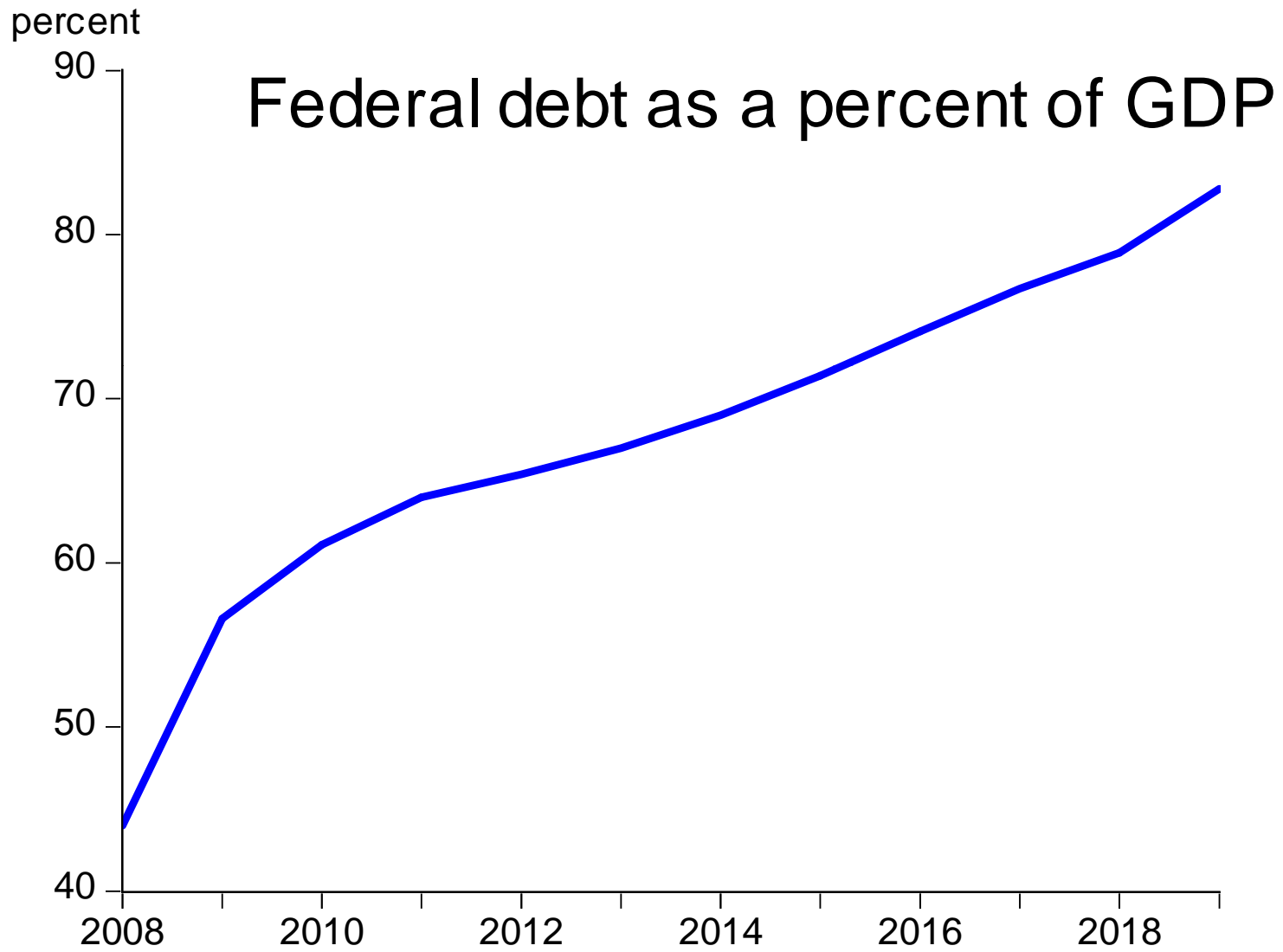


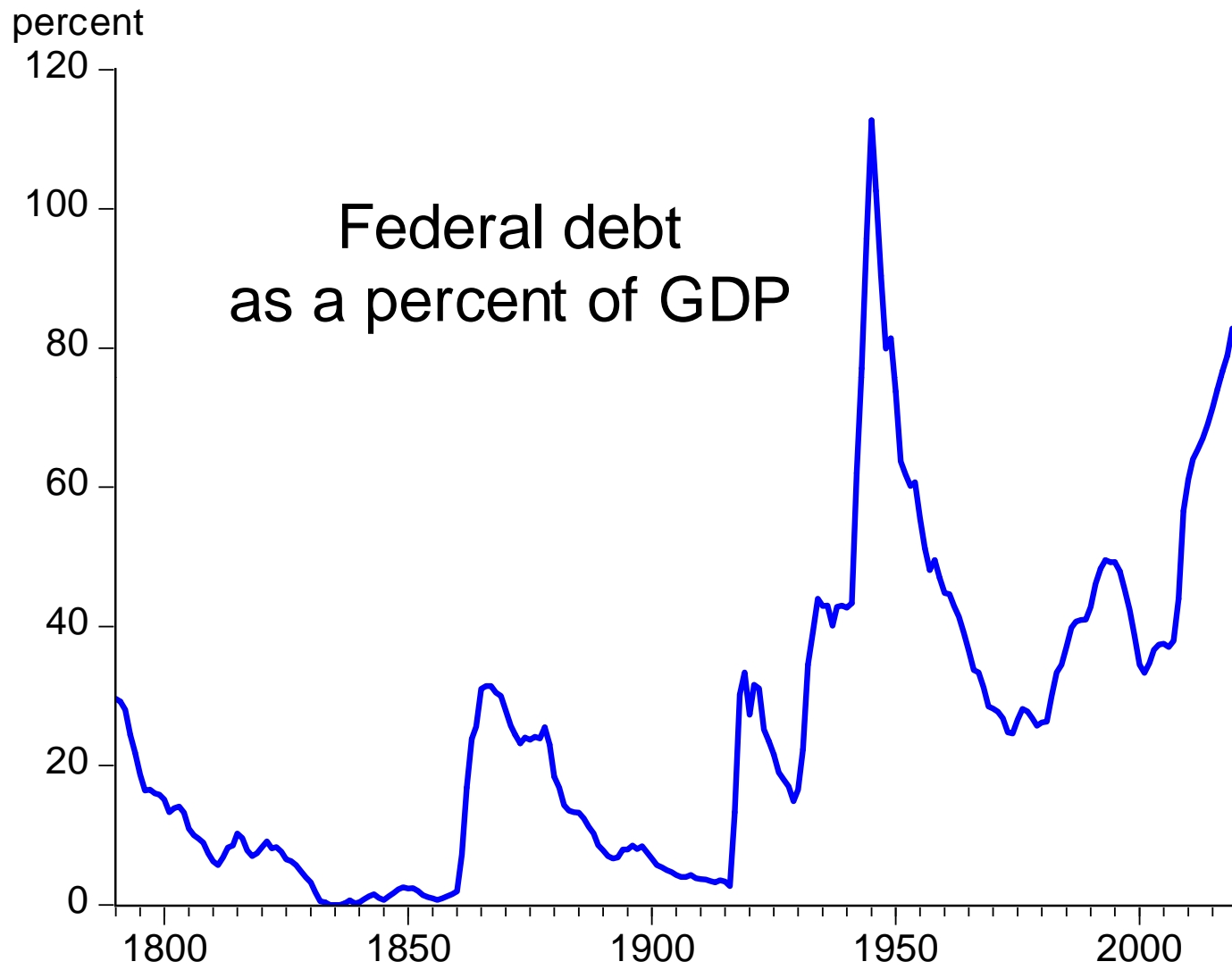
Deficits as a Percentage of GDP

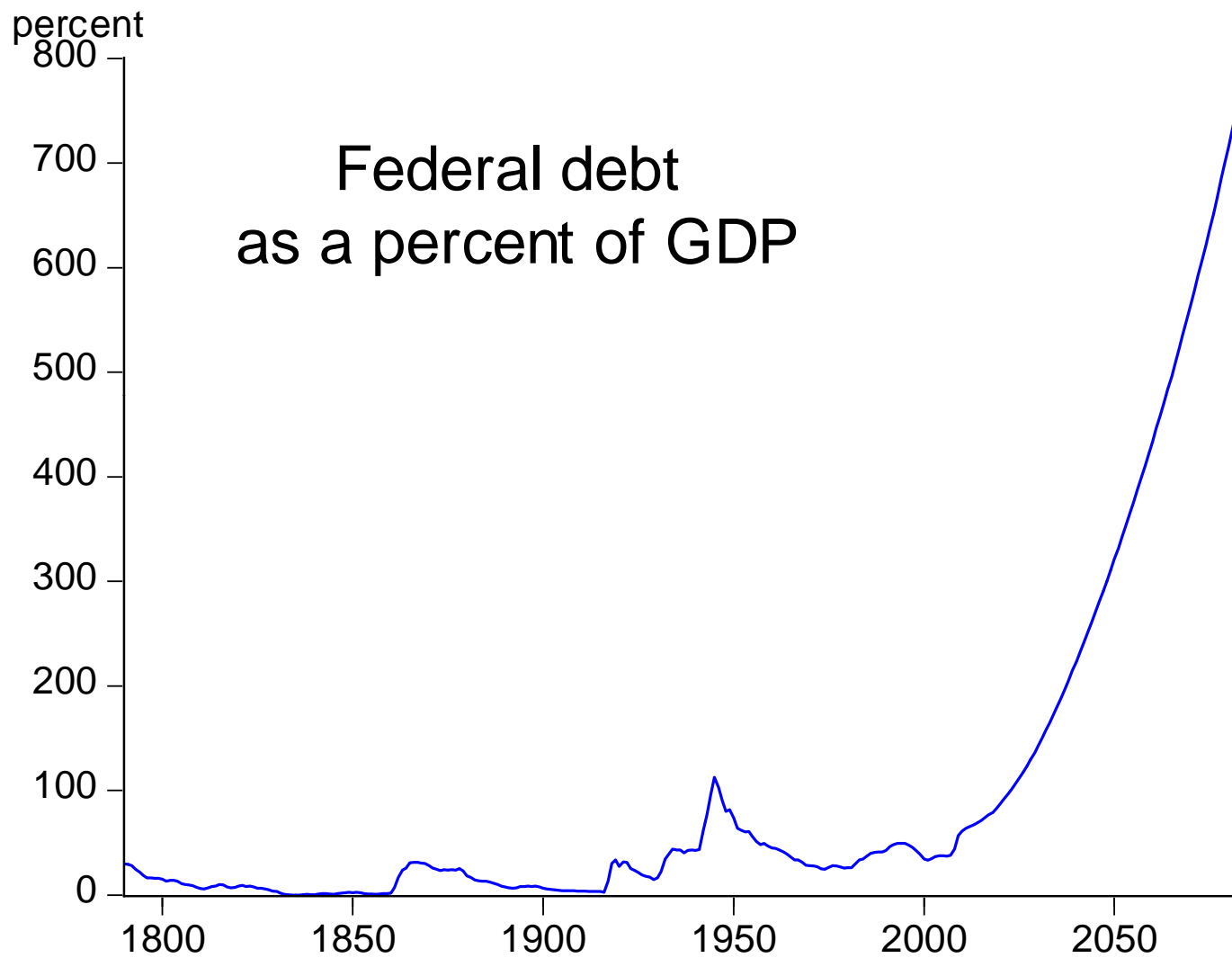


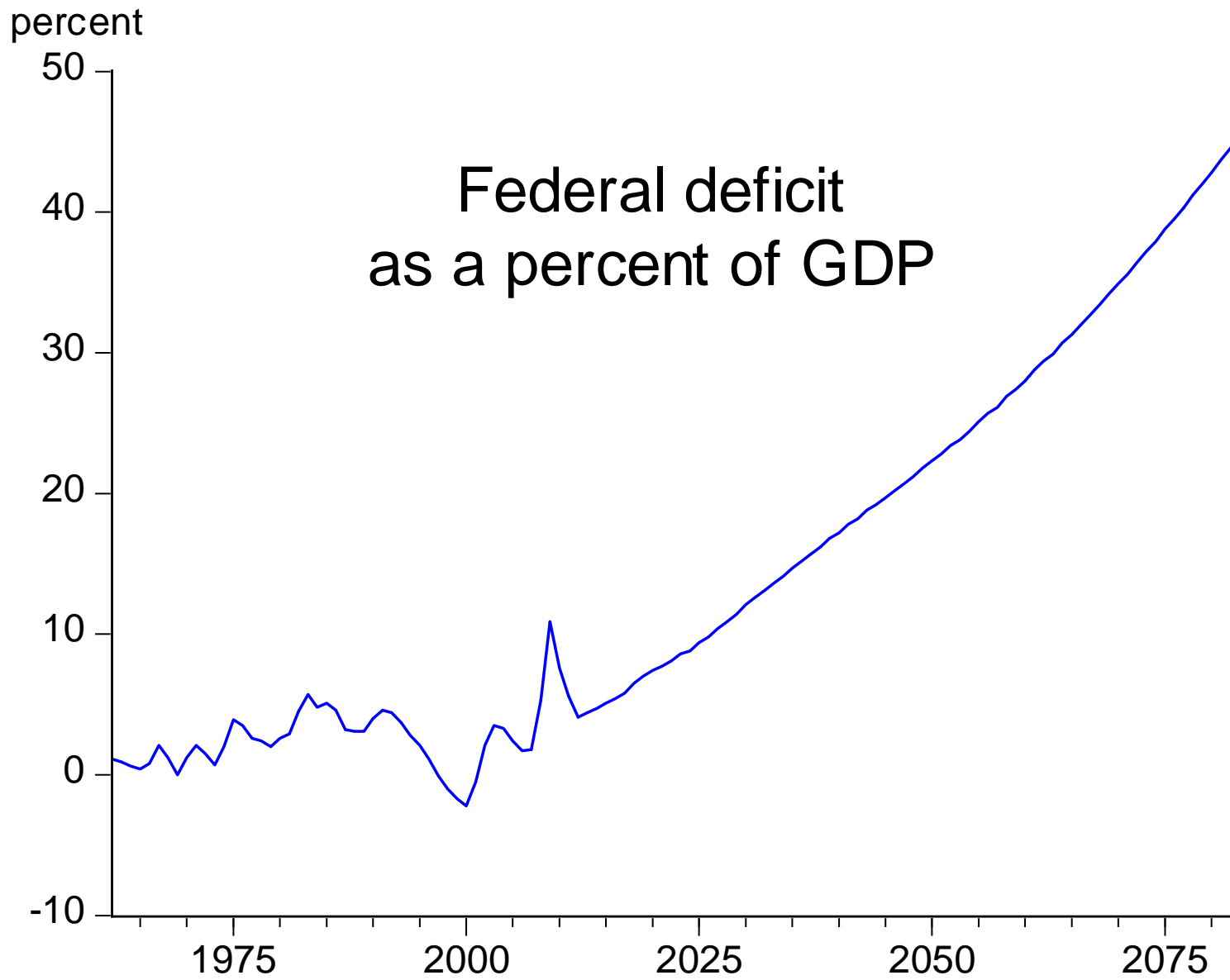
Deficits as a Percentage of GDP





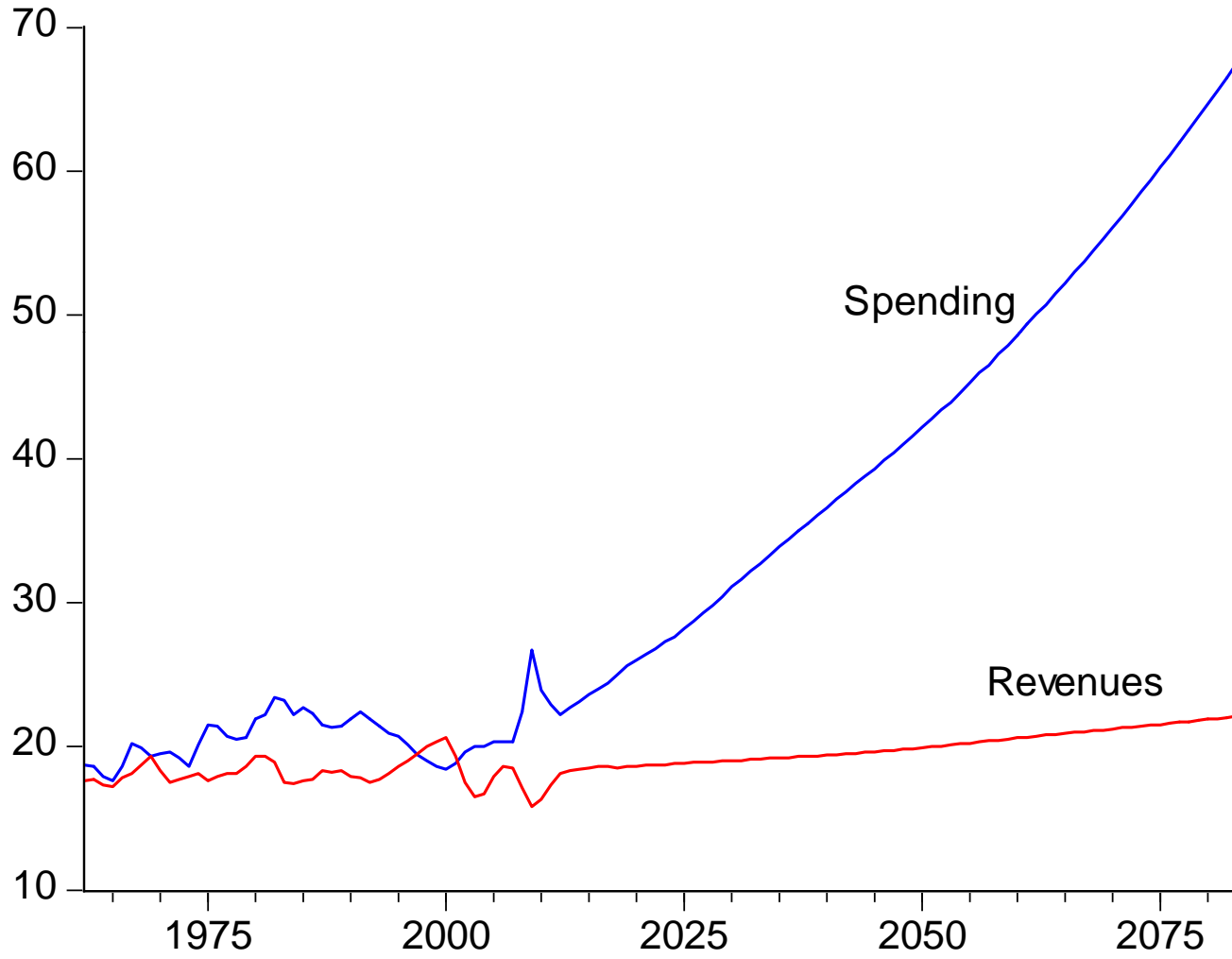




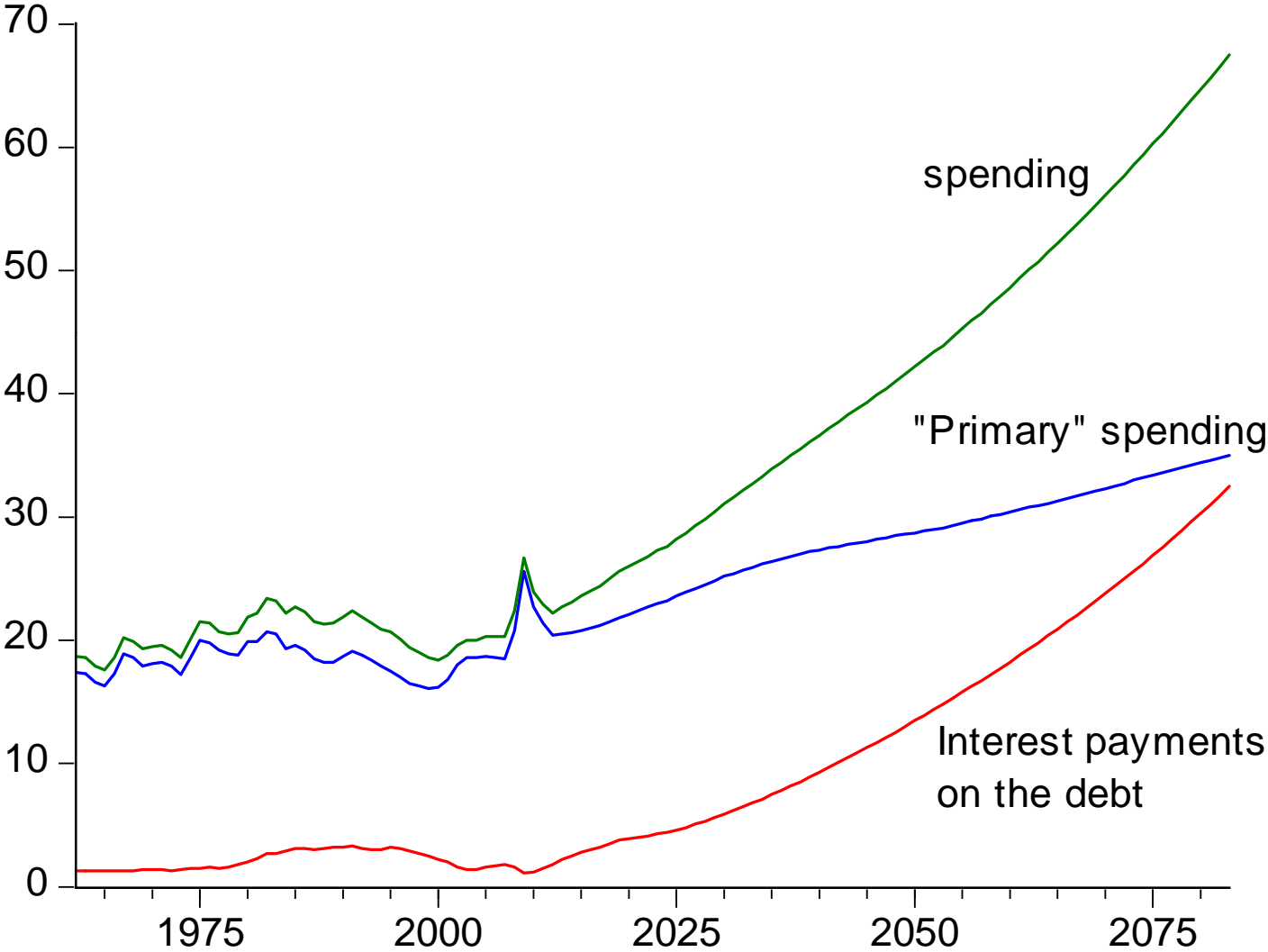


Federal deficit
as a percent of GDP

percent of GDP



percent of GDP



The following graphs and information are from the article by Hakkio and Wiseman

First – a little background on Social Security

Known as: OASDI

OAS(I) = Old Age Survivors Insurance (about 2/3 of program)

DI = Disability Insurance (about 1/3 of program)

In 2004:

47.5 million beneficiaries received \$497.1 Billion.

Initial benefits are indexed to wages (to reflect inflation AND productivity) and then indexed to inflation.

Two dedicated sources of revenue for Social Security:

1. Payroll taxes: 12.4% paid equally by employers and employees. Earnings are taxed up to maximum amount (\$94,200 in 2006).
2. Income tax on Social Security benefits. Up to 85% of benefit income is subject to tax.

IF Revenues (i.e. taxes) exceed Expenditures (i.e. benefits), then money goes into the Social Security Trust Fund.

Important to note: This is simply an accounting entry. If Social Security is running a surplus (as is the case currently), then this money is used by the Federal Government and the Social Security Trust Fund is credited with Government Securities. These represent future liabilities of the U.S. Government.

Look at 2004 Income Statement

(First – U.S. Defense Spending = \$500 billion, U.S. GDP = \$1,100 billion)

Table 2
**SOCIAL SECURITY INCOME AND EXPENDITURES IN
 CALENDAR YEAR 2004 (billions of dollars)**

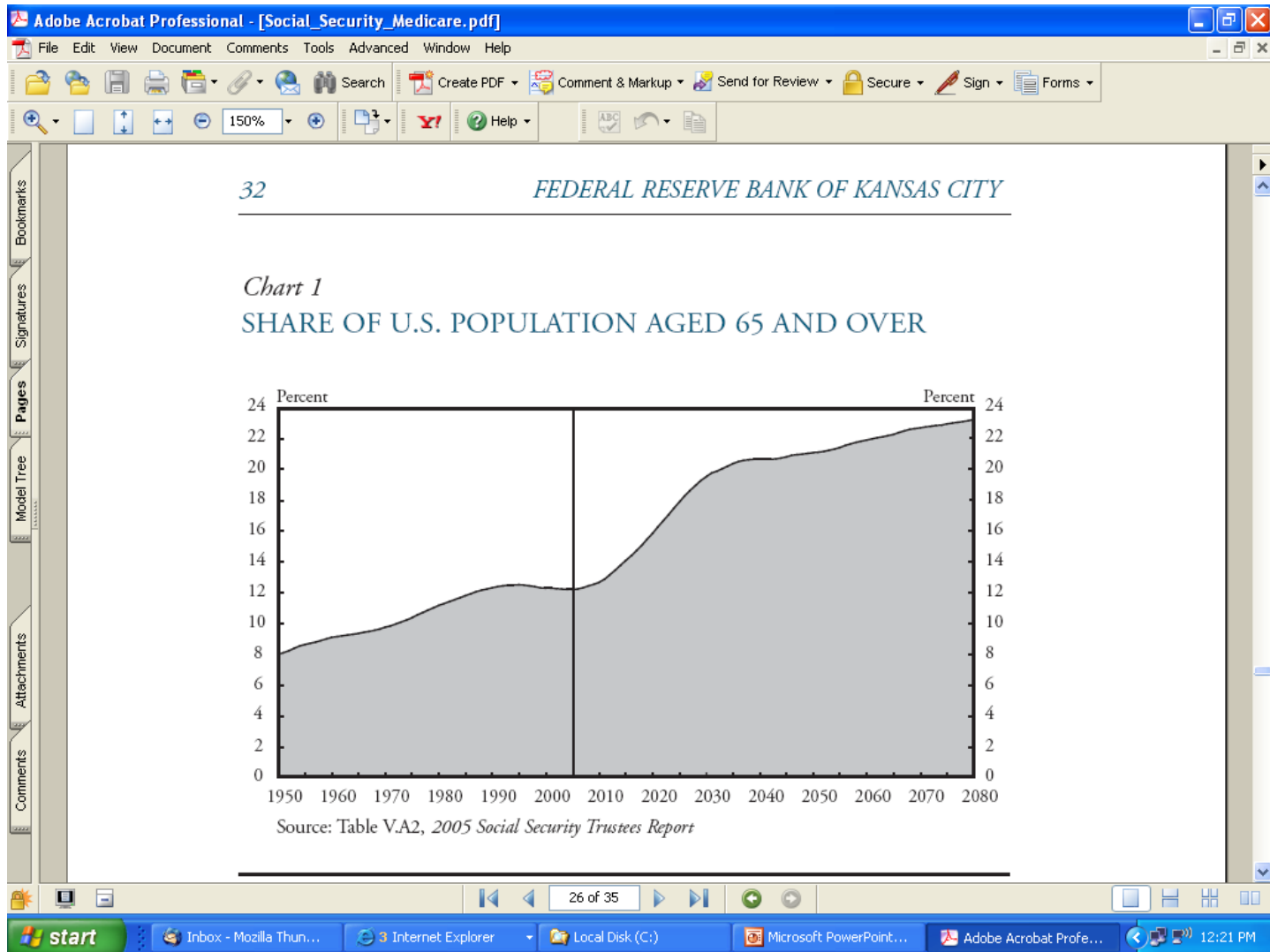
	OASI	DI	OASDI
Assets at the end of 2003	1,355.3	175.4	1,530.8
Total income	566.3	91.4	657.7
Dedicated revenue	487.4	81.4	568.7
Payroll taxes	472.8	80.3	553.0
Taxation of benefits	14.6	1.1	15.7
Interest	79.0	10.0	89.0
Total expenditures	421.0	80.6	501.6
Benefit payments ¹	418.6	78.4	497.1
Administrative expenses	2.4	2.2	4.5
Net increase in assets	145.3	10.8	156.1
Assets at the end of 2004	1,500.6	186.2	1,686.8

Source: Table II.B1, *2005 Social Security Trustees Report*

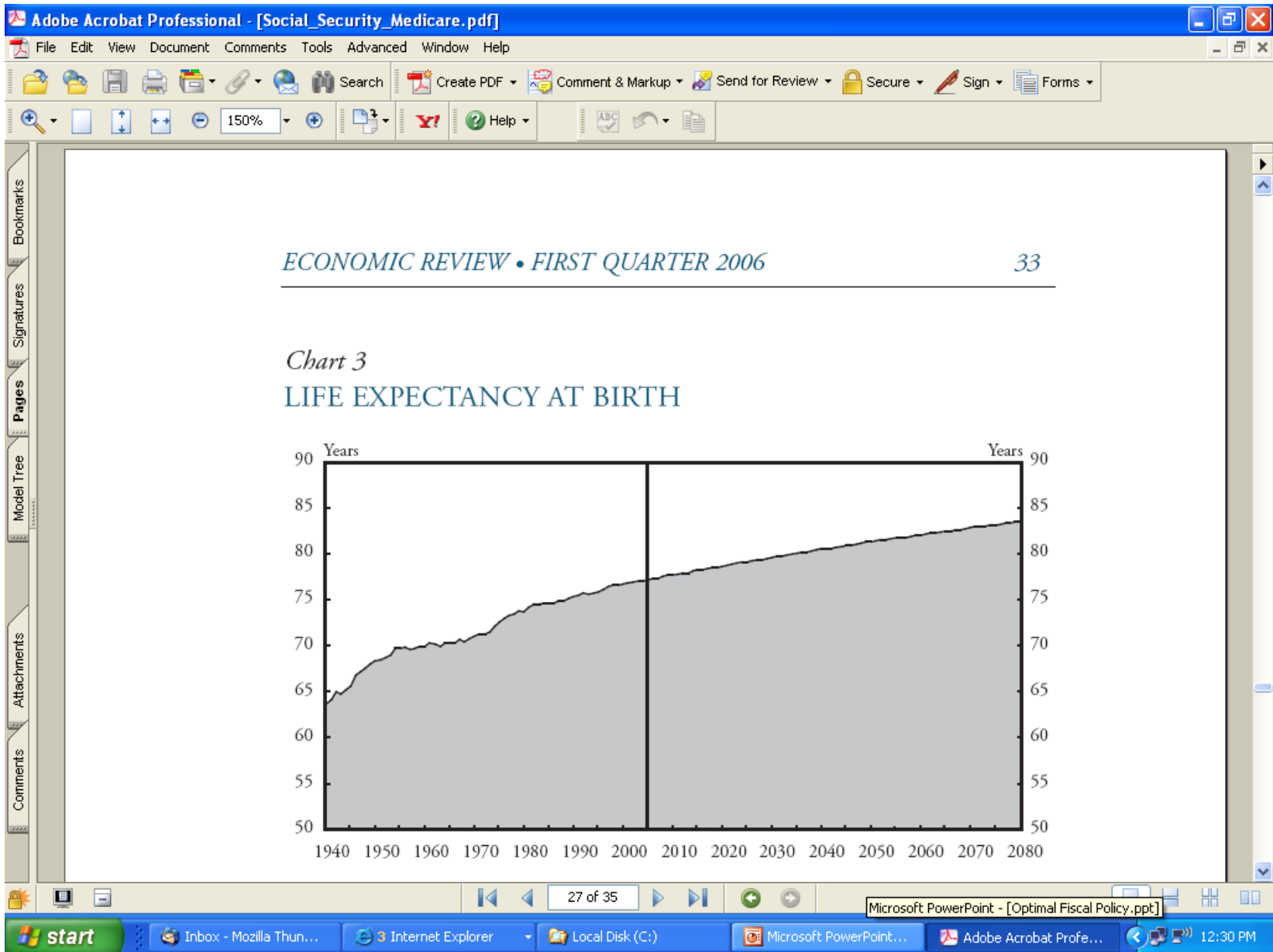
¹Benefit payments include "railroad retirement financial interchange."

Social Security's Long Term Prospects? Not Good!

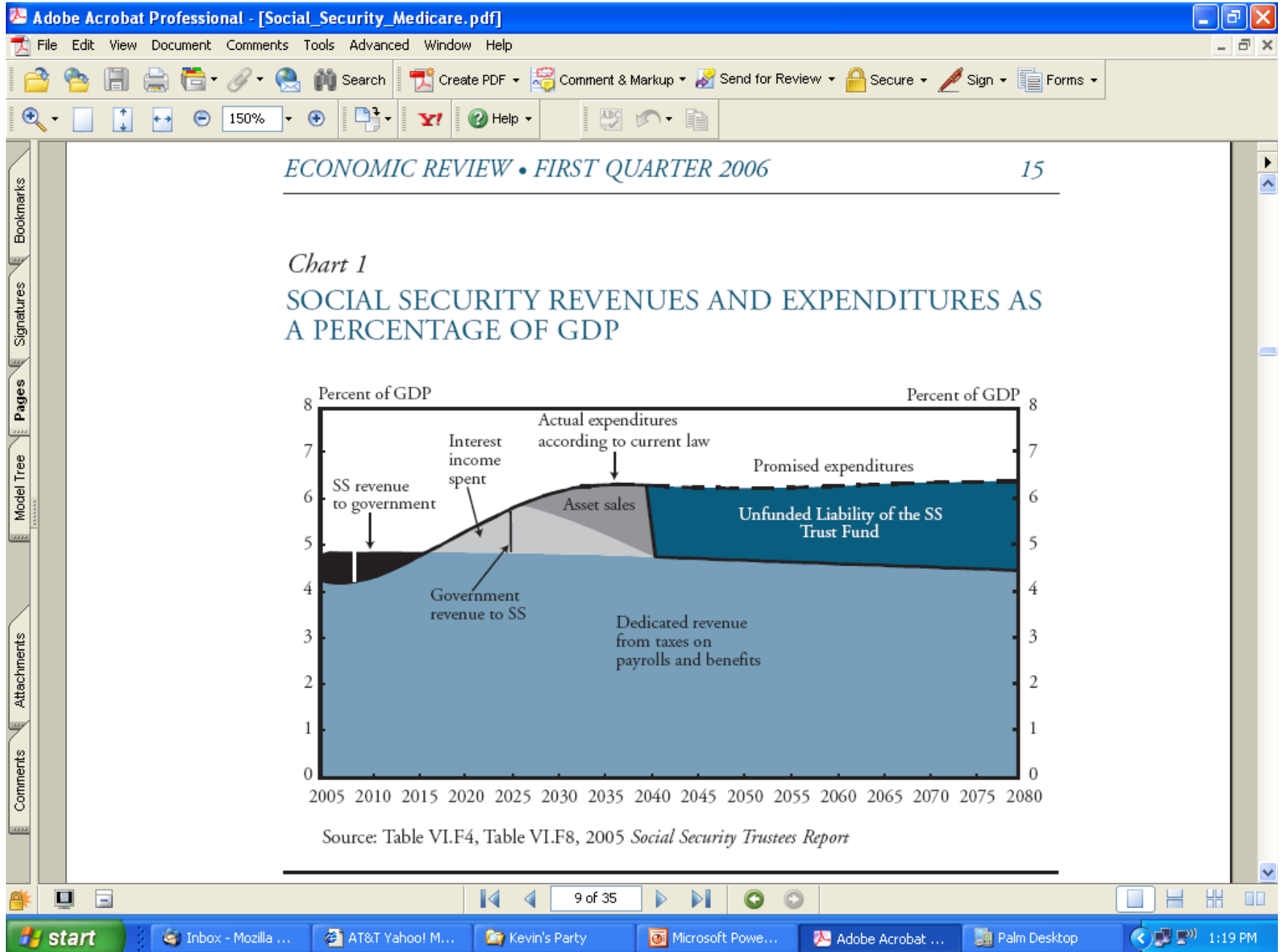
Demographics combined with Pay As You Go System



More Demographics:



The Fiscal Situation:



That's the Good News! The real problem is Medicare.

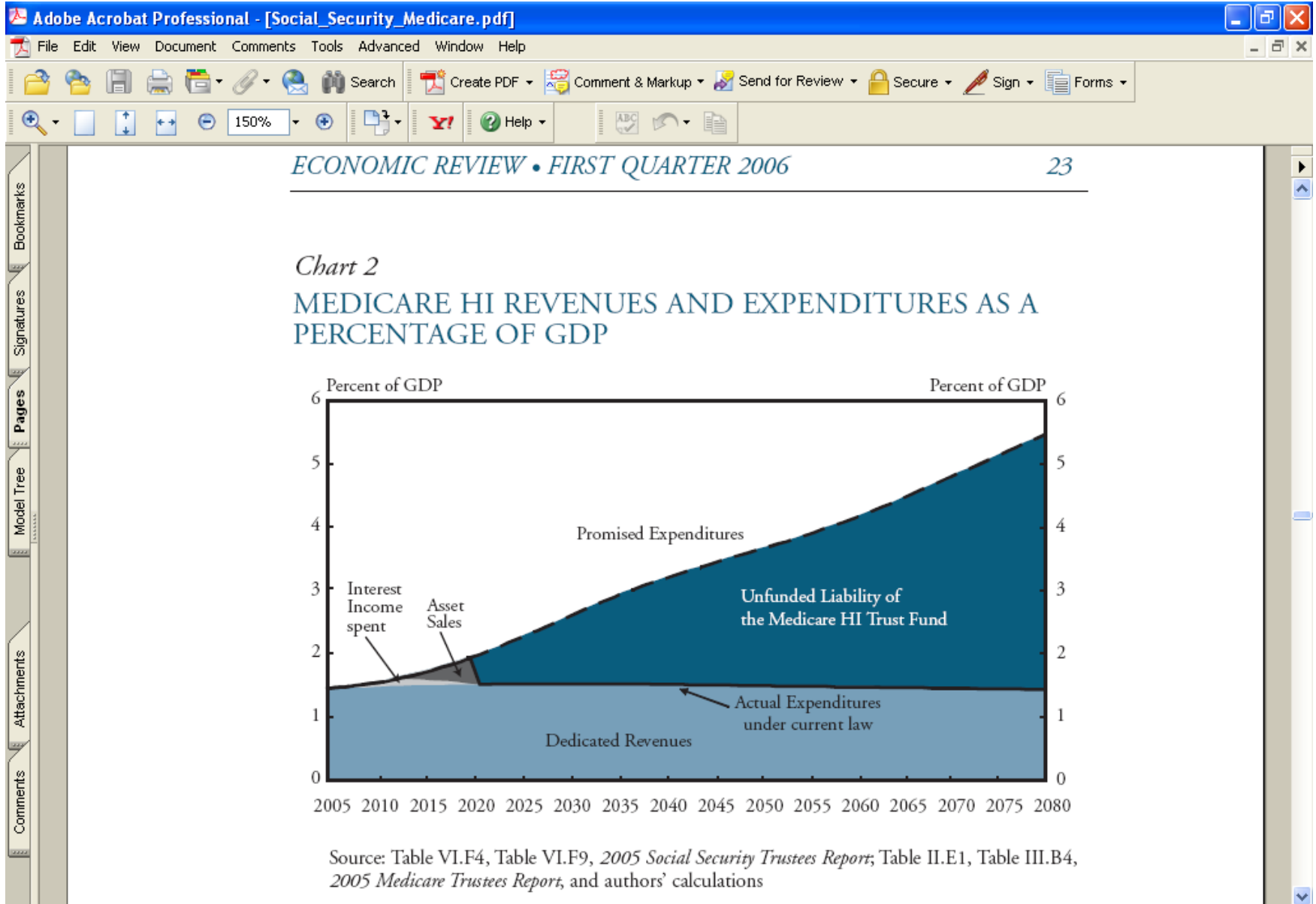
1. Aging Population
2. Increasing Cost of Health Care

Medicare has two components

HI – Hospital Insurance (Part A)

SMI – Supplemental Medical Insurance (Part B)
(new drug coverage is Part D)

Medicare HI



Medicare SMI

Adobe Acrobat Professional - [Social_Security_Medicare.pdf]

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Chart 3
MEDICARE SMI REVENUES AND EXPENDITURES AS A PERCENTAGE OF GDP

Year	Dedicated Revenue (%)	Federal Revenue (%)	Expenditures (%)	Total (%)
2005	0.5	1.2	0.1	1.8
2010	0.6	1.3	0.1	2.0
2015	0.7	1.4	0.1	2.2
2020	0.8	1.5	0.2	2.5
2025	0.9	1.6	0.3	2.8
2030	1.0	1.7	0.4	3.1
2035	1.1	1.8	0.5	3.4
2040	1.2	1.9	0.6	3.7
2045	1.3	2.0	0.7	4.0
2050	1.4	2.1	0.8	4.3
2055	1.5	2.2	0.9	4.6
2060	1.6	2.3	1.0	4.9
2065	1.7	2.4	1.1	5.2
2070	1.8	2.5	1.2	5.5
2075	1.9	2.6	1.3	5.8
2080	2.0	2.7	1.5	6.2

Source: Table III.A2, Table III.A4, 2005 Medicare Trustees Report, and authors' calculations

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Combined story

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Chart 5
FEDERAL REVENUE SHORTFALL FROM SOCIAL SECURITY AND MEDICARE
[Revenue from government to program = (+), revenue from program to government = (-)]

Percent of GDP

Retirement of Baby Boom Generation

Social Security and Medicare Combined

Medicare SMI

Medicare HI

Social Security

2005 2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080

Source: Tables VI.F4 and VI.F9, 2005 Social Security Trustees Report; Tables III.A2, III.A4,

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Government Debt = \$7.4 trillion at end of 2004

The Government's unfunded obligations for Social Security and Medicare = **\$35.6 trillion!!**

(assuming a 5.7% nominal discount rate)

Insolvency Issues of SS and Medicare HI

Increase SS taxes from 12.4% to 14.32%; if no action until 2041 taxes = 16.66%

For HI, increase Medicare taxes from 2.9% to roughly 6%; if no action taken until 2020, taxes = 8.79%

Something has to give: reduce benefits, raise taxes, control costs.....

Or...INFLATE??

A closer look at the government's budget constraint

.....To the Board!

Optimal Fiscal Policy

Doepke, M., A. Lehnert, A. Sellgren, *Macroeconomics*,

Chapter 14

Back to our immediate concern:

We will analyze a very specific problem in optimal fiscal policy:

Question: Given a path of government expenditures, how should a benevolent government choose the path of taxes?

We will examine two cases:

Case I: Taxes are lump-sum

Conclusion: The path of taxes is irrelevant. This is known as (Barro) Ricardian Equivalence.

Case II: Taxes are distortionary (excise taxes) (known as the Ramsey Problem)

Conclusion: Government should smooth tax rates over time. (tax smoothing hypothesis).

Key Terms and Concepts:

1. Intertemporal budget constraint.
2. $\beta \equiv \frac{1}{1 + \rho}$ - subjective rate of time preference .
3. Difficulties in empirical testing of Ricardian equivalence.
4. Intertemporal utility maximization.
5. Permanent income hypothesis.
6. Real interest rate = price of current consumption relative to future consumption.

Key Assumptions

1. The path of government expenditures is exogenous.
2. The government is benevolent – cares about utility of citizens.
3. There are perfect capital markets: Both households and government can borrow and lend at interest rate r .
4. Households and government live forever.