

# Intermediate Macroeconomic Theory

Costas Azariadis

Lecture 11: Fiscal Policy

# Fiscal Policy

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## 1. FACTS & FIGURES

a) The gov't budget

-outlays

G (purch.)

TR(transfers)

INT (int. payments)

TR ~ Social Security

Pensions to gov't employees

Unemployment Insurance

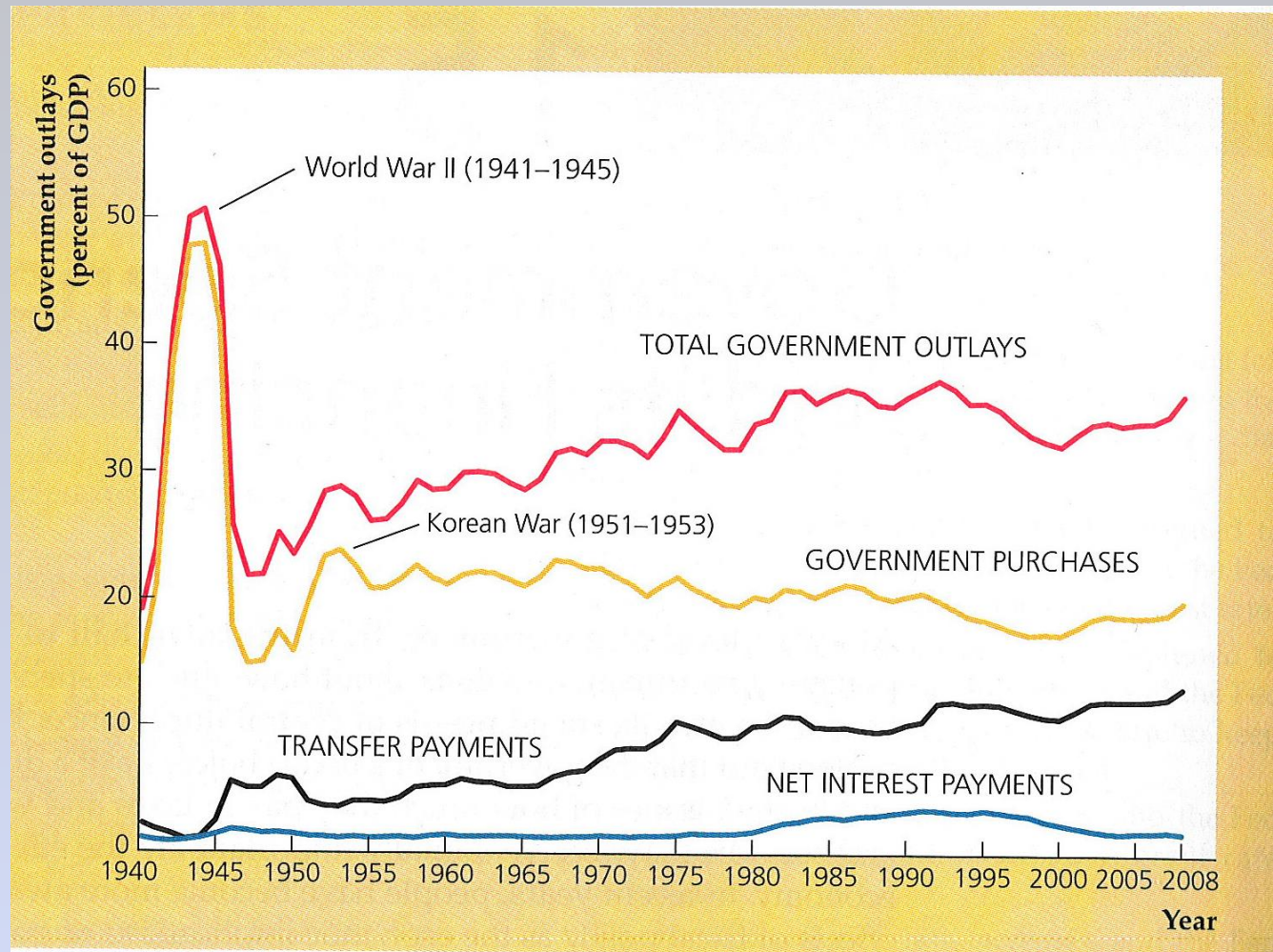
Welfare checks

Medicare

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# Fiscal Policy

## -Taxes

- personal: income & property  
(fed tax scale up to 39.6%)
- social insurance  
(s.s. 14.5% of first \$ 113,000 earned)  
(medicare 1.8% of all income)
- corporate taxes  
(36% on profit above some limit)
- sales taxes & property taxes  
(mainly used by local gov't)

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**Table 15.1**

**Government Spending in Eighteen OECD Countries,  
Percentage of GDP, 2008**

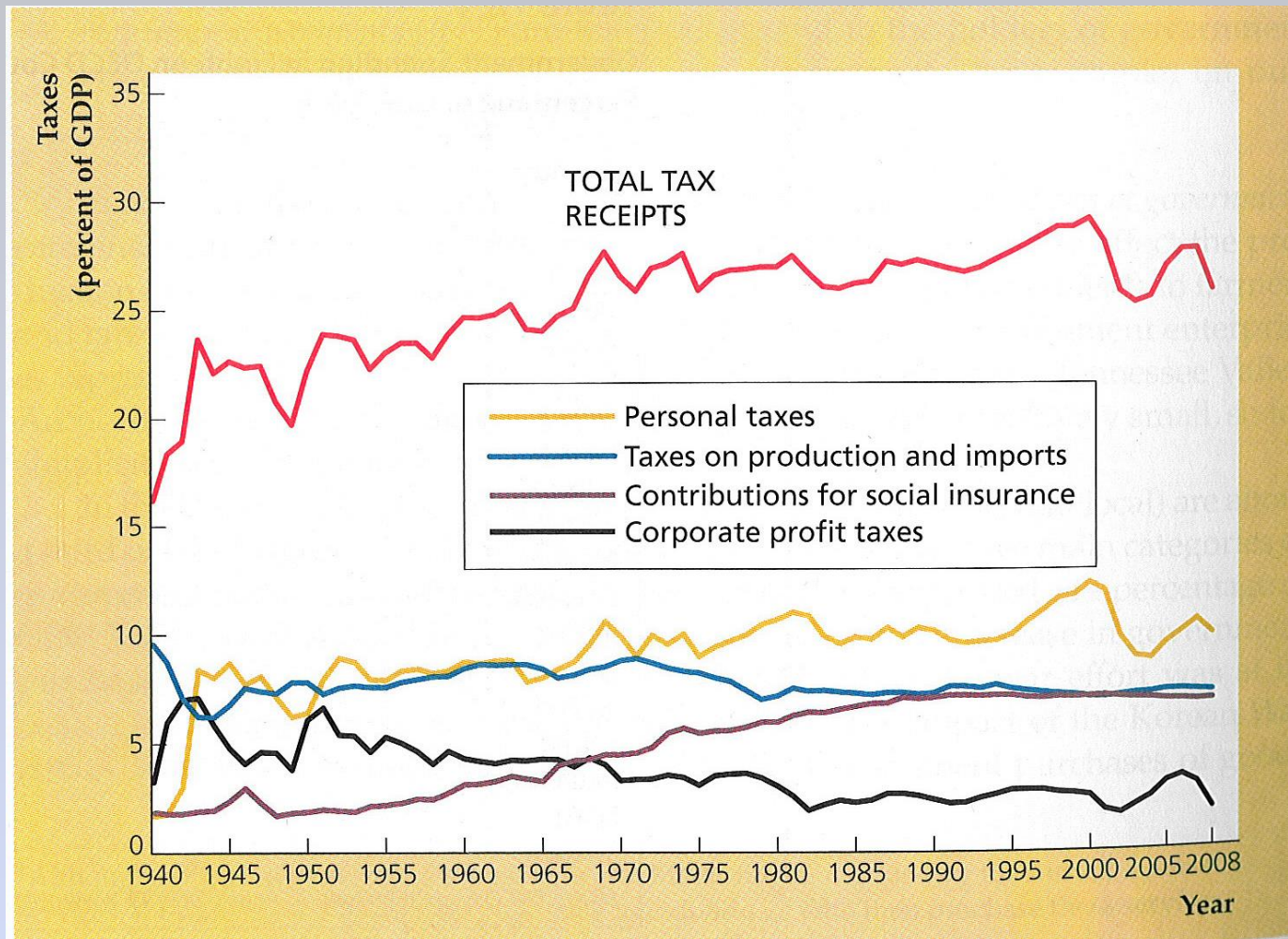
Country	
United States	39.0
Japan	37.1
Germany	44.0
France	52.7
Italy	48.7
United Kingdom	48.1
Canada	39.7
Australia	34.0
Austria	48.7
Belgium	50.0
Denmark	51.3
Finland	48.4
Greece	44.9
Iceland	57.7
Ireland	41.0
Netherlands	45.5
Spain	40.5
Sweden	51.9

*Source:* OECD Economic Outlook, Annex Table 25, [www.oecd.org](http://www.oecd.org).

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## c) Federal vs. State & Local

- most state spending on goods & services
- most fed spending on defense & transfers

## d) Total deficit vs. primary deficit

$$\text{Total} = \text{Primary} + \text{INT}$$

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**Table 15.2**

**Government Receipts and Current Expenditures, 2008**

	Federal		State and local	
	Billions of dollars	Percentage of current expenditures	Billions of dollars	Percentage of current expenditures
<b>Current expenditures</b>				
Consumption expenditures	934.4	30.9	1452.4	78.3
National defense	634.0	21.0	0.0	0.0
Nondefense	300.4	9.9	1452.4	78.3
Transfer payments	1448.9	47.9	455.0	24.5
Grants in aid	391.7	13.0	0.0	0.0
Net interest paid	272.3	9.0	40.5	2.2
Subsidies less surpluses of government enterprises*	-22.9	-0.8	-93.4	-5.0
Total current expenditures	3024.4	100.0	1854.5	100.0
	Federal		State and local	
	Billions of dollars	Percentage of receipts	Billions of dollars	Percentage of receipts
<b>Receipts</b>				
Personal taxes	1102.5	46.3	330.0	18.9
Contributions for social insurance	974.5	40.9	21.1	1.2
Taxes on production and imports	92.0	3.9	955.3	54.6
Corporate taxes	212.3	8.9	51.0	2.9
Grants in aid	0.0	0.0	391.7	22.4
Total receipts	2381.3	100.0	1749.1	100.0
<b>Current deficit</b> (current expenditures less receipts; negative if surplus)	643.1		105.4	
<b>Primary current deficit</b> (negative if surplus)	370.8		64.9	

\*Subsidies less surpluses of government enterprises, taxes from the rest of the world, dividends, rents and royalties, and transfer receipts

Note: Components may not add exactly to totals owing to rounding.

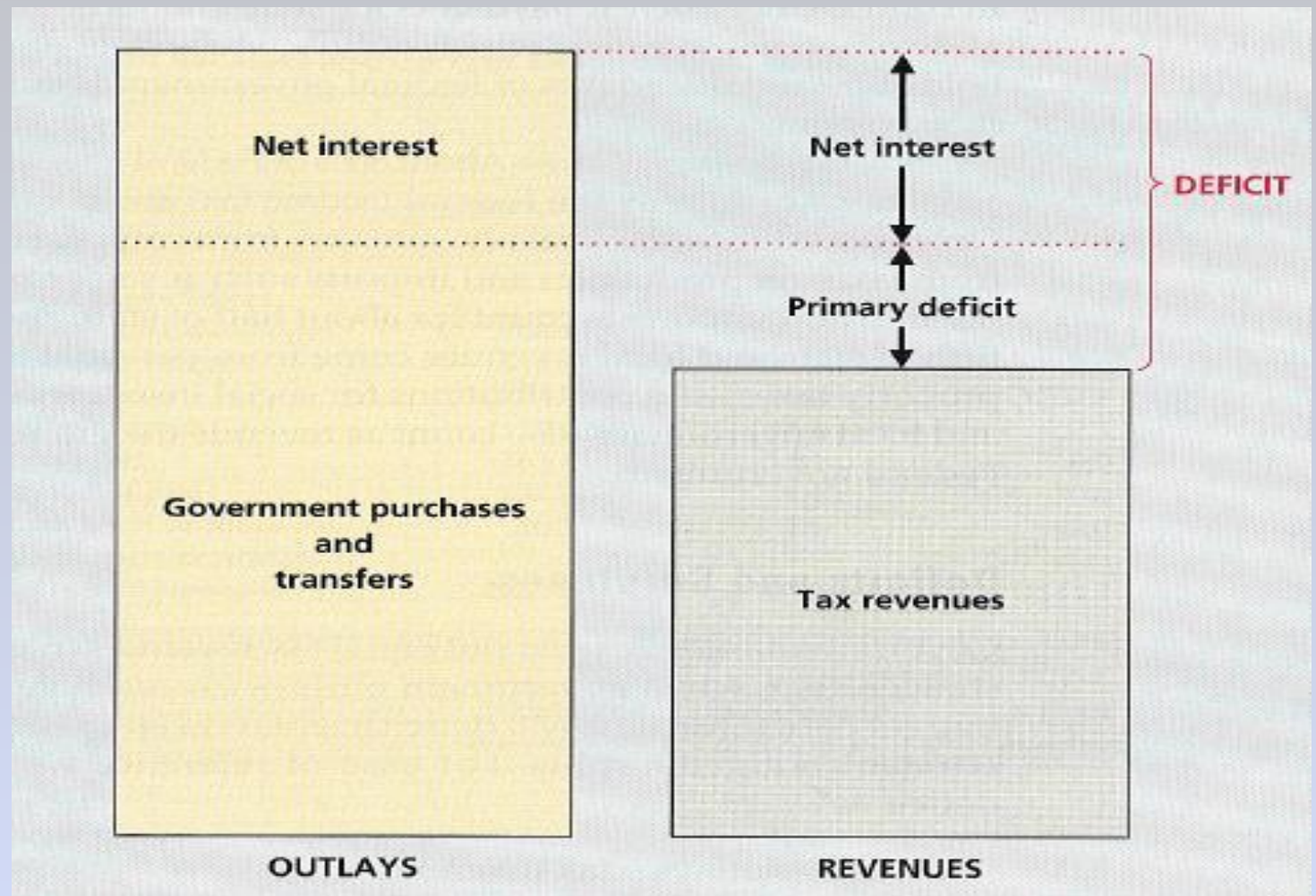
Source: BEA Web site, [www.bea.gov](http://www.bea.gov), Tables 3.2, 3.3, and 3.9.5.



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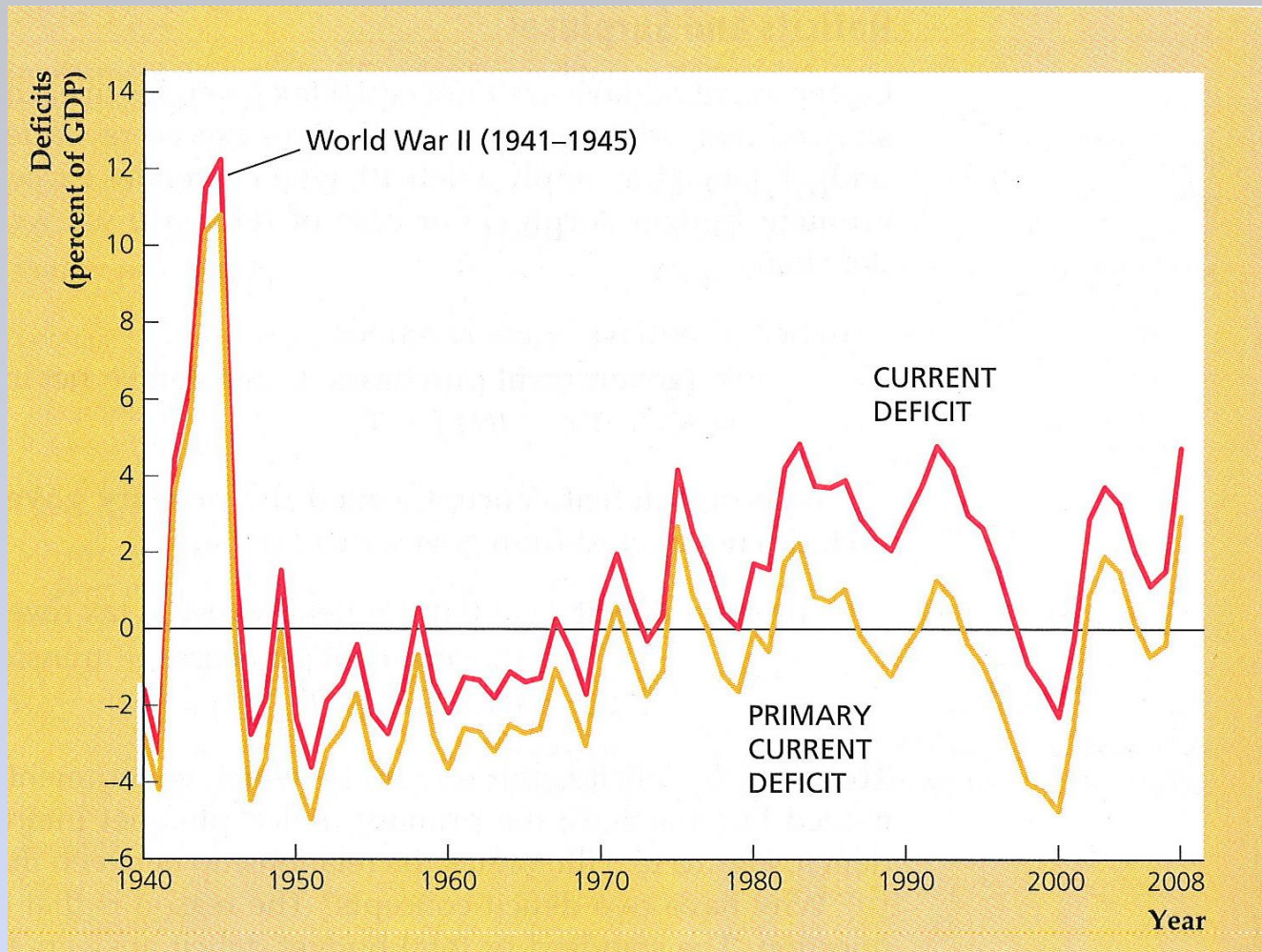


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Balanced budgets 1945-1970, 1997-2001



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## 2. FISCAL POLICY & PRIVATE INCENTIVES

a) Q: Does gov't spending encourage or displace private economic activity?

Old issue but still timely Bone of Contention between

- conservative & liberal creeds
- business & intellectual elites
- developed trading nations & emerging protectionist ones

b) The good, the bad & the ugly

- **GOOD:** gov't capital (highways, airports, schools, hospitals)  
contributes powerfully to economic growth

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Spain joins EU in 1985, gets e 185 bn subsidies, spent mostly on infrastructure.

Economy booms in 1990's, catches up to Italy in p.c. GDP

- **BAD**: High marginal income tax rates in EU reduce growth in Europe through 1980's & 1990's  
(tax rates up to 50%; highest bracket kicks in at e 50,000 p.a.)  
∴ Japan, Singapore, H-K reach or surpass most of Europe.
- **UGLY**: completely nationalized economies, e.g. Russia:  
1918-1991  
Romania: 1947-1991

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Per capita income	1907	2007
$\frac{\text{Russia}}{\text{Italy}}$	.70	.30
Per capita income	1947	2007
$\frac{\text{Romania}}{\text{Italy}}$	.70	.20

( Note: Italy is a slow-growth nation)

∴ Important lessons

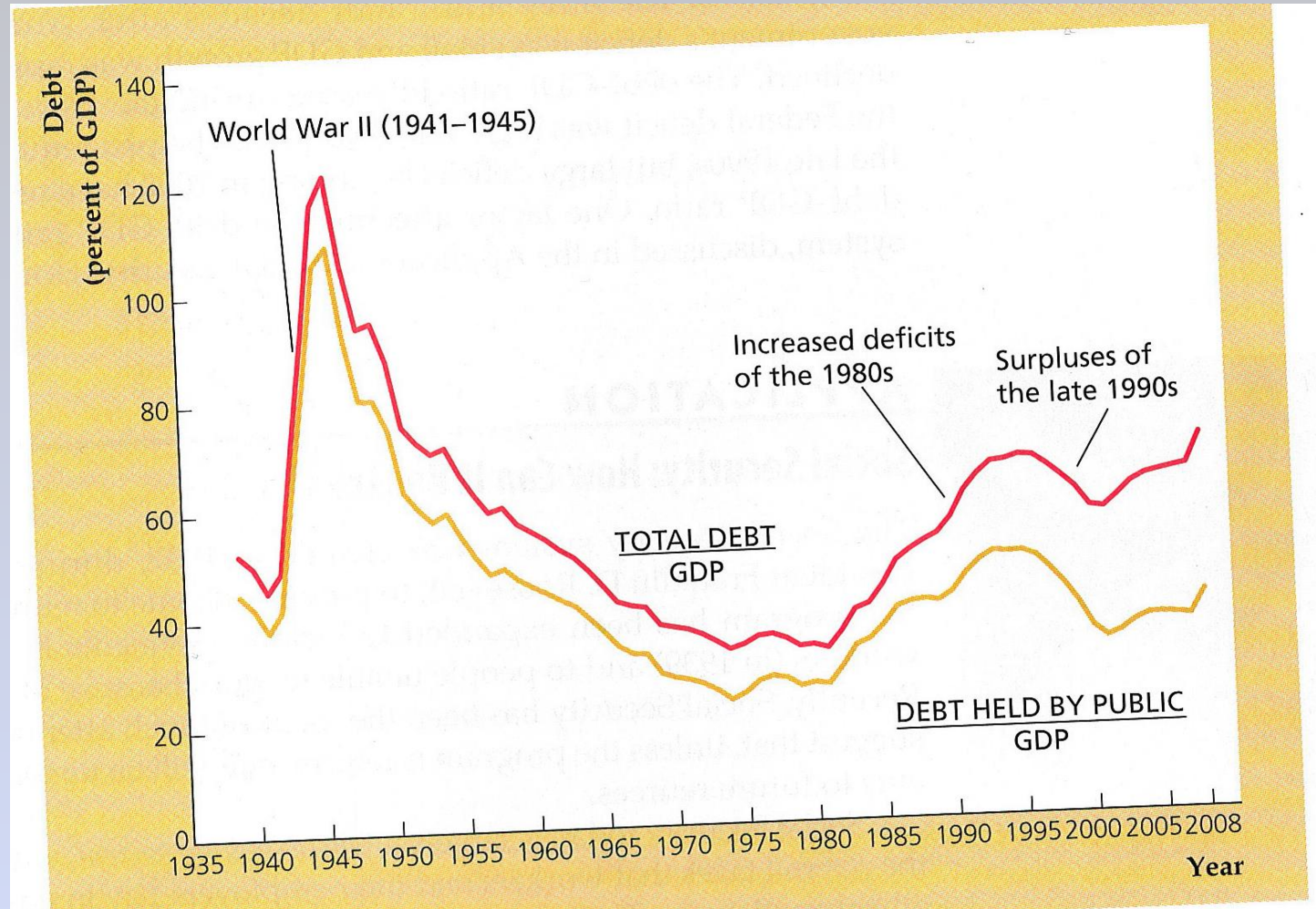
- Do not tax too much
- If you have to raise taxes, be careful not to damage private incentives too much.



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# Fiscal Policy

## 3. DEFICITS & NATIONAL DEBT

- a) Q: How fast should we expect the Federal debt to grow in the next few years?
- b) A simple computation

$B_t$  = public debt

$Y_t = (1 + g)Y_{t-1}$  GDP grows at constant rate  $g > 0$

that does not depend on fiscal policy

$D_t$  = public deficit =  $\delta Y_t$  ( $\delta < 0$  means surplus or “austerity”)

$\delta \equiv$  fiscal policy variable  $= \frac{D_t}{Y_t}$

suppose real interest yield is constant  $R_t = R = (1 + r)$

$r$  does not depend on fiscal policy

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$$\text{Let } \frac{B_t}{Y_t} = \frac{\text{federal debt}}{GDP} \equiv b_t$$

Then note:

$$B_{t+1} = RB_t + D_t = (1 + r)B_t + \delta Y_t \quad (*)$$

Divide both sides by  $Y_t$ :

$$\frac{B_{t+1}}{Y_{t+1}} * \frac{Y_{t+1}}{Y_t} = \frac{(1+r)B_t}{Y_t} + \delta$$

$$(1 + g)b_{t+1} = (1 + r)b_t + \delta$$

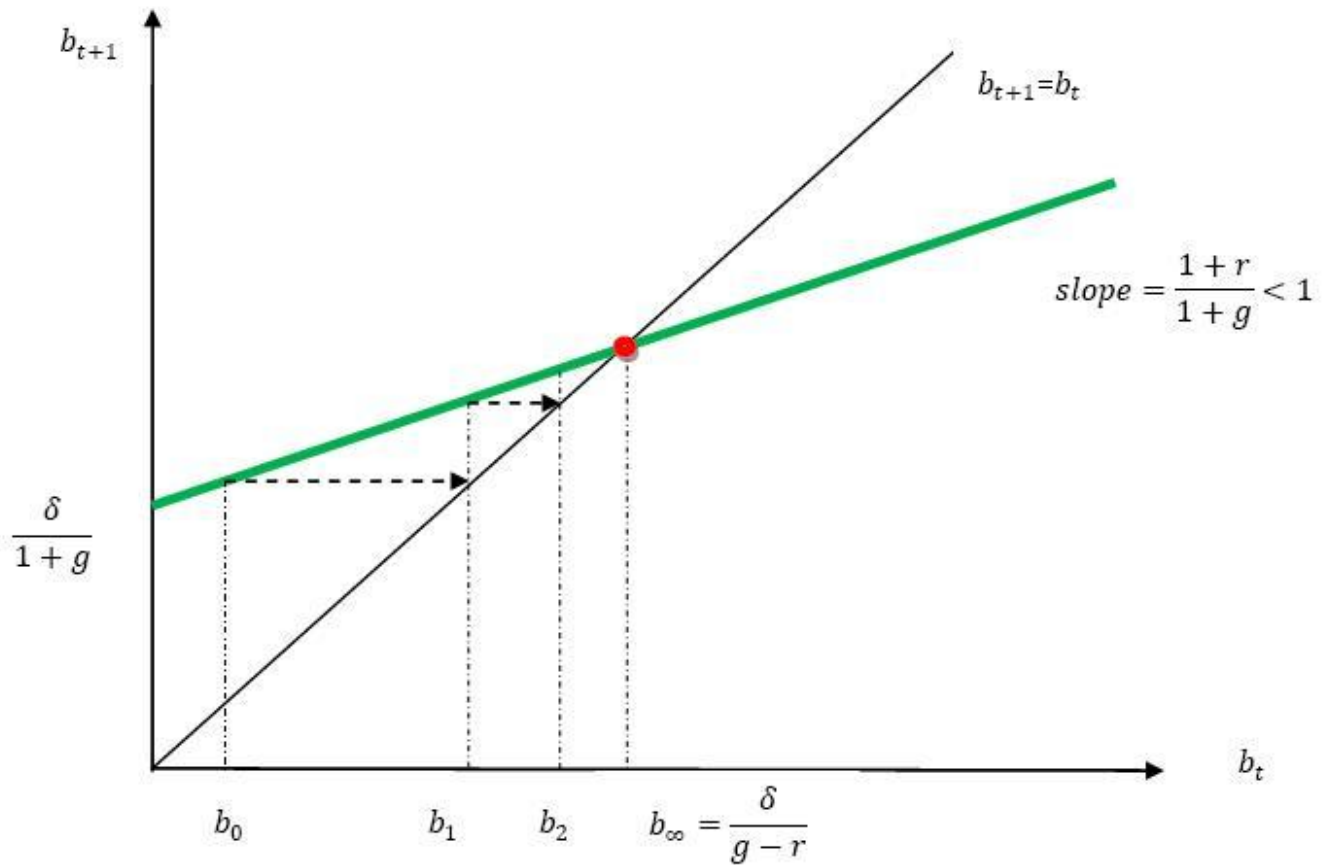
$$b_{t+1} = \frac{1+r}{1+g} b_t + \frac{\delta}{1+g} \quad (**)$$

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c) A good economy:  $g > r$



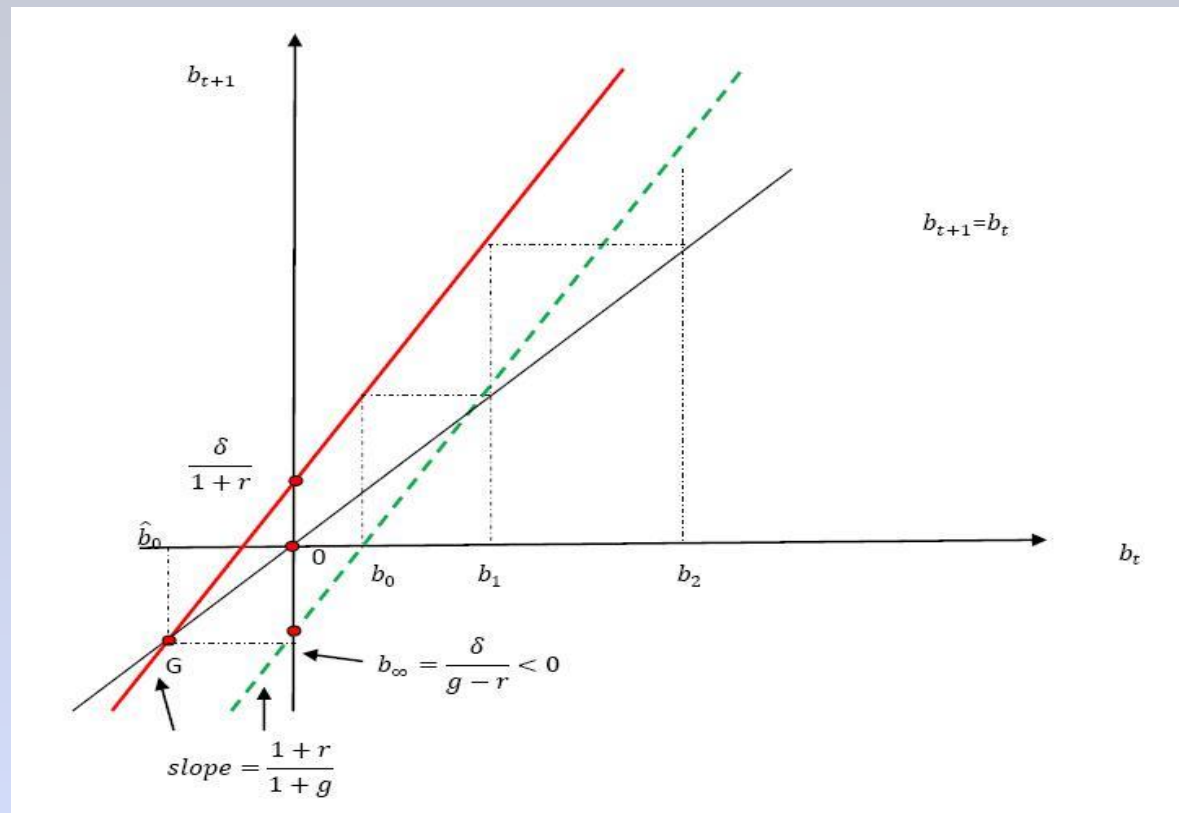
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This solution occurs if  $\delta$  is “not too big,”  $b_0$  is “not too big” so that  $r$  stays below  $g$  (fast growing, fiscally prudent economy)

d) A bad economy:  $r > g$



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For any  $b_o \geq 0$ , the  $\frac{debt}{GDP}$  ratio will go to infinity:

$\lim_{t \rightarrow \infty} b_t = +\infty$ , which cannot happen.

What must happen instead follows the green broken line:

- fiscal policy must change to a surplus that lowers  $b_o$  to 0 and then goes to  $\hat{b}_0 < 0$  (point G).

When G is reached we switch to a balanced budget.

- fiscal policy starts with  $b < 0$  and keeps  $\delta < 0$ .

Conclusion: If  $g < r$  and  $b_o > 0$ , fiscal policy must be temporary.

Otherwise  $b_t = \frac{B_t}{Y_t}$  will grow even more, driving up  $r$  and making things worse.

(Example: Greece 2004-10)

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## 4. IS PUBLIC DEBT A DRAG ON THE FUTURE?

### a) Burden of the debt: Views

-U.S. public debt owned mostly (but not totally) by U.S. households →  
debt no burden?

“We owe it to ourselves.”

-Taxes that service interest payments distort economy →  
debt is burdensome

-Debt & deficits reduce national saving, increase payments to foreigners, reduce  
future std of living → crowding out

### b) Empirical issues: Do heavily indebted nations grow slower?

(Reinhard & Rogoff, 2011: Yes if debt-to-GDP above .90; not otherwise)

High debt → less capital → slower growth

Other growth drivers (R&D, good governance, patience) may overcome large  
public debt.



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## b) Ricardian Equivalence

Public debt (to pay for tax cut) does not reduce national saving.

Decline in gov't saving **exactly offset by** rise in private saving

→ debt not a burden

## c) Generational issues

Q: Who gets the benefits from a tax cut? Who pays the piper in the future?

If beneficiaries are a different generation from those who will retire current debt?

Then public debt is an inter-generational transfer, just like social security.  
Pure transfers to retirees heart saving.

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## 5. SOCIAL SECURITY: DO WE NEED TO RESCUE THE SYSTEM?

The aging of America. Projected deficit  $\approx 1.5\%$  of GDP in 2034

To maintain benefit, need to raise revenue from 9.1% of labor income now to 14.5% in 2030

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Current system is PAYG:

Retirement pensions = current S.S. contribution

ROR on S.S. contributions  $\approx$  Rate of Population growth on average  
 $\approx$  1% per year

(less for high-income people; more for the poorer ones)

**Silver bullet: Privatize S.S. in part.**

Let people's contributions be invested in mutual funds of their own choice

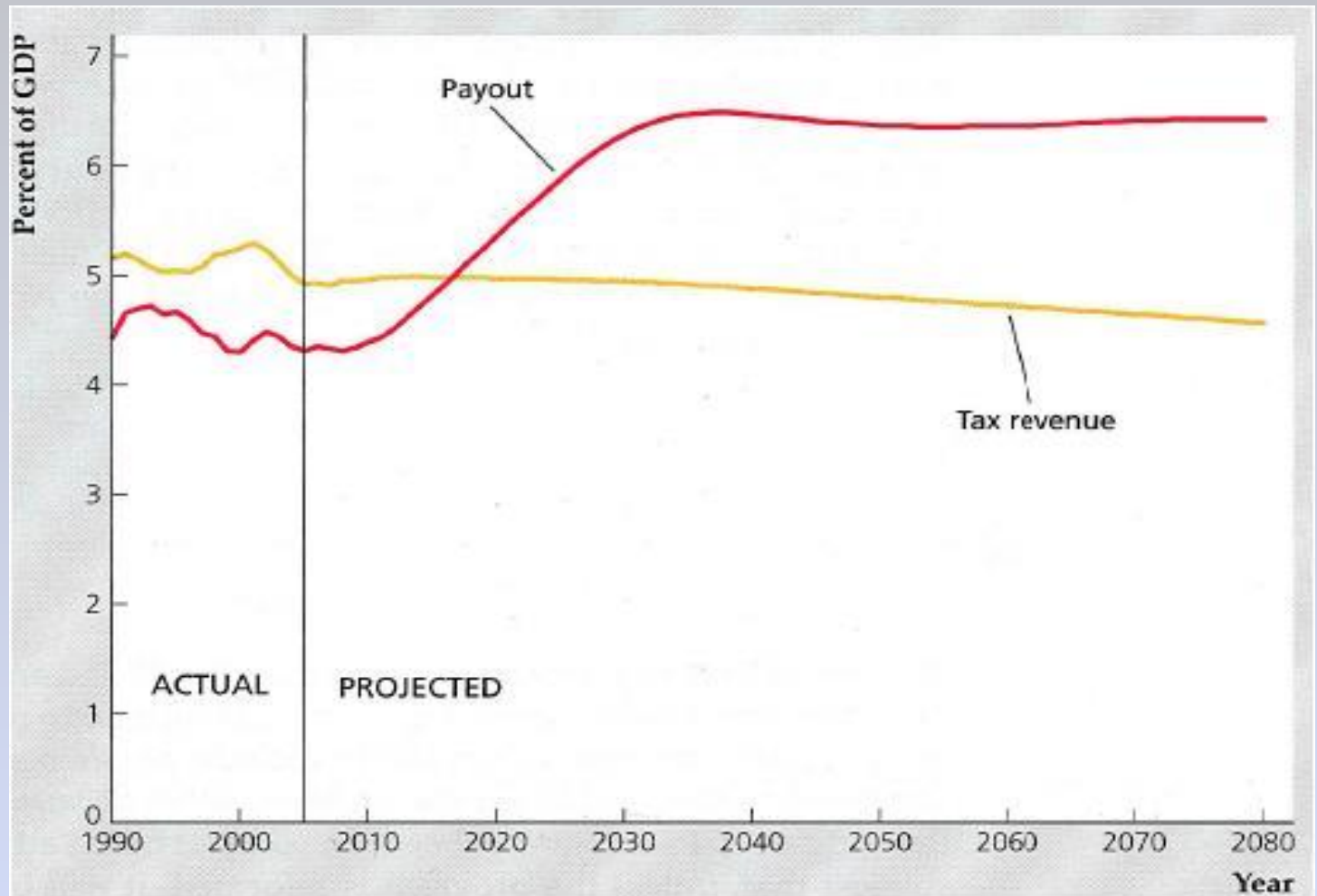
Long-run ROR on stocks = 7%

Long-run ROR on bonds = 2%

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## Downsides:

-adjustments: if current contributors invest in markets,  
who pays **my pension?**

-risks: if stock market crashes:

**what happens to my pension?**

How would a privatized SS system work? (Examples: Chile, Sweden)

- Gov't guarantees base pension paid for out of taxes.
- Supplemental pension is private. Payouts vary with stock market returns. Gov't taxes returns in successful year, subsidizes returns in bad years.
- Moral hazard problem when Gov't buys and sells stocks.