Inforum Economic Outlook

Jeff Werling
University of Maryland
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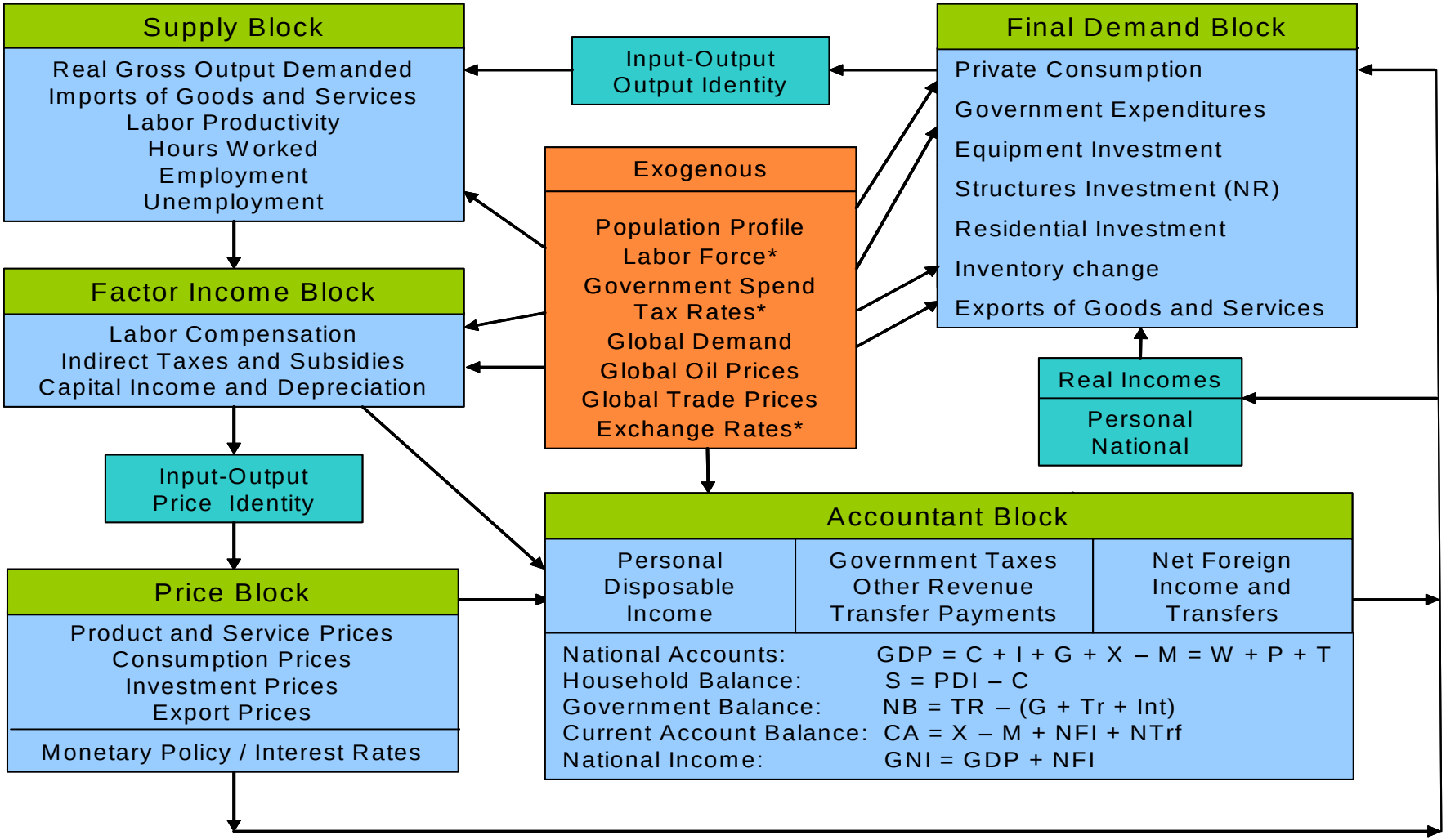
Why Model?

- Economic and social data -- raw material for reports and studies – in comprehensive databank used for analysis.
- Building models assists and test economists' understanding on how the economy works.
- Assist the economic analysis and forecasting *process*. Leverage the historic record to detect future trends. Provide a *comprehensive and consistent* framework to assess assumptions and structures of an economic forecast.
- Simulate "counterfactual" to produce alternative scenarios and/or to evaluate policy measures or exogenous economic shocks.

LIFT Interindustry Macro Model Schematic

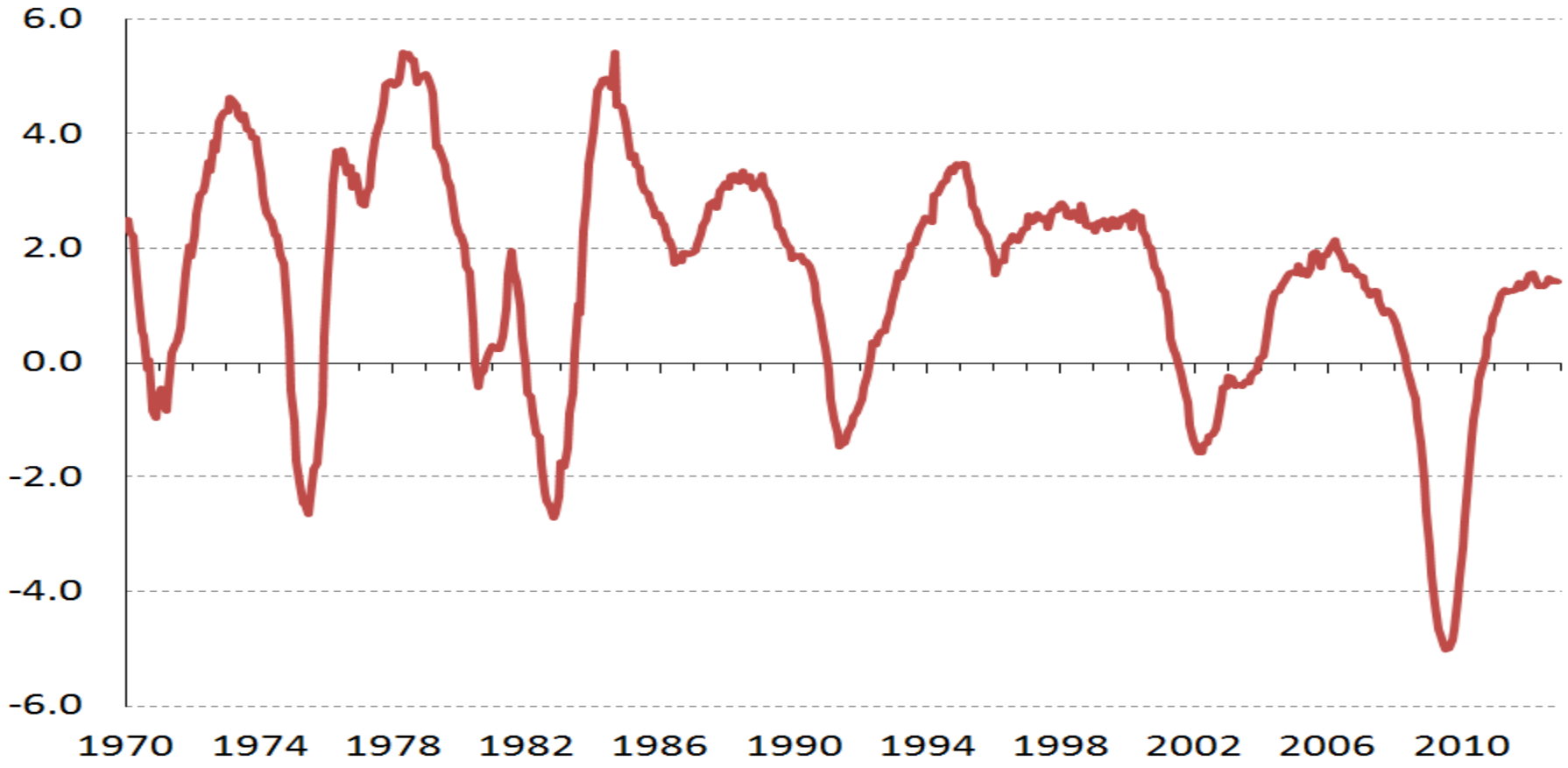


The Newest Generation of LIFT: IDLIFT2

- Interindustry structure and information derived from BEA benchmark 2002 IO and 1998-2010 annual IO tables.
- Time series of REAL IO Tables from 1998.
- Industry and commodity definitions harmonized with BEA NAICS IO and industry data.
- Consistent industry definitions for investment, employment and value added.
- Industry data integrated and reconciled to latest version of NIPA in real and nominal terms.
- Built partly with generous support of Center for Medicare and Medicaid Services (CMS).

Employment: Slow but Consistent Growth

Employment year-on-year percentage growth



Source: Bureau of Labor Statistics

Rogoff and Reinhart: What has history taught us?

- Recovery from financial crises are protracted, because of the long, slow painful process of deleveraging.
- 2010 view that we weathered the storm were premature.
- Monetary policy ineffective (liquidity trap).
- Fiscal Policy: Stimulus is necessary, but could be relatively ineffective because...
- Explosion of government debt inevitable from financial crisis.
- Seldom do countries simply "grow" their way out of debts.
- Rather, countries face the choice of inflating debts away or restructuring/defaulting.
- Today, currency and capital regimes affect that choice.

Kenneth Rogoff and Carmen Reinhart, *This Time Is Different*

Short-Term Issues

What is holding back the recovery? (Hint: Austerity)

- Austerity: Fiscal retraction since 2010
- Failed austerity: Financial and economic turmoil in Europe
- More Austerity: Uncertainty surrounding "fiscal cliff"

What forces can boost recovery?

- Deleveraging easing, especially for non-financial businesses
- Pent-Up demand for housing, rising home prices
- By 2015, exports should accelerate again
- Fiscal Stimulus? Infrastructure deserves a big new spend.
- Long run policy development and acceptance

Outlook Overview

Real (Inflation-Adjusted) Quantities, Average Annual Growth Rates, Percent									
Demand	00-10	10-11	11-12	12-13	13-14	14-15	15-20	20-25	25-35
Gross domestic product	1.5	1.8	2.2	2.3	3.1	2.9	2.8	2.6	2.4
Personal consumption	1.9	2.5	1.8	2.1	3.1	2.9	2.6	2.2	2.2
Nonresidential structures	-3.4	2.7	10.6	10.6	6.5	6.3	5.6	1.9	1.8
Equipment investment	0.8	11.0	6.6	4.9	4.8	5.4	4.5	3.3	3.0
Residential investment	-5.4	-1.4	11.4	27.0	14.4	3.7	3.4	2.6	1.5
Exports	3.4	6.7	4.0	3.0	3.5	5.3	5.4	5.9	4.8
Imports	2.4	4.8	2.8	2.0	3.5	4.4	3.7	3.4	3.3
Government	2.2	-3.1	-1.4	-1.5	-0.3	0.3	0.7	1.2	1.3
GDP deflator	2.3	2.1	1.6	1.4	2.1	2.4	2.4	2.0	2.2
Consumption deflator	2.1	2.4	1.5	1.3	1.7	2.0	2.3	2.3	2.5

Outlook Overview

Real (Inflation-Adjusted) Quantities, Average Annual Growth Rates, Percent									
Supply	00-10	10-11	11-12	12-13	13-14	14-15	15-20	20-25	25-35
Population	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9
Labor force	0.8	-0.2	0.9	0.8	1.0	1.0	0.9	0.9	0.9
Employment	-0.1	1.0	1.7	0.9	1.5	1.3	1.3	1.0	0.9
Labor productivity	1.8	0.5	0.4	1.2	1.2	1.1	1.1	1.4	1.3
Potential GDP	2.7	1.7	1.3	1.2	1.5	1.9	2.2	2.5	2.4
Percent	2010	2011	2012	2013	2014	2015	2020	2025	2035
Unemployment Rate	9.6	8.9	8.1	8.0	7.5	7.2	5.2	5.0	5.4
Interest Rates									
Treasury Bills, 3-month	0.1	0.1	0.1	0.2	0.5	2.0	3.5	3.5	3.5
Yield, 10 yr. Treasury bonds	3.2	2.8	1.5	2.7	2.6	4.0	5.3	5.2	5.2
Nominal Quantities, Billions of Dollars									
Current account	-438.6	-509.4	-540.8	-611.7	-673.0	-720.9	-756.5	-654.3	-653.6
(% of GDP)	-3.0	-3.4	-3.5	-3.8	-3.9	-4.0	-3.3	-2.3	-1.4
Federal net borrowing	-1490.1	-1399.8	-1232.2	-991.4	-837.4	-787.4	-725.6	-767.1	-1000.1
(% of GDP)	-10.3	-9.3	-7.9	-6.1	-4.9	-4.4	-3.1	-2.6	-2.2

Government Fiscal Stimulus "Crowds-Out" Private Spending Through:

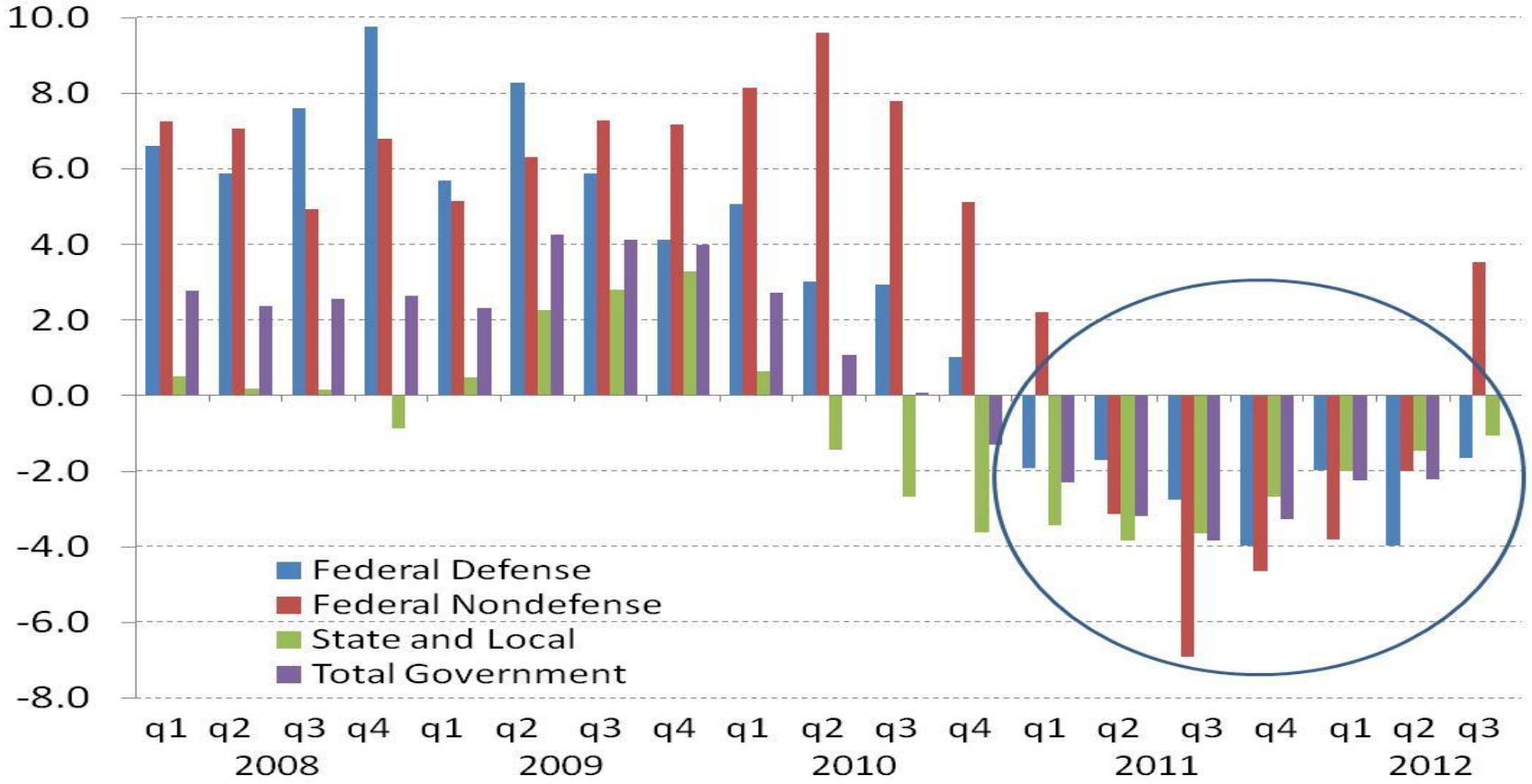
GDP = (C + I + X – M) + G

- **Interest rates**: Increased G increases interest rate, discouraging interest-sensitive demand (C+I).
- **Price inflation:** An increase in G increases wages and prices, reducing demand for labor and exports and increasing imports.
- **Ricardian Equivalence:** An increase in G increases consumer savings in anticipation of tax increases.

Current fiscal drag is substantial….

Government consumption and investment

Year-over-year percentage change

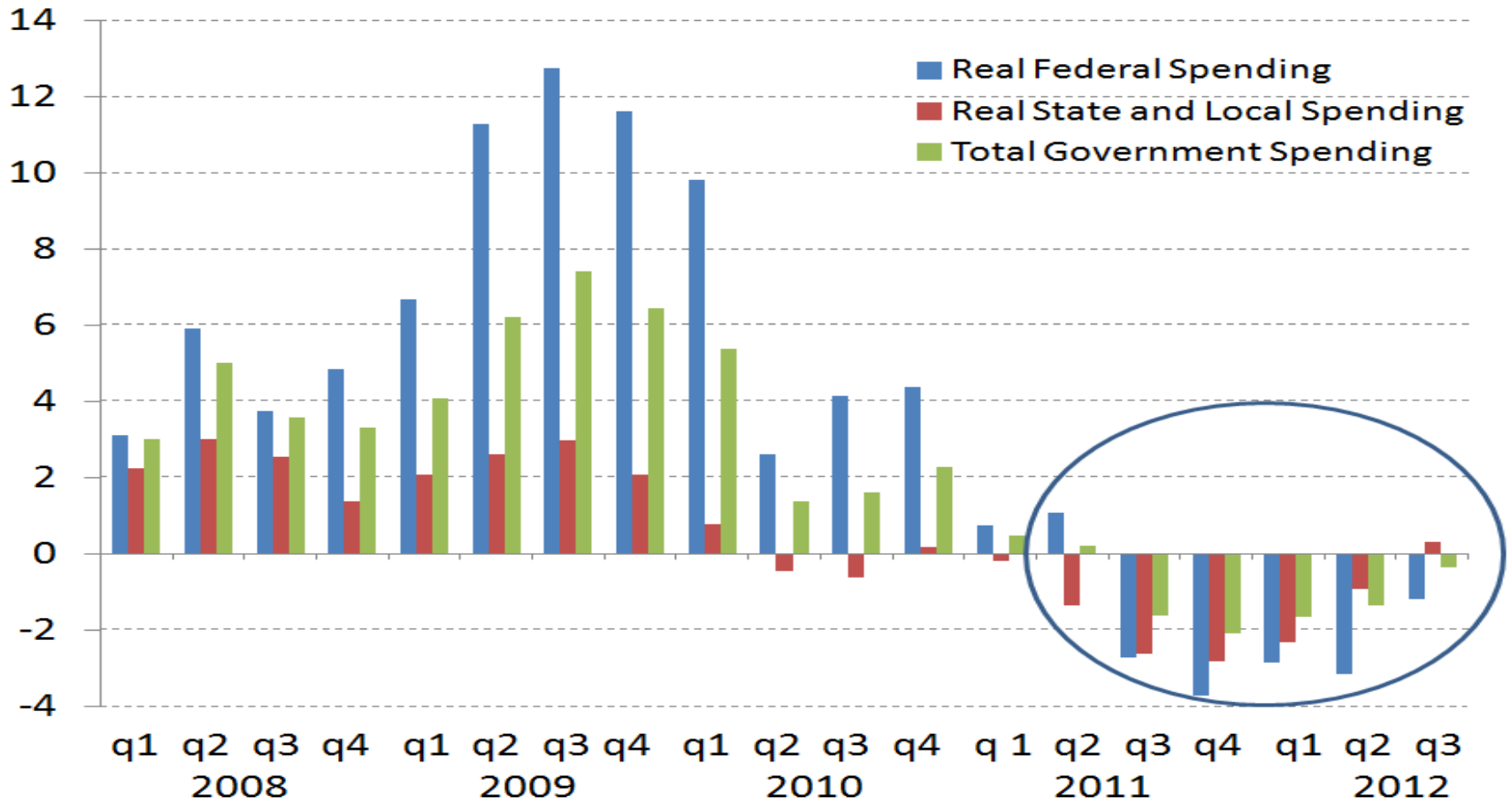


Source: Bureau of Economic Analysis

… even considering transfers.

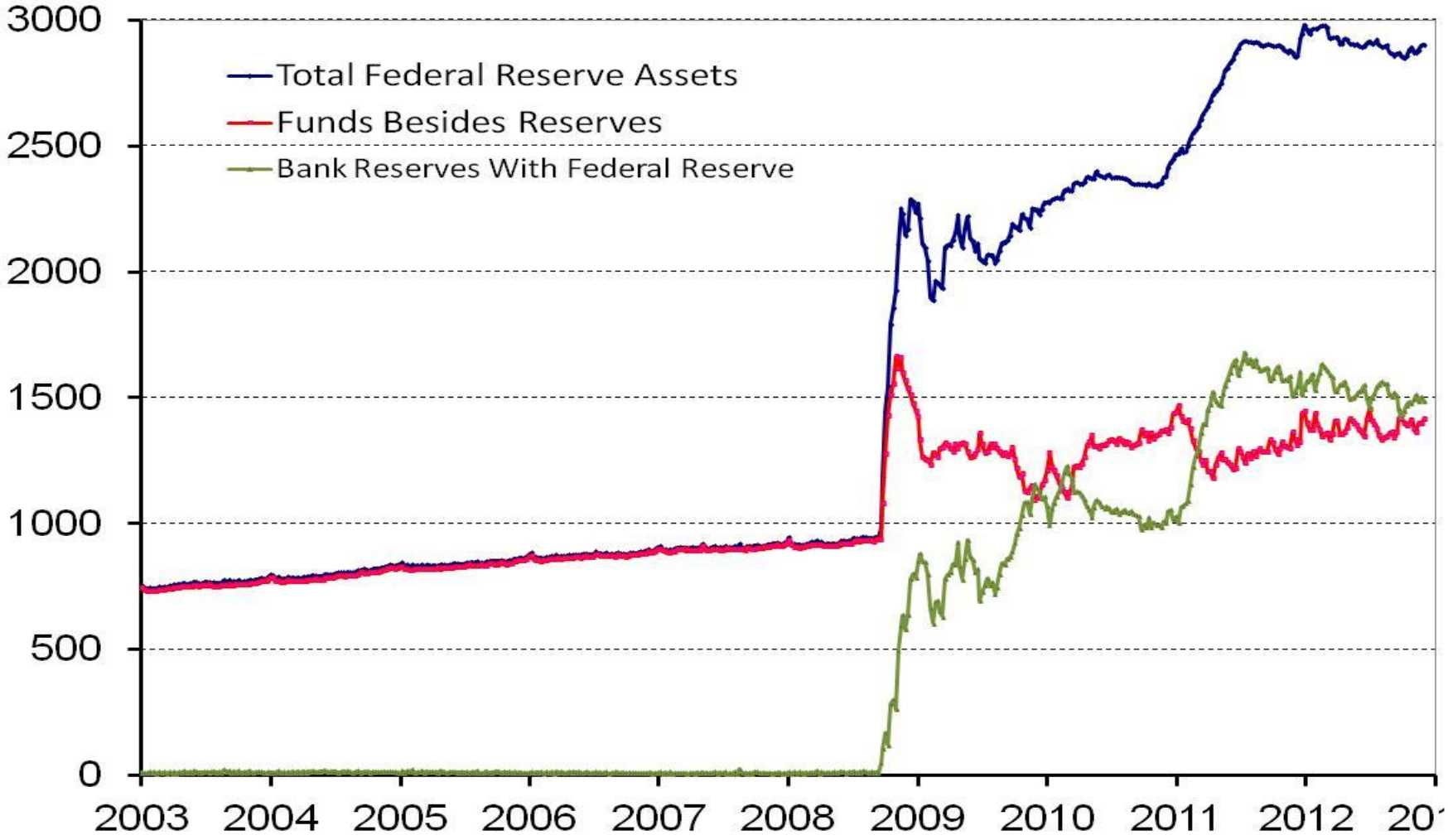
Real government spending

Year-over-year percentage change



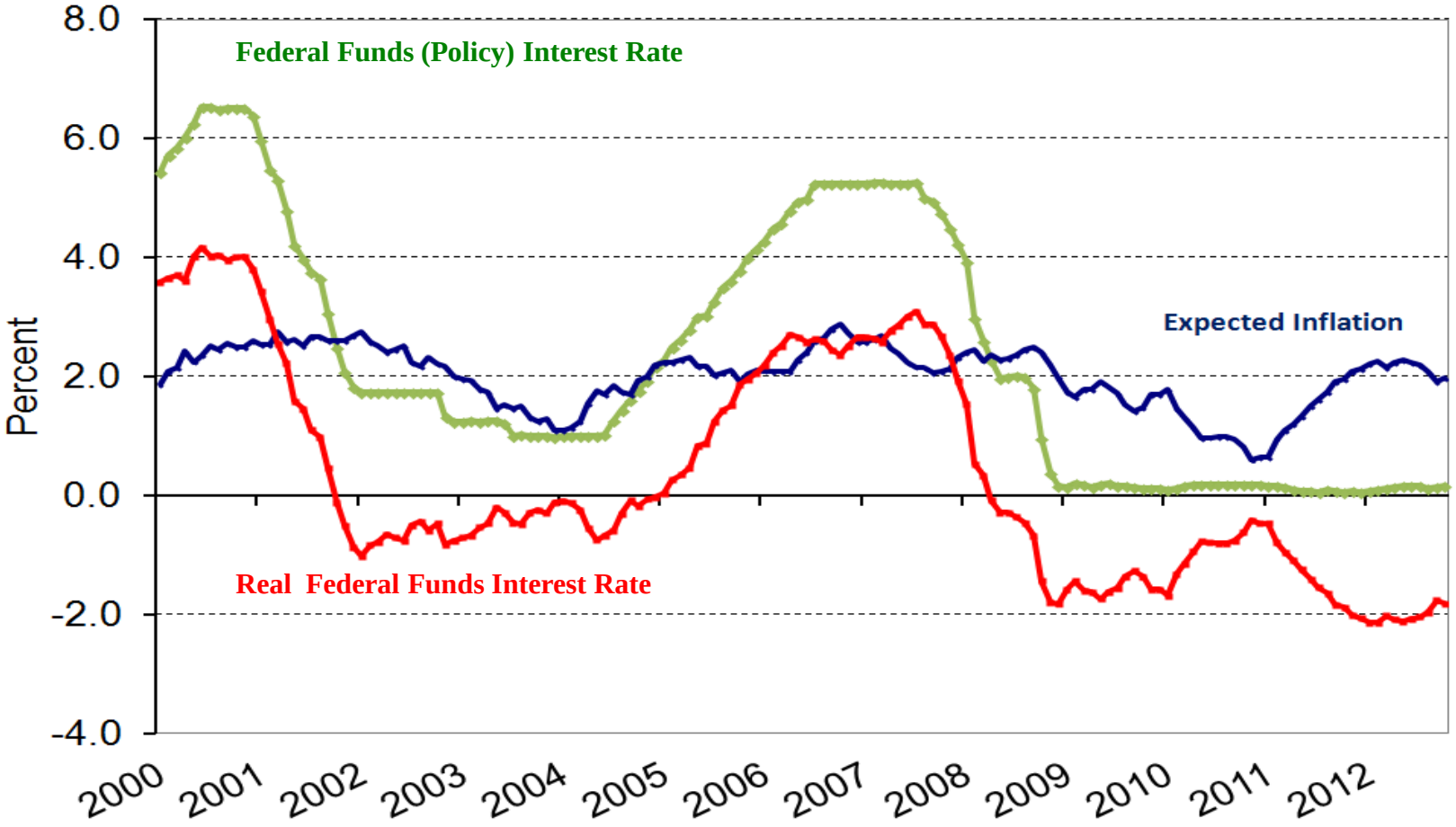
Source: Bureau of Economic Analysis

Monetary Policy: Still in a Liquidity trap



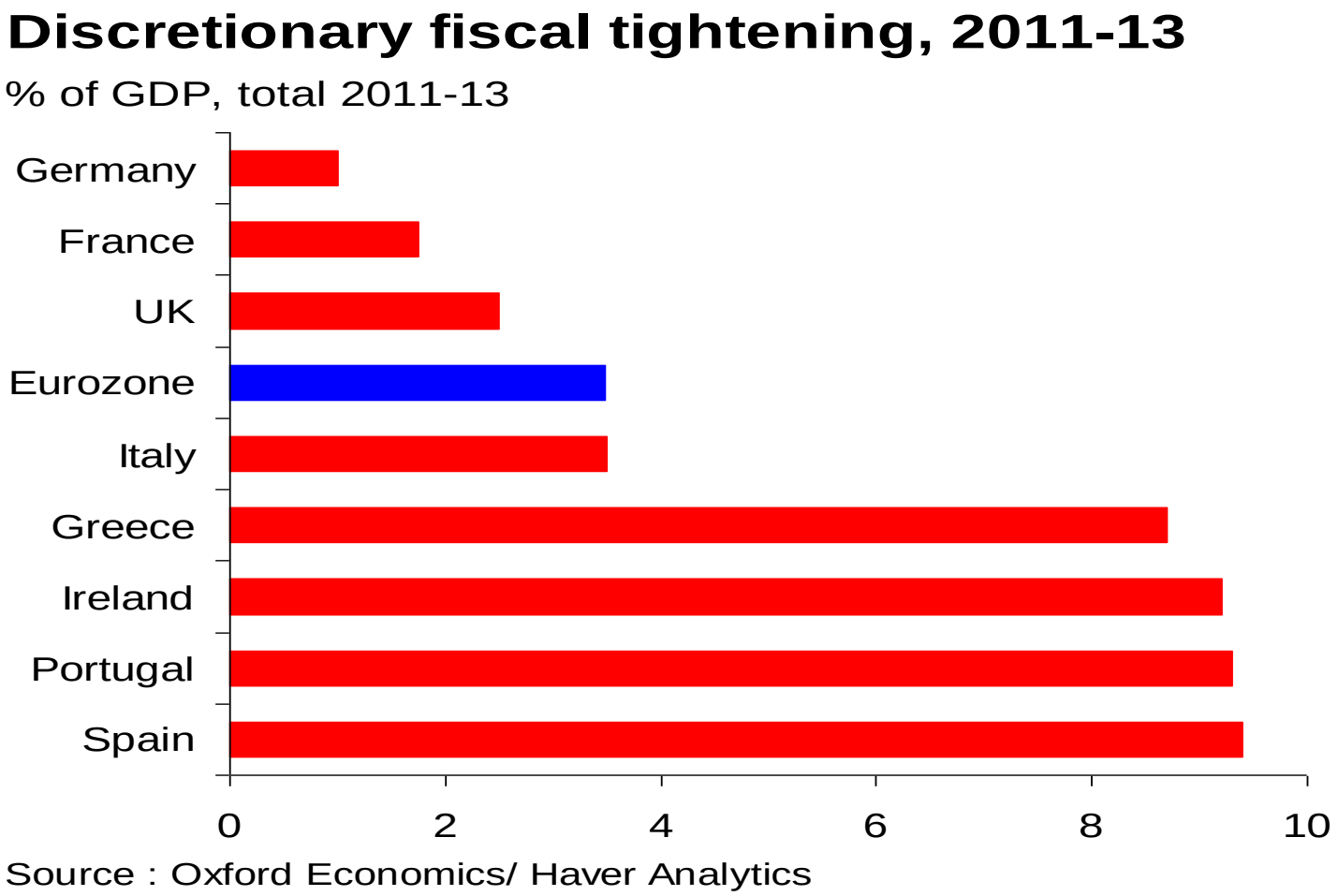
Source: Federal Reserve Board

U.S. Interest Rates Remain at Zero, Inflation Remains Well-Contained, and Real Interest Rates are too high.



Source: Federal Reserve Board and Bureau of Labor Statistics.
Expected inflation is year on year change in last months core CPI deflator.

Eurozone in vicious fiscal spiral



European stagnation may last two more years.

Annual percent change in GDP (2005 dollars)

	2009	00-09	09-10	10-11	11-12	12-13	13-14	14-15	15-20	20-25
All Listed Countries	32908	2.2	3.4	2.4	2.0	1.8	2.5	2.8	2.4	2.4
United States	12758	1.4	1.8	1.8	2.2	2.3	3.1	2.9	2.8	2.6
Canada	1074	1.8	3.2	2.4	2.1	2.0	2.5	1.9	2.0	1.7
Mexico	706	1.3	5.6	3.9	3.9	3.5	5.0	5.0	4.5	4.0
France	1831	1.1	1.6	1.7	0.0	-0.5	1.0	1.4	2.0	2.5
Germany	2888	0.6	4.0	3.1	0.9	0.8	2.0	2.2	2.0	2.0
Italy	1725	0.2	1.8	0.6	-2.2	-0.6	0.0	1.0	0.8	0.7
Spain	1141	2.1	-0.6	1.6	-1.2	-1.8	-1.0	0.0	2.2	2.5
United Kingdom	1997	1.8	1.8	0.9	-0.2	0.9	1.6	2.4	1.6	1.2
Japan	4381	0.4	4.5	-0.7	1.8	0.7	1.0	3.0	0.5	-0.3
Korea	1033	3.9	6.3	3.6	2.2	3.1	4.4	4.7	3.5	3.4
China	3374	10.5	10.5	9.7	7.7	6.0	5.4	5.1	4.5	6.8
World Trade (B2005 US$)	11727	3.6	10.5	6.9	3.3	4.4	5.3	5.6	4.2	4.7
Oil demand (2005 = 100)	97	0.6	0.4	1.1	0.4	1.9	2.7	2.9	2.2	-3.5

Sources: Inforum, OECD Economic Outlook, Consensus Forecasts, Blue Chip Economic Indicators

What could we expect from the Fiscal Cliff?

Static Score of Fiscal Policy Change, FY 2013–-2022
(Billions of Current Dollars)

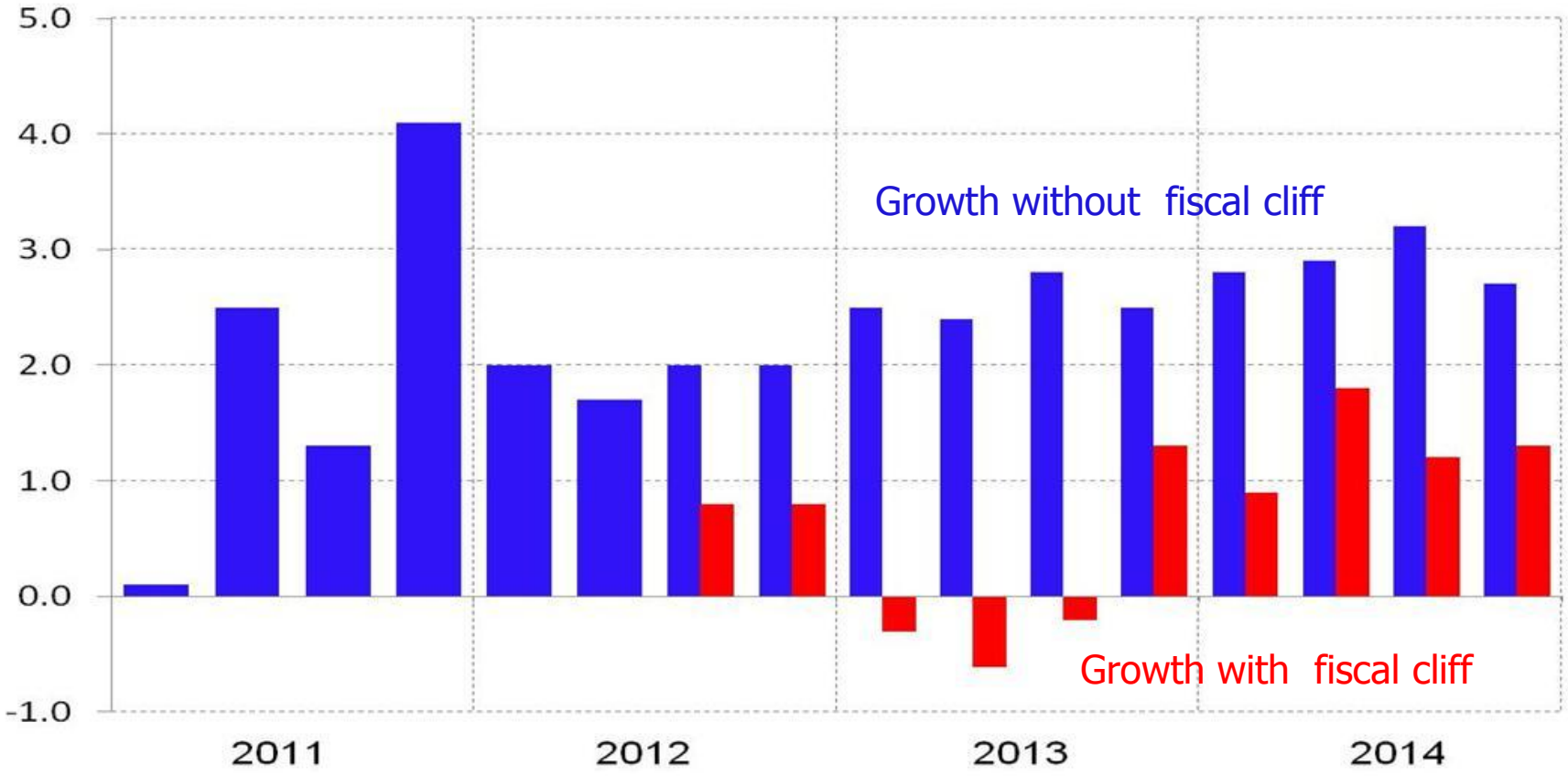
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2013-2022
Change in Specified Revenue Policies											
Expiration of income & other tax cuts (1)	221	301	343	368	392	418	443	473	505	540	4004
Other expiring provisions (2)	65	103	87	72	62	55	49	46	47	48	634
Expiration of payroll tax reduction	95	25									120
Affordable Care Act payroll tax	18	20	26	31	37	43	48	54	59	65	401
Total Revenue Increases	399	449	456	471	491	516	540	573	611	653	5158
Changes in Specified Spending Policies											
BCA Sequestration	66	90	100	102	104	103	103	104	104	105	981
Defense	33	46	52	53	55	54	54	54	54	55	510
Nondefense discretionary	23	33	36	36	36	35	35	35	34	34	337
Medicare	5	6	7	8	8	9	10	11	12	12	88
Other mandatory reductions	5	5	5	5	5	5	4	4	4	4	46
Reduction of unemployment benefits	26	5									31
Reduction of Medicare pay to physicians	11	20	22	24	26	29	31	33	35	37	268
Total Spending Decrease	103	115	122	126	130	132	134	137	139	142	1279
Total Static Fiscal Contraction	**502**	**564**	**578**	**597**	**622**	**648**	**674**	**710**	**749**	**795**	**6437**
GDP (CBO Baseline)	15914	16575	17618	18704	19708	20661	21616	22603	23614	24655	201666
Percent of GDP	3.2	3.4	3.3	3.2	3.2	3.1	3.1	3.1	3.2	3.2	3.2

(1) Expiration of certain income tax (predominantly the Bush tax cuts) and estates and gift tax provisions scheduled to expire on December 31, 2012, and of indexing the AMT for inflation.
(2) Expiration of "tax extenders", mostly business tax concessions such as the R&D tax credit and investment expensing provisions.

Sources:
Congressional Budget Office, *Economic Effects of Reducing the Fiscal Restraint Scheduled to Occur in 2013.* (May 2012). Table 1.
Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2012 to 2022. *(* January 2012). Table 3.5.

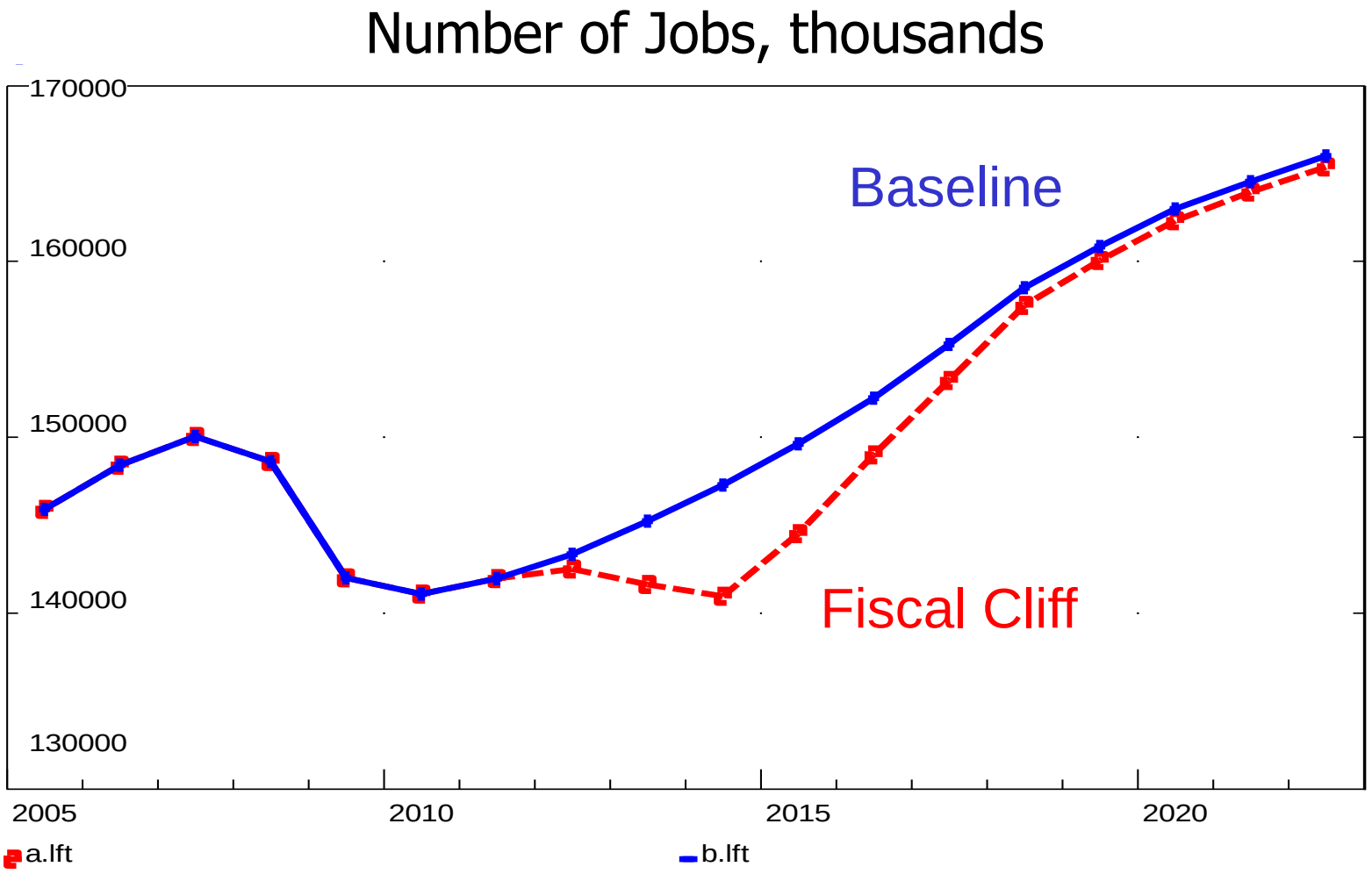
Going over the Cliff causes Recession in 2013

Quarter on quarter growth, SAAR



Source: Bureau of Economic Analysis, Inforum

Going over the Cliff causes recession in 2013



The Fiscal Cliff would cause long-lasting damage (though it does relieve the deficit).

Economic Effects: Figures are percent difference from Baseline scenario, except where noted.

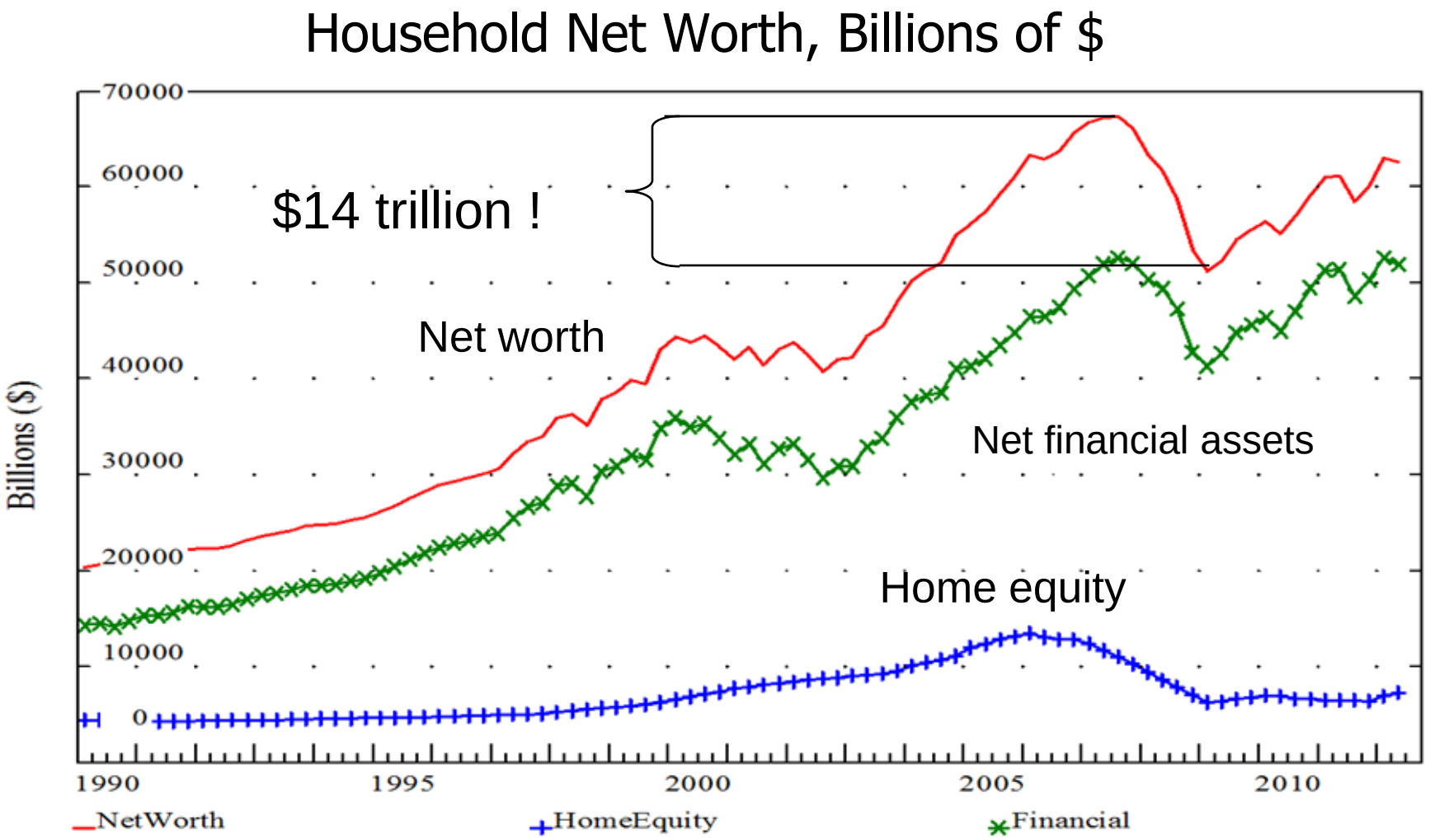
	2012	2013	2014	2015	2016	2018	2020	2022
Gross Domestic Product	-0.6	-3.0	-4.8	-4.4	-3.2	-1.5	-1.3	-1.3
cumulative percentage loss	-0.6	-3.6	-8.4	-12.8	-16.0	-17.5	-18.8	-20.0
Real Disposable Income (bil 05$)	-0.6	-6.1	-9.4	-9.8	-8.1	-5.3	-4.5	-4.7
cumulative percentage loss	-0.6	-6.8	-16.1	-25.9	-34.1	-39.3	-43.9	-48.5
Civilian employment (% diff)	-0.6	-2.5	-3.9	-3.6	-2.3	-0.6	-0.4	-0.4
difference in thousands	-839	-3617	-5759	-5348	-3532	-946	-611	-581
cumulative loss in job-years	-839	-4456	-10215	-15563	-19095	-20040	-20651	-21233
Manufacturing Employment	12840	12858	12931	12987	13056	13318	13498	13545
difference in thousands	-48	-227	-429	-411	-200	181	282	307
Fed Net Borrowing Reduction (bil $)	1	372	508	630	653	604	562	702
Baseline deficit as % of GDP	-7.8	-6.0	-5.3	-4.5	-4.2	-3.5	-3.3	-3.2
Reduction in percent of GDP	0.0	2.2	2.9	3.4	3.4	2.8	2.4	2.7

Source: *The Impact of the Pending Fiscal Crisis on Jobs and Economic Growth Analysis Using the LIFT Model*
National Association of Manufacturers and Inforum

The Good News: Private Sector U.S. Balance Sheet pressures are subsiding

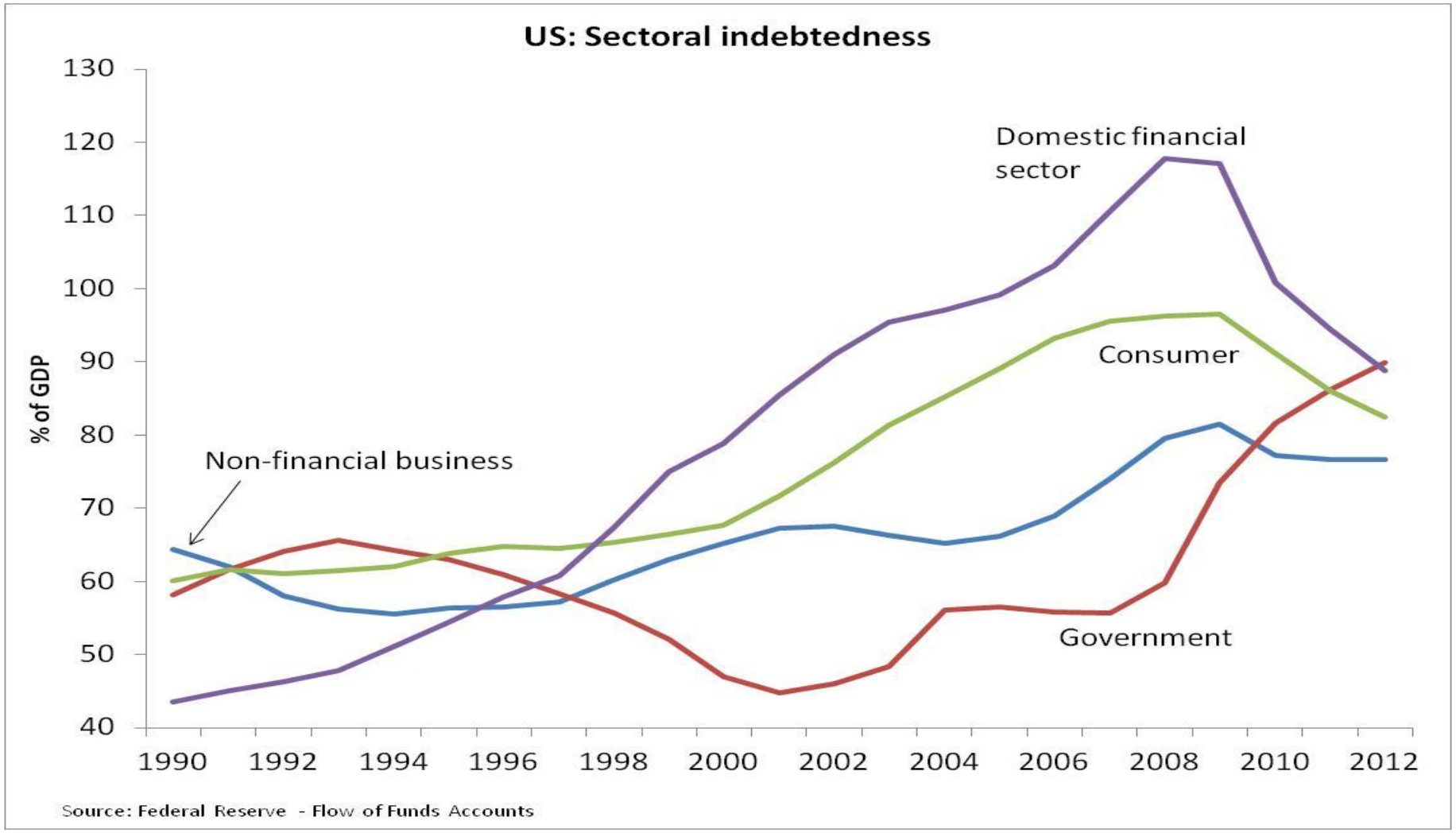
- Since 2009, effectiveness of monetary and fiscal policy held back by consumer deleveraging.
  - Modifications and refinancing -- why are we paralyzed?
  - New (old) standards, large fees, incentive structure.
  - Hubbard: let underwater borrowers refinance.
- Private business sector sitting on lots of cash. Non-financials waiting for firmer expansion of aggregate demand.
- Constrained credit conditions hamper new firm formation, especially important for new job creation.

Household Net Worth: Looking Up, Slowly

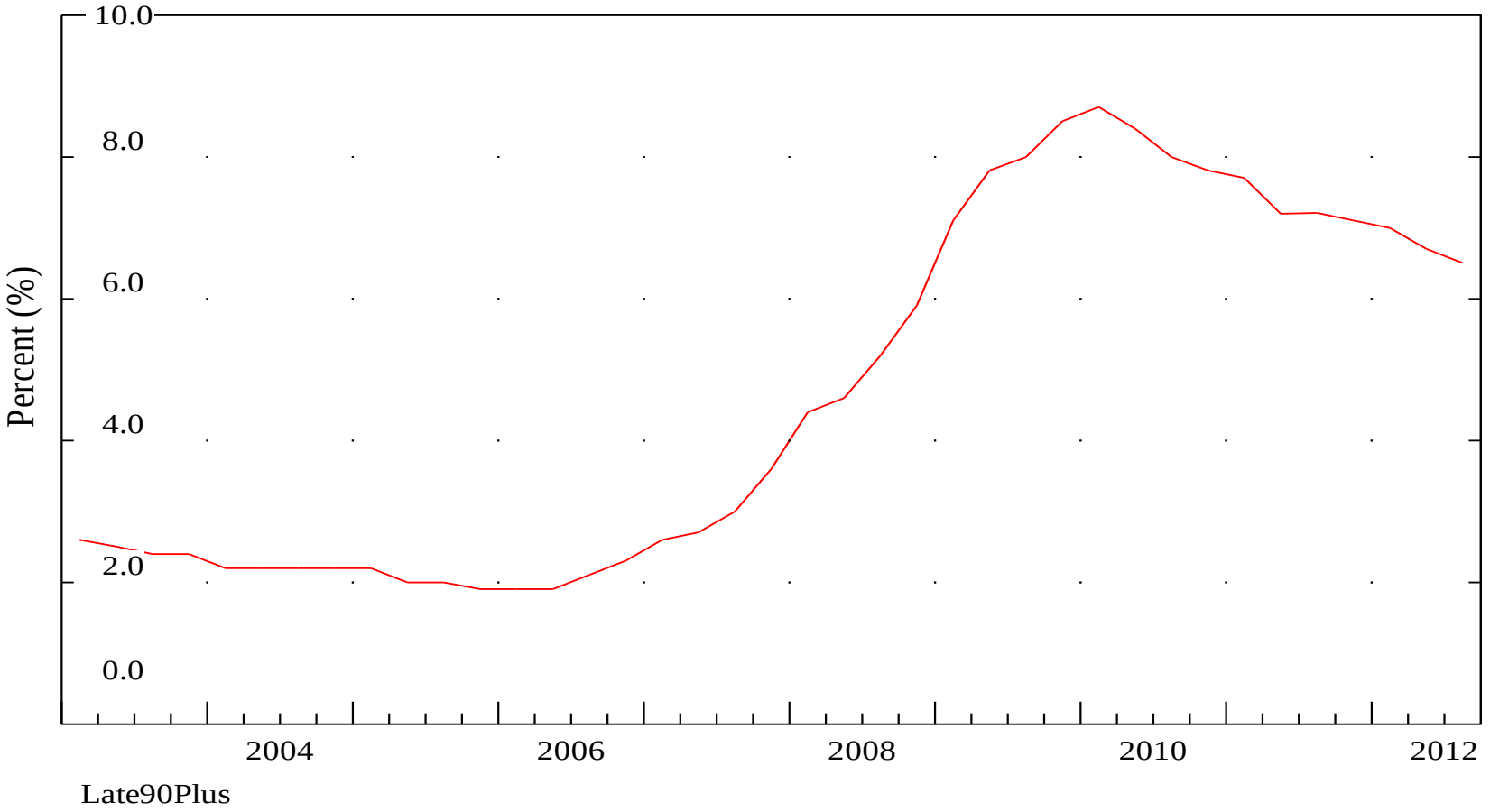


Source: Federal Reserve Board

Private Deleveraging is Progressing

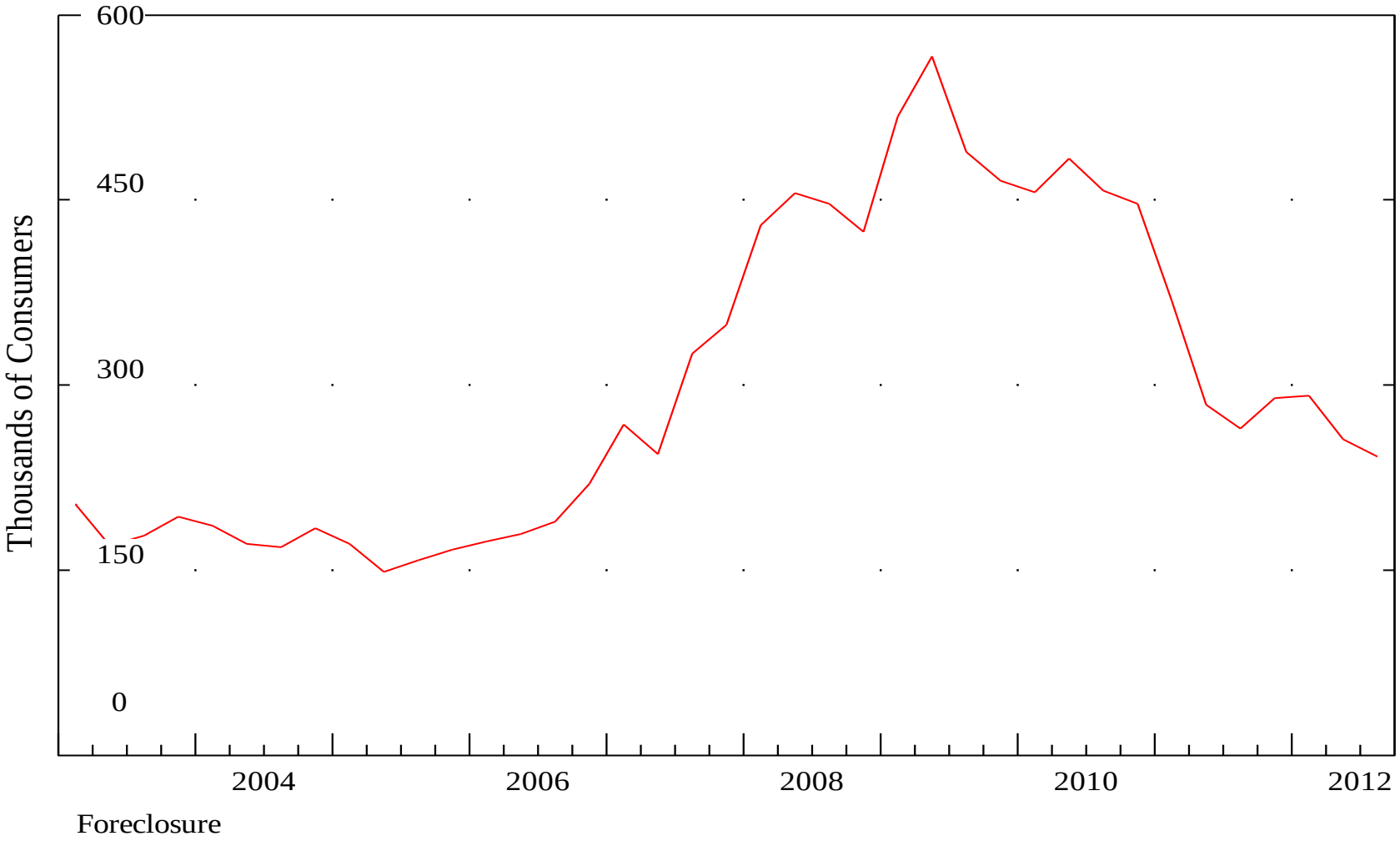


Total Balance by Delinquency Status
Percent Mortgage Balances 90+ Days Delinquent



Source: Federal Reserve Board

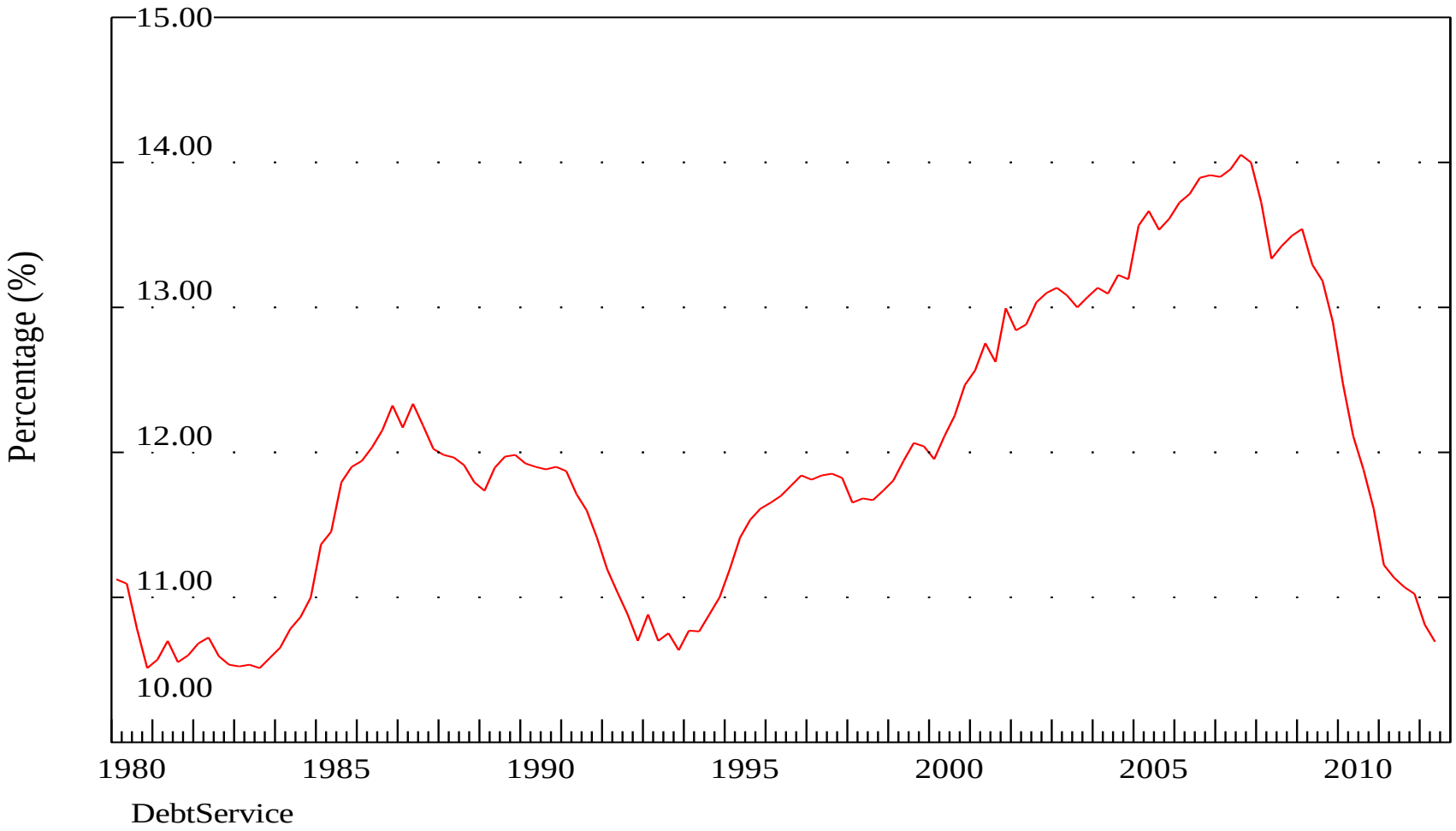
Number of New Foreclosures



Source: Federal Reserve Board

Household Debt Service

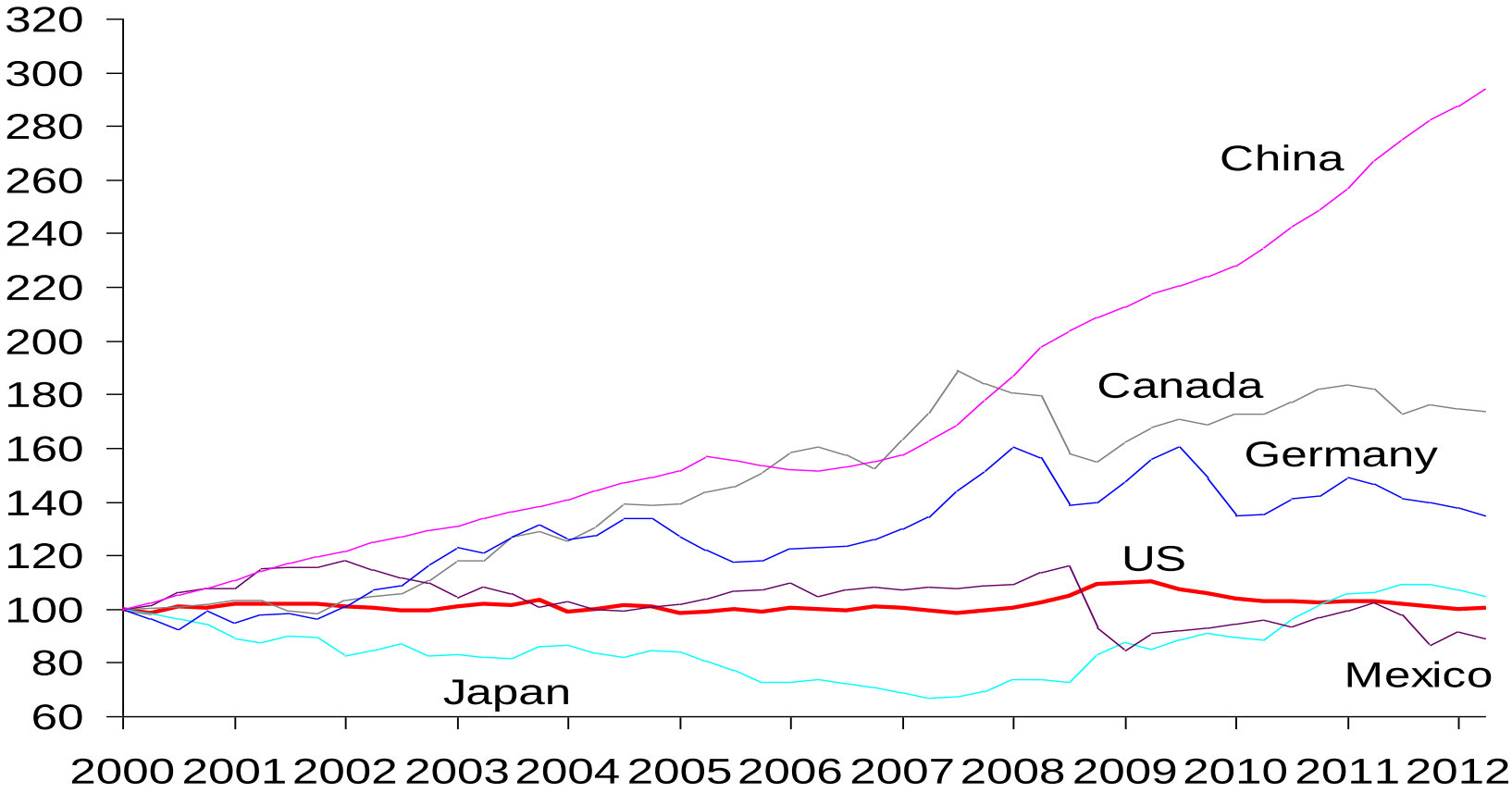
Percent of Household Disposable Income



Source: Federal Reserve Board

U.S. Manufacturing now very competitive

Unit labour costs in manufacturing in US$, 2000Q1=100



Source : Oxford Economics

Policy Options

Fiscal

- More fiscal stimulus to fill AD hole: Bond yields remain low, education and infrastructure provide "bang for the buck."
- A SR stimulus combined with LR deal on raising revenue with tax reform and reducing future entitlements would be most effective.

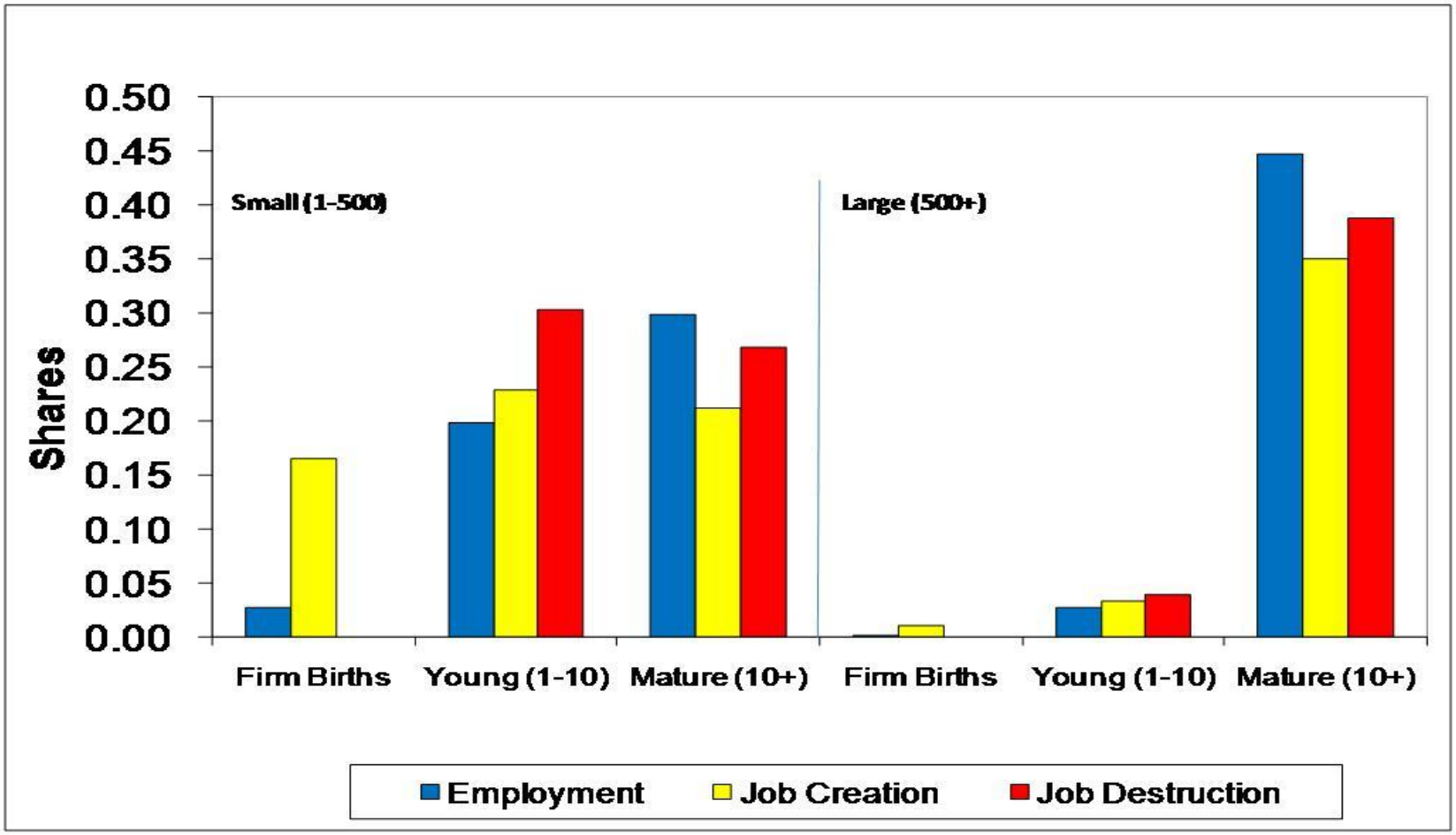
Monetary

- Provide guidance on future course of Fed rate.
- Create temporarily high inflation to aid deleveraging.
- Price level targeting, GDP targeting.

Structural

- Quicker deleveraging, greater facilitation of mortgage restructuring.
- Tax reform (eliminate loopholes, reduce rates).
- Remove regulations and other restrictions (health and finance).
- New labor market measures (job matching, increase mobility).

Most "net" new jobs created from new firms.



Source: Davis, Faberman and Haltiwanger (2010)

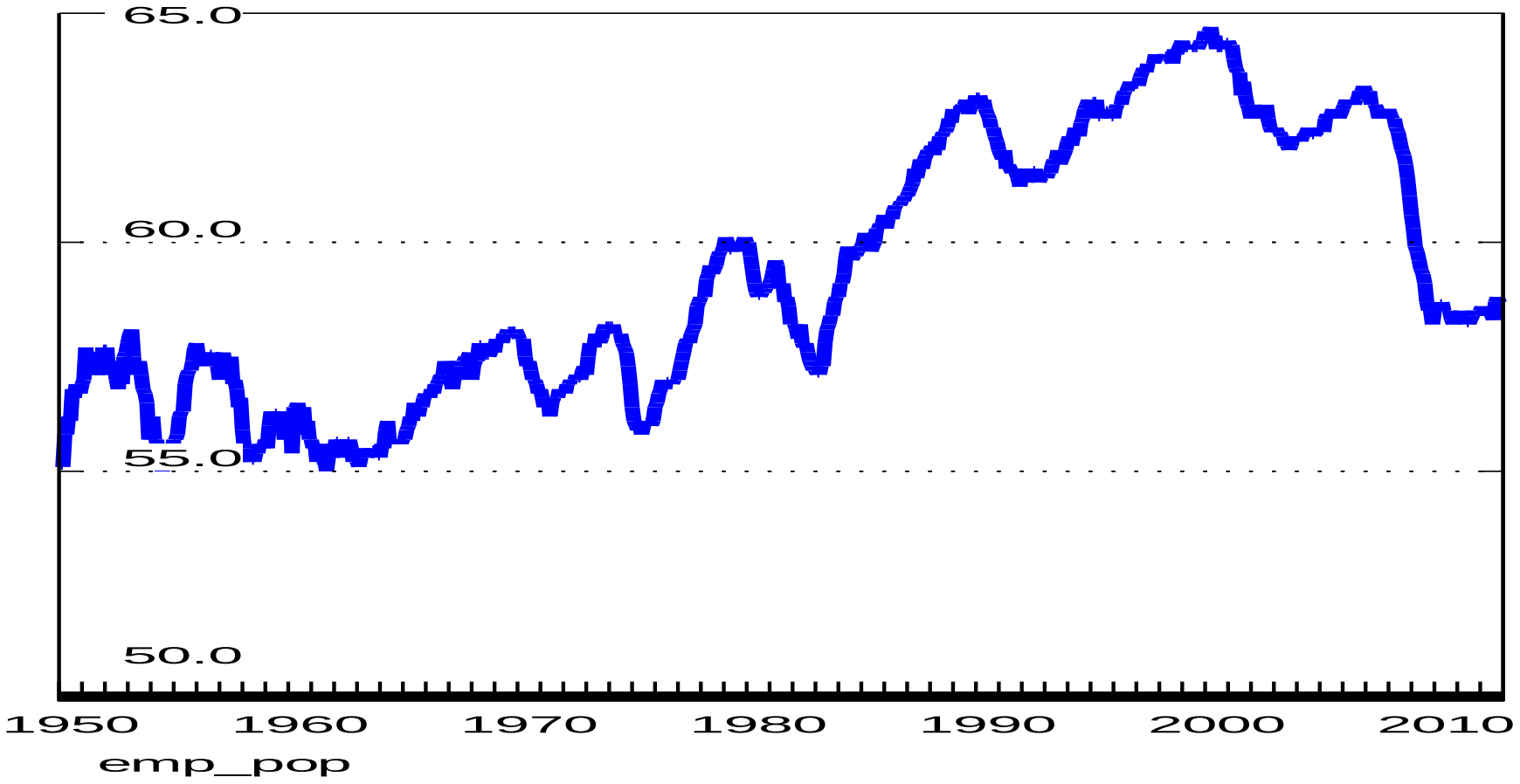
Long Term Issues

- Potential GDP: How much hysteresis from the Great Recession?

- Boosting Future growth, the Reform Agenda:
  - Tax: Enhance revenue without harming growth.
  - Entitlements: Cut projected SS, Medicare, Medicaid and government pension expenditures.
  - Health Care: What's next?
  - Education: Things are going to change
  - Infrastructure

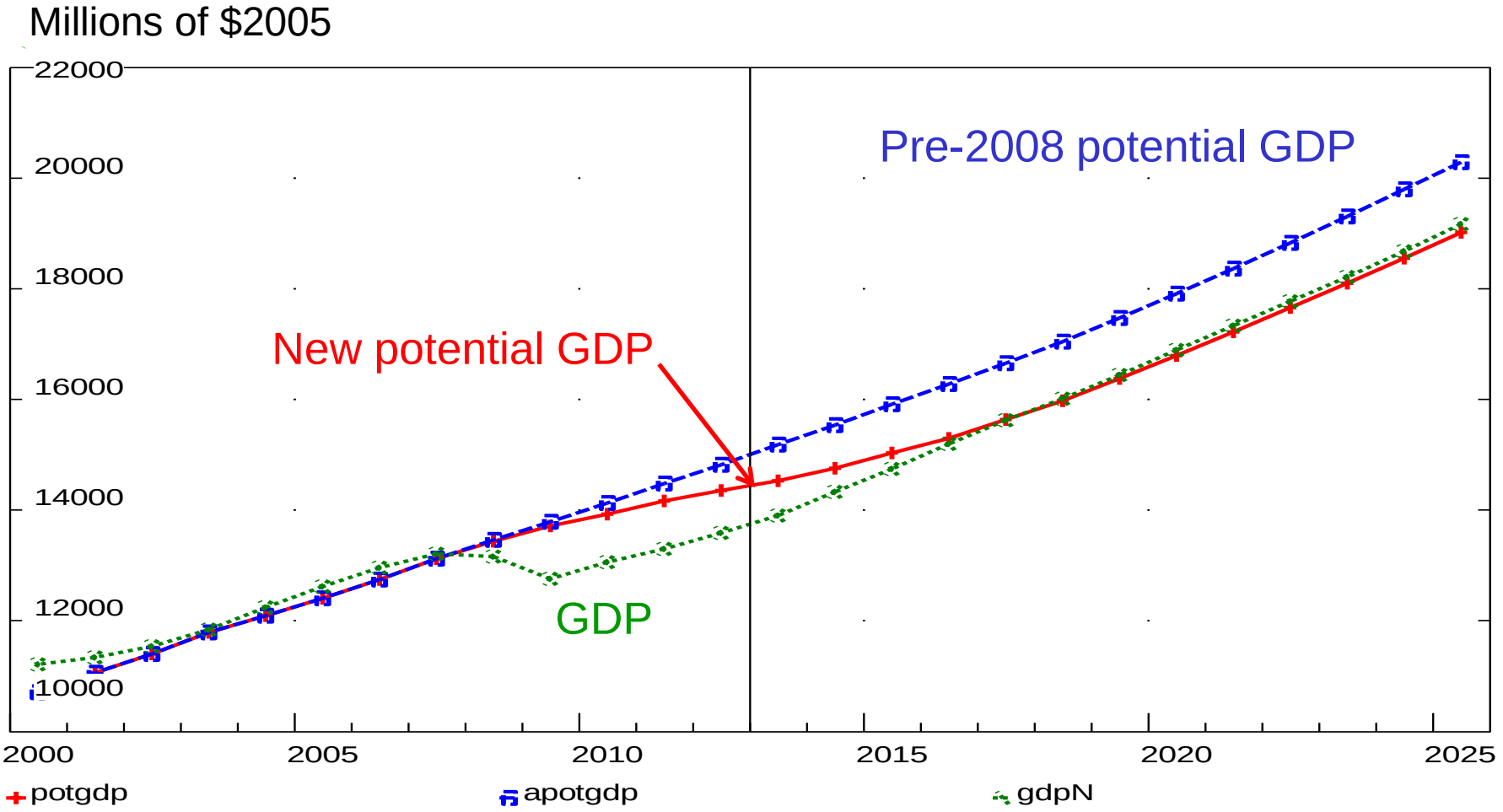
Elevated, chronic underemployment is eating away future prosperity

Employment to population ratio, percent



Source: Bureau of Labor Statistics

The Great Recession could have pulled down potential GDP by 6%.

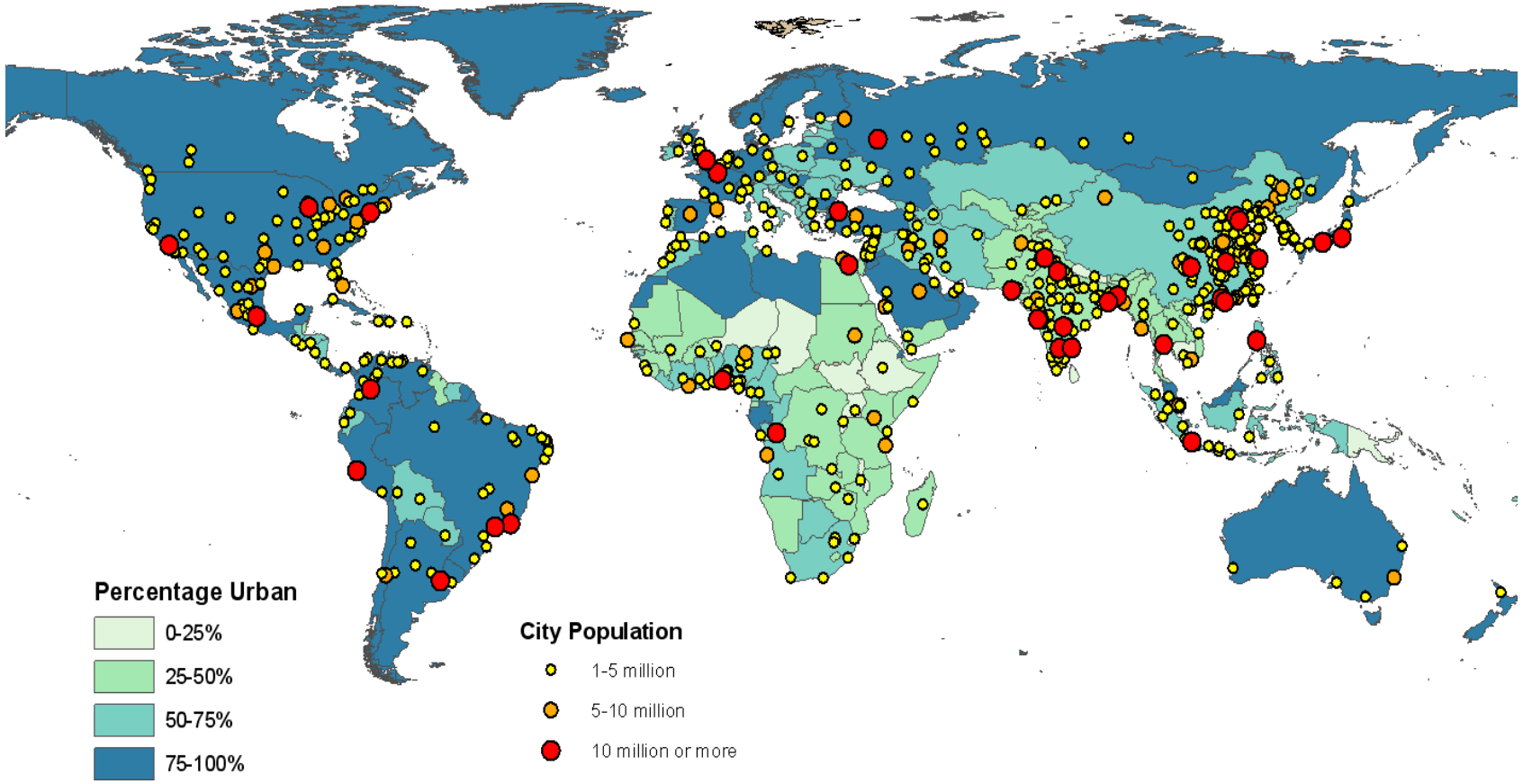


Long Term Outlook: Three Paradoxes

- In a global economy, all economics is local.
  - Industry clustering and urbanization
  - Human, social and infrastructure capital
  - Immigration
  - Regional policy
- As highly productive sectors grow rapidly, their contribution to aggregate growth falls.
  - Baumol's "cost" disease, relevant to growth and fiscal debates
  - Importance of technological spillovers to other sectors
- As income inequality between countries falls (convergence), income inequality within (many) countries increases.
  - Shaped by technology, globalization, immigration, etc.
  - Highly relevant to education, health care and fiscal debates

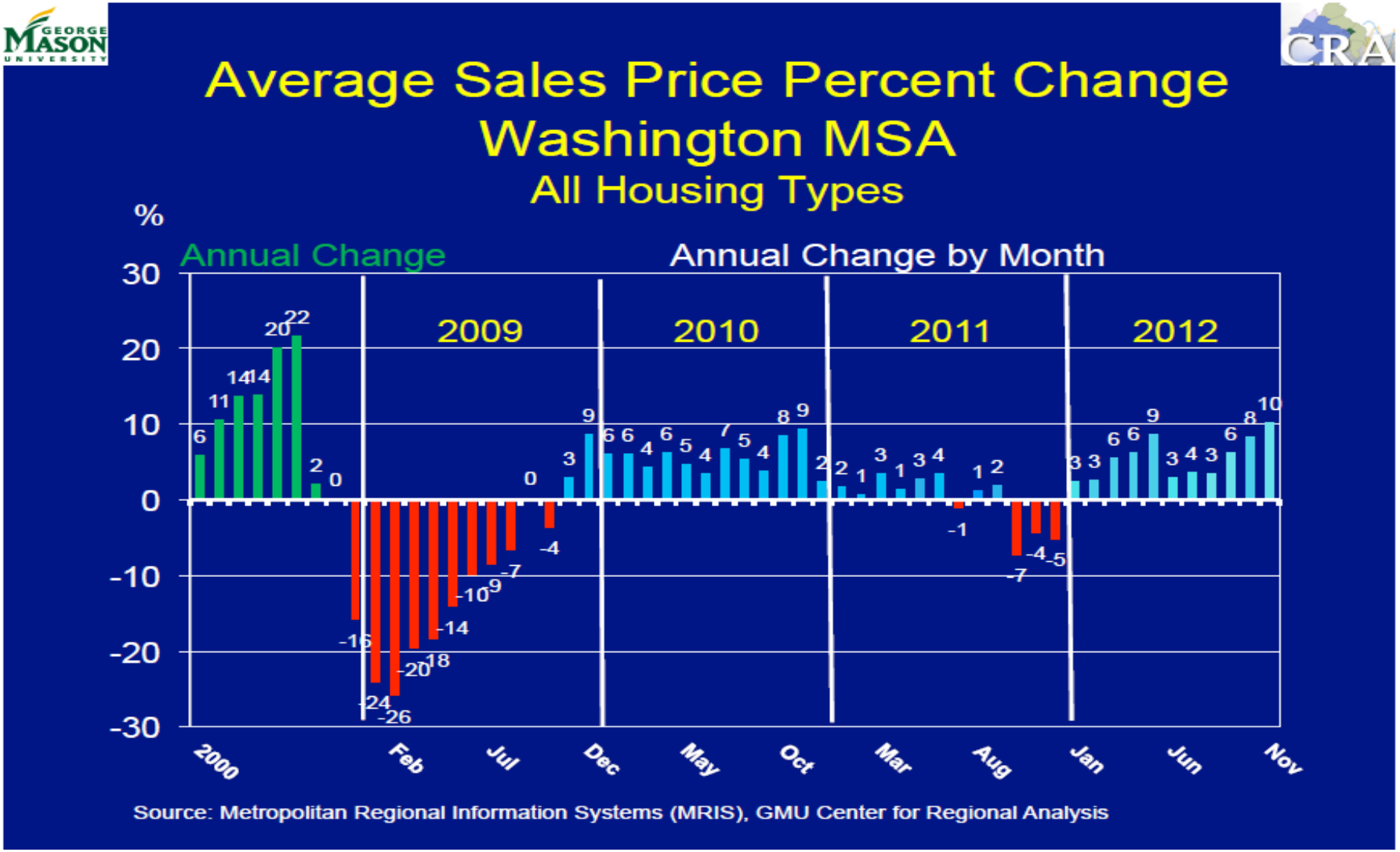
21st century production clusters

Percentage of urban population and agglomerations by size class, 2025

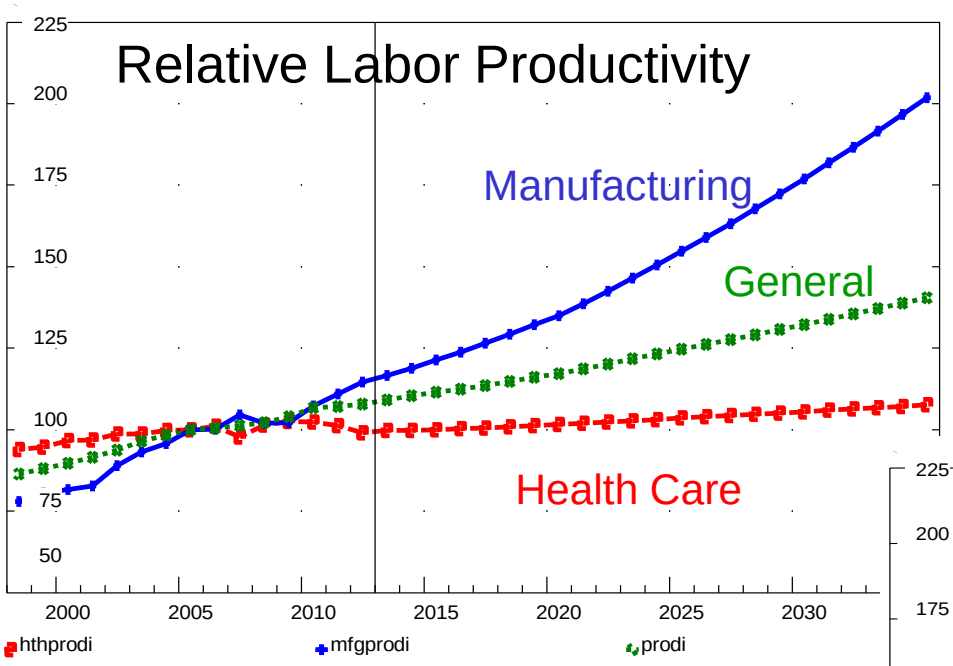


Source: United Nations, Department of Economic and Social Affairs, Population Division: World Urbanization Prospects, the 2011 Revision. New York 2012

Look no further.....

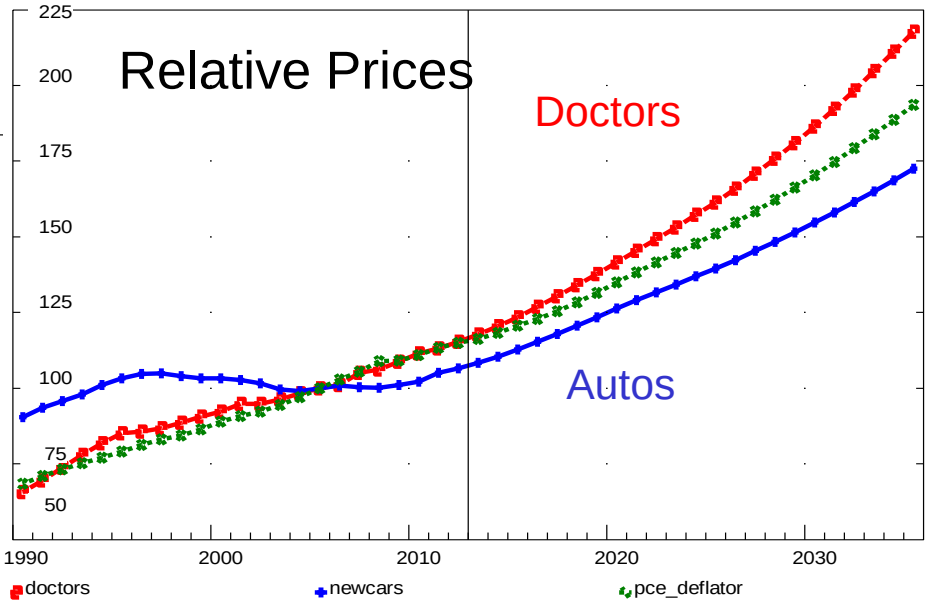


What is Baumol's Disease?



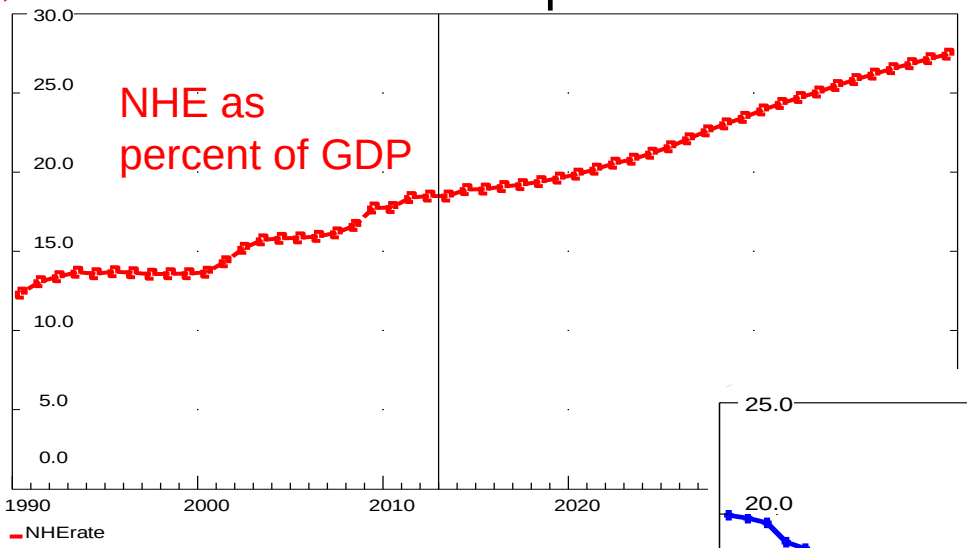
As relative productivity diverges…

So does relative pricing



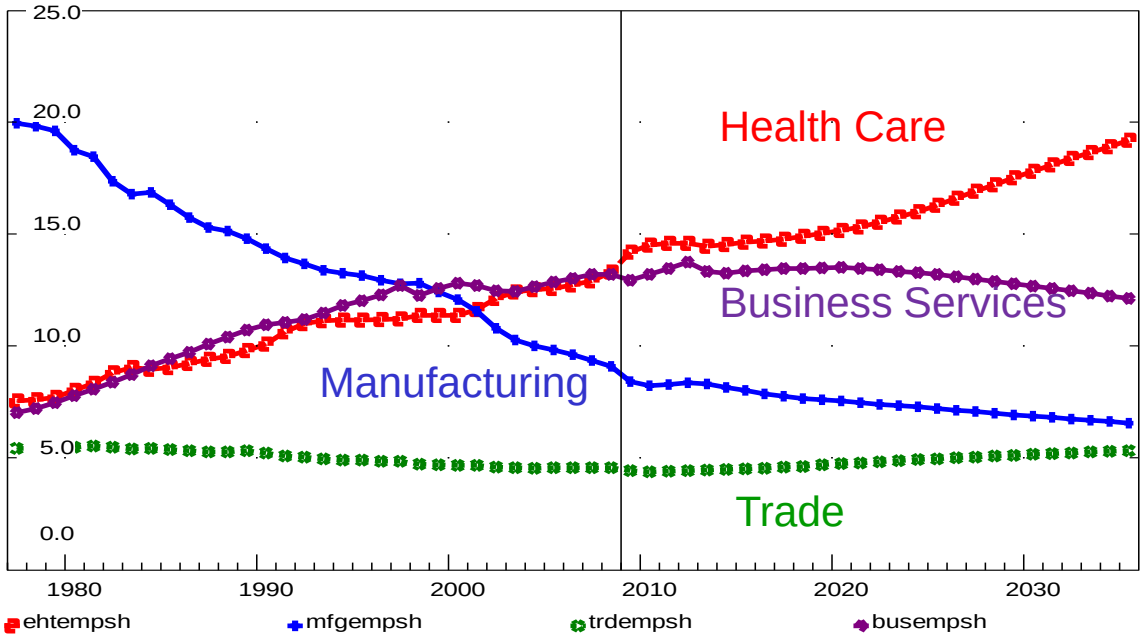
What is Baumol's Disease?

National Health Expenditures



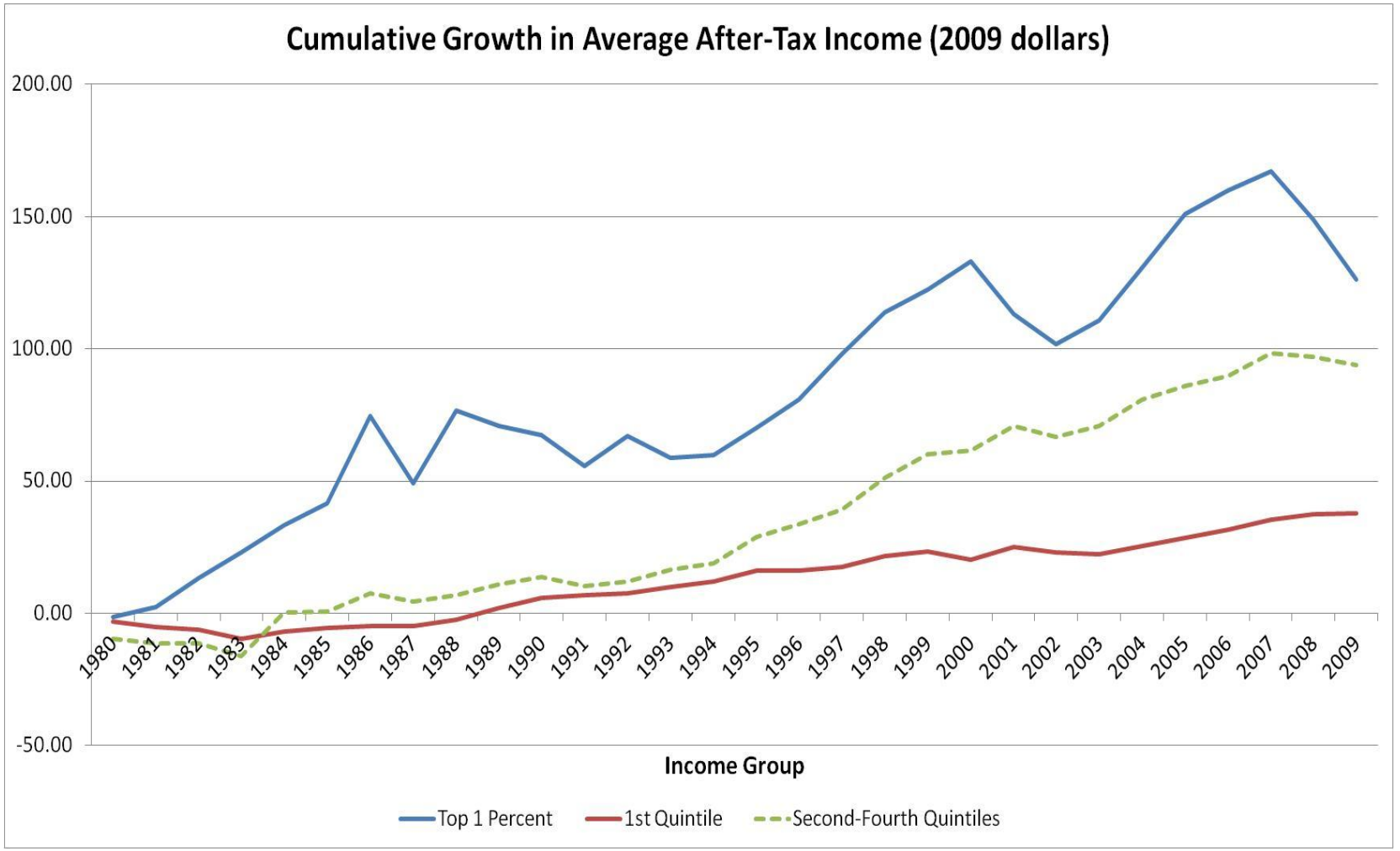
Low productivity sectors dominate expenditure …..

Employment Shares



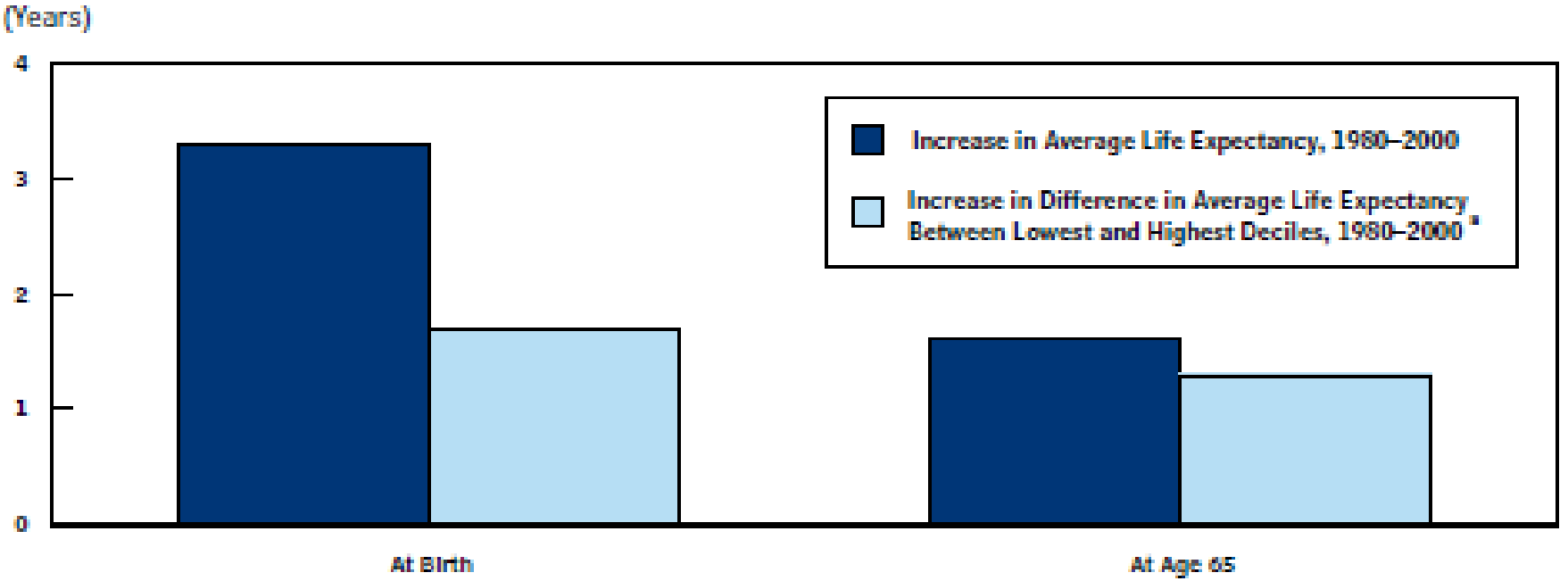
And employment….

U.S. Income Distribution became skewed in the last thirty years.



Even in Life Expectancy

Increase in Life Expectancy, and Increase in Difference in Life Expectancy by Economic Status



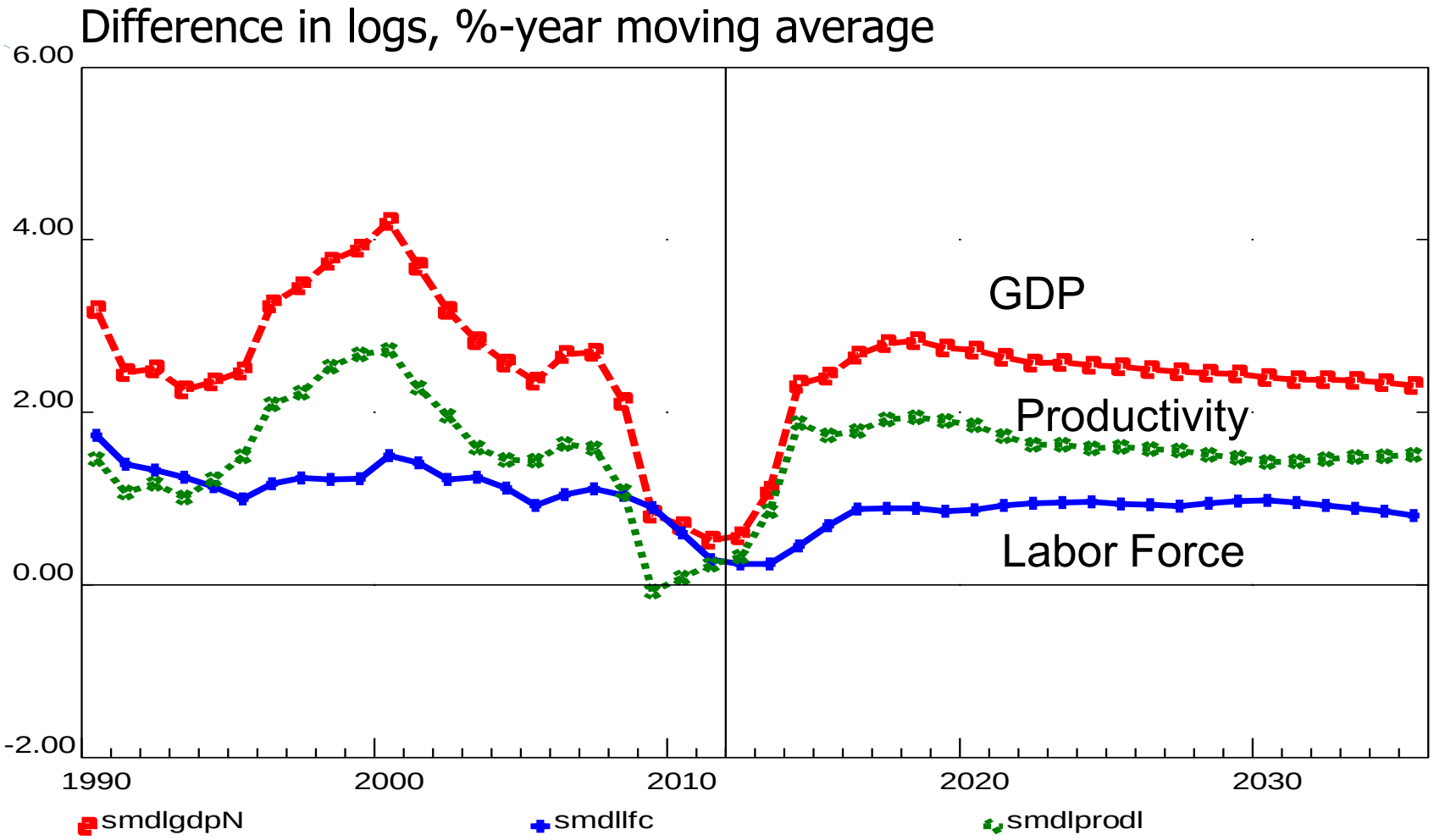
Source: Congressional Budget Office using data from Gopal K. Singh and Mohammad Siahpush, "Widening Socioeconomic Inequalities in U.S. Life Expectancy, 1980–2000," *International Journal of Epidemiology*, vol. 35, no. 4 (2006), pp. 969–979; and National Center for Health Statistics, *Health, United States, 2007* (Hyattsville, Md., 2007), Table 27.

a. Socioeconomic groups are defined using county-level indicators of education, occupation, unemployment, wealth, income, and housing conditions.

Longer term forecast (to 2040):

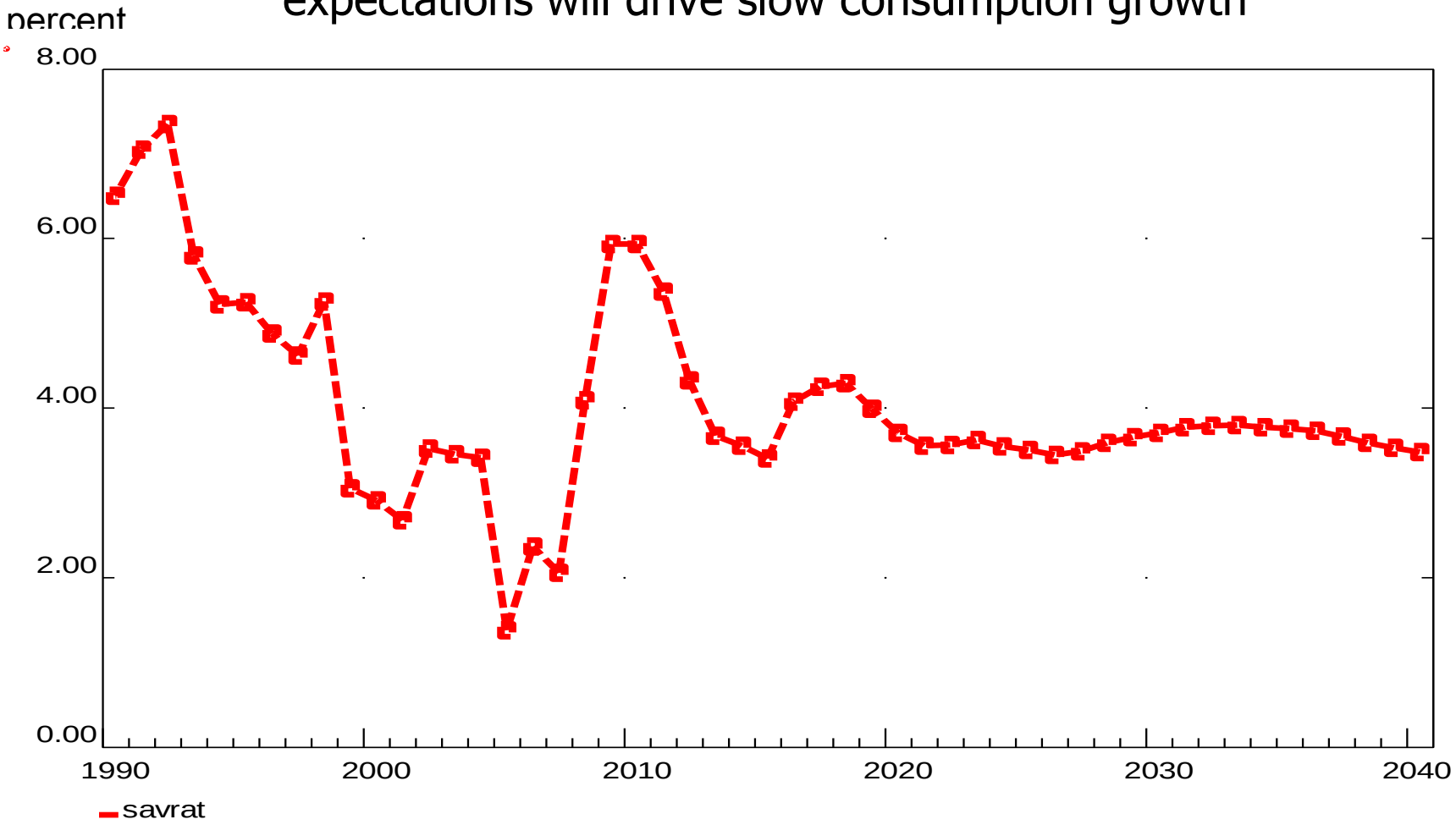
- Potential GDP growth ~ 2.4%
- Forecast assumes gradual rebalancing of private, government and external accounts.
- Weaker dollar, rapid technological growth in manufacturing, and rising savings rate changes economic structure toward exports and away from consumption.
- Nonetheless, government services and tranfers will expand. Health care spending (with/without reform) will dominant future of government spending and domestic production growth.
- All roads lead to tax reform. To pay for entitlements, education and infrastructure, government revenues will have to rise. How this is accomplished is important.

Long term potential growth is almost 2.5% (strong productivity, low labor force growth)



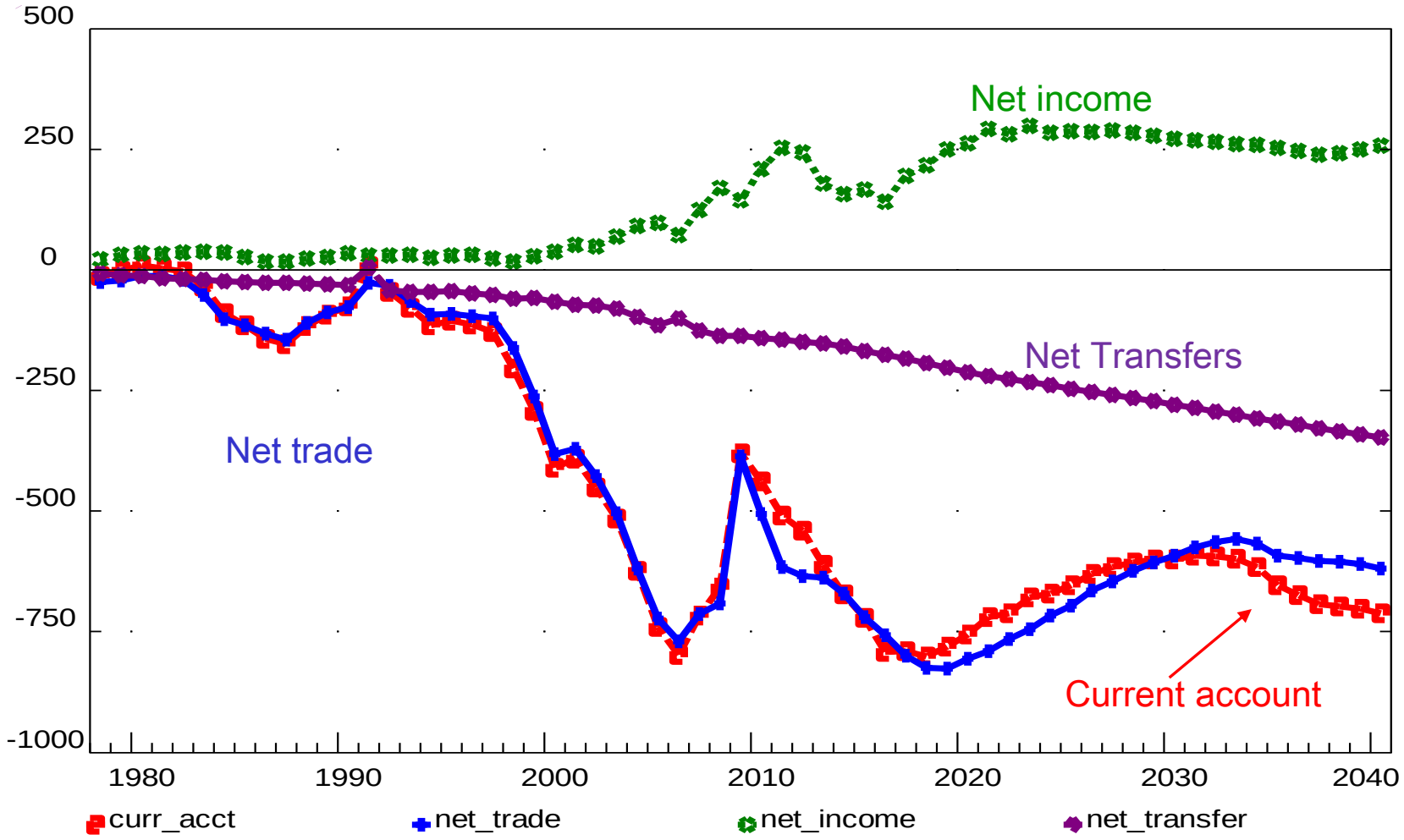
Household Savings Rate

Near term spurt because of deleveraging. More realistic expectations will drive slow consumption growth

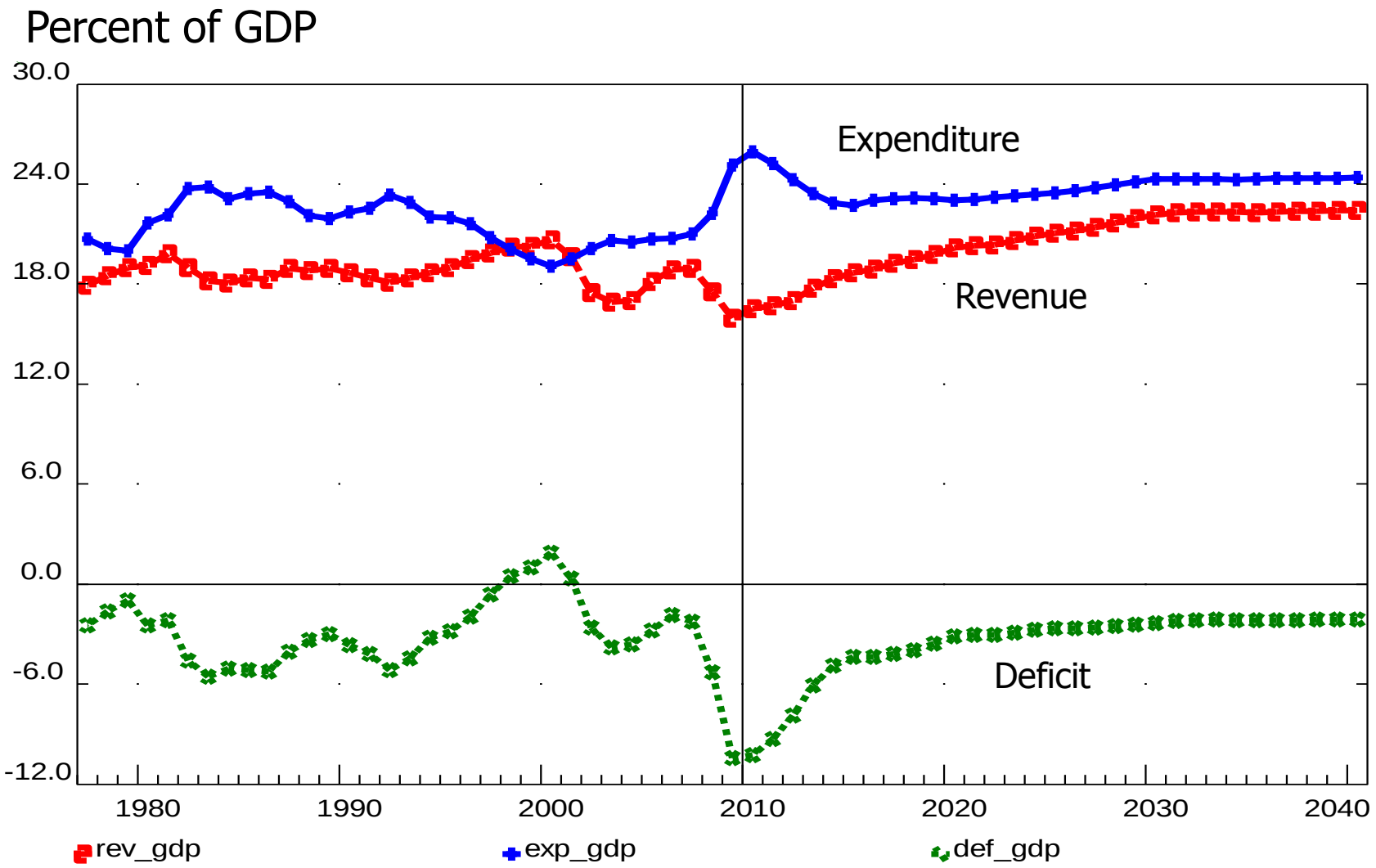


Current account deficit: soft landing

Billions of dollars

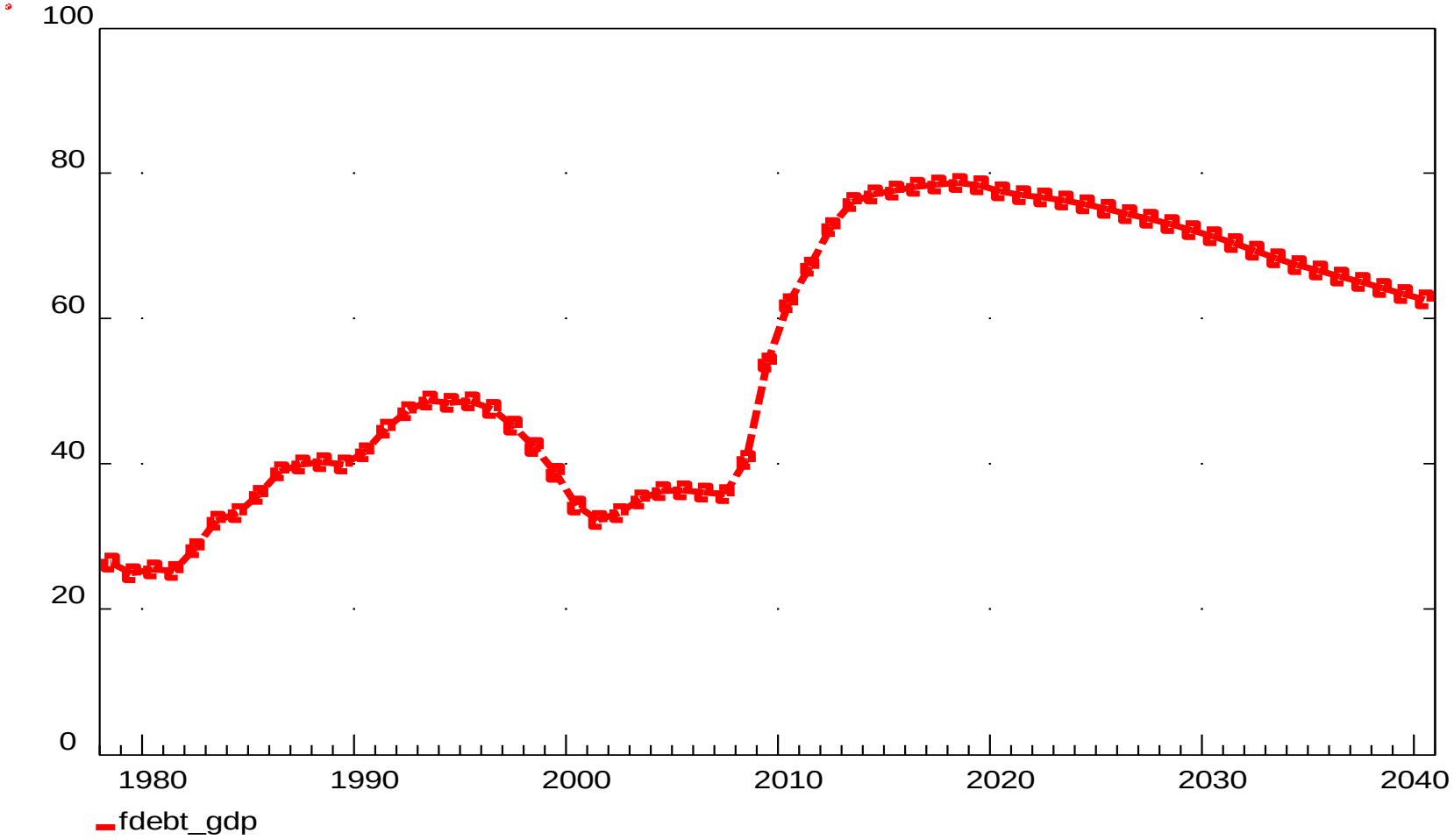


Federal expenditures, revenues and deficit



Federal Debt as percent of GDP

(Debt held by the Public)



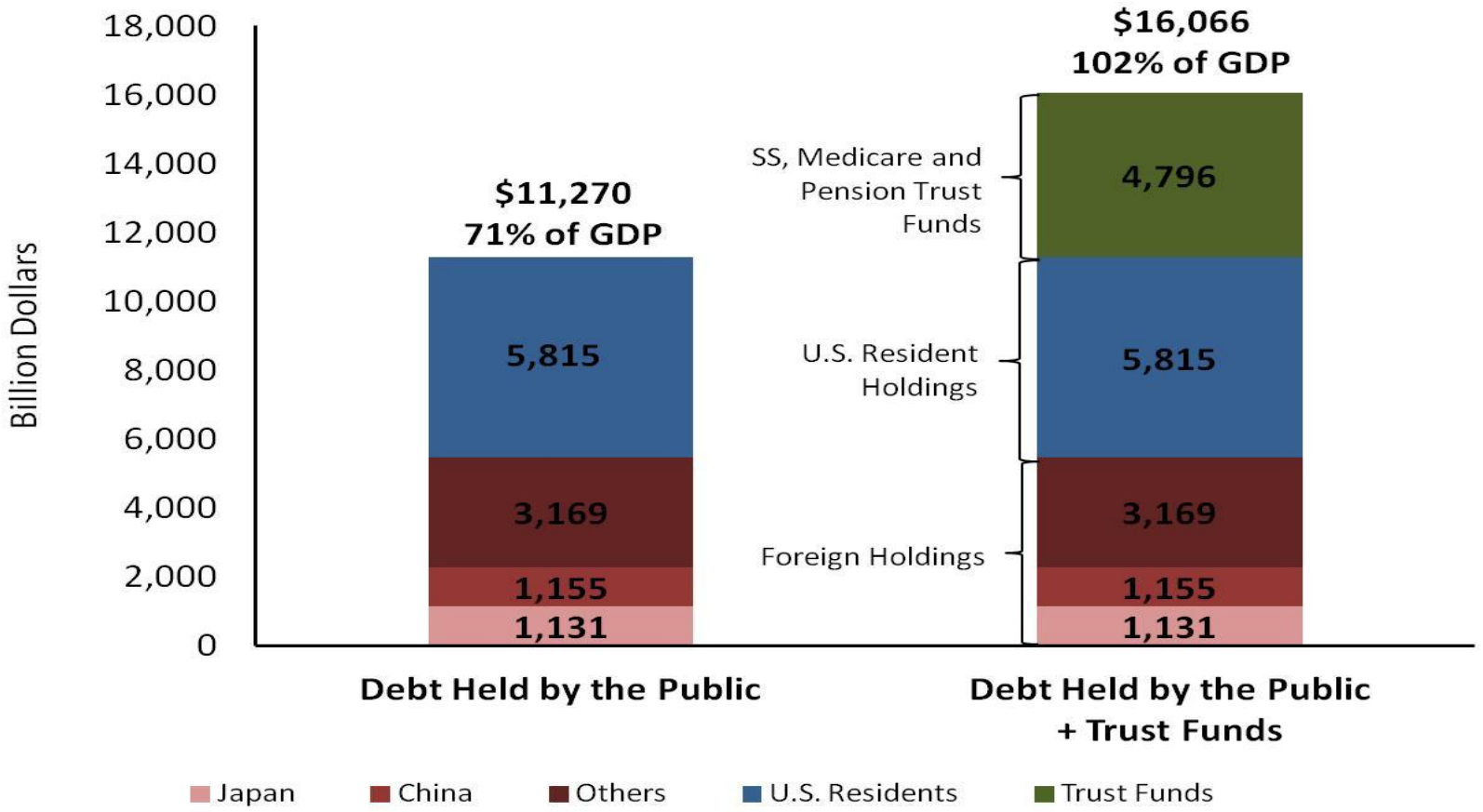
Reducing the Federal Deficit

Objectives and Method

- Stabilize debt/gdp (60% ?)
- Curtail discretionary spending growth, perhaps to level of inflation.
- Reform (reduce) entitlements. What do we mean by means testing?
- Comprehensive tax reform
- Cap expenditures/revenue at x% of GDP.
- Reform budget process.

Federal Net and Gross Debt ….

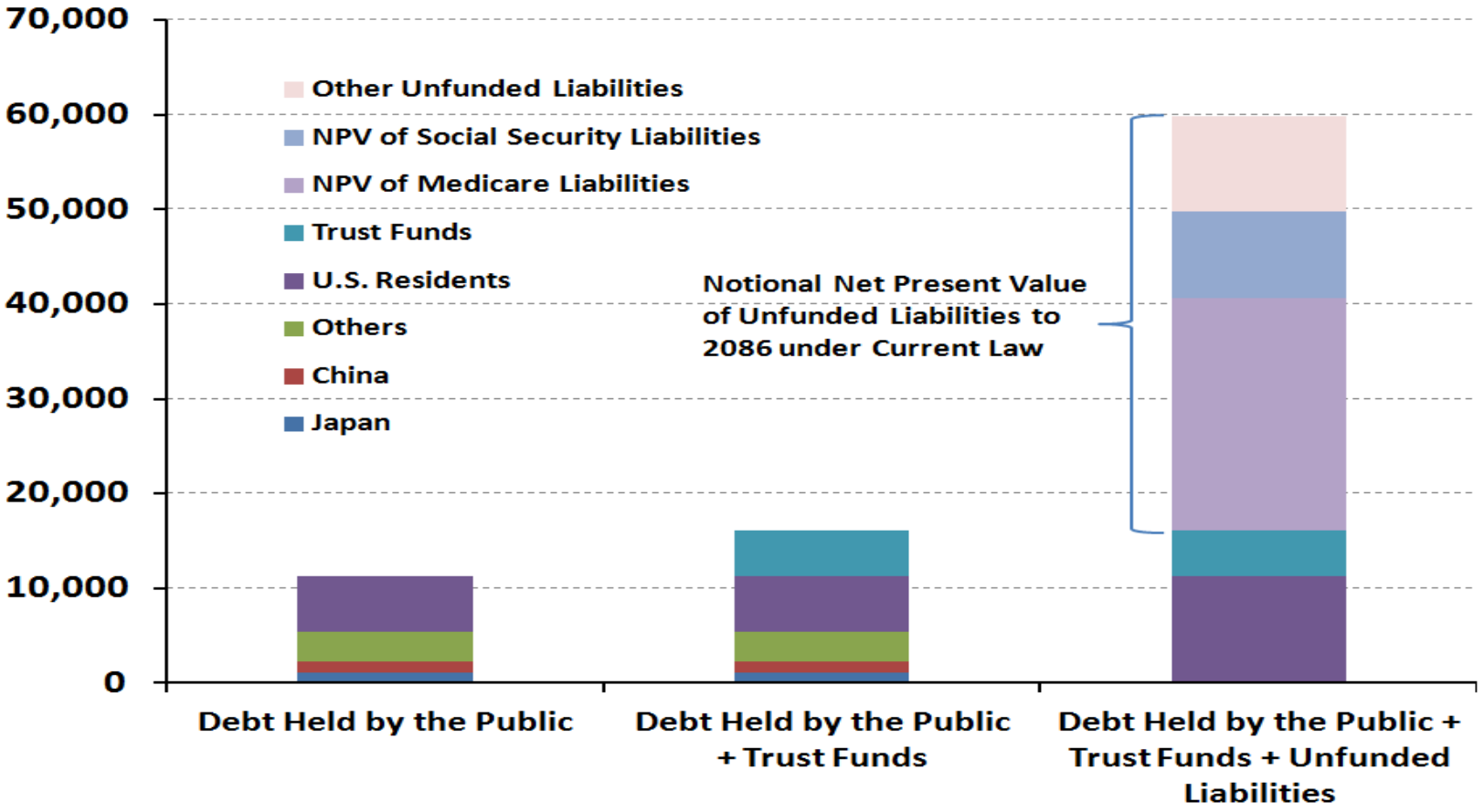
Accrued Debt Held by the Public plus Trust Funds (09/30/12)



Source: U.S. Treasury Department and Inforum Calculations

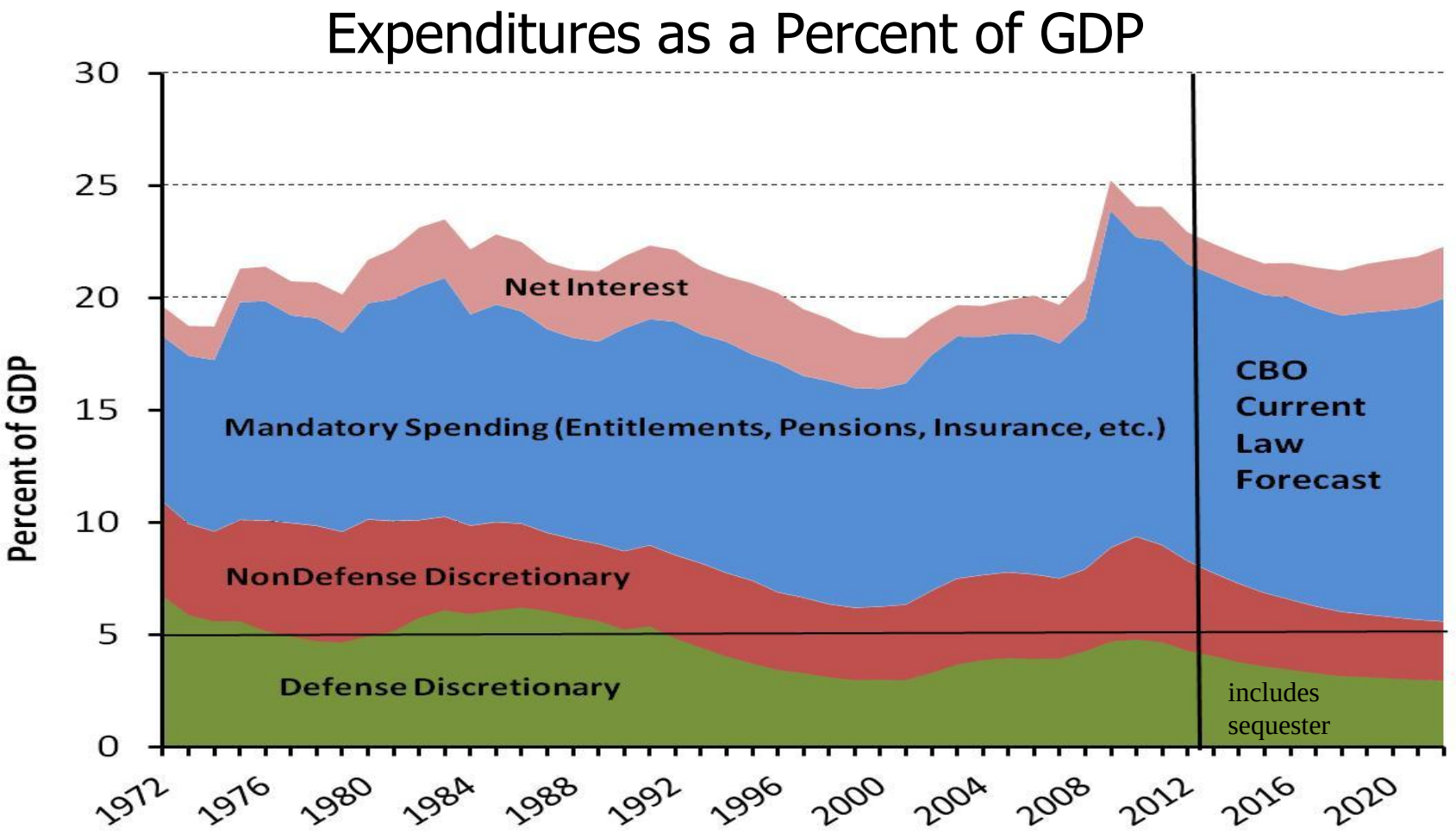
…do not cover accrued obligations.

Federal Debt + Trust Funds + Unfunded Obligations



Source: U.S. Treasury Department and Inforum Calculations

Federal Expenditures: Historical and Projected



Source: Congressional Budget Office, Baseline (Current Law) Budget Projection, August 2012

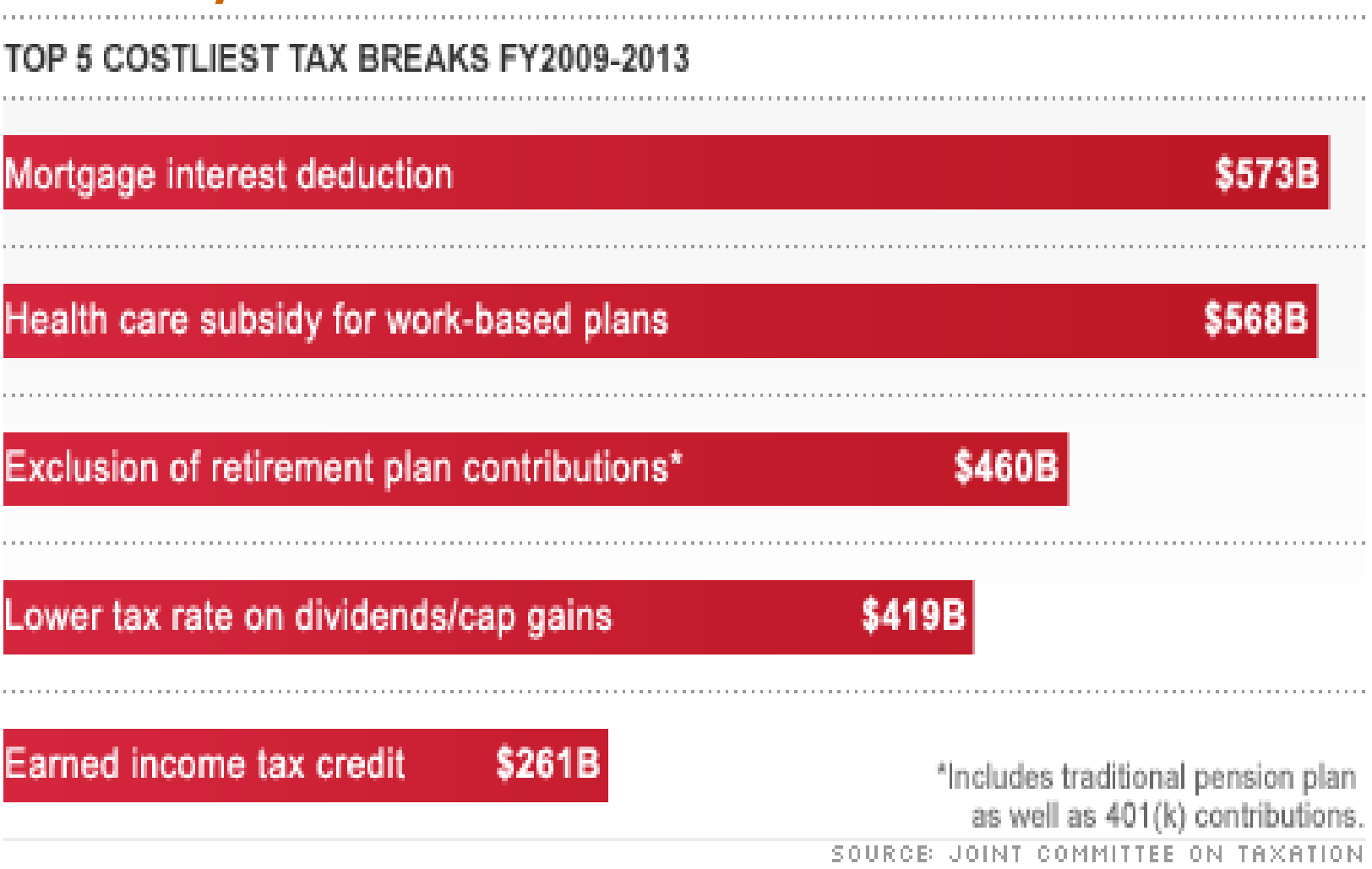
Level/Share of Federal Revenue is less relevant than how it is raised

- Establishing an arbitrary cap on expenditures and revenue (18, 21%, etc) is a bad idea.
- High marginal income taxes can retard growth. Corporate income taxes are very inefficient.
- Income exclusions for health care insurance, mortgage interest, and other goodies are extremely regressive and counterproductive. As are payroll taxes.
- Energy taxes should include externalities.
- Move away from taxes on capital and labor and toward taxes on consumption and energy (or carbon).
- Radical tax reform will be key to future.

Tax Reform: How can we tax labor and capital less and consumption more?

- Reduce/Eliminate tax expenditures, especially:
  1. Convert health care premium income exclusion to tax credit (voucher). (~$160 billion in FY2010)
  2. Phase out mortgage interest deduction (~$110 bill in 2010).
- Use proceeds to lower and flatten rates.
- Lower Corporate tax rates (phase out eventually)
- Unify rates across earned, dividends, capital.
- Best time ever for Higher energy taxes/Carbon tax!
- National Sales (RD) or Value Added Tax.

"Tax Expenditures"



Tax subsidies for health are unfair and boost (wasteful?) expenditures

Insurance	Employer Provided		Individual
Person	A	B	C
Premium Cost (including employers)	12000	12000	12000
Income	150,000	50,000	50,000
Tax bracket	30%	15%	15%
Tax subsidy	3600	1800	0
Net cost	8400	10200	12000

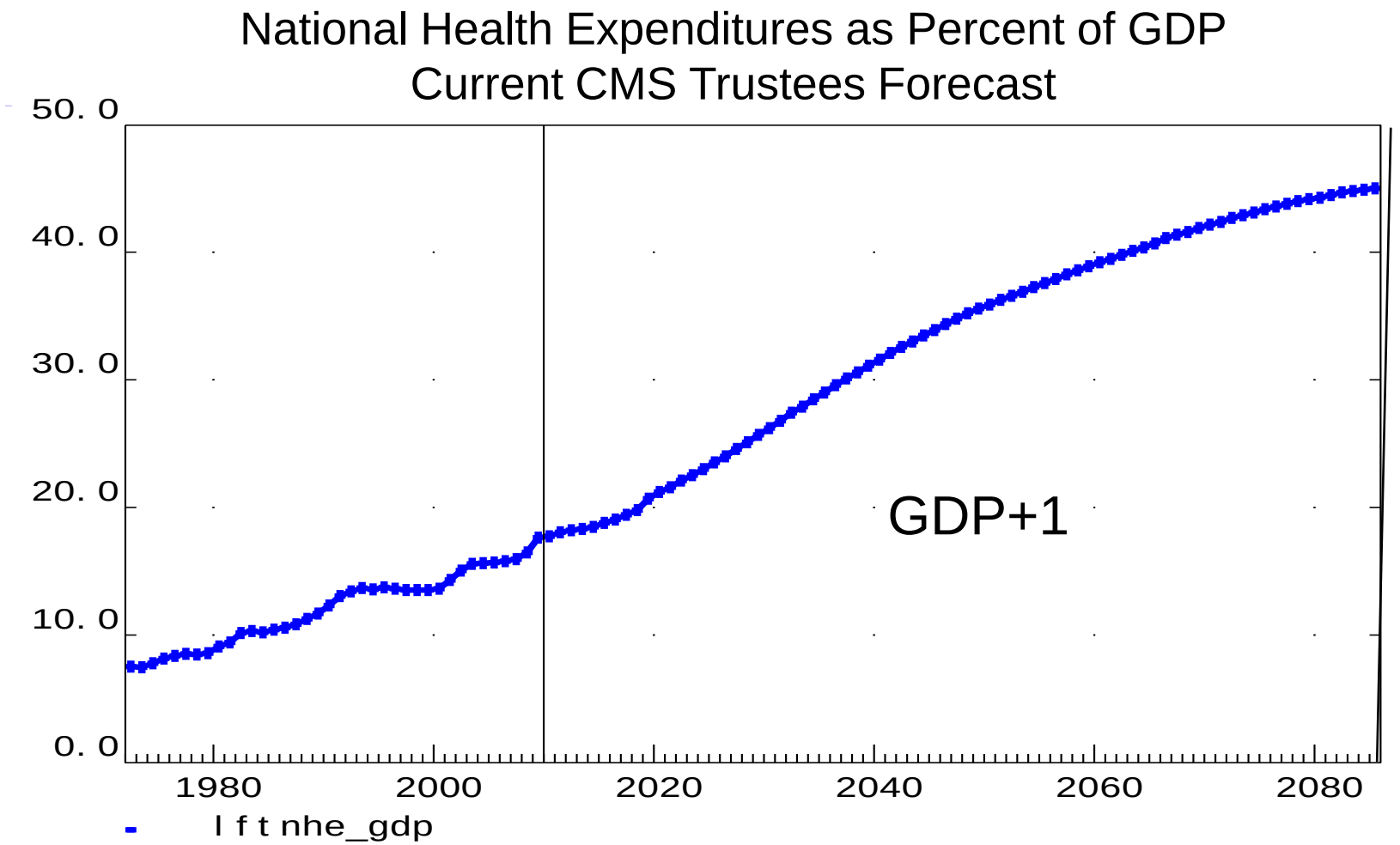
Entitlement Reform: Social Security

- Increase cap on payroll taxes.
- Change COLA to better reflect inflation.
- Reduce benefits for richest, strengthen safety nets for poorest.
- Increase retirement age.
- Cover new S&L workers.
- Little sentiment for private retirement accounts.

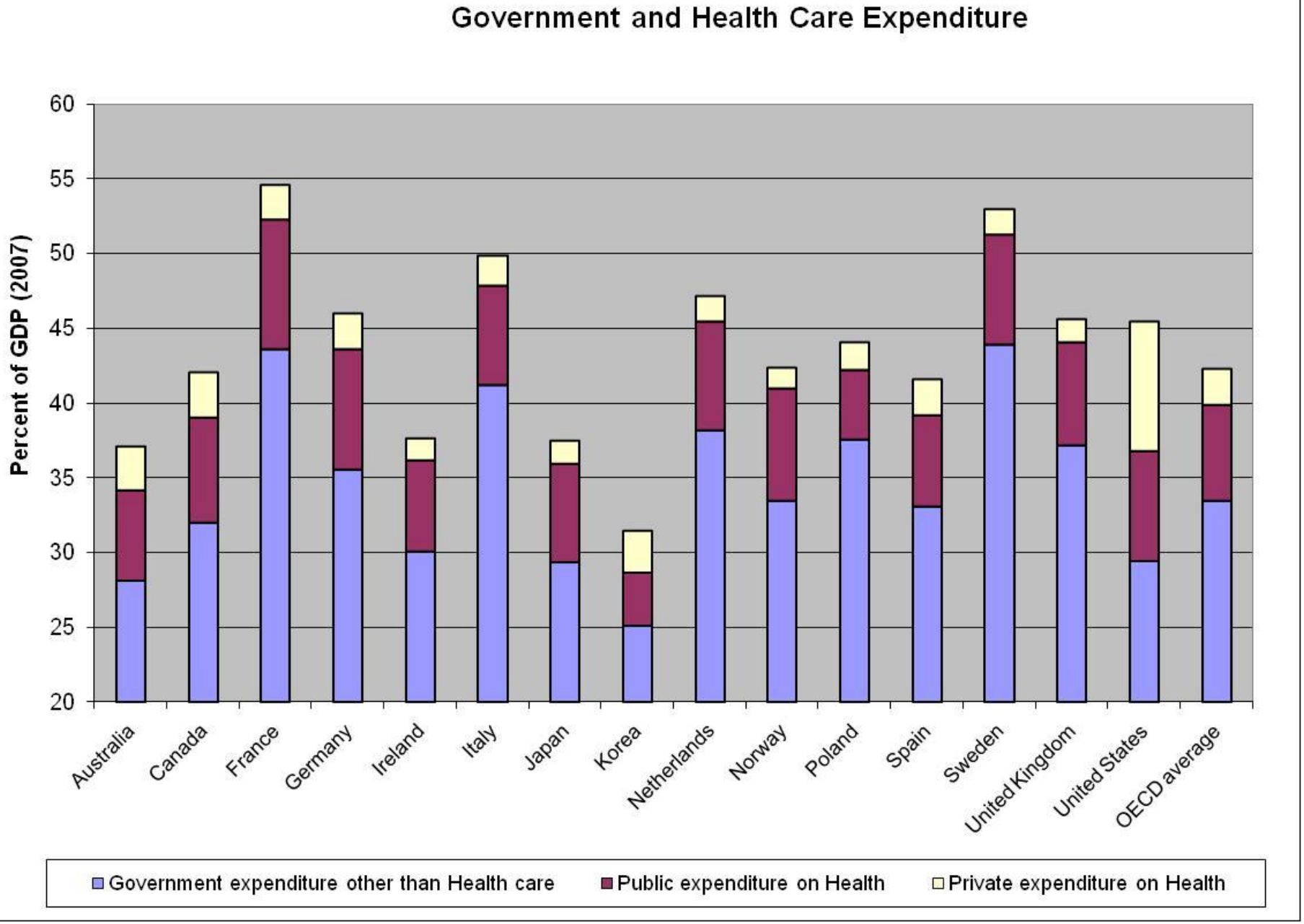
Health Care Reform: Common Elements to Two Approaches

	Democrats	Republicans
General Health Care	Private insurance, State exchanges, Premium support, No pre-exist conditions, Mandate & Means test	Private insurance, Current market system, Sell across states, No pre-exist conditions, Portability incentives
Medicare	Utility-style regulation (Command & Control) Integrated, proven care Electronic records Assume GDP+1	Fed/priv insurance, Federal exchanges, Premium support , Means & Health tests, Cap at GDP+1

In 21st Century, productivity in large, rapidly growing sectors will need to grow faster.

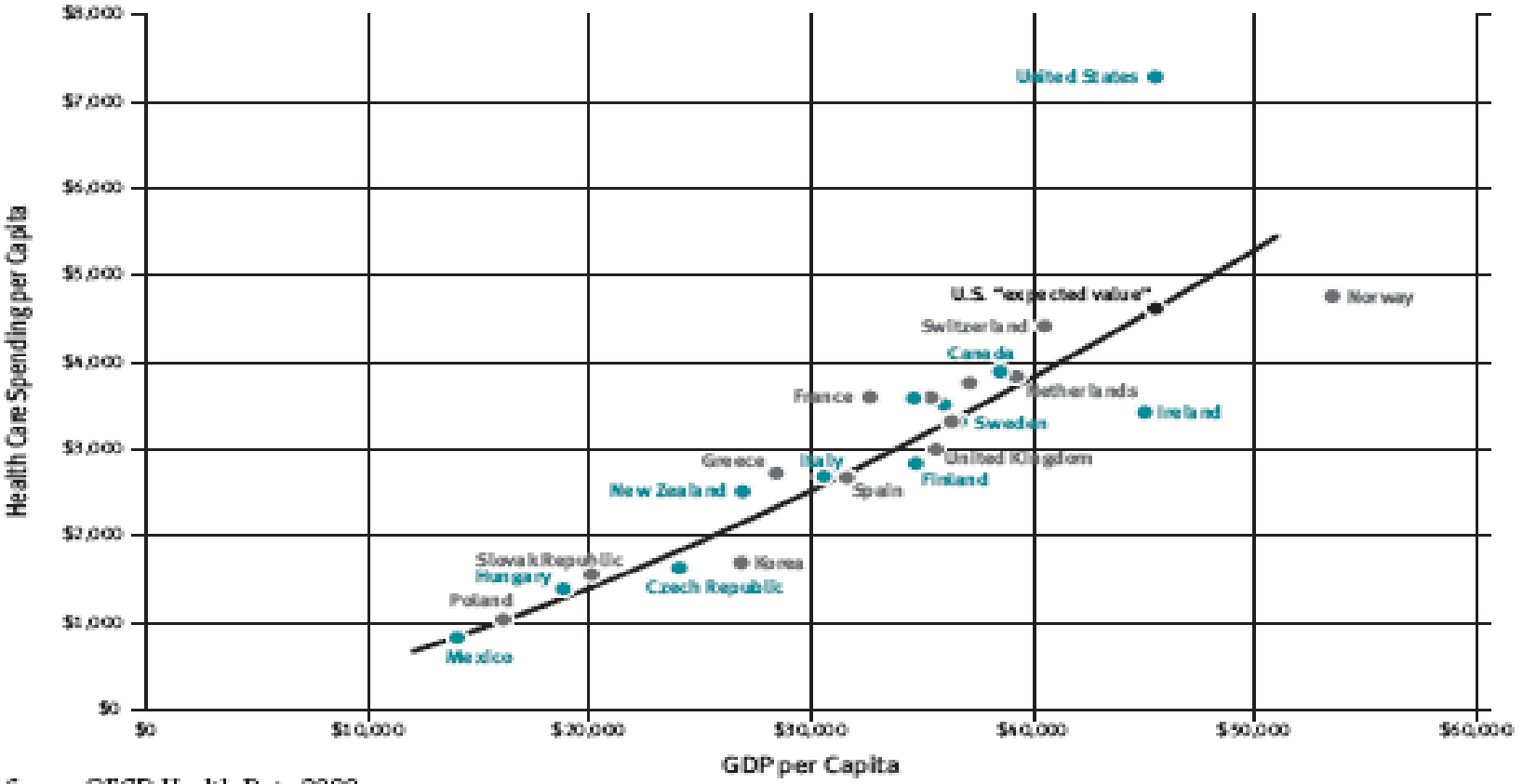


Source: https://www.cms.gov/ReportsTrustFunds/downloads/projectionmethodology.pdf


Government and Health Care Expenditure
Percent of GDP (2007)
60
55
50
45
40
35
30
25
20
Australia
Canada
France
Germany
Ireland
Italy
Japan
Korea
Netherlands
Norway
Poland
Spain
Sweden
United Kingdom
United States
OECD average
Government expenditure other than Health care
Public expenditure on Health
Private expenditure on Health

The U.S. pays much more for Health Care…

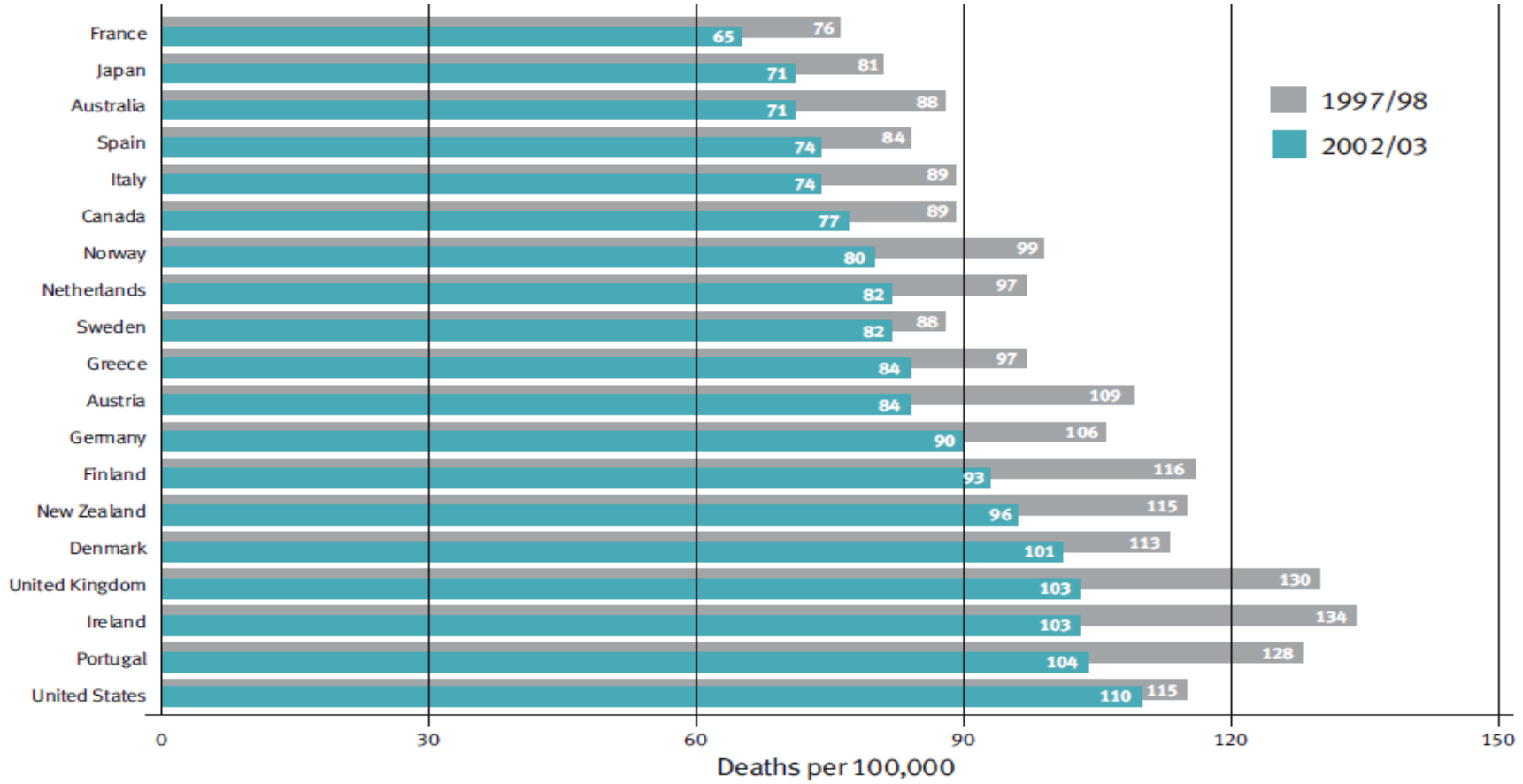
Figure B-4: Relationship between national income per capita and health care spending, OECD Countries, 2007



Source: OECD Health Data 2009

But health outcomes are generally inferior.

Figure B-3: Mortality amenable to health care, selected countries 1997 to 2003



Source: Nolte and McKee, 2008

Inforum Economic Outlook

Thank you!