Principles of Economics

Dr. Edilberto Segura
Partner & Chief Economist, SigmaBleyzer
Chairman of the Board, The Bleyzer Foundation

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THE BLEYZER FOUNDATION
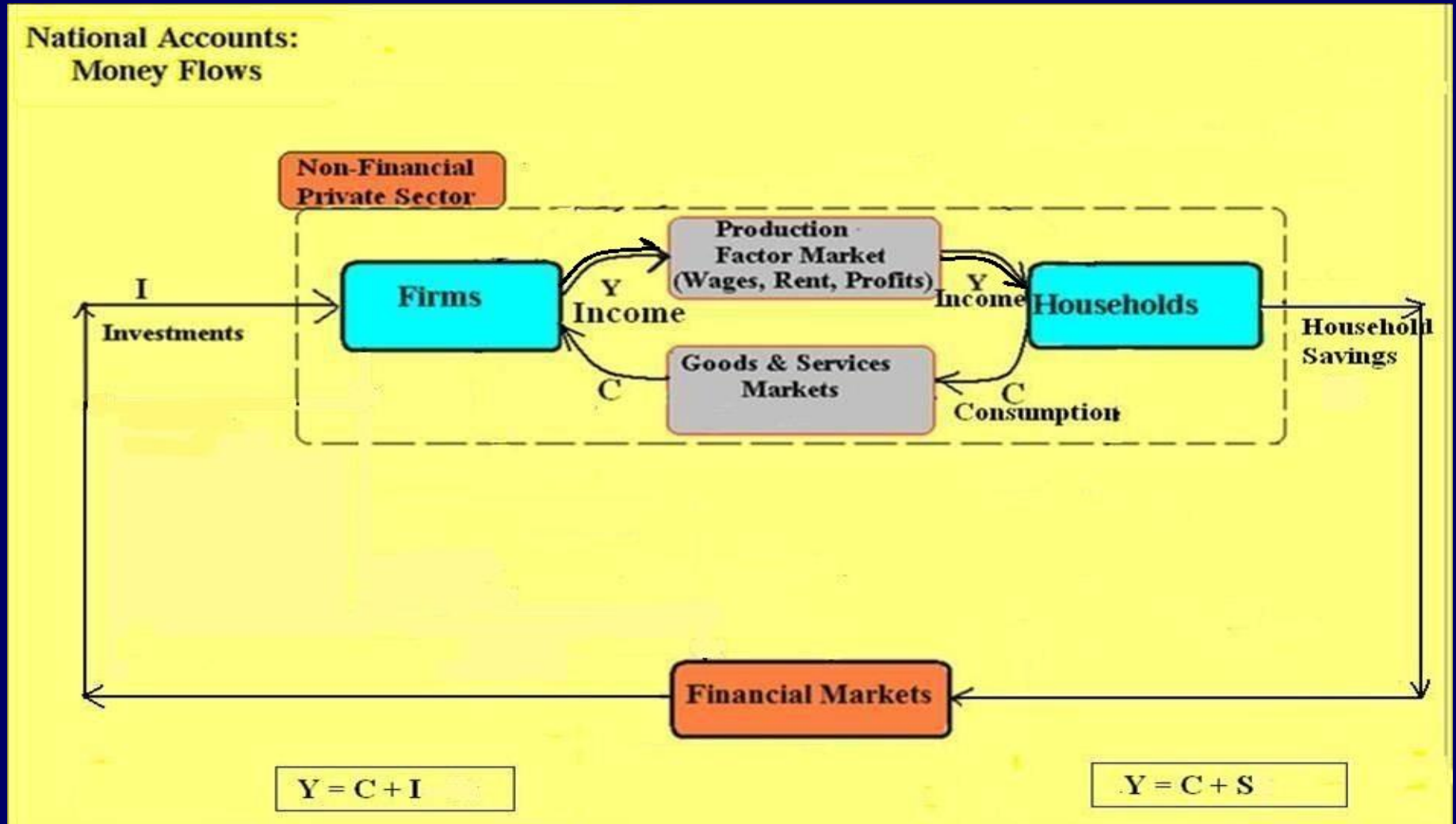Turning Transitions Into Prosperity

Economics

- **Economics** is the social science that studies the optimal decisions and choices in the **utilization of scarce resources** (money, manpower, raw materials, land) in a way that most effectively achieve **society's desires** for consumption, production, and distribution of goods and services.
- Economics has little to say about the optimal distribution of this wealth and related issues of equity, which fall in the domain of Political and other social sciences.
- The term *economics* comes from the Ancient Greek *oikonomia,* ("management/administration of a household").
- It has three main branches:
  - **Macroeconomics,** which analyzes the **entire** country economy and issues affecting it, including **economic growth**, **unemployment, and inflation**, and the use of **fiscal and monetary policies** to optimize them.
  - **Microeconomics,** which examines the behavior of basic elements in the economy, including individual agents (such as households and firms or as buyers and sellers) and markets, and their interactions.
  - **International Economics,** which has two sub-branches: *International Trade and International Finance.* International trade studies the determinants of flows of goods-and-services across international boundaries and the gains from trade. International finance examines the flow of capital across international borders, and the effects of these movements on exchange rates and investments. Increased trade in goods, services and capital between countries is a major effect of contemporary globalization.

Macroeconomics

- The macroeconomic size of a country is defined by the total amount of goods and services produced in a given year.
- This total output is called **Gross Domestic Product (GDP).**
- The payments for these goods and services represent **Income (Y).**
- In calculating GDP, only Value-Added by each firm is included (not total sales), in order to eliminate duplications (that is, the production of tires and batteries is counted, but they are not included in the figures for cars).
- GDP is calculated by adding various Expenditures:
  - **Consumption** by the private sector (C)
  - **Investments** by the private sector (I)
  - **Government** consumption (G)
  - **Net Exports** [exports (X) minus imports (J)] which is net foreign consumption of our products.
- Therefore: **GDP = Y = C + I + G + X - J**
- GDP can also be calculated on the Production side by adding the value-added of Agriculture, Manufacturing, Construction, Trade, Education, Services, etc.
- A third GDP calculation is made on the Income side, involving the adding of all wages, salaries, rents, interest, profits earned during the period.
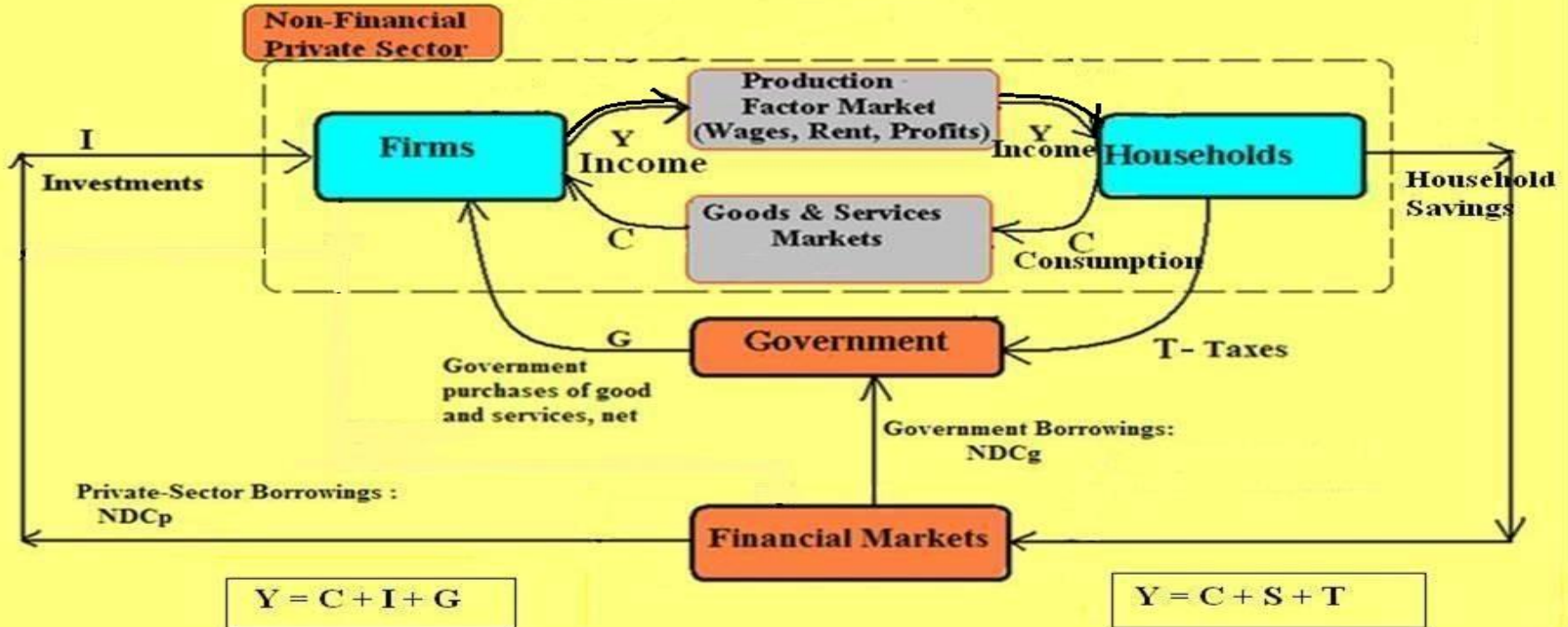
GDP: National Accounts
(Initially, without Government and External Sectors):

National Accounts: Money Flows

Non-Financial Private Sector

I — Investments

Firms

Y Income

Production Factor Market (Wages, Rent, Profits)

Y Income — Households

Goods & Services Markets

C

C Consumption

Household Savings

Financial Markets

$Y = C + I$

$Y = C + S$

$$Y = C + I \; ; \quad Y = C + S \quad \rightarrow \quad C + I = C + S \rightarrow \quad \mathbf{I = S}$$

Now we introduce the government sector, but without the external sector.

National Accounts:
Money Flows

Non-Financial
Private Sector

Production
Factor Market
(Wages, Rent, Profits)

Firms — Y Income — Y Income — Households

I Investments

C — Goods & Services Markets

C Consumption

Household Savings

G — Government — T – Taxes

Government purchases of good and services, net

Government Borrowings: NDCg

Private-Sector Borrowings : NDCp

Financial Markets

$Y = C + I + G$

$Y = C + S + T$

$Y = C + I + G\ =\ C + S + T\ \rightarrow\ (I - S) = (\ T - G)$

If a government increases Expenditures G, either private Investments I will go down, or private Savings S will go up by the same amount
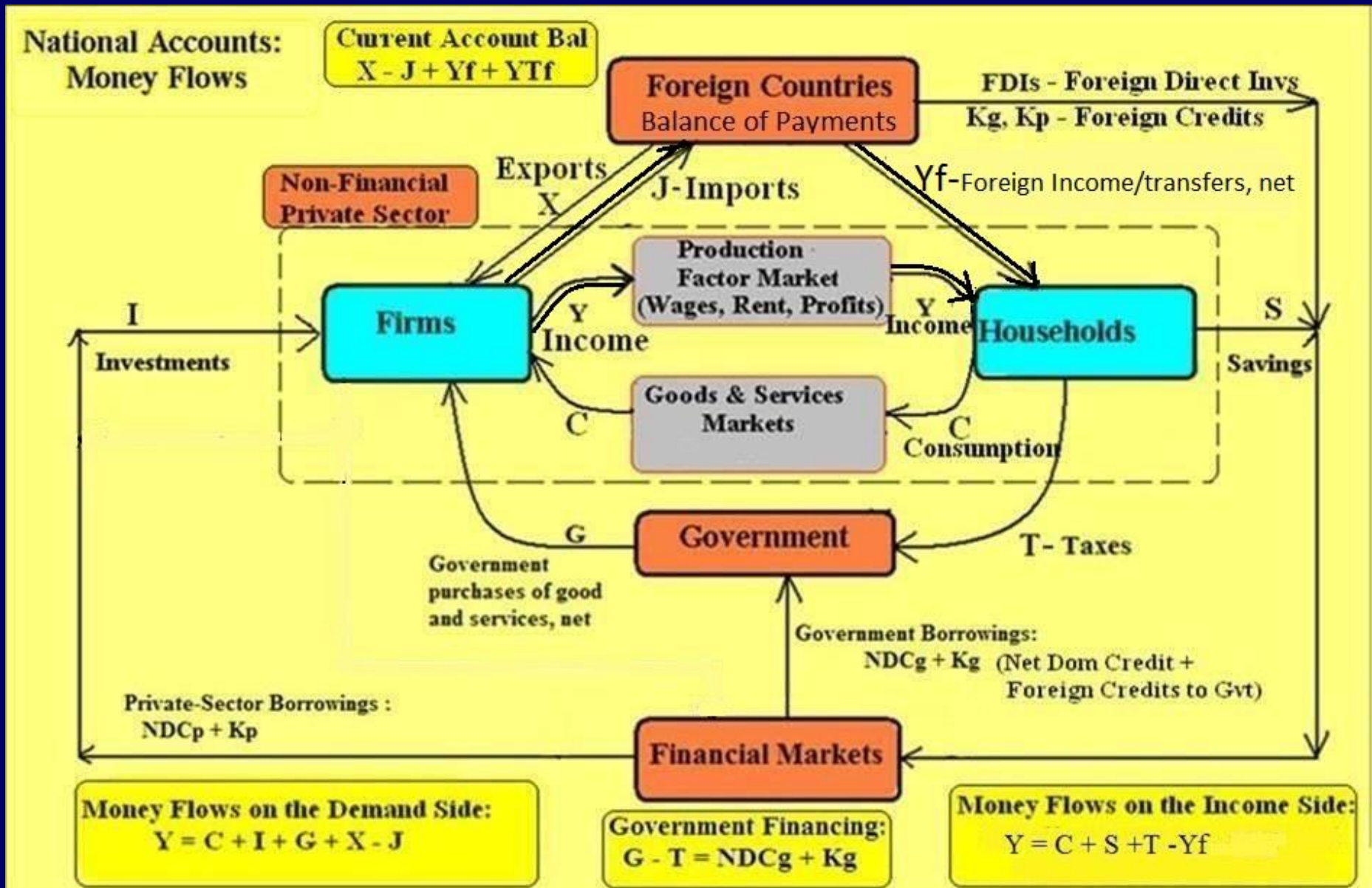
$(I - S) = (T - G)\ \Rightarrow\ I + (G - T) = S\ \Rightarrow\ I\ total = S$

(10 - 10) = (6 – 6)
G↑ by 2, then I↓ or S↑
(8 – 10) = (6 – 8)

5

An economy's money flow, with government and external sector.

National Accounts: Money Flows

Current Account Bal
$X - J + Yf + YTf$

Foreign Countries
Balance of Payments

FDIs - Foreign Direct Invs
Kg, Kp - Foreign Credits

Non-Financial Private Sector

Exports X

J-Imports

Yf-Foreign Income/transfers, net

Production Factor Market (Wages, Rent, Profits)

Firms

Y Income

Y Income

Households

I Investments

S Savings

Goods & Services Markets

C

C Consumption

G

Government

Government purchases of good and services, net

T - Taxes

Government Borrowings:
NDCg + Kg (Net Dom Credit + Foreign Credits to Gvt)

Private-Sector Borrowings:
NDCp + Kp

Financial Markets

Money Flows on the Demand Side:
$Y = C + I + G + X - J$

Government Financing:
$G - T = NDCg + Kg$

Money Flows on the Income Side:
$Y = C + S + T - Yf$

Francois Quesnay, <u>Tableu Economique</u>, 1758; Simon Kuznets, <u>National Income, 1929-1932</u>; 1934 (ed Kharkiv)

Calculating GDP Growth based on Expenditures

GDP = C + I + G + X - J

And:

    C = f (income, wages, pensions, consumer credits, inflation, consumer confidence)
    I = f (interest rates, foreign direct investments, bank credits, investment climate)
    G = f (government revenues, credits to government, socio-political factors)
    X = f (GDP/income of trading partners, steel and commodity prices, other competitors)
    J = f (domestic income, inflation, exchange rates)

Previous Year

	GDP =	C +	I +	G +	X	- J
Estimated growth	2.9%↑	16%↑	14%↑	2.9%↑	- 12.2↓	7.5%↑
Shares of GDP	1.00	0.58	0.21	0.17	0.52	0.48
Estimated contributions		(9.3)	(3.0)	(0.5)	(-6.3)	(-3.6)

Current Year

	GDP =	C +	I +	G +	X -	J
Estimated growth	7.3%↑	14%↑	16%↑	6%↑	+3%↑	15%↑
Shares of GDP	1.00	0.60	0.25	0.18	0.48	0.51
Estimated contributions		(8.4)	(4.0)	(1.1)	(1.4)	(-7.6)

Forecast for next Year

	GDP =	C +	I +	G +	X -	J
Estimated growth	4.0%↑	13%↑	14%↑	5.0↑	0 ↑	16%↑
Shares of GDP	1.00	0.60	0.25	0.18	0.48	-0.51
Estimated contributions		(7.8)	(3.5)	(0.9)	(0)	(-8.2)

….Calculating GDP Growth based on Expenditures

Next year, the economy is likely to have a reasonable rate of GDP growth of 4.0% (sensitivity analysis shows a possible GDP growth range from 3.5% on the lower end to 4.4% on the upper end.

This result is due mainly to the following factors:

- Growth in **private consumption** is likely to continue next year but at a lower rate than in the past (13% vs 14% and 16%). This is because wages and pensions will continue to increase, but at a slower pace due to stagnation of industry (caused by slowdown in exports) and fiscal budget constraints. Furthermore, bank credit will be more restricted (due to the recent measures of the NBU to contain credit growth principally to control inflation). In addition, inflation will also reduce "real" money balances, further depressing consumption. Nevertheless, private consumption will make a large contribution of 7.8% to GDP growth.

- **Private Investments** are expected to do well, but not as well as last year, again due to limitations in the availability of bank credit and a poor investment climate which constraints foreign direct investments.

- **Government consumption** is expected to grow at a lower rate than last year, due to fiscal budget problems.

- **Real Exports** are expected to show no growth as export quantities are not expected to increase (due to the world's economic slow-down caused by the international liquidity crises) and since metal/chemical prices are expected to remain stable (no increase) during the year (due to oversupply principally from China).

- **Imports** are expected to continue to drag the economy and increase by 16% principally due to the recent increases in gas prices (which will depress GDP growth by about 0.6%.)

Defining Macroeconomic Performance

A sound economy is one that has both macroeconomic **stability** and sustainable economic **growth.**

- **Macroeconomic Stability** is defined by stable prices with low inflation (internal stability), and a stable foreign exchange rate (external stability).
- **Sustainable Economic Growth** is defined by a high rate of GDP growth that can be maintained over a long time, with low unemployment rates.

To assess country performance, two sets of issues need to be reviewed:

(1) Actual Results in key Economic Areas:

 a. Actual Internal and External Stability
- Internal Stability as shown by the domestic Inflation Rate
- External Stability of Foreign Exchange Rate & Balance of Payments
- Level of Foreign Debt in relation to GDP, Exports & Reserves

 b. Actual Economic Growth
- GDP Growth Rates, structure of sources of growth, and unemployment rates.
- Saving Rates and Investment Rates
- Total Factor Productivity Growth and international competitiveness

(2) The Adequacy of the Policy and Institutional Framework to Sustain Future Economic Results:

 a. Macroeconomic Policies to sustain internal and external economic stability; and

 b. Economic Policies to sustain economic growth.

Internal Stability: Inflation Rates (IMF)

(Percent)

	Average 1995–2004	2005	2006	2007	2008	2009	2010	2011	2012	Projections 2013	2014	2018
GDP Deflators												
Advanced Economies	**1.7**	**2.1**	**2.1**	**2.2**	**1.9**	**0.7**	**1.1**	**1.4**	**1.3**	**1.4**	**1.8**	**1.9**
United States	1.9	3.3	3.2	2.9	2.2	0.9	1.3	2.1	1.8	1.6	2.0	2.1
Euro Area	2.0	1.9	1.8	2.4	2.0	1.0	0.8	1.2	1.2	1.5	1.3	1.6
Japan	−0.9	−1.3	−1.1	−0.9	−1.3	−0.5	−2.2	−1.9	−0.9	−0.7	1.8	1.3
Other Advanced Economies[1]	2.2	2.0	2.1	2.5	3.0	0.8	2.4	1.9	1.6	1.8	2.0	2.2
Consumer Prices												
Advanced Economies	**2.0**	**2.3**	**2.3**	**2.2**	**3.4**	**0.1**	**1.5**	**2.7**	**2.0**	**1.7**	**2.0**	**2.1**
United States	2.5	3.4	3.2	2.9	3.8	−0.3	1.6	3.1	2.1	1.8	1.7	2.3
Euro Area[2]	1.9	2.2	2.2	2.1	3.3	0.3	1.6	2.7	2.5	1.7	1.5	1.7
Japan	−0.1	−0.3	0.2	0.1	1.4	−1.3	−0.7	−0.3	0.0	0.1	3.0	2.0
Other Advanced Economies[1]	2.2	2.1	2.1	2.1	3.8	1.4	2.4	3.4	2.1	2.1	2.3	2.3
Emerging Market and Developing Economies	**13.1**	**5.9**	**5.6**	**6.5**	**9.2**	**5.1**	**6.0**	**7.2**	**5.9**	**5.9**	**5.6**	**4.8**
Regional Groups												
Central and Eastern Europe	31.1	5.9	5.9	6.0	8.1	4.7	5.3	5.3	5.8	4.4	3.6	3.6
Commonwealth of Independent States[3]	39.0	12.1	9.5	9.7	15.6	11.2	7.2	10.1	6.5	6.8	6.5	6.5
Developing Asia	5.0	3.6	4.0	5.4	7.3	2.6	5.6	6.4	4.5	5.0	5.0	3.9
Latin America and the Caribbean	13.0	6.3	5.3	5.4	7.9	5.9	6.0	6.6	6.0	6.1	5.7	5.1
Middle East, North Africa, Afghanistan, and Pakistan	7.1	7.1	8.2	10.3	12.4	7.3	6.9	9.7	10.7	9.4	9.0	7.7
Middle East and North Africa	7.1	6.9	8.2	10.6	12.5	6.2	6.5	9.2	10.7	9.6	9.0	7.3
Sub-Saharan Africa	16.5	8.8	7.1	6.4	12.9	9.4	7.4	9.3	9.1	7.2	6.3	5.6

Countries with inflation of over 10% pa in 2012: Belarus(70%), Syria(34%), Sudan(32%), Iran(27%), Argentina(27%), Venezuela(21%), Tanzania(15%), Uganda(15%),Mongolia(12%)
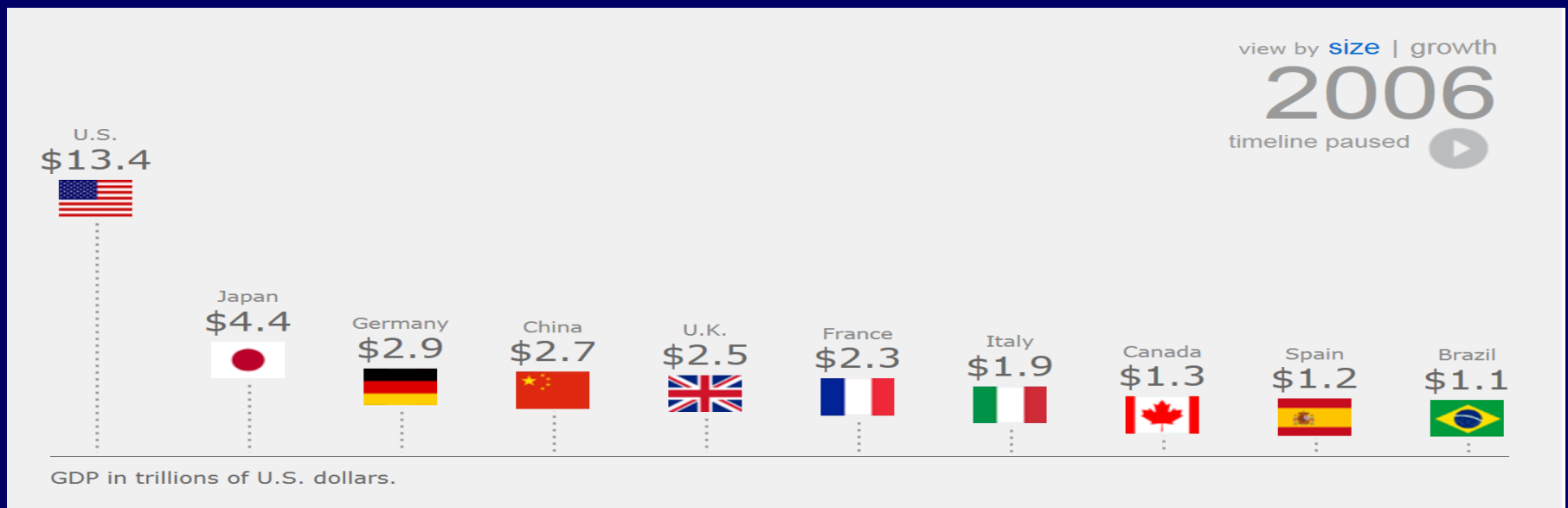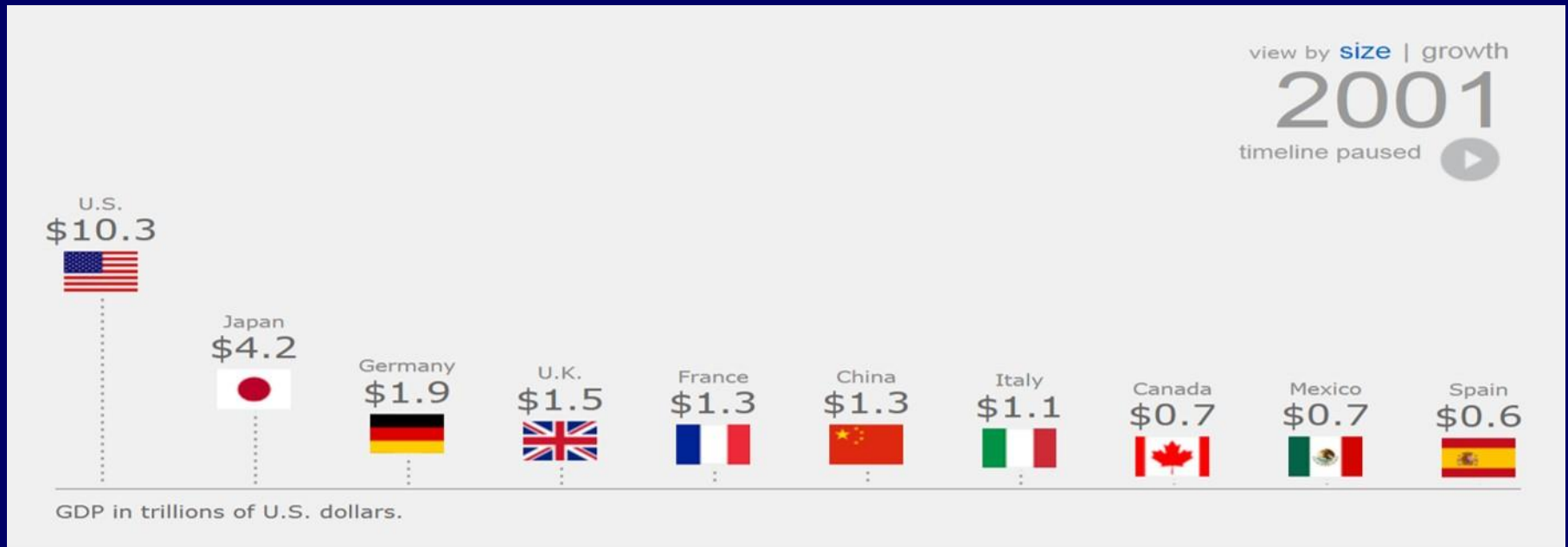
Real GDP Growth Rates (2012 Est)

Country	% gr						
Macau	21	Saudi Arabia	6.0	Russia	3.6	Romania	0.9
Panama	8.5	Georgia	6.0	Norway	3.1	Ireland	0.7
Ghana	8.2	Peru	6.0	Moldova	3.0	Austria	0.6
Cote d'Ivoire	8.1	Venezuela	5.7	Turkey	3.0	Ukraine	0.2
China	7.8	Thailand	5.6	Israel	2.9	UK	0.2
Rwanda	7.7	Kazakhstan	5.5	Korea, S.	2.7	France	0.1
Mozambique	7.5	India	5.4	Argentina	2.6	Belgium	0.0
Uzbekistan	7.4	Chile	5.0	Slovakia	2.6	EU	-0.2
Congo	7.1	Bolivia	5.0	Poland	2.4	Denmark	-0.4
Nigeria	7.1	Latvia	4.5	Japan	2.2	Netherlands	-0.5
Ethiopia	7.0	Malaysia	4.4	United States	2.2	Czech Rep	-1.0
Sri Lanka	6.8	Belarus	4.3	New Zealand	2.2	Hungary	-1.0
Zambia	6.5	Colombia	4.3	Canada	1.9	Spain	-1.5
Tanzania	6.5	Uganda	4.2	Hong Kong	1.8	Slovenia	-2.2
Qatar	6.3	Burundi	4.2	Brazil	1.3	Cyprus	-2.3
Kuwait	6.3	Armenia	3.8	Sweden	1.2	Italy	-2.3
Indonesia	6.0	Azerbaijan	3.8	Bulgaria	1.0	Portugal	-3.0
		Mexico	3.8	Germany	0.9	Greece	-6.0

When GDP declines for two quarters, the economy is in recession.
A depression involves a GDP decline of more than 10% lasting over 2 years.
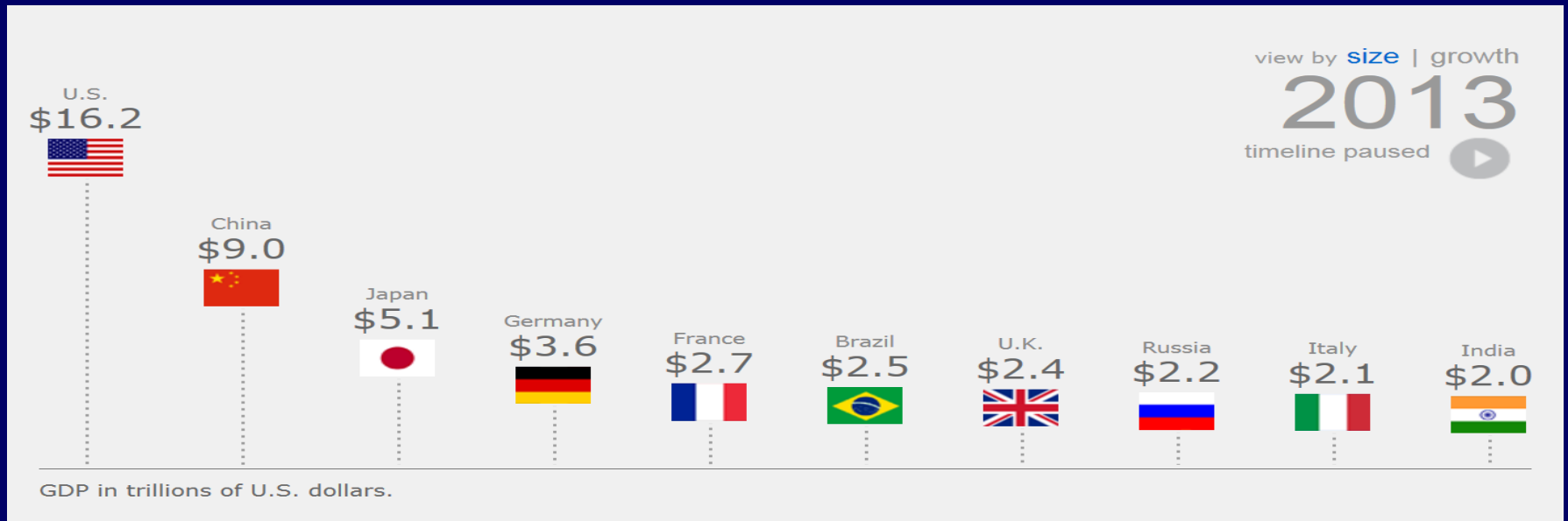With GDP growth of 7.2% pa, the country will double GDP in 10 years

Policy Results in Emerging Markets and Developed Countries

view by **size** | growth
2001
timeline paused ▶

U.S.
$10.3

Japan
$4.2

Germany
$1.9

U.K.
$1.5

France
$1.3

China
$1.3

Italy
$1.1

Canada
$0.7

Mexico
$0.7

Spain
$0.6

GDP in trillions of U.S. dollars.

view by **size** | growth
2006
timeline paused ▶

U.S.
$13.4

Japan
$4.4

Germany
$2.9

China
$2.7

U.K.
$2.5

France
$2.3

Italy
$1.9

Canada
$1.3

Spain
$1.2

Brazil
$1.1

GDP in trillions of U.S. dollars.

Policy Results in Emerging Markets and Developed Countries

view by **size** | growth

2007

timeline paused

U.S. $14.0

Japan $4.4

China $3.5

Germany $3.3

U.K. $2.8

France $2.6

Italy $2.1

Canada $1.5

Spain $1.4

Brazil $1.4

GDP in trillions of U.S. dollars.

view by **size** | growth

2010

timeline paused

U.S. $14.5

China $5.9

Japan $5.5

Germany $3.3

France $2.6

U.K. $2.3

Brazil $2.1

Italy $2.1

Canada $1.6

India $1.6

GDP in trillions of U.S. dollars.

Policy Results in Emerging Markets and Developed Countries

view by size | growth
2013
timeline paused ▶

GDP in trillions of U.S. dollars.

Country	GDP
U.S.	$16.2
China	$9.0
Japan	$5.1
Germany	$3.6
France	$2.7
Brazil	$2.5
U.K.	$2.4
Russia	$2.2
Italy	$2.1
India	$2.0

view by size | growth
2018
timeline paused ▶

GDP in trillions of U.S. dollars.

Country	GDP
U.S.	$21.1
China	$14.9
Japan	$5.9
Germany	$4.0
Brazil	$3.4
Russia	$3.2
France	$3.1
U.K.	$3.0
India	$3.0
Italy	$2.3

Macroeconomic Policies to Support the Economy

- A key question in Macroeconomics is what a government can do to support:
  - GDP growth, including reviving growth after depressions/recessions
  - Job creation and reduce un-employment
  - Price stability (low inflation).

- In order to achieve these three objectives, the Government can use:
  1. Supply-Side Measures, such as improving the business climate (reducing excessive regulations and taxation, dealing with corruption, red tape, etc) in order to encourage investments, GDP growth and jobs.
  2. Demand-Side Measures, such as:
     - Fiscal Budget Policies: Provide additional fiscal budget resources to consumers and firms to expand consumption and investments.
     - Monetary Policies: Increase money supply and lower interest rates to stimulate consumption and investments.

- Conservative economists (mostly Republicans) favor Supply-Side measures (Neo-Classical) and believe that demand-side measures are not effective.

- Many liberal economists (mostly Democrats) believe on the merits of Demand-side measures (Keynesians) to revive growth.

1. Supply-Side Measures: Economic Growth and Adjustment
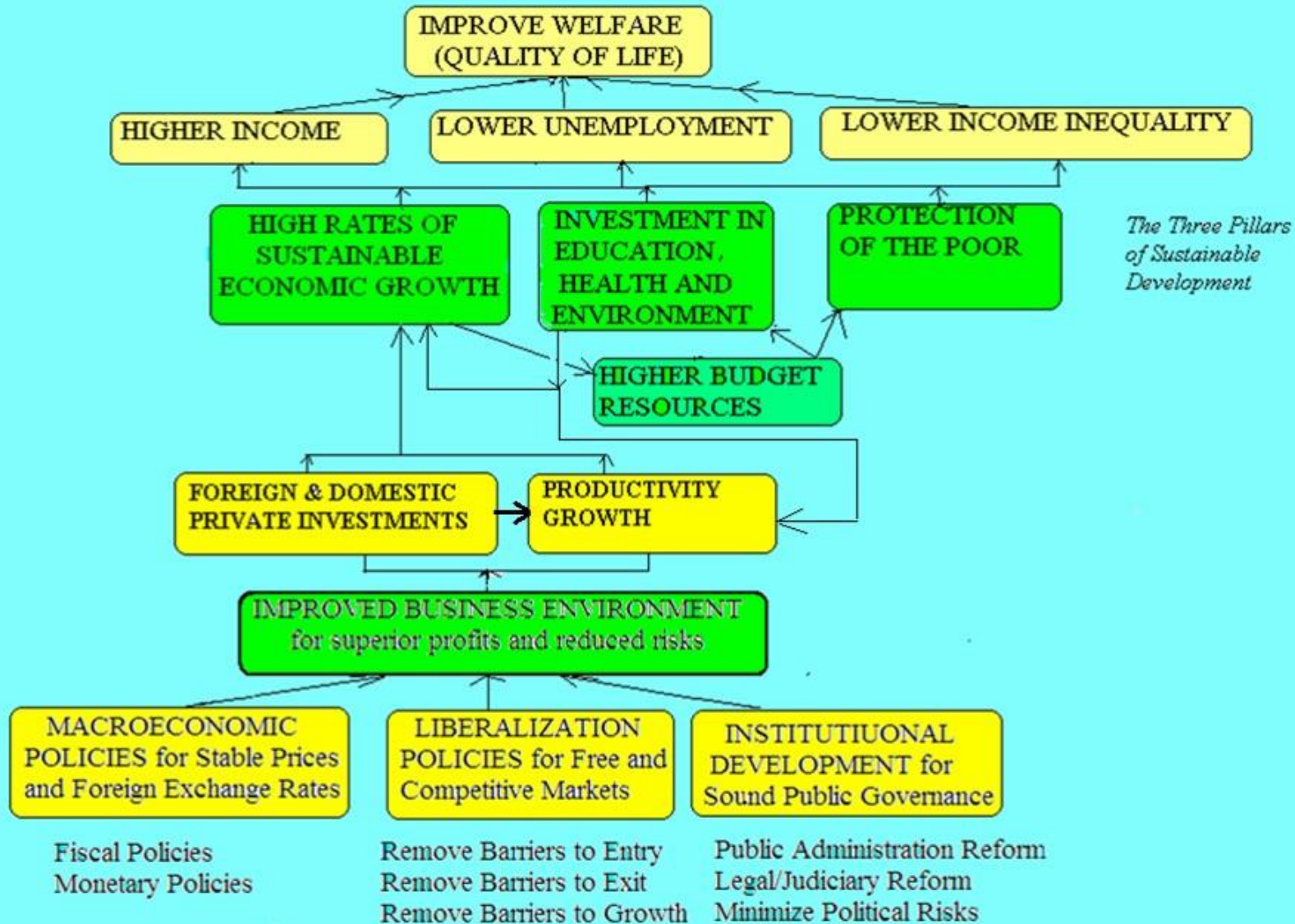
Determinants of an Improved Business Environment

(I) **Macroeconomic Stabilization Policies**: Fiscal and monetary policies are NOT used to encourage growth, but just to secure stability in prices and exchange rates

- Fiscal Policies under which the Government's fiscal budget has a deficit that can be financed by borrowings on a sustainable basis (normally no more than 3% of GDP) and public debt does not exceed 60% of GDP.
- Monetary Policies, under which the creation of money (money supply) will not exceed the demand for money (which is affected by income, prices and interest rates). Normally money supply should not increase by more that 3% - 5% pa more than GDP growth.

(II) **Structural Adjustment to Promote Economic Growth**

(A) Improve the Business Environment

- Remove Barriers to the Formation and Operation of Enterprises
- Remove Constraints to the Closure of Failing Enterprises
- Remove Undue Gvt Interferences in Product Markets: Pricing and Trade
- Improve Efficiency of Factor Markets: Financial, Labor and Land Markets

(B) Strengthen Institutions and Public Governance

- Reform Public Administration to provide efficient Government services.
- Provide a stable and predictable legal environment, without corruption.
- Lower political risks.

The Nine Investments Drivers of the Bleyzer Foundation

Cross-countries studies made by TBF found that the following nine factors or "drivers" were key to improve the country's business climate, attract investments and support GDP growth:

1. Macroeconomic Stability: Fiscal and monetary policies that will result in stable prices (low inflation) and foreign exchange rates.
2. Sound Public Institution and Public Administration, that would carry out required reforms effectively and deliver government services efficiently.
3. An stable and predictable Legal and Judicial Environment, with protection of property rights and capable of delivering unbiased judgments.
4. Deregulation of Business Activities to minimize red tape, minimize interference in businesses, and facilitate the formation and operation of enterprises.
5. Sound Corporate Governance with rules that would eliminate raiding and provide protection to minority shareholders
6. Liberalization of foreign trade and capital to encourage exports (as growth source), imports (as source of competition/efficiency) and foreign investments.
7. Financial Sector reform to facilitate the financing of businesses
8. Strong anticorruption measures, including preventive and curative measures.
9. Improve country image and minimize political risks.

TBF's NINE DRIVERS TO ATTRACT INVESTMENTS

- The most important measures to encourage growth are intended to minimize business risks and improve predictability.

- The intention of the reforms is not to provide subsidies!

A. Minimize Business Risks

1. Provide Macroeconomic Stability to lower fluctuations in exchange rates and prices
2. Improve Public Administration, Governance, and efficiency to Minimize red tape
3. Improve the Legal/Judiciary Environment, to protect property rights
4. Reduce Political Risks and Improve Country Image to Attract Capital
5. Deal with Corruption to eliminate rent-seeking by officials
6. Improve Corporate Governance to eliminate raiding and provide protection to minority shareholders

B. Maximize Opportunities for/and Remove Constraints to Profitability:

7. Deregulate and Liberalize Business: Freedom to Start up and Operate a Firm.
8. Liberalize Trade and Capital: Freedom to Trade and transfer capital across Borders.
9. Improve the Financial Sector to Facilitate the Provision of Financing for Growth

2. Demand-Side Measures

- Achieving economic growth, low unemployment and stabilization through "supply-side" measures (to increase investments and growth) will take time.
- In the short-term, if the economy is economically depressed (for example, due to a financial crisis) governments could be motivated to take "rapid" Keynesian measures to revive economic growth.
- These measures would normally involve "demand side" actions to give money to consumers and firms to jump-start consumption/demand and cause increases in supply: expansionary fiscal policies and loose monetary policies.

Expansionary Fiscal Policies and Fiscal Deficits

- A government has a number of expenditures, including the provision of "public goods", such as military defense, education, law and order, etc.
- To finance these expenditures, the government collects taxes.
- If the government spends more that it collects, it has a **Fiscal Deficit,** which is the difference between the money that the government collects (from taxes) and what the government spends (in defense, education, health, etc).
- In theory, government expenditures and revenues should be equal and the fiscal deficit should be zero. Otherwise, these fiscal budget deficits must be financed by government borrowings, which will increase the size of public debt.

Expansionary Fiscal Policies

– Since fiscal deficits will increase public debt, in general, in "normal" times, it is not desirable for governments to have fiscal deficits and accumulate debt.

– But when GDP is not growing (following a recession), many economists (Keynesians) believe that in such times, the government could over-spend (use expansionary fiscal policies - G↑) and incur fiscal deficits to give money to people to revive their consumption and then promote supply growth.

• But there is the question of how effective these "demand side" policies are to stimulate growth over the short term??

• The effectiveness of this "**fiscal stimulus**" depends on three conditions:

  (i) whether the country has "**fiscal space**" to finance these fiscal stimuli without increasing public debt to unsustainable levels;

  (ii) whether the country has the capacity to generate a short term **"supply response"** to the stimuli (rather than just generate additional stimulus for imports or price increases); and

  (iii) whether the stimuli and the initial expansion of income **will not be offset by "negative secondary effects" such as** higher interest rates, lower investments and lower income that may come later on.

(i) Fiscal Space

- A country will not have **fiscal space** if its level of public debt is "excessive"

- In this case, any fiscal stimulus will increase public debt to levels that creditors, investors and consumers will not accept.

- Creditors may just not provide financing or will require higher interest rates, generating even larger fiscal deficits.

- Investors will not carry out any expansions due to uncertainties on taxes.

- Furthermore, if public debt is excessive consumers may not buy more goods, but may prefer to save the additional resources, because of fears that the government may increase taxes in the future to repay its debts.

- Therefore, these Keynesian fiscal policies could work, but only if government debt is not too high. Several studies show that a maximum sustainable public debt is about 60% - 80% of GDP. Beyond this level, interest rates on debt may explode and debt would increase exponentially.

- Sustainability studies show that over time, fiscal deficits should not exceed 2% - 3% of GDP, which is about the maximum that can be financed by debt in a continuous manner. Higher fiscal deficits would be sustainable only if GDP is growing fast (over 5% pa) and real interest rates are low.

(ii) Supply Response

- A second condition for the success of expansionary fiscal policies is the capacity to generate a "**supply response**", which implies the existence of **spare capacity** and the absence of **supply rigidities**. Ample spare capacity tends to exist after a major economic crisis, making fiscal policies more relevant, with higher fiscal multipliers over the short term.

- If spare capacity is limited or if there are supply rigidities in key consumer areas, fiscal stimuli will not be able to increase production.

- With a fixed amount of local goods, fiscal stimulus will just increase prices and/or result in larger imports, both of which would cause income (GDP) to decline later on.

(iii) Secondary Effects

- A third condition for successful fiscal stimuli is that the initial income effects **will not be offset "quickly"** by subsequent negative secondary effects.

- For example, an increase in Government spending ($G\uparrow$) may have as a result an increase in income: $G\uparrow \rightarrow Y\uparrow$ but then, in subsequent rounds:

$$Y\uparrow \rightarrow \quad Md\uparrow \rightarrow r\uparrow \rightarrow I\downarrow \rightarrow Y\downarrow$$

$$r\uparrow \rightarrow ForCap\uparrow \rightarrow FX\ Appr \rightarrow X\downarrow, M\uparrow \rightarrow Y\downarrow$$

$$\text{If } Y\uparrow \rightarrow \text{ Due to MPM } \rightarrow M\uparrow \rightarrow Y\downarrow$$

- The result of the initial fiscal stimulus ($G\uparrow$) would be an initial expansion in income (GDP, $Y\uparrow$), but subsequent effects are likely to cause declines in GDP ($Y\downarrow$), with the result that the net effect might be a decline of GDP.

- That is, the final fiscal multiplier would be negative or negligible at best.

- Most economists agree that this is likely to be the case, **but disagree on the timing of these secondary effects:** Neoclassicals believe that these effects will be felt quickly. Keynesians argue that the secondary effects may take years and the country can enjoy income growth in the meantime .

- In principle, most economist would agree that, due to the negative effects of fiscal policies on GDP growth, fiscal policies should be avoided as instruments to revive growth, unless the recession is so severe that urgent measures are needed NOW, despite future negative effects.

- In summary, fiscal policies can be used only if there is ample fiscal space (initial public debt is low), if there is ample excess capacity with good supply responses, and if the immediate effect in income is worthwhile (due to the severity of the recession) despite the subsequent negative effects in income.

Fiscal Budget Deficit as % of GDP (2012 Est)

Rank	Country	(% of GDP)	Rank	Country	(% of GDP)
214	Venezuela	-17.50	105	Italy	-2.90
206	Egypt	-10.40	103	Mexico	-2.80
204	Syria	-9.50	97	Turkey	-2.60
203	Japan	-9.10	96	Romania	-2.50
200	Ireland	-8.50	89	Kazakhstan	-2.40
194	United Kingdom	-7.70	84	Poland	-2.10
193	**United States**	**-7.60**	74	China	-1.60
192	Greece	-7.60	68	Bulgaria	-1.40
189	Spain	-7.40	56	Australia	-0.80
182	Pakistan	-6.40	52	Colombia	-0.50
175	Portugal	-6.10	41	Russia	0.00
168	Ecuador	-5.70	38	Germany	0.10
160	Netherlands	-5.10	36	Switzerland	0.30
148	France	-4.50	33	Korea, South	0.60
130	World	-3.80	30	Peru	0.90
126	Canada	-3.80	26	Chile	1.40
125	**Ukraine**	**-3.70**	19	Brazil	2.70
116	Argentina	-3.20	7	Saudi Arabia	11.90
113	Austria	-3.10	5	Norway	15.20

Total Debt
$ billions

Legend: 2012 (yellow), 2018 (blue)

Country	2012	2018
Australia	~400	~350
Brazil	~1500	~2300
Canada	~1600	~2000
China	~2300	~2100
India	~1100	~2300
Italy	~2700	~2900
France	~2500	~3000
Germany	~2900	~2800
Japan	~11500	~13500
Russia	~200	~500
UK	~2200	~3100
US	~16500	~23000
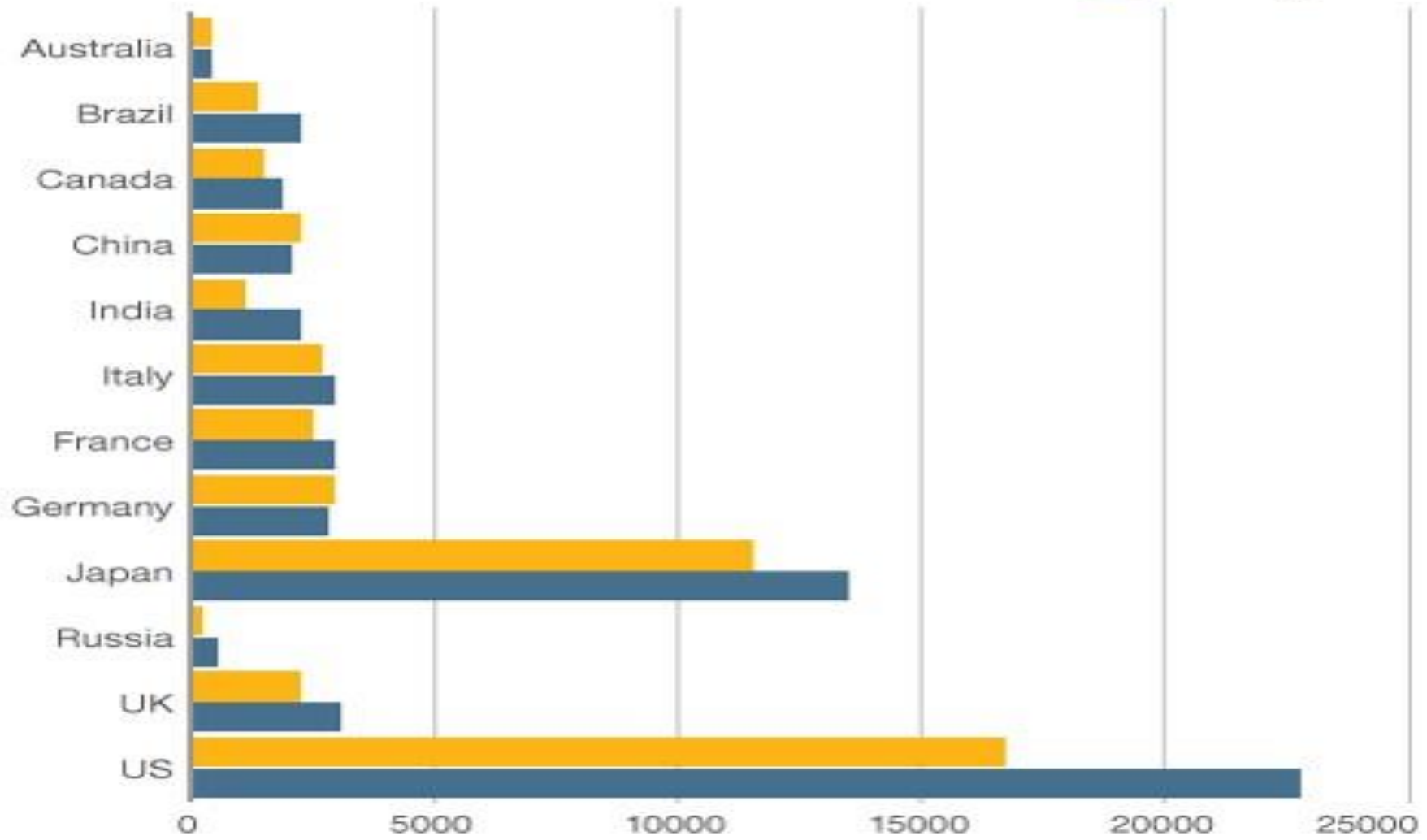
Source: International Monetary Fund

Gross Government Debt as % of GDP (2012 Est)

Japan	236.56	Gvt Debt below 60% GDP			
Greece	170.73				
Italy	126.33	Poland	55.103	**Ukraine**	**35.24**
Portugal	119.07	Slovenia	53.203	Bolivia	34.82
Ireland	117.74	Malaysia	53.05	Romania	34.63
United States	**107.18**	Finland	52.58	South Korea	33.46
Belgium	99.03	Venezuela	51.31	Hong Kong	33.09
Iceland	94.17	Norway	49.61	Colombia	32.18
Spain	90.69	Switzerland	46.71	Australia	27.07
France	89.97	Slovakia	46.35	Indonesia	23.90
United Kingdom	88.68	Argentina	45.22	China	22.16
Canada	87.52	Thailand	44.17	Luxembourg	21.71
Cyprus	87.26	Czech Republic	43.12	Peru	19.59
Germany	83.04	Mexico	43.08	Ecuador	18.77
Austria	74.34	Taiwan	41.73	Bulgaria	17.88
Hungary	73.99	Philippines	41.49	Kazakhstan	12.39
Israel	73.29	South Africa	41.24	Chile	11.42
Netherlands	68.20	New Zealand	38.62	Russia	11.03
India	67.59	Belarus	38.33	Saudi Arabia	5.49
Brazil	64.08	Turkey	37.70		
Pakistan	62.37	Sweden	37.15		

US debt and the debt ceiling

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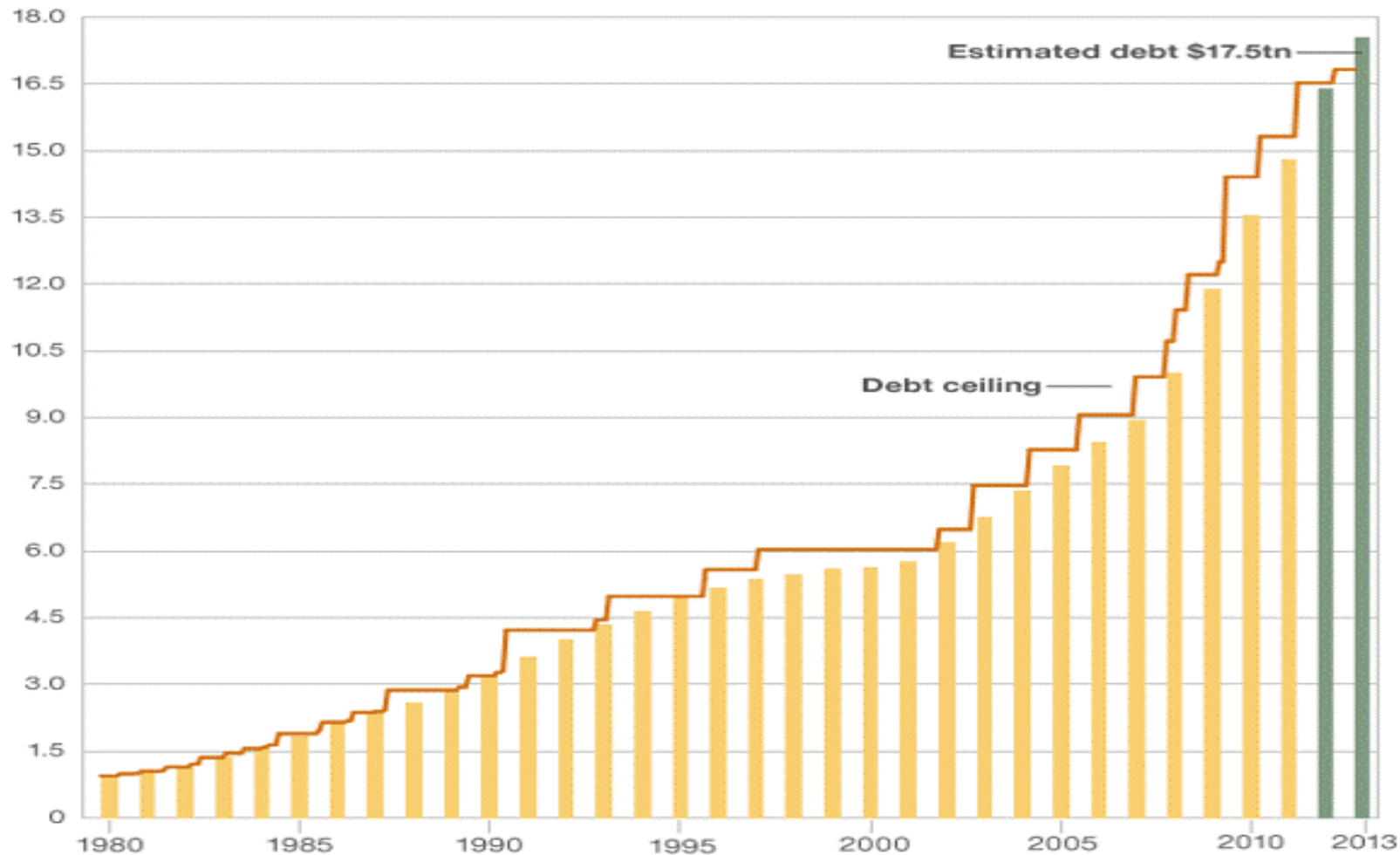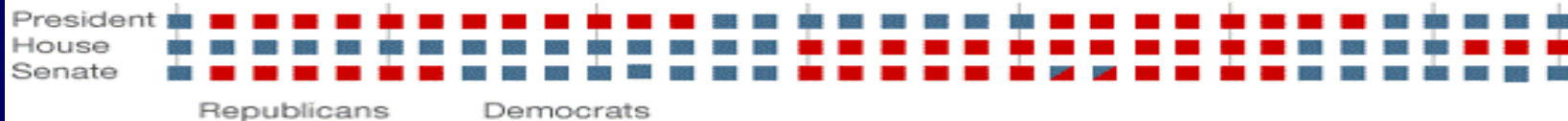
Fiscal Year 2012: To Whom Does the U.S. Government Owe Money?

$16.027 Trillion
as of
30 September 2012

- 30.5% U.S. Individuals and Institutions
- 16.7% U.S. Social Security Trust Fund
- 10.8% U.S. Federal Reserve
- 5.6% U.S. Civil Service Retirement Fund
- 2.4% U.S. Military Retirement Fund
- 15.0% All Other Foreign Nations
- 7.9% China (and Hong Kong)
- 7.0% Japan
- 1.7% "Oil Exporters"
- 1.6% Brazil
- 0.9% United Kingdom
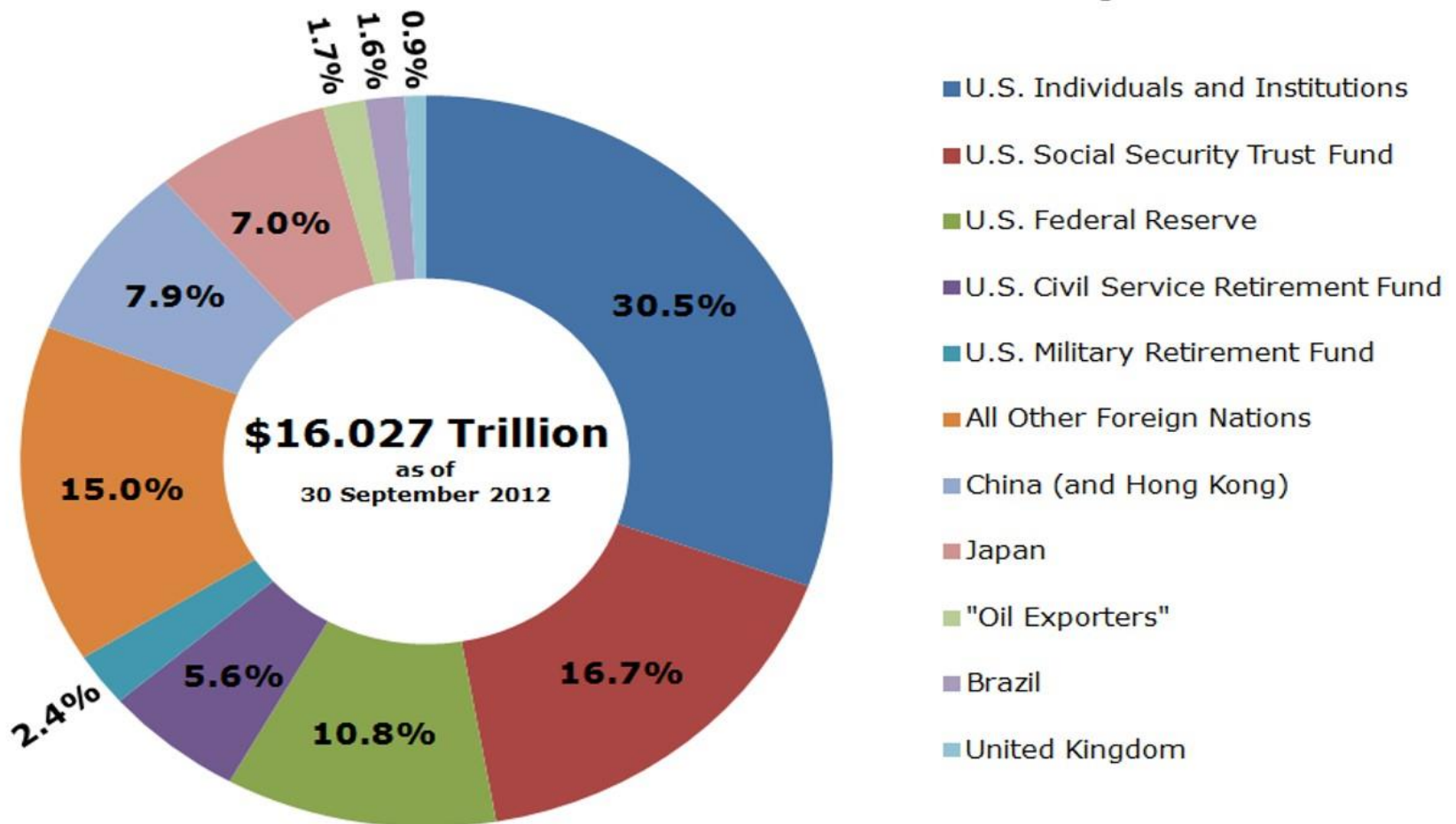
Source: U.S. Treasury Department, 15 March 2013

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US external foreign government debt is 34% of total government debt or 37% of GDP.

Sustainability of Fiscal Deficits

- If the fiscal budget deficit is too large, then government debt (both in dollars and as a percent to GDP) will be increasing fast.
- There will be a moment when the government can no longer obtain financing, interest rates on government debt will increase rapidly and the country may be forced to default on its debt, generating a major financial crisis.
- Therefore a key question is what is a "sustainable" fiscal deficit? 3% of GDP?

Definitions:

FD = Primary Fiscal Budget Deficit (If sign is +, means deficit)
Y = Real GDP
Yn = Nominal GDP
fd = FD/Yn (fiscal budget deficit as a share of GDP)
B = Government Debt Stock
b = B/Yn (government debt as a share of GDP)
ΔB = Increase of government debt
$\%\Delta B$ = Rate of Growth of government debt
i = Nominal Interest Rate on government debt
r = Real Interest Rate on government debt
P = Price Level

- A Sustainable Fiscal Deficit is one that can be financed over time without increasing the debt/GDP ratio, b. That is, the debt load b is in equilibrium and remains constant over time.

(1) <u>Budget Constraint</u>

FD + iB = ΔB   The overall "primary" fiscal deficit (FD) plus debt
                                  interest payments (iB), must be financed (ΔB)

FD = ΔB - i B   If ΔB= %ΔB B {%ΔB=growth rate of debt}, then:

FD = %ΔB B - i B   Dividing by GDP (Yn), we will get:

fd = %ΔB b - i b   In which "fd" is the ratio FD/Yn and "b" is B/Yn.

(2) <u>Sustainability Condition</u>

The condition of sustainability is that the ratio of debt to GDP "b" will
not be increasing over time.   For this ratio B/Yn to be constant, B and
Yn will need to increase at the same rate; that is: **%ΔB = %ΔYn**

If Nominal Y (Yn) = Real Y (Y) + ΔPrices,   then, **%ΔB = %ΔY + %ΔP**

If Nominal interest rates (i) = Real interest rates (r) + Δ Prices,   then**:**

fd*   = (%ΔY + %ΔP) b - (r + %ΔP) b

Or: **fd* = (%ΔY - r) b**   where **fd*** is the sustainable fiscal deficit.

– If **%ΔY = r**   the sustainable fiscal deficit fd* is zero.

– If **%ΔY > r**   the sustainable fiscal deficit is positive (could have deficit)

– If **%ΔY < r**   the sustainable deficit is negative (need for fiscal surplus).

- The size of a sustainable fiscal deficit to GDP "**fd***" will depend on:
  - (i) the growth rate of real GDP, $\%\Delta Y$;
  - (ii) the real interest rate on debt, r; and
  - (iii) the ratio of debt to GDP, b that lenders would tolerate given the credit rating of the country (not a controlled #).
  - The higher the rate of growth of GDP, the higher the sustainable fiscal deficit to GDP can be.
  - The lower real interest rates, the higher the deficit can be.
  - When r > $\%\Delta Y$ (negative term), the higher the ratio of debt to GDP the lower the fiscal deficit can be, and vice-versa.
- Furthermore, for the sustainable fiscal deficit "fd*" to be constant at the level "fd*" (not increasing/decreasing over time,), ie; **Δfd* = 0;** then **$\Delta(\%\Delta Y - r)\, b = 0$ ► $\Delta\%\Delta Y = \Delta r$ That is,** any change in real interest rate should equal a **change** in the rate of growth of GDP.
  - If **$\Delta\%\Delta Y > \Delta r$**, then the "sustainable" deficit will be increasing over time, creating "fiscal space" for additional expenditures.
  - If **$\Delta\%\Delta Y < \Delta r$**, then the "sustainable" deficit will be declining over time and actual deficits may need to be reduced. 32

Examples:
- A country is growing at 6% pa, borrows at a real rate of 5% pa and the maximum debt/GDP that lenders wish to hold is 60% of GDP.
- Then, the maximum sustainable primary fiscal deficit is 0.6% of GDP :

$$\frac{\%\Delta Y}{0.06} \quad \frac{r}{0.05} \quad \frac{b}{0.60} \quad . \quad \frac{fd \text{ (fiscal deficit/GDP)}}{(0.06 - 0.05)(0.60) = 0.006 \ \text{ or } \ +0.6\% \text{ of GDP}}$$

- Other plausible scenarios show that if debt/GDP is 60%, the country needs to grow fast and pay low interest rates in order to afford any primary fiscal deficits (+):

Maximum Sustainable "Primary" Fiscal Balances with a Debt/GDP ratio of 60% (+ is deficit, - is surplus)

Real Interest on Public Debt	Real GDP Growth Rate					
	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%
2.0%	-0.6	0.0	+0.6	+1.2	+1.8	+2.4
3.0%	-1.2	-0.6	0.0	+0.6	+1.2	+1.8
4.0%	-1.8	-1.2	-0.6	0.0	+0.6	+1.2
5.0%	-2.4	-1.8	-1.2	-0.6	0.0	+0.6
6.0%	-3.0	-2.4	-1.8	-1.2	-0.6	0.0
7.0%	-3.6	-3.0	-2.4	-1.8	-1.2	-0.6
8.0%	-4.2	-3.6	-3.0	-2.4	-1.8	-1.2
9.0%	-4.8	-4.2	-3.6	-3.0	-2.4	-1.8
10.0%	-5.4	-4.8	-4.2	-3.6	-3.0	-2.4

Under most conditions, on a sustainable basis, if the debt/GDP is 60%, a country must have a "**primary**" fiscal balance (excluding interest payments) between a "surplus" of 5.4% of GDP and "deficit" of 2.4% of GDP (average surplus 2.0% of GDP.)
If nominal interest payments are about 5% of GDP (with debt at 60% of GDP), the "**overall financial**" fiscal deficit should be no more that about 3% of GDP.

The Economist — Government debt dynamics

Gross general government debt, % of GDP

- Euro area
- United States

Pale lines show IMF forecasts, 2011-2016

Draw scale from... 1980

Long-term assumptions, annual average %

Hide user forecast

	Euro area	US
GDP growth:	1.6	2.6
Budget balance*:	0.5	-4.7
Interest rate†:	3.9	2.7
Inflation:	1.5	1.2
	Reset	Reset

Enter values between -10 and +10; max 1 decimal place. Press Enter or move to another field to update chart.

FORECAST

Sources: IMF;
The Economist
*Primary balance as % of GDP (ie, before interest payments)
†Payable on debt stock (approximately equivalent to ten-year bond yield)
Embed

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†Payable on debt stock (approximately equivalent to ten-year bond yield)
Embed

http://www.economist.com/blogs/dailychart/2011/11/debt-dynamics-0

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- As long as the real interest rate exceeds economic growth, gvts have to run a primary surplus to control public debt growth relative to output.
- A primary deficit can be sustained only if the real interest rate is permanently lower than the rate of economic growth, which is unlikely:
  – First, economic agents must be remunerated for deferring consumption; if "spenders" could consume more than "savers" both now and in the future, no one would want to save. In such a situation, the resulting shortage of savings would result in an increase in the interest rate sufficient to create incentives for deferring consumption over time.
  – Second, excessive borrowing and investment at low interest rates would eventually lower the growth rate, given the decreasing marginal productivity of capital and possible efficiency bottlenecks in the use of inputs.
- Theoretically, a government with high credibility could run a primary deficit permanently, if such a government could borrow at a lower interest rate than output growth.
- However, taking excessive advantage of the opportunity to run a primary deficit and roll over public debt might push a government into a situation where a growth slowdown would force higher taxes on a generation already hit by slower growth (Ball, Elmendorf, and Mankiw 1995).

Seignorage and the inflation tax could allow temporarily for a higher deficit, but should not be counted on for the long term.

- **Seignorage** is the increase in real money demand that the Government can extract, which is due to increases in income and inflation.
- As income increases, the real and nominal demands for money would also increase. If in addition, there is inflation, people would wish to retain their real balances (real money demand), thus increasing their nominal money demand.
- These increases in nominal money demand can be matched by money supply increases without causing inflation. The monetary base could be expanded accordingly.
- These increases in the monetary base could finance the Government without inflationary pressures. It is a free lunch for the Government.

- The **Inflation Tax** represents the benefits that the Government (CB) extracts because it pays no interest (or little interest) on the monetary base. It amounts to a "subsidy" to the government that has to be paid by a "tax" to the rest of the economy. Some definitions add the Inflation Tax to the concept of Seignorage.
- Excessive Seignorage and inflation tax are not sustainable over many years, since inflation will eventually reduce the demand for money.

Present Value (PV) Approach to Fiscal Sustainability

- The previous analysis of fiscal sustainability says nothing about what determines the value of "b", the debt/GDP ratio. It sets aside the role of lenders in determining what debt strategy is sustainable.

- A broader PV approach says that a fiscal deficit is sustainable if the present value of future primary fiscal surpluses exceeds the present value of future primary fiscal deficits by a sufficient amount to cover the difference between the value of the initial government debt and the present value of the terminal debt stock.

- But to avoid a Ponzi game (under which debt is just accumulated), the present value of the terminal debt stock should be zero. In other words, the current value of debt should not exceed the present value of fiscal surpluses minus the present values of fiscal deficits. This ensures that the debt will be eventually paid, a normal lenders' requirement.

- This approach does not rule out either large fiscal deficits or high debt as long as larger future surpluses are "viable/feasible" policy options.

B. Rules of Thumb for Economic Sustainability in EMs:

Fiscal Deficit/GDP	< - 3%	(-3%) [2]
Public Debt (Dom+Ext)/GDP	< 60%	(35%)
Public Debt Service/GDP	< 5%	(5%)
Current Account Deficit/GDP[1]	< - 3%	(+3%)
External Debt (Pub+Private)/GDP	< 60%	(35%)
External Debt (Pub+Private)/Exports	< 120%	(70%)
Inflation Rate	< 5% (max 10%)	(5%)
International Reserves/Imports	> 25% (3 months of imports)	

- These rules are not uniform. A lot depends on GDP and export growth prospects, level of Foreign Direct Investments and creditors' attitudes.
- Having a high debt to GDP ratio is not necessarily fatal as long as the institutions the country is borrowing money from believe that the country will be able to pay them back. If they get worried about a country's ability to pay, then they either stop lending or the rate of interest they have to pay soars and they suddenly find that their debt is unaffordable.
- If a country's numbers were to exceed these values, this does not mean that a financial crisis is imminent; but that you should get concerned and analyze the situation carefully.

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[1] Applying the same criteria as with Fiscal Deficits, but using CADs.

[2] The numbers in parenthesis represent the average numbers for key EMs

Improvements in Macroeconomic Stability in EMs

	1999	2001	2003	2005	2009	2012
External Debt/GDP	45	40	39	36	35	34
Fiscal Deficit/GDP	-4.0	-3.3	-2.9	-1.1	-3.0	-2.8
Current Account/GDP	-3.1	+0.6	+2.0	+3.4	+2.7	+1.0
Inflation Rate	10	7	6	7	6	6

EMs- Credit Quality

6= BB+
5= BB
4= BB-
3= B+
2= B
1= B-
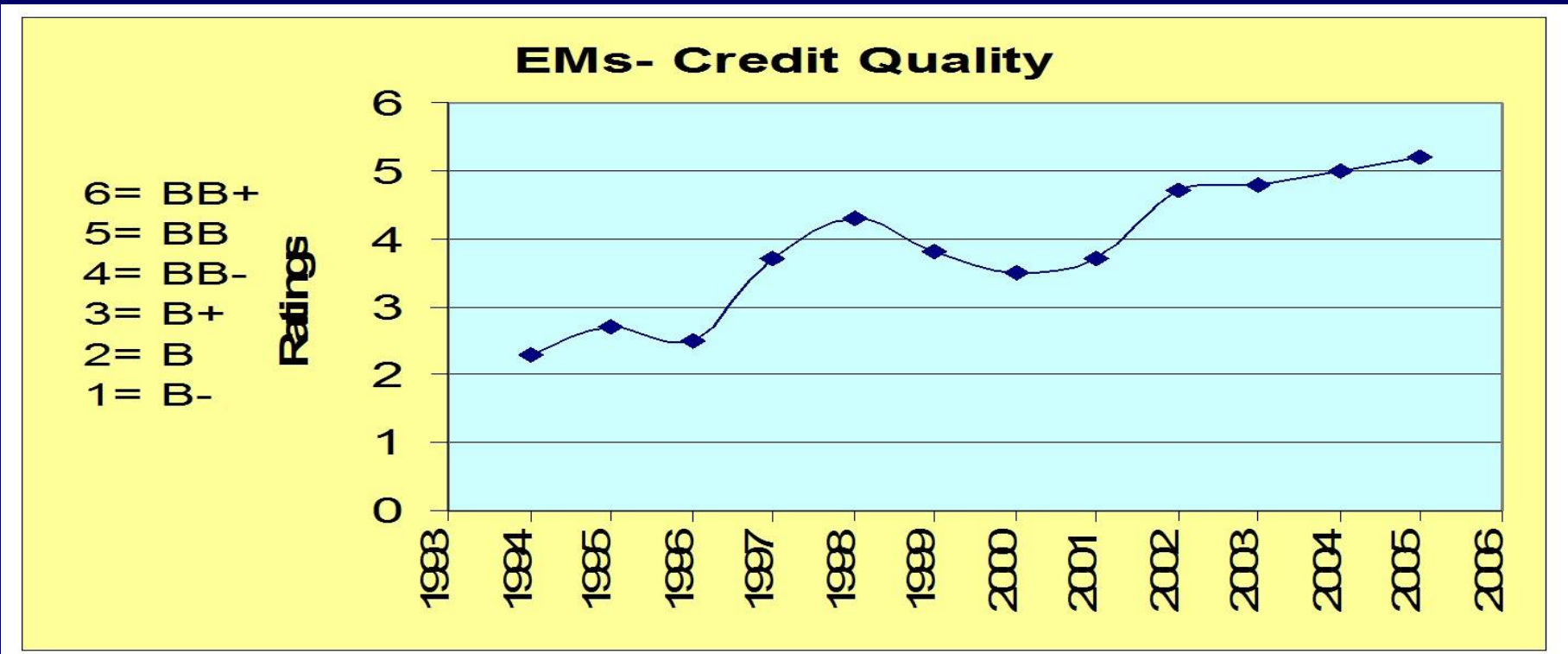
EMs External Debt (Public and Private) to GDP, 2011-12

Country	ED/GDP	Country	ED/GDP
Latvia	146	Thailand	26
Hungary	115	Ecuador	25
Bulgaria	90	Dom Rep	25
Ukraine	71	Russia	23
Kazakhstan	68	South Africa	23
Poland	54	Peru	22
Panama	52	Colombia	20
Czech Rep	45	India	20
Turkey	40	Mexico	20
Chile	38	Venezuela	19
Philippines	32	Brazil	15
Malaysia	31	Paraguay	13
Pakistan	30	China	9
Indonesia	28		

Deficits in the Current Account of the Balance of Payments

- The Current Account (CA) deficit is the difference between the value of what the country exports (in goods and services) and what it imports from abroad.
- If there is a large CA deficit, it could also produce a financial crises.
- A CA deficit must be financed by somebody: it could be financed by:
    - foreign borrowings, thereby increasing the country's foreign debt, or
    - by a reduction in the "foreign exchange reserves" of the Central Bank.
- But if the Central Bank has limited FX reserves and deficits exhaust them, the exchange rate would depreciate quickly and would cause a financial crisis, with a number of banks and corporations with large foreign debts going broke.
- Therefore, a key question is what generates a current account deficit, and what can be done to control it, other than just changing the exchange rate.
- Normally, there is a relationship between the size of the Current Account and the size of the Fiscal Budget Deficit: That is, in most situations, a large fiscal budget deficit is reflected in a large current account deficit.
- To reduce the CA deficit, the fiscal deficit should be reduced: generally, the Current Account deficits should not exceed more that 2% - 3% of GDP.

Current Account Balance as % of GDP (2012 Est)

Country	CA balance (% of GDP)				
Zimbabwe	-36.23%	Czech Republic	-2.95%	China	2.76%
Georgia	-11.77%	Canada	-2.81%	Philippines	3.15%
Moldova	-11.52%	Australia	-2.25%	Thailand	3.43%
Armenia	-10.93%	Brazil	-2.11%	Hong Kong	5.30%
Belarus	-10.47%	France	-1.95%	Russia	5.34%
Cyprus	-10.44%	United Kingdom	-1.92%	Germany	5.65%
Turkey	-9.96%	Peru	-1.89%	Denmark	6.68%
Greece	-9.81%	Chile	-1.30%	Sweden	6.93%
Serbia	-9.50%	Finland	-1.19%	Kazakhstan	7.58%
Portugal	-6.45%	Belgium	-1.00%	Netherlands	8.46%
Iceland	-6.23%	Mexico	-0.96%	Venezuela	8.60%
Ukraine	-5.45%	Argentina	-0.07%	Taiwan	8.92%
Romania	-4.40%	Slovenia	0.00%	Malaysia	11.02%
Poland	-4.32%	Israel	0.78%	Iran	12.46%
New Zealand	-4.18%	Bulgaria	0.94%	Norway	14.48%
Spain	-3.53%	Ireland	1.12%	Singapore	21.93%
Italy	-3.26%	Hungary	1.40%	Azerbaijan	26.45%
United States	-3.09%	Austria	1.95%	Saudi Arabia	26.55%
Colombia	-3.05%	Japan	2.03%	Qatar	30.22%
		Estonia	2.12%	Kuwait	43.98%
		Korea	2.38%	Brunei	48.55%

Relationship between Fiscal Budget and BOP Deficits

National Accounts: Money Flows

Current Account Bal
$X - J + Yf + YTf$

Foreign Countries
Balance of Payments

FDIs - Foreign Direct Invs
Kg, Kp - Foreign Credits

Non-Financial Private Sector

Exports X

J-Imports

Yf-Foreign Income/transfers, net

Production Factor Market (Wages, Rent, Profits)

I Investments

Firms

Y Income

Y Income **Households**

S Savings

Goods & Services Markets

C

C Consumption

G **Government**

T- Taxes

Government purchases of good and services, net

Government Borrowings:
NDCg + Kg (Net Dom Credit + Foreign Credits to Gvt)

Private-Sector Borrowings :
NDCp + Kp

Financial Markets

Money Flows on the Demand Side:
$Y = C + I + G + X - J$

Government Financing:
$G - T = NDCg + Kg$

Money Flows on the Income Side:
$Y = C + S + T - Yf$

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Francois Quesnay, Tableu Economique, 1758; Simon Kuznets, National Income, 1929-1932; 1934 (ed Kharkiv)

(1) From the left (Firms) side: $Y = C + I + G + X - J$

(2) From the right (Households) side: $Y = C + S + T - Y_f$

Since Y is equal is both sides, or (1)=(2), then:

$$C + I + G + X - J = C + S + T - Y_f - TR_f$$

Rearranging: $\mathbf{X - J} + Y_f \quad = \quad \mathbf{(S - I)} \quad + \quad \mathbf{(T - G)}$

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In words: **Current Account**   **Private Sector**   **Fiscal Budget**
          Balance (CAB)   =   **Balance (PSB)**   +   **Balance (FBB)**

If PSB=0, Current Account Balance = Fiscal Budget Balance
          Here, a Fiscal Deficit will yield an equally-sized CA Deficit
If FBB=0, Current Account Balance = Private Sector Balance
          A Private Sector Deficit will yield an equal CA Deficit
In summary, a Fiscal Deficit is likely to cause a BOP Deficit, with
     increased public & foreign debt and an eventual financial crisis.
To eliminate the deficits, the government must reduce expenditures or
     increase taxes; or the private sector must reduce investments or
     increase savings => These are called AUSTERITY MEASURES.

Monetary Policies….

- If a government can not increase public debt (because it is already too high), but still wishes to give "extra money" to consumers and firms to stimulate growth, it could just order the Central Bank to "print" money and increase "money supply".

- The Central Bank has various ways to increase money supply, including:
  - Lowering the Central Bank's interest rates to encourage banks to borrow more.
  - Reducing the level of reserve requirement that banks have to maintain with the Central Bank (as precautionary liquidity reserves), thus allowing banks to lend this extra money, increasing money supply.
  - Conducting "open market operations" which involves buying government bills and bonds from banks to give them more cash that they can then lend.
  - Buying other securities (quantitative easiness) to increase money supply.

- The increased "money supply" (money in circulation) may exceed the amount of money that all consumers want to hold (called "money demand "Md").

- Money demand is not determined by the Central Bank, but by individuals and firms that may want to hold money for transaction purposes (purchases), for precautionary/speculative purposes, or just as an storage of value (savings). 45

…..Monetary Policies

- Therefore Money Demand will depend mainly on the population's income Y, the inflation rates P, and interest rates i ➔ **Md = f (Y, P, i)**.

- When Money Supply exceeds Money Demand, consumers will try to get rid of this excess and use this extra money to buy goods/services (either locally or imported), which may stimulate consumption, investments and growth.

- Also, the increase in money supply will reduce interest rates, encouraging investments and income growth.

- These policies could be beneficial if GDP growth and inflation are low.

- But if there are constraints to production increases (due for example to a poor business climate), this extra money will just cause **inflation** (if money is used to buy local goods) or cause a **BOP deficits** (if it is used to buy imports) **leading to a currency devaluation.** Also, if investors are concerned with policy reversals (e.g., interest rate increases), investments will not increase.

- Therefore, there are limits to the amount of money that can be "printed," since historically, printing money has been a major cause of inflation.

- Normally, money supply should not increase by more that 3% - 5% above the growth rate of GDP to avoid inflation and other credit risks.

Why Excess Money Supply May lead to Inflation?

- The Quantity Theory of Money provides and early analysis of how "excessive" money supply can lead to price increases or inflation.
- It was first described by Copernicus (1526), the Salamanca School (1550), and Jean Bodin (1560) -- the last two to explain high inflation in Spain in the 1500's due to excessive silver from Mexico & Peru.
- John Locke (1692), David Hume (1748) and John Stuart Mills (1848) described precisely the relation between money supply and the value of money transactions.
- It was formulated as an equation by Irving Fisher (1911) and reformulated in its modern version by Milton Friedman (1956).
- The main points can de described as follows:
  - In the economy there are 100 monetary units (M), which are spent exclusively in the purchase of goods.
  - In this economy the quantity of goods sold (Q) is 100 goods per year.
  - Then, the price of each good sold (P) will be 1 monetary unit (P).
  - Later on, the government prints money and the amount of money goes to 200 monetary units, but there are still 100 goods sold.

– Then the price of each good will be 2 money units: a 100% inflation.

Therefore: $M = P \times Q$

– Since this assumed a transaction velocity of money of 1, generalizing to a velocity different to one (Vt) - which implies a changing Money Demand, we get the formulation of the Quantitative Theory of Money:

$M_x V t = P_x Q$

– Since the amount sold (Q) is proportional to the amount produced (Y):

$M_x V = P_x Y$ where V is now the income velocity of money.

– Considering changes: $(1 + \Delta M) \times (1 + \Delta V) = (1 + \Delta P) \times (1 + \Delta Y)$

– or: $(1 + \Delta P) = (1 + \Delta M) \times (1 + \Delta V) / (1 + \Delta Y)$

• Classical economists believed that Velocity is stable ($\Delta V = 0$) and therefore

$\Delta P = f(\Delta M, -\Delta Y)$: increases in money supply will generate inflation.

• In the case that Y (real GDP) grows by 3%, money demand is constant (velocity is constant), and the amount of money in the economy grows by 20%, and then inflation will be 16.5%, (ie, 1.20/1.03).

• Keynesians believed that increases in Money Supply will reduce Velocity and increase real income, at least in the short term, w/o price changes.

- In most countries there have been close historical relationships between increases in money supply and inflation:

U.K. - Broad money growth and inflation

Percentage changes on a year earlier

Broad money(a)

ONS composite price index
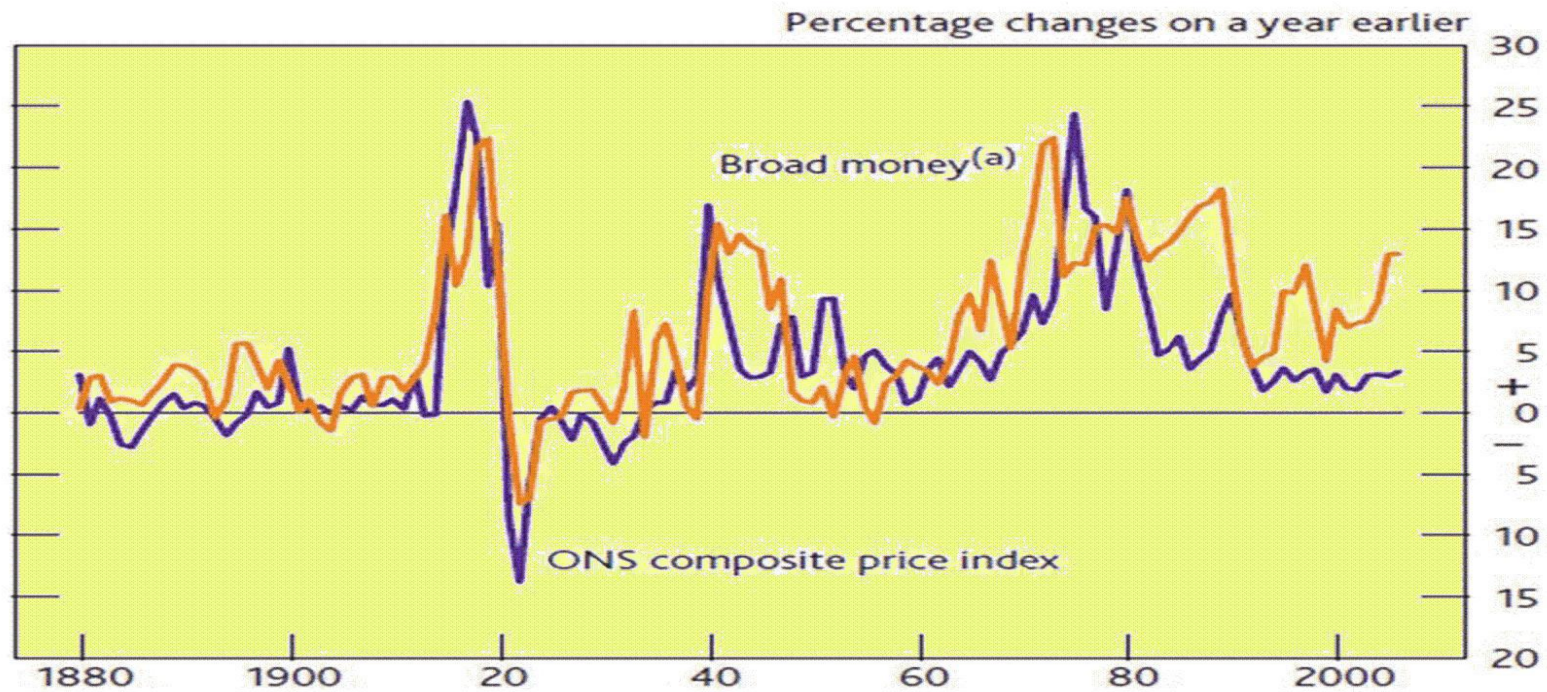
Sources: Bank of England, Capie and Webber (1995) and ONS.

(a) Based on M3 until 1963 and then M4.

- Both fiscal and monetary policies have limitations!!!

Setting Fiscal/Monetary Policies: Financial Programming

- The IMF uses this model to determine the fiscal and monetary policies that are necessary to avoid excessive fiscal and BOP deficits and avoid economic crises.

Macroeconomic Objective:
dY - Growth of Income
dP - Inflation rate (Price Change)
dR - Change in International Reserves
(partly by changing Exchange Rate)

$Md = f(Y, P, i)$ or $M = (P.Y)/V$

For Equilibrium:
$Md = Ms$

FISCAL BLOCK:
Government Revenues
- Government Expenditures

Fiscal Balance

To be financed by:
NDCg
Foreign Funds, Kg

MONETARY BLOCK:
Banking Sector Balance Sheet

R   Ms
NDC
  NDCg   NW
  NDCp
NOI

BALANCE OF PAYMENTS BLOCK
Exports
- Imports
+/- Transfers and NFP

Current Account Balance

To be financed by:
Foreign Capital, Kg, Kp
Changes in Reserves, dR

For the economic system to be in equilibrium:
Money Supply should not exceed money demand; otherwise, inflation will be up, imports up, & reserves down
The Fiscal Deficit can not exceed the amount financed by NDCg and K.
IMF Performance Criteria: (i) Maximum Size of Fiscal Deficit; (ii) Ceilings on Public Sector Borrowings
(iii) Minimum Level of International Reserves (adj. in exchange rates)

Financial Programming Explained

Financial Programming works as follows:

- The country sets objectives about GDP growth (dY, say 5% pa), inflation (dP, say 4% pa), and level of reserves (dR, say three-months of imports).

- These numbers define the size of Money Demand (Md), which is a function principally of GDP growth and inflation (prices) – which are defined above.

- For equilibrium, Money Supply (Ms, currency in circulation plus bank deposits) should not exceed the above-calculated Money Demand. Otherwise there will be extra inflation and BOP deficits. Therefore, Monetary Policy is defined here.

- Money Supply represents the liability side of the banking sectors (including the central bank). Therefore, this Asset side of the banking sector is also defined.

- Most accounts in the asset side of the banking sector are also defined: (i) credit to the private sector (NDCp) is defined by the desired growth in GDP, and (ii) international reserves (R) are defined by the results of the balance of payments.

- The only remaining amount in the asset side of the banking sector is the level of credits to the Government (NDCg). This is all that the government can get.

- Therefore, the size of the fiscal deficit is limited by this amount of credit financing available from the banks, plus any sustainable foreign borrowings.

- This defines the extent of feasible non-inflationary Fiscal Expansionary Policies. 51

Demand-Side Policies and the Relationships between Investments/Savings, Money-Demand/Money-Supply, and Income (IS-LM Relation)
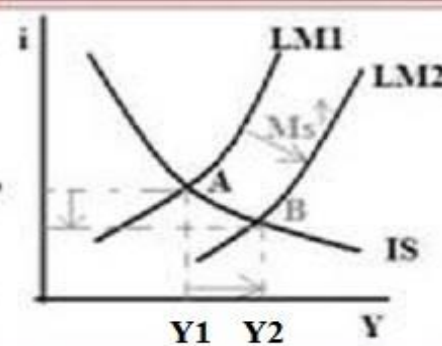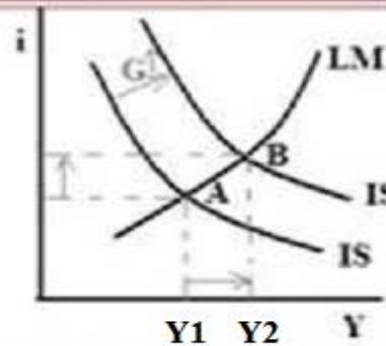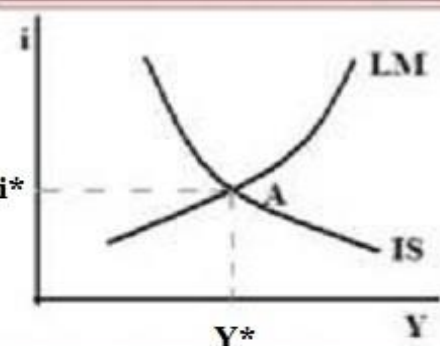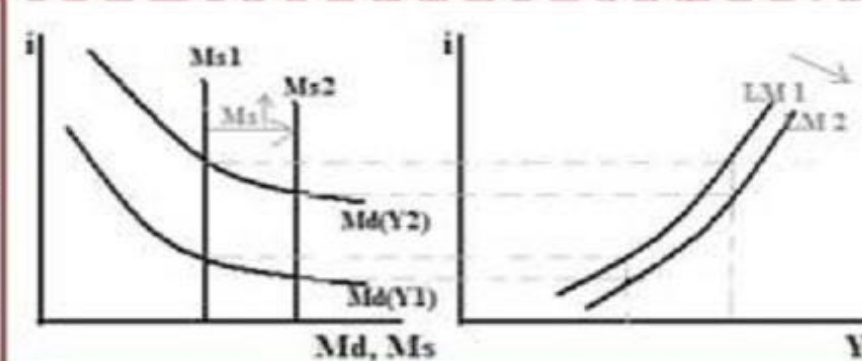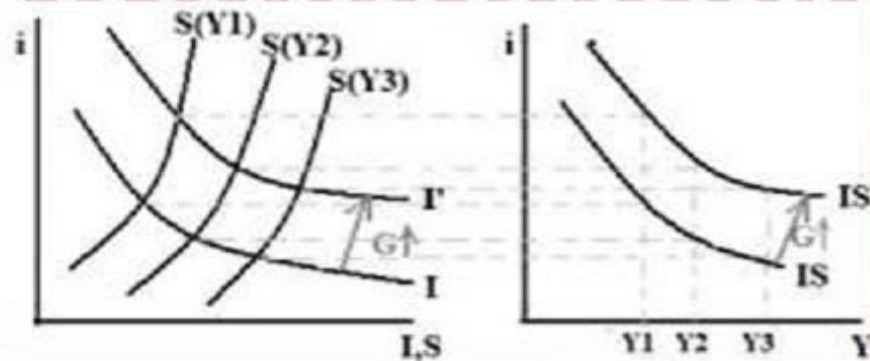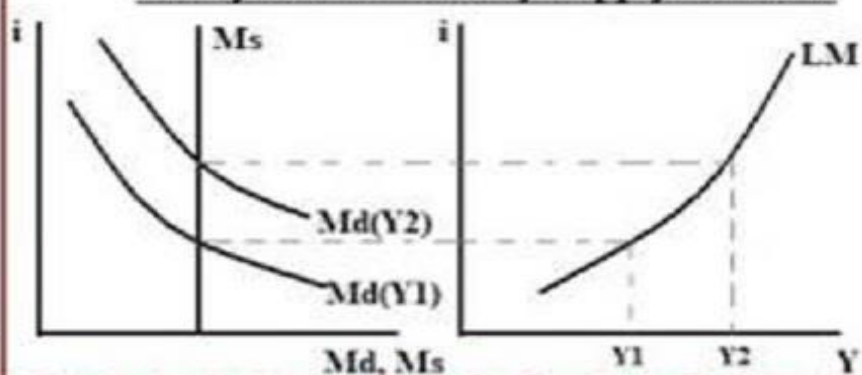
Introducing Price Changes: Aggregate Demand in the IS-LM Framework

- The IS-LM curves represent the equilibrium in the goods market (IS) and in the financial market (LM) for a given price level (point 1).

- In a chart of Price to Income (Aggregate Demand - AD), this equilibrium is also represented by point 1.

- If prices change, all variables become real variables (adjusted for inflation), such as real interest rates, real income, real investments, and particularly real money supply (M/P).

- If prices increase (say from P1 to P2):

  P↑ M/P↓ LM1 move to LM2 i↑ I↓ Y↓

- This will give us a new equilibrium point 2 in the IS-LM chart and a new point in the Aggregate Demand curve (Y2 and P2).

- We can do this several times to build the entire Aggregate Demand Curve.
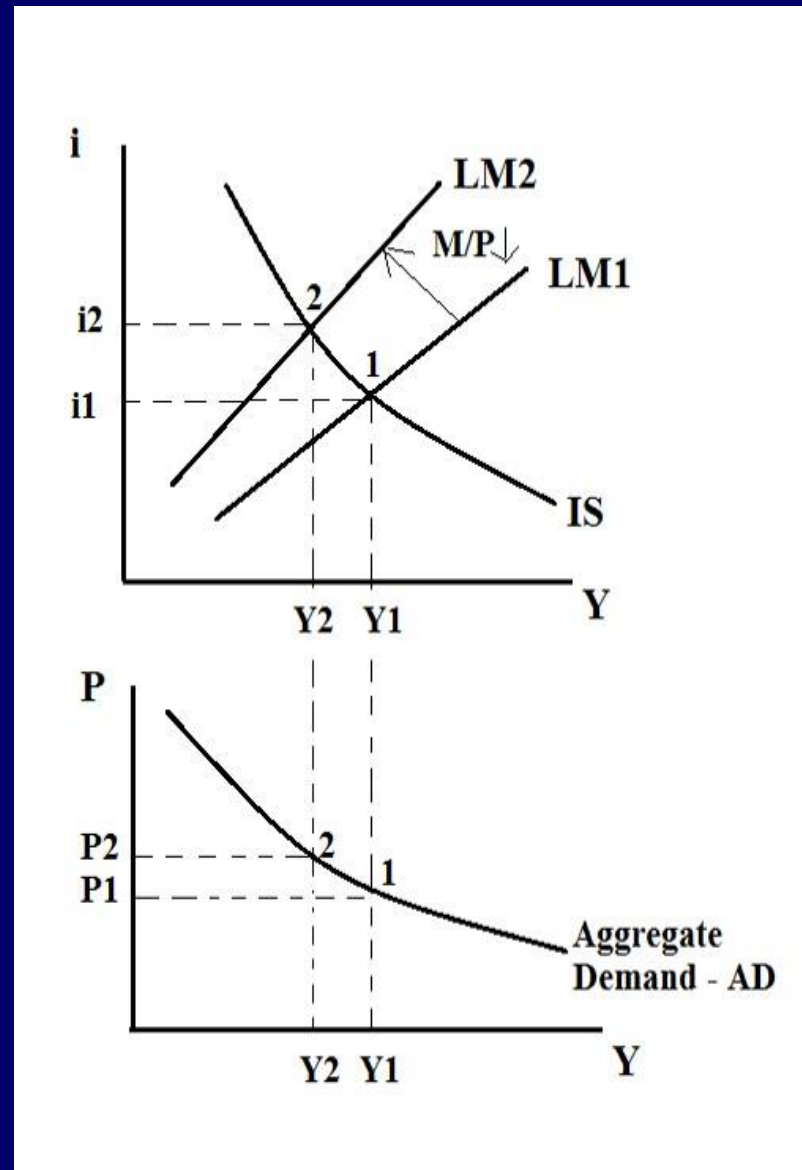
The Aggregate Supply Curve in the IS-LM Model

- **Over the long run**, changes in prices do not affect the level of output that could be supplied. Over the long run, aggregate supply will depend only on the amount of capital, labor, technology and resources available to the economy. As such the Long-Run Aggregate Supply (LRAS) curve is vertical at Y*.

- **But over the short term**, because either prices or wages are sticky, the Short-Run Aggregate Supply (SRAS) curve is positive slopping.

- For example, because over the short term nominal **wage W is sticky**, an increase in the price level from $P1$ to $P2$ reduces the "real" wage from $W/P1$ to $W/P2$. The lower real wage raises the quantity of labor demanded. According to the production function, an increase in the quantity of labor demanded raises output (from Y1 to Y2).

- Also, if product prices are sticky, firms will want higher prices now if the marginal cost of production is higher.

- The short term aggregate supply curve summarizing this positive relationship between the price level (P) and output (Y).
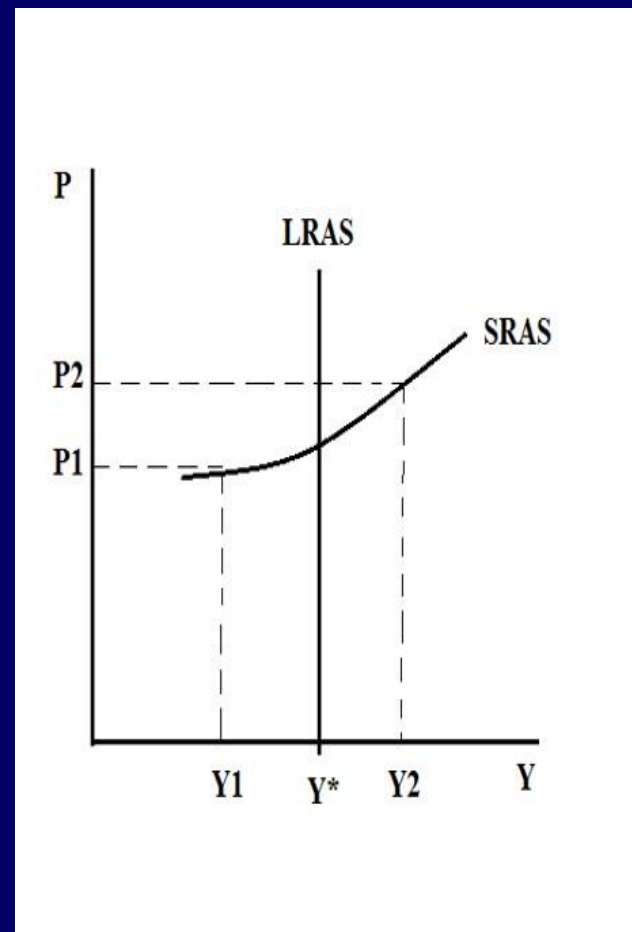
Equilibrium of AD and AS and Effects of Fiscal and Monetary Policies

- Increases in Money Supply (M) or Government expenditures (G) will move the AD curve right and produce a short-term increase in Prices (to P2) (inflation) and in Income (to Y2).

- But at P2, M/P↓ i↑ I↓ and Y↓ → Over the long run, Income Y2 will return to its long term equilibrium (Y1) but prices will increase permanently to P4.

- Similarly a reduction in Money Supply or Govt. expenditures will yield a temporary reduction in Prices and income; but eventually income will return to Y1, with lower Prices.
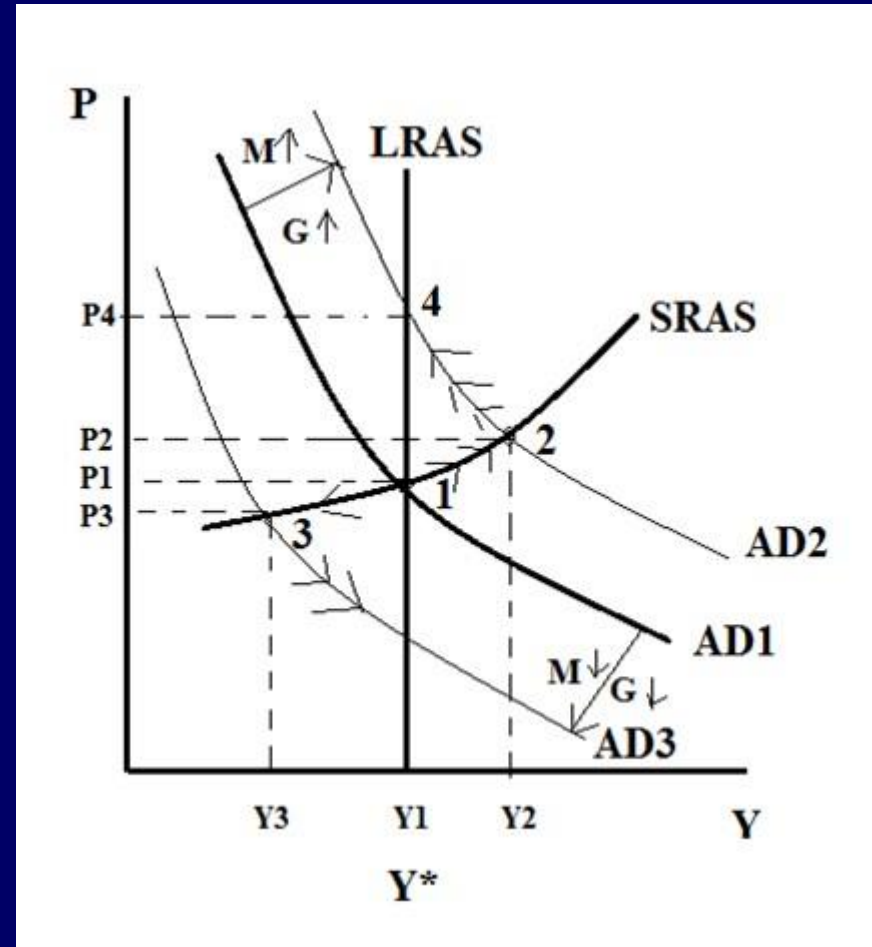
- Neo-classical economists believe that this total adjustment will be quick and therefore fiscal and monetary policies are useless. But Keynesians believe that the adjustment will take years and in the meantime the economy will expand.

Demand-Side Policies under Supply Rigidities

The changes in Prices and Income produced by these fiscal and monetary policies will also depend on the shape of the SRAS curve: As we discussed earlier, with supply rigidities, even in the short run, demand policies will increase P, with no increases in Y.

Effect of Expansionary Policies (G⇧or M⇧) on Prices and Income
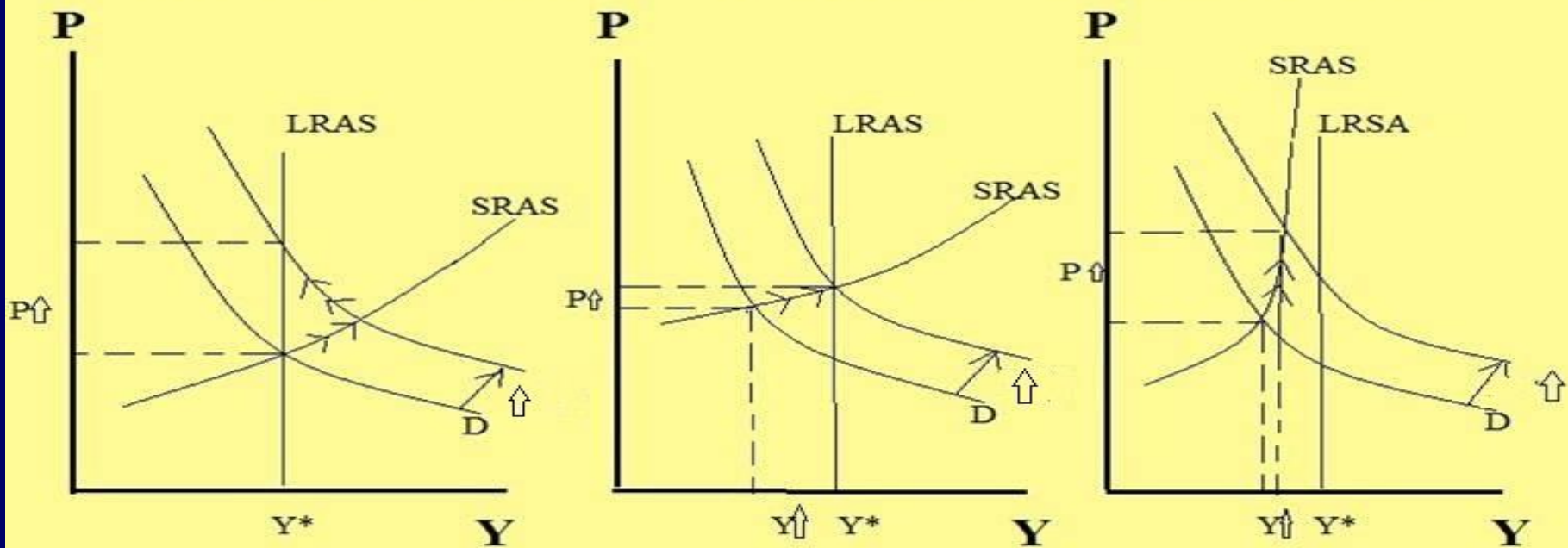
Expansionary policies under full emplyment Y* will just increase Prices

Expansionary policies under spare capacity would principally increase income

Expansionary policies with rigidities will principally increase prices

MICROECONOMICS

- To understand microeconomics graphically, first we need to see how economic relationships are expressed.

- A relationships (say Prices to Quantity demanded) could be expressed as a table or graphs:

Price per Unit (P)	Units Sold (Q)
≈ 0	200 units
$10	150 units
$20	100 units
$30	50 units
$40	0 units
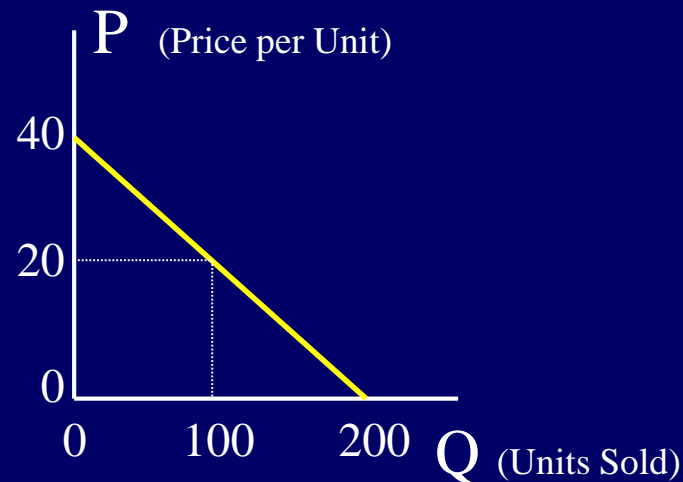
- Alternatively, this relationship can be expressed as a function:

  $P = 40 - 0.2\ Q$ i.e., if Q = 100, then $P = 40 - 0.2_x 100 = 20$

A Market Economy based on the equilibrium of Demand and Supply

- Microeconomics is based on the believe that the best utilization of the country's resources is achieved when the amounts demanded by consumers (the amounts that would maximize consumer satisfaction) is equal to the amount that producers wish to supply (which maximize efficiency and profits).

- At this point, the amounts demanded and supplied would be one: Q*, and the price of he good would be P*.
- The **Demand** curve goes down because the higher the price the lower the amount consumers want to buy.
- The **Supply** curve goes up because the higher the price the higher producers wish to supply.
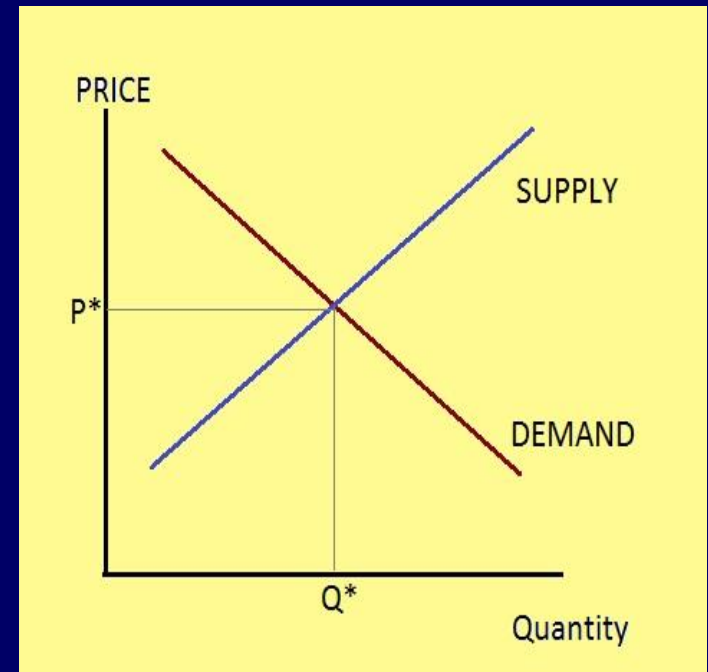
Why points in the demand curve provide maximum satisfaction to consumers?

To see why, we need to derive the Demand curve using Indifference Curves:

- The Indifference curve is a curve that defines the combinations of 2 goods (Y and X) that give a consumer the same level of satisfaction.

- The further away from the origin, the greater the satisfaction of consumers (shown by the arrow).

- But consumers face budget constraints

Good Y

III.

II.

I.

Greater satisfaction

Indifference Curve 1

Good X
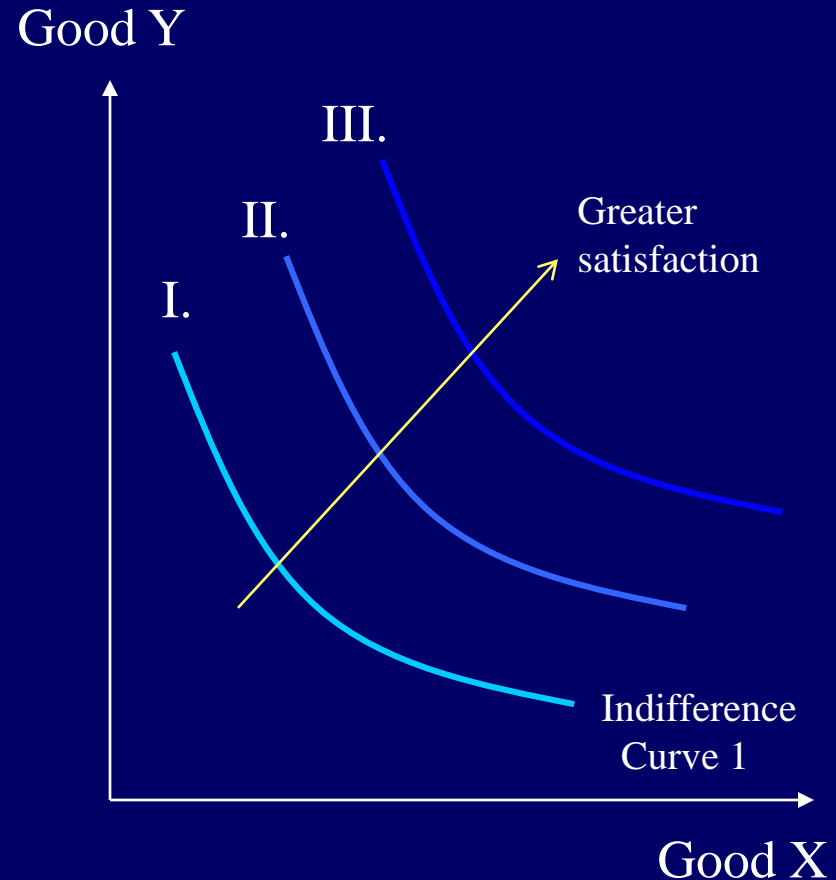
The consumer budget constraint is given by the income (M) of the consumers which limits how far from the origin it can go:

- Expenditures (PxQ) can not exceed income.

- The Budget Line is the combination of goods that exhaust a consumer income:

  - $M = P_x X + P_y Y$

  - Or: $Y = M/P_Y - (P_X/P_Y)X$

- Opportunity Set

  – The set of consumption bundles that are affordable.

  - $P_x X + P_y Y \leq M$.

Good Y

The Opportunity Set

Budget Line: Combination of goods X and Y that uses all income

Good X

If consumption of Y is zero, maximum amount of good X will be: M/Px
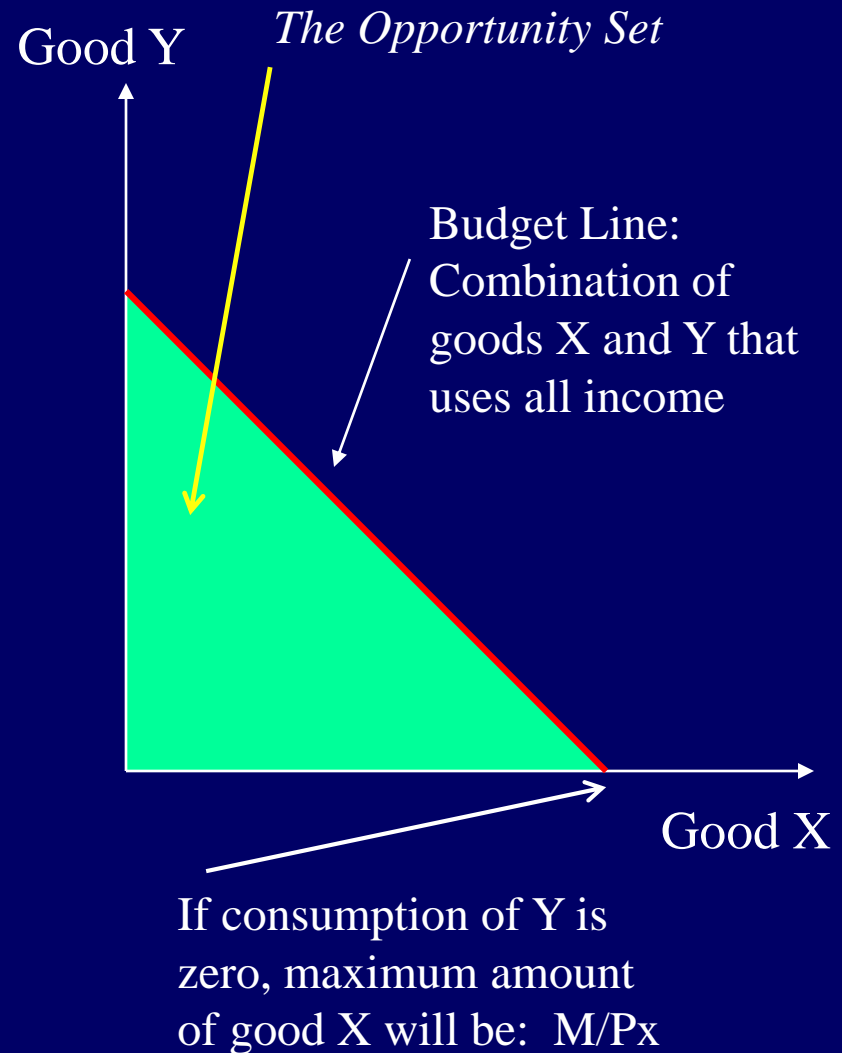
Changes in the Budget Line

- ## Changes in Income

  - Income increases lead to a parallel, outward shift in the budget line $(M_1 > M_0)$.

 - Income decreases lead to a parallel, downward shift $(M_2 < M_0)$.

Good Y

New Budget Line for an income increase
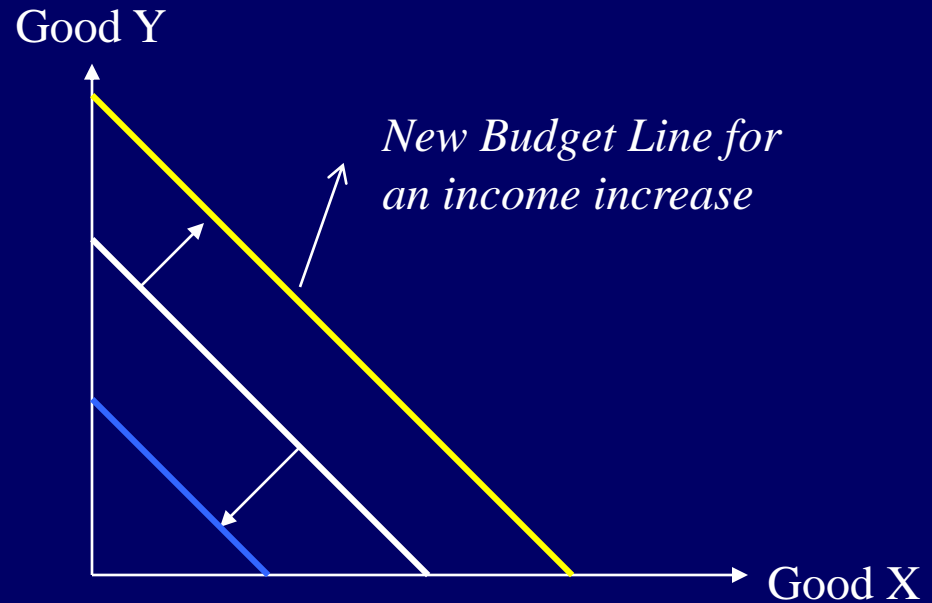
Good X

- ## Changes in Price

  - A decrease in the price of good X rotates the budget line counter-clockwise $(P_{X_0} > P_{X_1})$.

  - An increase in prices rotates the budget line clockwise (not shown).

Good Y

*New Budget Line for a price decrease.*

Good X
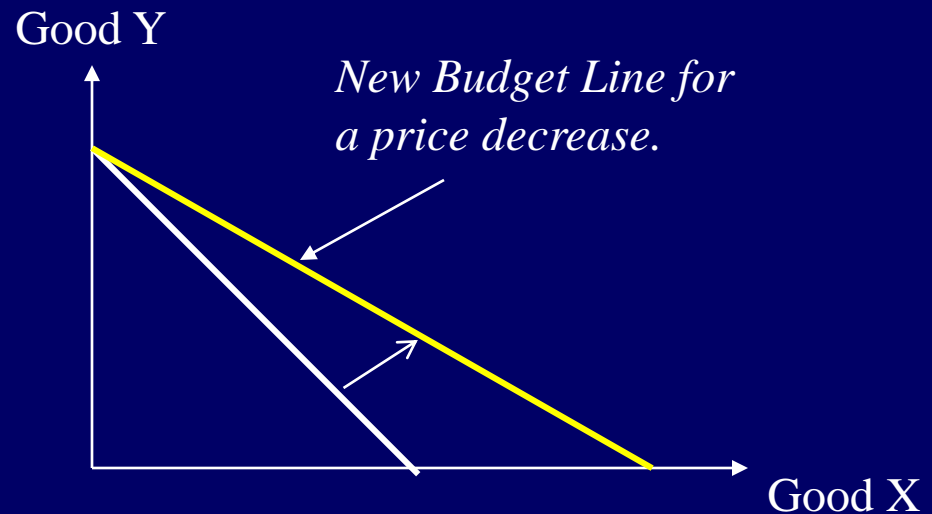
Consumer Equilibrium

- The equilibrium consumption bundle is the affordable bundle (within the opportunity set) that yields the highest level of satisfaction (max to the right).
  - Consumer equilibrium occurs at a point where
    $$MRS = P_X / P_Y.$$
  - Equivalently, the slope of the indifference curve (-MRS) equals the slope of the budget line ($- P_X / P_Y$).
- The combination of Px and Qx at this consumer equilibrium is a point in the demand curve, which provides maximum consumer satisfaction for a level of income.

Good Y

M/P_Y

Consumer Equilibrium

Qy

III.

II.

I.

Qx

M/P_X

X
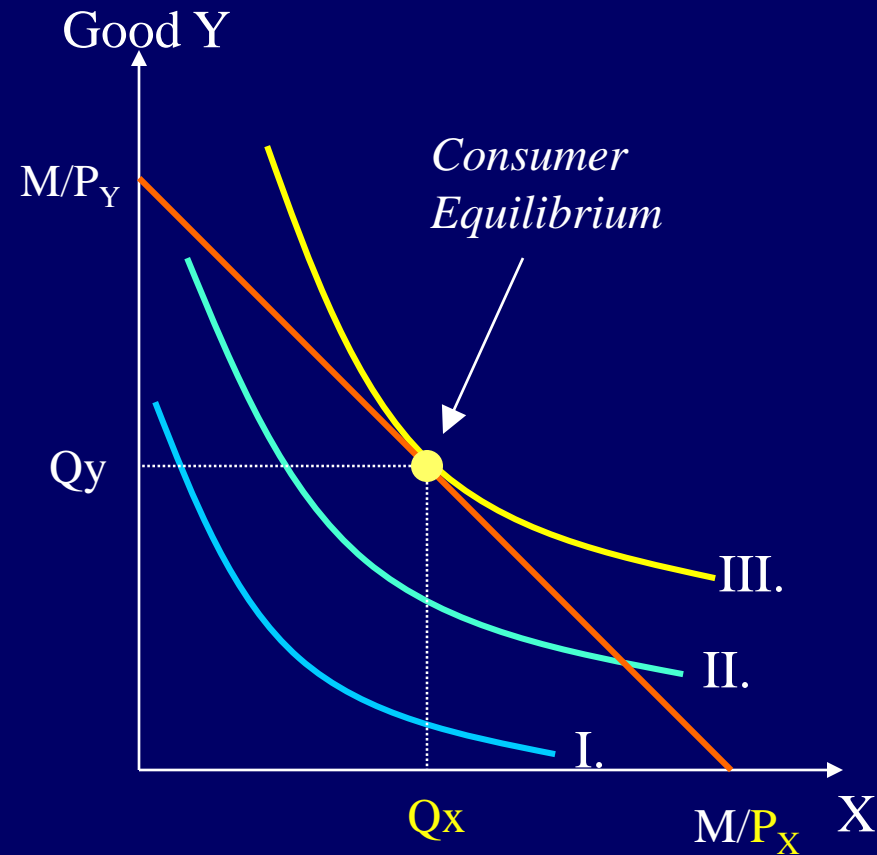
Individual Demand Curve

- An individual's demand curve is derived from each new equilibrium point found on the indifference curve as the budget line varies as the price of good X varies.

- Therefore, all the points in the demand curve provides the maximum satisfaction to consumers for a given income, given a preference between a good X and other goods (Y).
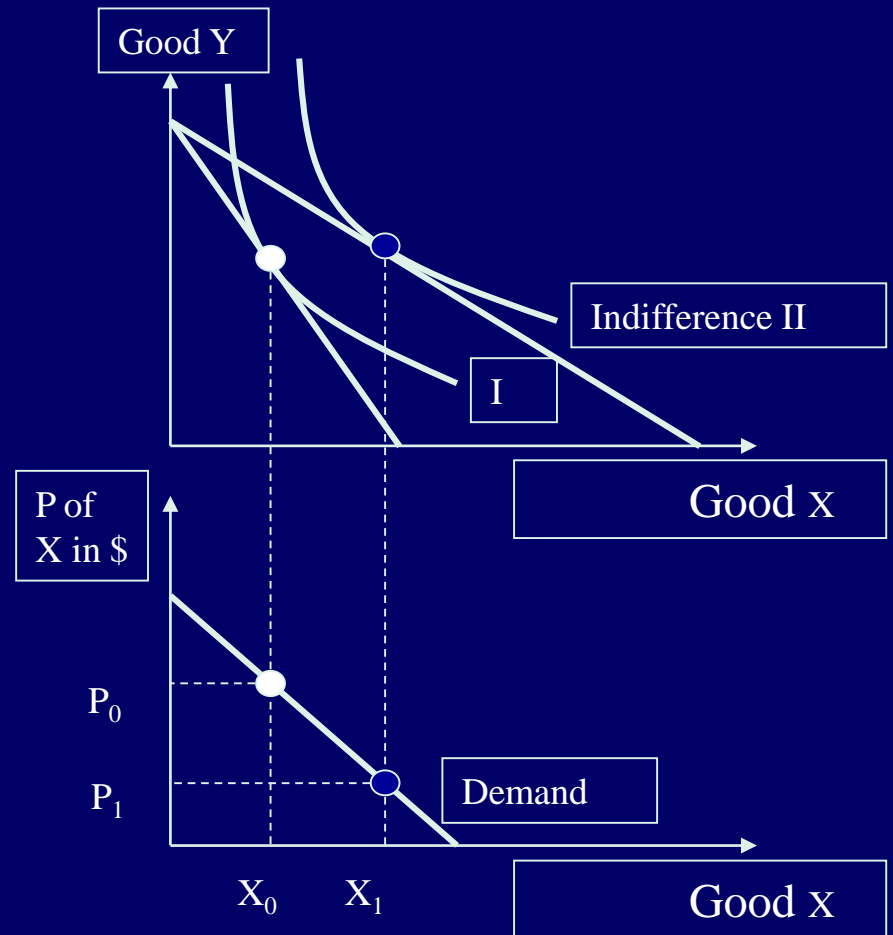
Market Supply Curve

- The demand curve represents half of the forces that determines prices in a market (Marshall: "To ask whether supply or demand determines prices is like asking whether the upper of lower blade of a scissor does the cutting").

- The other-half price determinant is the supply curve that shows the amount of a good that will be produced at alternative prices.

- *Law of Supply*

  – The supply curve is upward sloping: If prices are increased' producers will increase the quantities supplied, if nothing else changes.
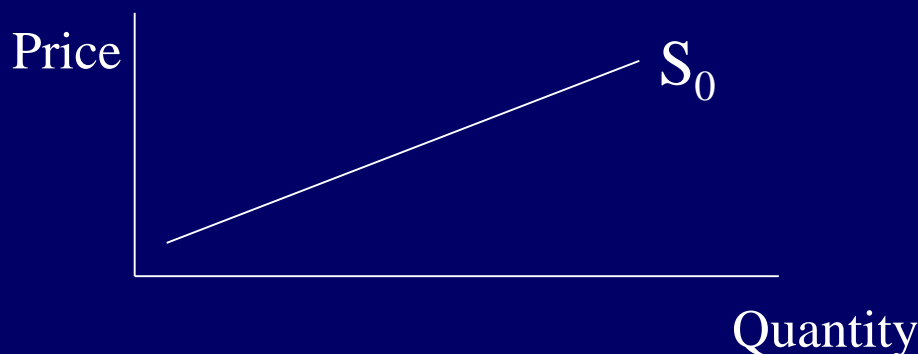
Change in Quantity Supplied

- The supply curve represents the points in which producers are obtaining maximum efficiency and are maximizing profits.
- Under competition, at these points, the "incremental/ marginal" revenues of the firm will be equal to their "incremental/ marginal" cost".
- If incremental costs were to exceed incremental revenues, production will be reduced, and vice-versa.
- The supply curve, therefore, is the curve of marginal costs of the firm, which tends to increase with larger output.

Price

A to B: Increase in *quantity supplied*

S_0

20

B

10

A

5   10   Quantity
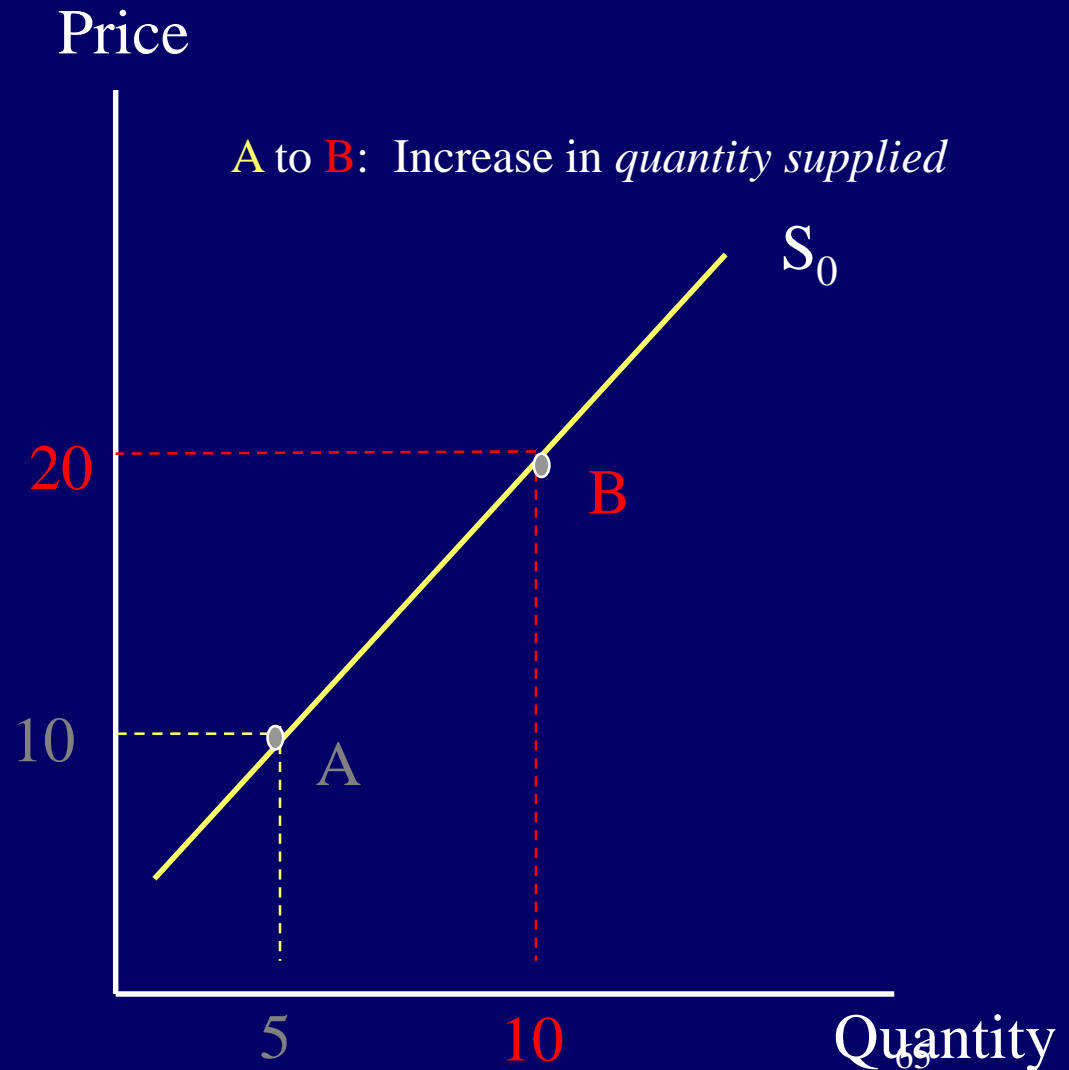
Demand & Supply: Market Equilibrium

- There is only one point in which consumers are maximizing their satisfaction AND producers are maximizing efficiency and profits.

- That point will be at the price P* and production and consumption at point Q*.

- That point can only be reached by a free and competitive interaction of buyers and sellers.

- Government interventions (such as setting arbitrary prices or quantities) may prevent this equilibrium point to be reached, thereby reducing consumer satisfaction and production profits.

- But government interventions are needed to ensure that a free and competitive market works (such as regulating monopolies, or removing lack of market information, correcting externalities).
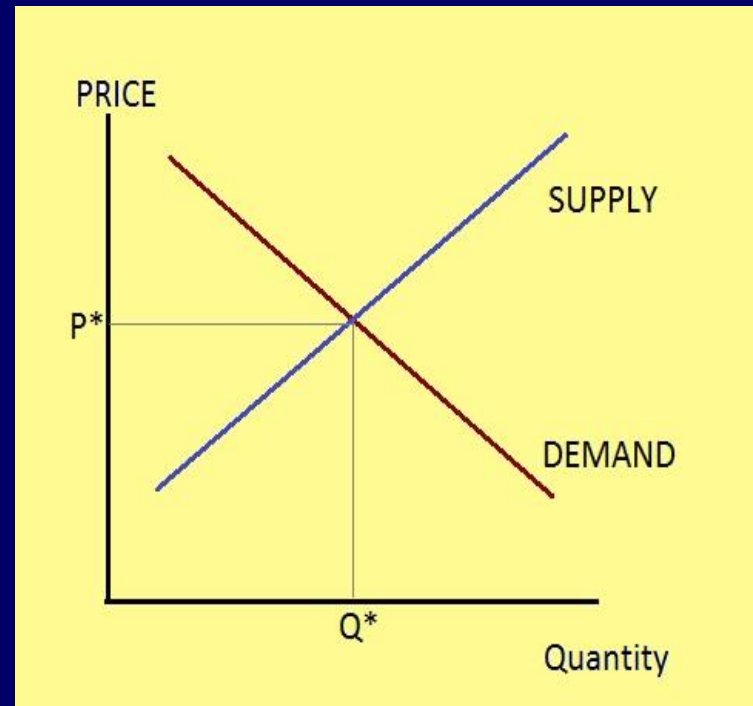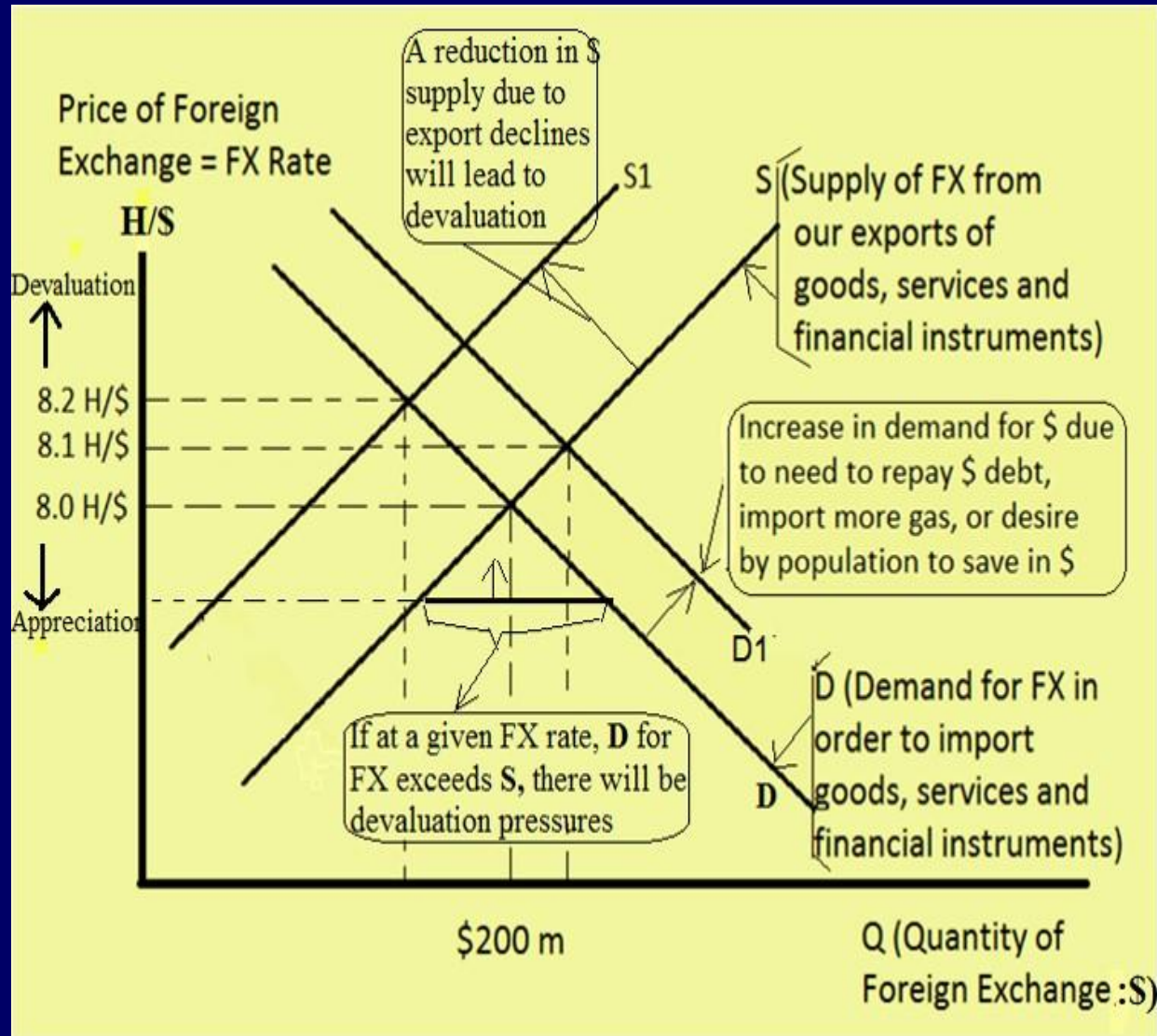
Demand & Supply: If price is too low there will be shortages…
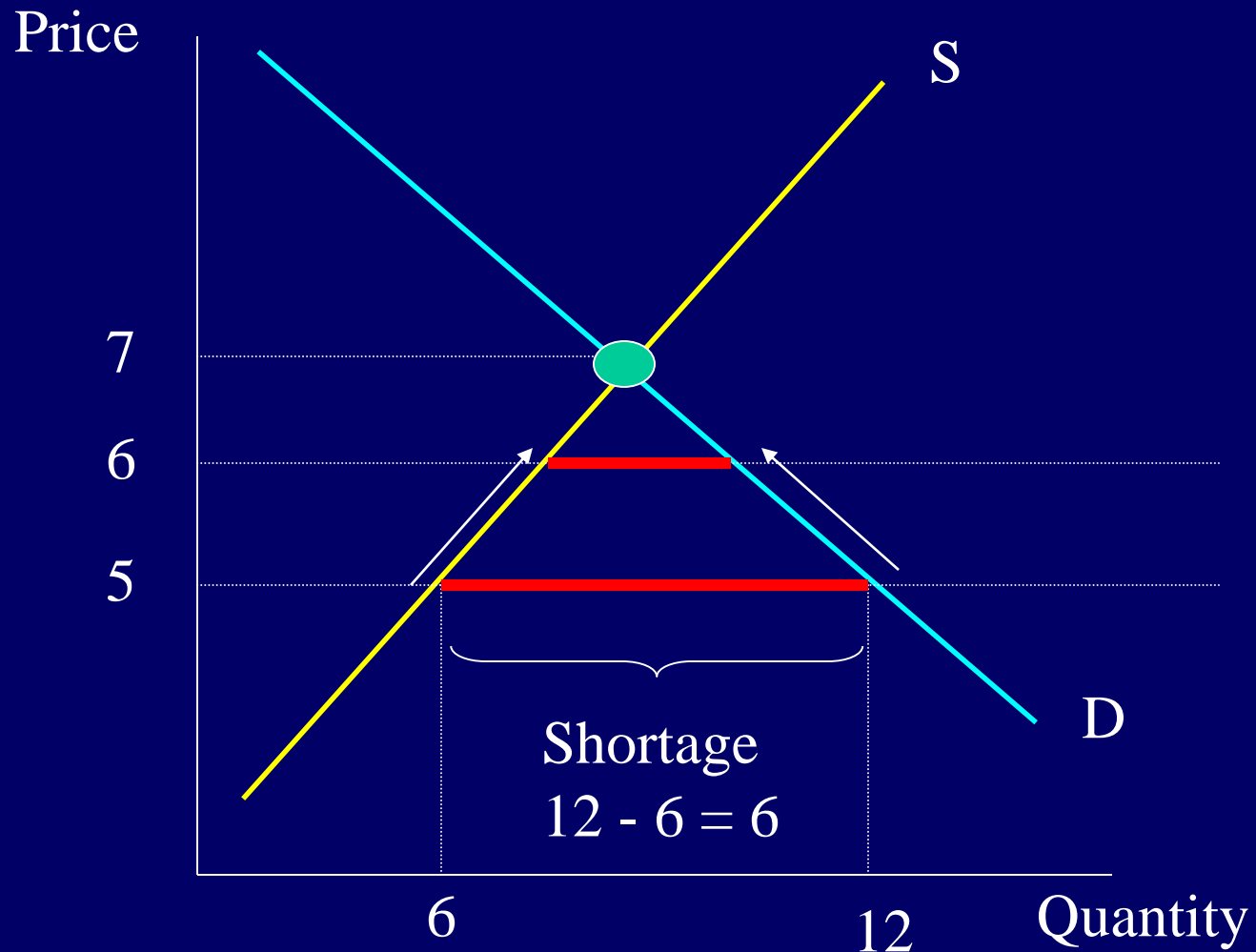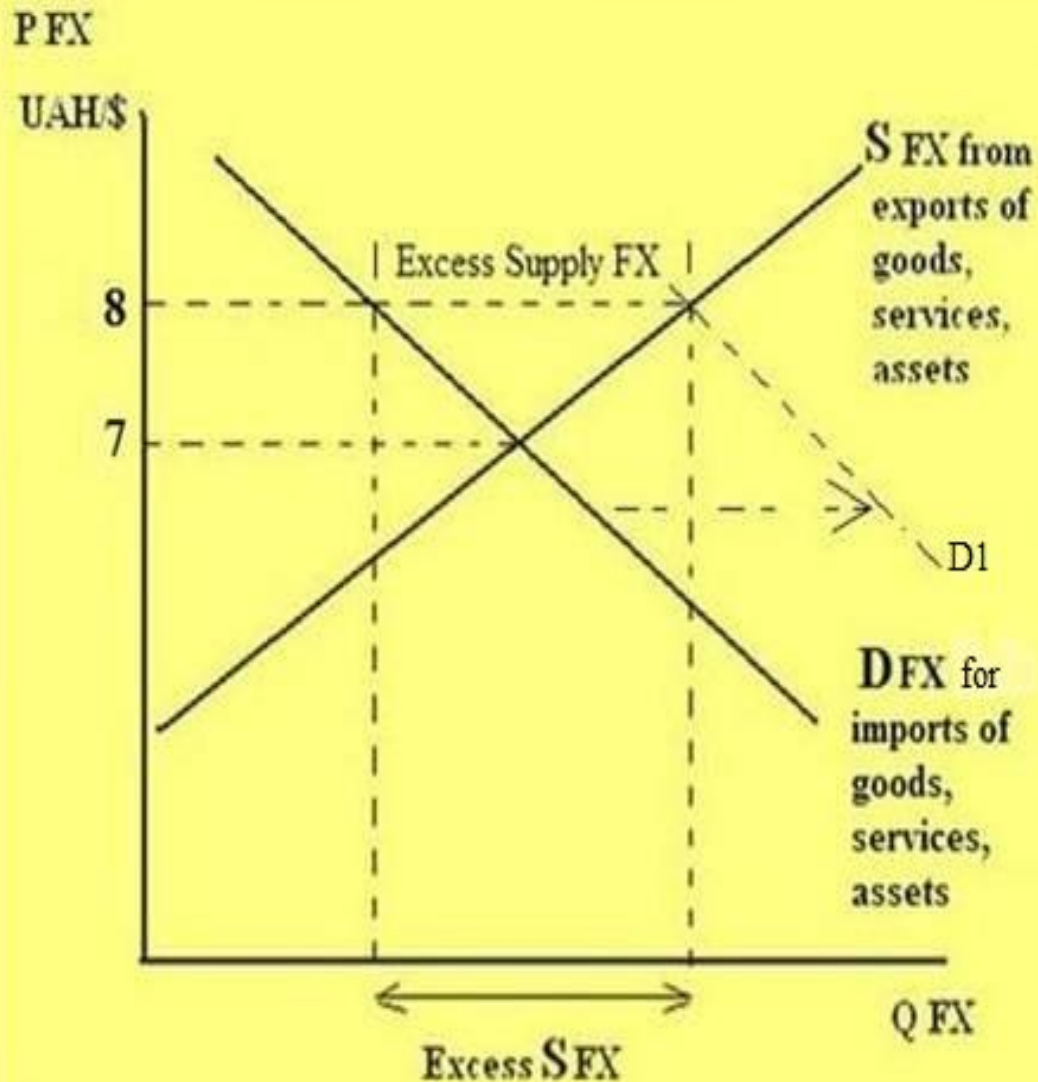
If price is too high there will be surpluses…

Surplus
14 - 6 = 8

Price

S

9

8

7

D

6   8   14   Quantity
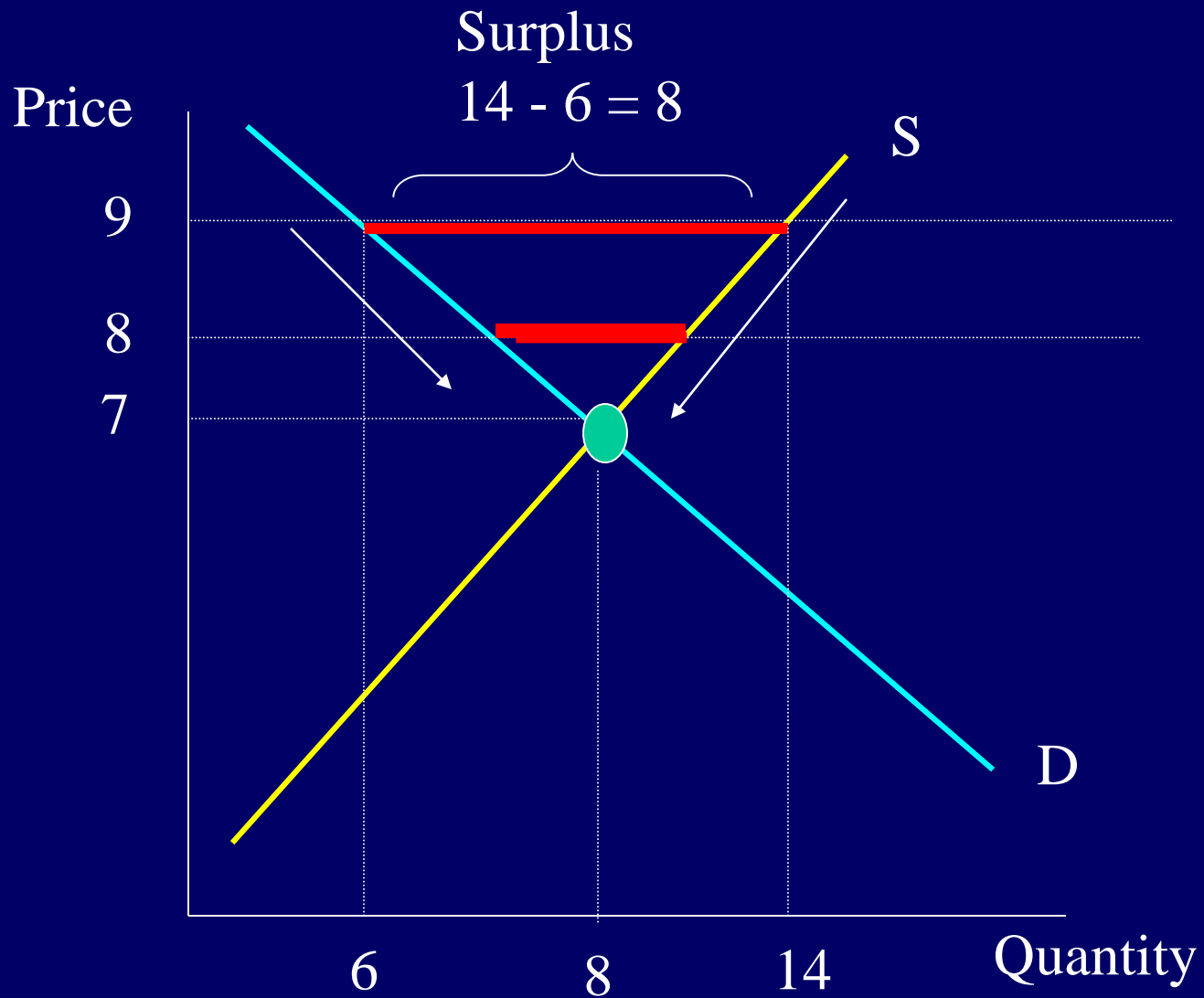
Example 1: Derived Demand and Supply Curves for Foreign Exchange: Key Determinant of Foreign Exchange Rates

Price of Foreign Exchange = FX Rate

H/S

Devaluation ↑

Appreciation ↓

8.2 H/$
8.1 H/$
8.0 H/$

A reduction in $ supply due to export declines will lead to devaluation

S1

S (Supply of FX from our exports of goods, services and financial instruments)

Increase in demand for $ due to need to repay $ debt, import more gas, or desire by population to save in $

D1

If at a given FX rate, D for FX exceeds S, there will be devaluation pressures

D (Demand for FX in order to import goods, services and financial instruments)

D

$200 m

Q (Quantity of Foreign Exchange :$)

The foreign exchange demand curve is downward sloping because at high FX rates (devalued Hryvnia), imports are expensive and will be low. Therefore, the demand for dollars to pay for these imports will be low. Similarly for low FX rates: imports will be high with high dollar demand. The FX supply curve is upward sloping because at low FX rates (appreciated Hryvnia), Ukrainian exports will be expensive and low. The supply of FX from these exports will be low.

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The Central Bank and Foreign Exchange Rate Stabilization

P FX

UAH$

S FX from exports of goods, services, assets

| Excess Supply FX |

8

7

D1

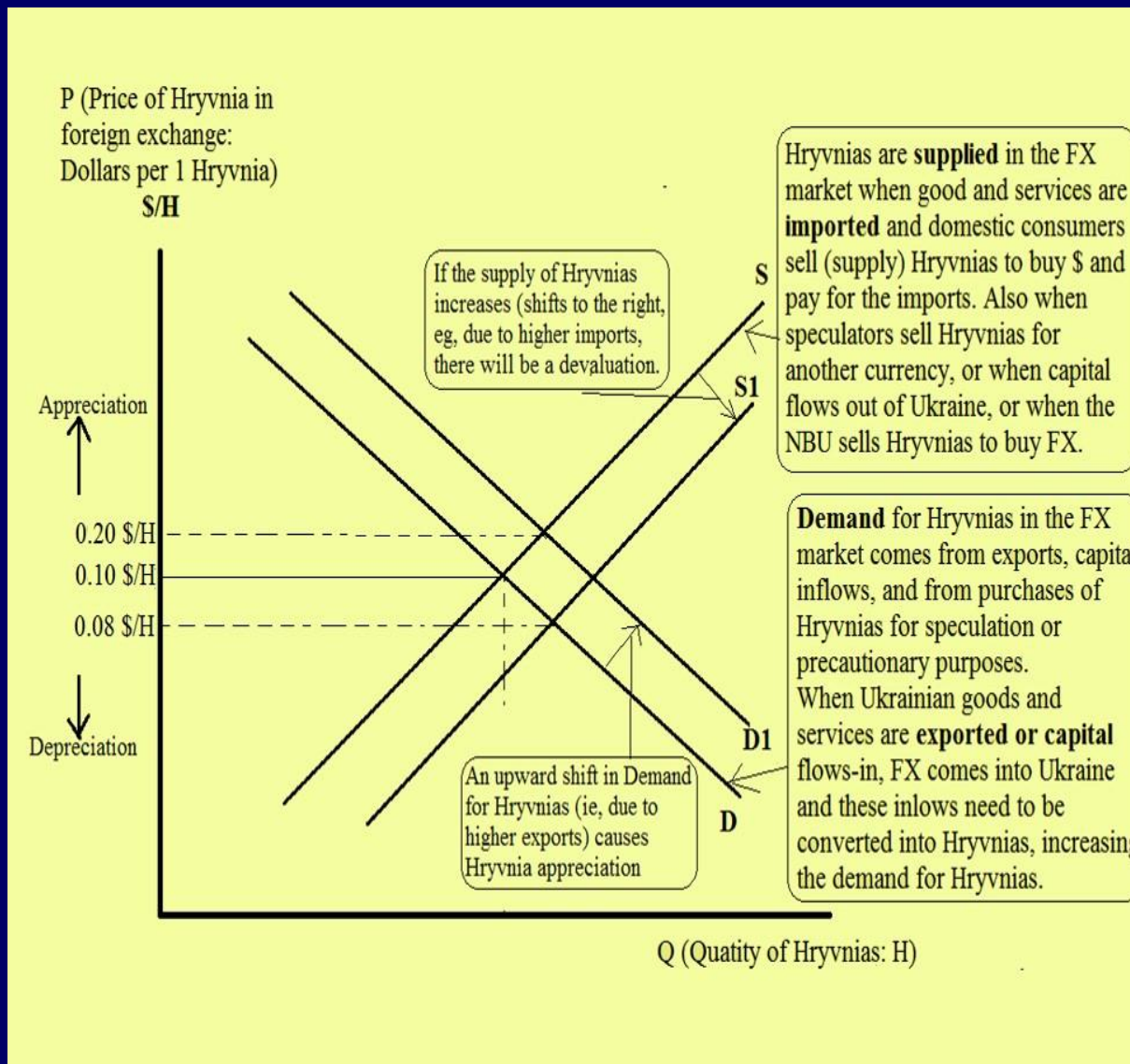D FX for imports of goods, services, assets

Q FX

Excess S FX

If Ukraine has a B/P surplus and a pegged exchange rate, there will be an excess supply of foreign exchange in the interbank market. This will tend to appreciate the FX rate from **8 to 7**.
To maintain the exchange rate at 8 the NBU will be obliged to buy this excess foreign exchange supply, moving the demand curve to the right.
Such transactions would increase the amount of international reserves of the NBU; but would also lead to inflationary pressures.

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Demand and Supply Curves for Foreign Exchange denominated in Local Currency

P (Price of Hryvnia in foreign exchange: Dollars per 1 Hryvnia)
S/H

Appreciation

0.20 $/H
0.10 $/H
0.08 $/H

Depreciation

If the supply of Hryvnias increases (shifts to the right, eg, due to higher imports, there will be a devaluation.

Hryvnias are **supplied** in the FX market when good and services are **imported** and domestic consumers sell (supply) Hryvnias to buy $ and pay for the imports. Also when speculators sell Hryvnias for another currency, or when capital flows out of Ukraine, or when the NBU sells Hryvnias to buy FX.

Demand for Hryvnias in the FX market comes from exports, capital inflows, and from purchases of Hryvnias for speculation or precautionary purposes. When Ukrainian goods and services are **exported or capital** flows-in, FX comes into Ukraine and these inlows need to be converted into Hryvnias, increasing the demand for Hryvnias.

An upward shift in Demand for Hryvnias (ie, due to higher exports) causes Hryvnia appreciation

S
S1
D1
D

Q (Quatity of Hryvnias: H)

The previous FX D-S curves can also be expressed in Hryvnias.

A Demand for FX (to buy imports) is equal to a Supply of Hryvnias in the FX market as domestic consumers sell (supply) Hryvnias in the FX market to buy FX and pay for the imports.

Similarly, a Supply of FX (from our exports) is also a Demand for Hryvnias as the FX inflows need to be converted into Hryvnias.

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Determination of Foreign Exchange Rates

The relevant question is who can shift the FX demand and supply curves?

- **Over the short-term** (up to one year), major financial institutions such as the Central Bank, commercial banks, etc, and the local population may change their FX demand-supply requirements, and affect the exchange rate, for any reasons. But eventually (for over a period of one year) their "interventions" will be limited by the stock of FX that they have and can sell or buy.

- **Over the medium term** (2-5 years), fundamental economic forces that affect exports and imports will change FX demand-supply balances in the country. These forces include differentials in inflation rates of the country with its trading partners (which may make the country more/less competitive and affect exports/imports), differentials in interest rates with other countries (which could affect the flows of capital to or from the country), and differentials in capital flows for any other reason (such as changes in the regulations pertaining capital flows)

- **Over the long term** (over 5 years), FX demand-supply balances will be determined by trends in the country's productivity, capacity to innovate and develop new foreign markets, changes in the business environment, trade openness, and finding new resources, such as oil, gas or valuable minerals.

Example 2: Demand and Supply of Government Bonds

Price of a $100 bond

Supply of Bonds
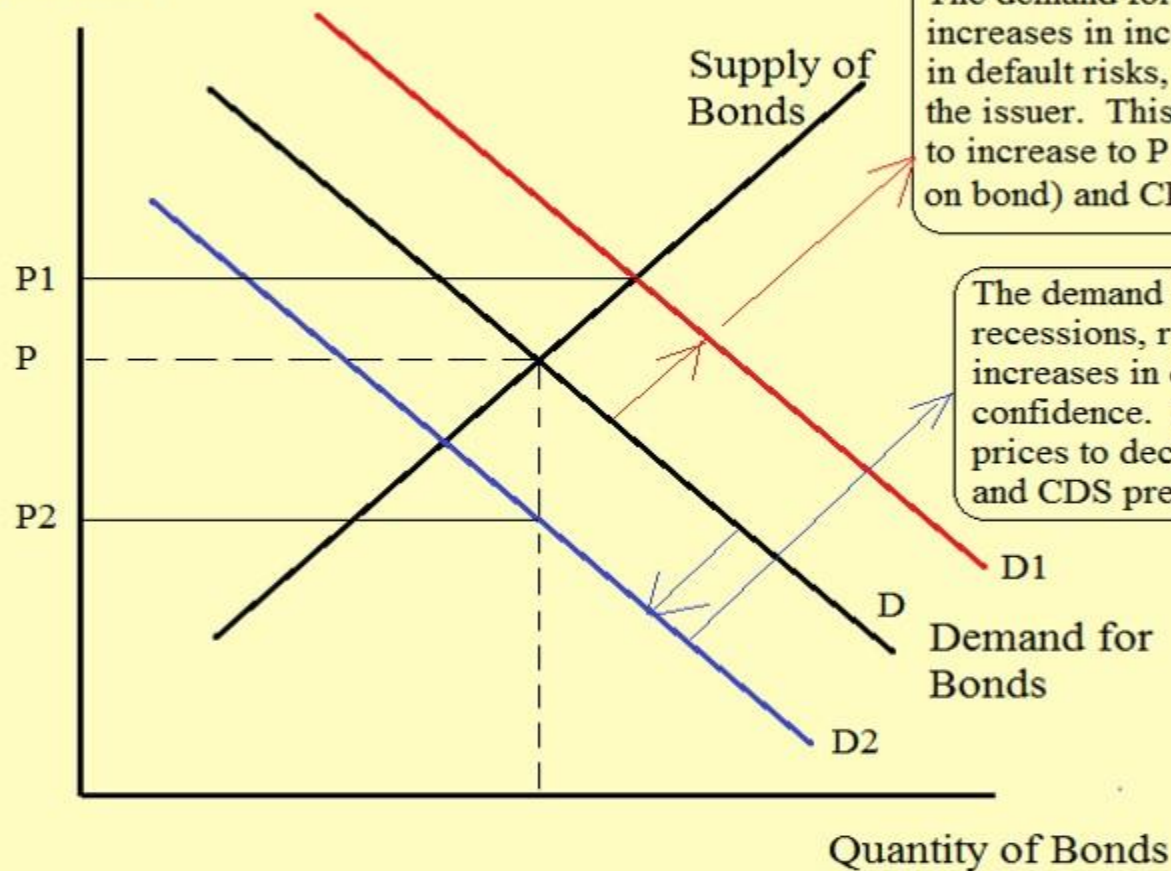
The demand for bonds increases with increases in income (GDP), reductions in default risks, or more confidence on the issuer. This will cause bond price to increase to P1 and to yields (returns on bond) and CDS premiums to decline

The demand for bonds declines with recessions, reductions in liquidity, increases in default risks, or less confidence. This will cause bond prices to decline to P2 and yields and CDS premiums to increase.

P1

P

P2

D1

D

Demand for Bonds

D2

Quantity of Bonds

Understand Markets

- A **market** is the best way to "organize economic activities" -- to find out <u>what</u> to produce, <u>how</u> to produce, <u>how much</u> to produce, <u>who</u> gets them. These decisions result from the interactions of many households and firms.
- Famous insight by Adam Smith in *The Wealth of Nations* (1776):
    - "In a market, each of these households and firms acts as if led by **an invisible hand** to promote general economic well-being."
- The invisible hand works through the price system:
    - The interaction of buyers & sellers fixes prices of goods/services.
    - Each price reflects the good's value to the buyers and the cost of producing the good to the seller.
    - Prices guide self-interested firms and households to make decisions that, in many cases, maximize society's economic well-being.
    - "It is not from the benevolence of the butcher, or the brewer that we expect our dinner, but from their regard to their own interest."
- In a market, the freedom to make profits provide the "incentives" to optimize the use of resources, while strong "competition" provides the control mechanism to ensure that firms do not abuse their power.

Contrast of Markets with Government Central Planning

- Critics of planned economies argue that planners cannot detect consumer preferences, shortages, and surpluses with sufficient accuracy and therefore cannot efficiently co-ordinate production. By contrast, in a market economy, a "free and competitive" price system serves this purpose.

- For example, even though the Soviet Union had its own passenger car manufacturing industry going back to the 1940's, it was not possible for a Soviet citizen to walk into a store and buy a car as the entire output of all car manufacturing plants was allocated for years in advance.

- From the modern viewpoint, such a **shortage** indicates a mismatch between supply and demand, suggesting that planners have misjudged the demand for the product, the equilibrium price, or both.

- This difficulty was first noted by economist Ludwig von Mises, who called it the " economic calculation problem". Recently, Economist Janos Kornai of Hungary developed this into a "shortage economy theory."

- A problem of surpluses also exists when central planners misjudge demand and produce in excess of demand. Surpluses indicate a waste of labor and materials that could have been applied to more pressing needs of society.

- Critics of planning say that, by contrast, a free and competitive market economy prevents long-term surpluses because the operation of supply and demand causes the price to sink when supply begins exceeding demand, indicating to producers to stop production or face losses.

- This frees resources to be applied to satisfy other short-term shortages, as determined by their rising prices as demand begins exceeding supply.

- This "invisible hand" prevents long-term shortages and surpluses and allows maximum efficiency in satisfying the wants of consumers. Since in a planned economy prices are not allowed to float freely, there is no accurate mechanism to determine what is being produced in unnecessarily large amounts and what is being produced in insufficient amounts.

- Efficiency is best achieved through a market economy where individual producers and consumers each make their own decisions.

- Opponents of central planning argue that the only way to determine what society actually wants is by allowing private enterprise to use their resources in "competing" to meet the needs of consumers, rather those taking resources away and allowing government to direct investments, output or prices without responding to market signals.

"It is not sufficient to contrast the imperfect adjustments of unfettered private enterprise with the best adjustment that economists in their studies can imagine.

For we cannot expect that any public authority will attain, or will even whole heartedly seek, that ideal. Such authorities are liable alike to ignorance, to sectional pressure, and to personal corruption by private interest."

--A. C. Pigou, 1920

In summary:

- A government should control its **fiscal budgets** (controlling expenditures or increasing taxes) to avoid fiscal/BOP deficits and avoid excessive accumulation of government and foreign debt.
- It should also limit the use of **expansionary monetary policies** to avoid future inflation.
- The best way to encourage growth is a "free" and "competitive" market economy, which should lead to equilibrium of Demand and Supply:
    - This equilibrium can provide maximum satisfaction to consumers and producers.
    - The "free" market would provide incentives to firms to seek profits; a "competitive" market would provide the mechanism to ensure that producers do not abuse with excessive profits.
- The role of the government should be to:
    - Take measures to **eliminate market imperfections** (which would not permit the market to reach optimum equilibrium), such as controlling monopolies, alleviating imperfect or asymmetric information (which is particularly bad in accounting for asset prices), and dealing with externalities (such as pollution).
    - Provide **public goods** that can not be provided adequately by the private sector, such as security, most infrastructure, public education, many health services, etc.
    - Take measures to improve **the business environment** to encourage greater investments and productivity by the private sector as the key to support economic growth and improve the quality of life.

History of Macroeconomic Policies

Classical and Neoclassical Economists

- Before the 1930s worldwide depression, classical economists believed that the economy was self-correcting and no government intervention was needed to deal with recessions. They assumed that when a country falls in a recession, wages and interest rates would decline. These declines would induce firms to hire more labor, increasing production and restoring full employment (supply creates its own demand).

- Furthermore, the classical economists postulated that the supply reaction to lower wages and interest would be fast and generate enough income for workers to spend.

- Neoclassicals added the importance of government interventions to harness invention and technological progress to increase production. This involved greater government involvement to set antitrust policy to restrict monopolies, regulate "natural" monopolies, restrict the political power of industrialists and plutocrats who may inhibit competition, provide "infrastructure" and public goods necessary for industrial cities, and tame unions and socialist movements.

Keynesian Economists

- In 1936, reacting to the severity of the worldwide depression, **John Maynard Keynes** broke from the Classical tradition of no government intervention with the publication of the *General Theory of Employment, Interest, and Money*.

- Keynes held that falling wages, by depressing people's incomes, would prevent a revival of spending and consumption. Furthermore, wages are somewhat sticky, and faced with lower income, firms will just dismiss labor, creating more sustained unemployment.

- Without increased spending and new demand, the economy would continue to be depressed. It would be in "unemployment equilibrium" at less than full capacity.
- **Keynes insisted that direct government expenditures were necessary to increase total aggregate spending.** Also, he argued that these expenditures will not be inflationary since the economy would be in a "liquidity trap", in which more expenditures or more money supply will not affect the level of interest rates and prices.
- Furthermore, Keynes postulated that because consumption by consumers was limited by the amounts that they could spend (by the size of their incomes), they could not be the main source of the ups and then downs of the business cycle.
- It followed that the dynamic forces generating recessions were business investors (Investment) and governments (Government Expenditures).
- In fact, Keynes noted that "savings" decisions were made by individuals based on their income, whereas investment decisions are made by entrepreneurs based on their expectations. There was no reason why savings and investments should coincide ex-ante.
- When the expectations of firms are favorable, large amounts of investments cause an expansion of output. When their expectations are unfavorable, the corresponding reduction in investments (an element of aggregate demand), can cause a recession.
- The government can avoid a fall in aggregate demand by increasing its expenditures with deliberate budget deficits (fiscal policies, either in the form of spending on public works or subsidies to afflicted groups) or by enlarging private investments with easy credit and low interest rates (monetary policies).

Neo-Keynesian Economists

- The Neo-Keynesian school carried out a theoretical synthesis merging the neoclassical with the Keynesian schools. The centerpiece of the Neo-Keynesian synthesis was the famous IS-LM Model first introduced by John Hicks (1937) and then expanded upon by Franco Modigliani (1944).

- The Neo-Keynesians did not accept the Monetarists idea that money affected prices only, and not output. They felt that, in the short-term, changes in money supply will affect income and employment only. If there was underutilization of resources, in the short term, money supply would not affect prices.

- The question that emerged was then "why" and "how" money affected income. It was postulated that Money Supply affect income not directly, but through its effect on interest rates and therefore on investments and then income.

- The effect of money supply on interest rates is based on the so called "Liquidity Preference for Money" which postulated that money is demanded not only for transactions (which depend on income as was stated by the old Quantity Theory) but also as a store of value and for precautionary process (which depends on interest rates and prices.)

- In this formulation, the LM-IS charts shows that increases in money supply will change the equilibrium interest rate in the LM curve. The new interest rate equilibrium will affect investments and then output.

- However, one of the results of the IS-LM model was that it was unable to obtain Keynes' result of an "unemployment equilibrium". The model tended to yield the Neoclassical result of "full employment". In the short-run, there were not any price effects.

- In order to generate an "unemployment equilibrium" as a solution to this system of equations, the Neo-Keynesians appealed to price rigidities: rigid money wages, interest-inelastic investment demand, income-inelastic money demand, or some imperfections.

- With rigid prices and wages, the economy would remain in "unemployment equilibrium" (not moving towards full employment equilibrium) and would remain in this stage for as long as prices remain rigid, which may happen over the short term.

- Thus it is referred to as a "synthesis" of Keynesian and Neoclassical theory in that the conclusions of the model in the "short-run" or "imperfectly working" IS-LM system Keynesian conclusions held (unemployment in equilibrium); but in the "long run" or in a "perfectly working" IS-LM system the conclusions were Neoclassical (no unemployment).

- These ideas were formalized by taking account of inflation (change in prices) explicitly in the model. For this, the Neo-Keynesians added an aggregate demand curve, a long run aggregate supply curves and a short run aggregate supply curve.

- The short term aggregate supply curve was based on the Phillips Curve, which established a short term inverse relationship between inflation and unemployment: low inflation was historically statistically associated with high unemployment.

- This is a version of a short term aggregate supply curve with sticky prices and wages.

- The international sector was incorporated into an extended IS-LM system known as the Mundell-Fleming model.

- The Neoclassical-Keynesian Synthesis was widely successful and dominated macroeconomics in the post-war period. For a long time, the Neo-Keynesian system was synonymous with the "Keynesian Revolution" and was highly influential in both theoretical, applied and policy work. Abba Lerner (1944, 1951) was among the first to recognize the implications of the Keynesian system for government macroeconomic policy: by appropriate fiscal and monetary policies, a government could "steer" the economy away from extremes and thus smooth out the business cycle.

- Based on this Neo-Keynesian thinking, the government of industrial countries began an active policy of economic interventions, increasing gradually their public expenditures and the size of the public sector. The school proposed a more regular intervention of the government to fine-tune the economies.

- These theories proved the modern rationale for the use of government spending and taxing to stabilize (fine-tune) the economy. Government would spend and decrease taxes when private spending was insufficient and threatened a recession; it would reduce spending and increase taxes when private spending was too great and threatened inflation.

- This analytic framework, focusing on the factors that determine total spending, remained the core of macroeconomic analysis.

- This policy-effectiveness was given an enormous boost by the new econometric model-building techniques and optimal policy design criteria developed by Jan Tinbergen (1952), Lawrence Klein (1950), Robert Mundell (1962), Henri Theil (1964), William Poole (1970), and Robert Solow (1973) which helped governments design and estimate the impact of various fiscal and monetary policies on employment and inflation. 83

The New Monetarist School of Chicago

- The Monetarist School of Chicago challenged the above economic views and argued that the causes of recessions and the Great Depression must be sought elsewhere than in Neo-Keynesian savings-investment relationships.

- It felt that the emphasis of Neo-Keynesian economists on these investment-savings relationships had been misplaced, because a more potent factor of economic instability, namely, erratic variation in the quantity of money, had been ignored.

- The Chicago School felt that the first and most important lesson that history teaches about what monetary policy can do -- is that monetary policy can prevent money itself from being a major source of economic disturbance.

- At the heart of Monetarist economic policy recommendations was the use of *monetary policy,* which means the conduct of open market operations, discount window restrictions, etc. by the Central Bank in order to influence output and stabilize prices (**Milton Friedman**,1948).

- In contrast, the Keynesians had tended to stress the role of fiscal policy (Government expenditures and investments) in stabilizing the macroeconomy, which the monetarists felt was counterproductive.

- Later on, however, in 1959, Milton Friedman reversed his policy stance, opted in favor of a "constant money growth rule" such as 3%-5% pa, sufficient to match output growth, but not enough to produce price inflation. He felt that government interventions would just produce wider fluctuations and instability because of unknown/uncertain time lags.

- It condemned discretionarily of economic policies and excessive government size.

- However, the Neo-Keynesian system only came into serious trouble in the early 1970s, when a sudden, sustained bout of both **inflation** *and* **unemployment** in the OECD countries did not seem to be compatible with the predictions of the Neo-Keynesians.

- The traditional Keynesian policy-responses undertaken by various Western governments to reduce unemployment did not seem to alleviate the problem at all: Keynesians assumed that unemployment could be reduced by accepting higher inflation (the Phillips curve).

- Milton Friedman argued that this inflation-for-jobs trade-off was a trap.

- Higher inflation may result in a **very temporary** unemployment reduction, before returning to its previous level, while inflation would have risen and remained high.

- Milton Friedman postulated that attempting to reduce unemployment below the "natural rate of unemployment" had in fact led to accelerating inflation. Some unemployment level is unavoidable due to frictional difficulties (changes in structure of jobs require people to leave and train, and it takes time to get a new job) and to structural deficiencies (lack of training, lack of labor market flexibility, etc.) He claimed that government should not attempt to lower unemployment below the natural rate (which could be somewhat high) since it is costly to maintain and is temporary anyway.

- However, Friedman felt that government *can* attempt to terminate inflation by lowering income and creating short-term unemployment with tight monetary policy, which in his view, would be relatively costless in the long-run.

- If they aim for an unemployment level *higher* than natural rate, inflationary expectations would be reevaluated downwards - bringing actual inflation down permanently.

- In other words, the cure for inflation would be to deliberately cause a recession.

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- Friedman's "disinflation" suggestion was met with dismay. Economists immediately went on to calculate the "sacrifice" ratio, i.e. how much output would be foregone in an attempt to reduce inflation by a single percentage point.

- Arthur Okun (1978) calculated that to get a 1% drop in inflation requires approximately a 3% rise in unemployment and a 9% contraction in GDP. Okun (1978, 1981) and many other economists, while agreeing that Friedman's proposition *would*, indeed, reduced inflation, nonetheless strongly recommended against it because it was far, far too costly.

- Referring back to his 1951 work, Milton Friedman replied that much of the output and unemployment costs to disinflation arise because collective bargaining arrangements tend to lock in a money wage and thus prevent quick price-side adjustment.

- In order to minimize the cost of disinflation, Friedman (1974) proposed the inclusion of "escalator clauses" in labor contracts that automatically corrected money wages for inflation. In this manner, he argued, the short-run Phillips Curve becomes "steeper" and thus the costs of disinflation (unemployment and output foregone) would be lower. Of course, escalator clauses would not be a good thing in the case of demand expansions.

- Despite criticism , these "Monetarist ideas" to reduce inflation were used in the late 1970s and early 1980s in several Western countries - notoriously, the US and the UK.

- They were applied very successfully in a number of developing and emerging countries.

- In 1979, soon after the ascendancy of Paul Volcker as chairman of the FED in the US and Margaret Thatcher as Prime Minister in Great Britain, interest rate targets were dropped **in favor of money supply reduction targets** and "disinflation" was begun.

- But the results **were long and painful recessions with double-digit unemployment.**

- In the United States, the Federal Reserve got inflation down from 15% in 1980 (under President Carter) to 4% in 1982 (under President Reagan) and "declared victory". But given high unemployment, it abandoned the disinflation policy. By 1984, it abandoned money supply targets altogether.

- To revive the economy, in the 1980's, Ronald Reagan's implemented a combination of loose fiscal policies (large tax cuts and massive deficit-financed expansions in government spending) with very tight monetary policies (high interest rates to attract money from abroad).

- They had a highly stimulative effect on the U.S. economy while tight policy kept inflation down.

- In Britain, the cost of the disinflation was even greater: output had shrunk in two years by 7.5% and manufacturing output declined by 20%; unemployment soared to 10%.

- However in the UK, surprisingly, inflation actually climbed from 10% to 22%.

- Faced with this result, Margaret Thatcher abandoned the **disinflation attempt** and, eventually, monetary targets, and laid the blame for the disasters of 1980-1 on what she publicly denounced as a misguided advice.

- Many Monetarists explained the dismal results of the "monetarist experiment" in the UK by accusing the Bank of England of not having been able to *effectively* control the money supply, in spite of their explicit targets -- "lack of nerve" on the part of Central Bankers was commonly cited.

New Classical School (Rational Expectations)

- The natural rate of unemployment hypothesis was further revised by Robert E. Lucas and used as the basis of a "**New Classical**" macroeconomic theory.

- In the 1970s, Robert Lucas concluded that the natural rate of unemployment hypothesis (that unemployment could be reduced by accepting more inflation) assumed that people had adaptive expectations and that they would not learn from their experience. This was not rational. With rational expectations, monetary policy would have no effect on output. More Ms (and inflation) would not lead firms to hire people and increase output. The new "Rational Expectation" theory argued that people cannot be fooled by short-term fiscal or monetary fine-tuning maneuvers as they will incorporate these changes in their decisions.

- The **Rational Expectations Theory** argued that the market's ability to anticipate government policy actions (rational expectations) limits the effectiveness of government policies. In particular, monetary policy is neutral in the sense that "**anticipated**" increases in money supply would be incorporated as "risk premium" and would have no impact on increasing output and employment; only on inflation.

- This was proved statistically: over long periods of time increases in money supply (M2) are almost perfectly correlated to inflation, in both developed and developing countries. If there is a relation between money and growth, it is not because of causality, but just the result of association at a point of the business cycle. Also, there is also no negative relation between inflation and unemployment (no Phillips Curve) at least over the long term; in fact, low inflation lead to higher growth and employment. **Unanticipated** changes in money supply can change production; but these unanticipated changes are unlikely. 88

- The Rational Expectations Theory casted doubts on Neo-Keynesian policies and inaugurated a new era of macroeconomics relying on the Neoclassical concept of **supply-determined equilibrium** (business cycles are created by econ/natural shocks in supply)**.**

- This **New Classical School** -- the "modern" version of the Chicago School -- proposes that monetary policy should be used to maintain low inflation targets by "announcing" (forming expectations of low inflation) and maintaining it (inflation targeting).

- As Lucas (1972, 1973), Sargent (1973) and Sargent and Wallace (1975, 1976) made clear, the policy implication, then, is that *systematic monetary policy has no effect on output.* Only policy "surprises" or shocks can influence output.

- In moving from Friedman's "**only money matters**" to the New Classicals' "**money does not matter**" (or rather, "only surprise money matters"), the debate turned in a considerably more radical direction.

- Most Keynesians have accepted the conclusions of the Rational Expectations Theory at least partially (in 1977, Franco Modigliani in *his* presidential address to the A.E.A. finally accepted the natural rate hypothesis at least for the long-run.)

- Other Keynesians, however, such as James Tobin (e.g. 1980), have remained more irredentist. More recently, Joseph Stiglitz has made a case for the revival of Keynesian measures (see the Institutional School below) based on the postulate of the existence of widespread market imperfections, principally due to information asymmetry.

- Nevertheless, the Rational Expectations Theory provided a contemporary rationale for the pre-Keynesian tradition of limited government involvement in the economy, either though fiscal or monetary policies, which still prevails today.

- **Supply-side Economics**
- Another development of the Chicago School was the **Supply-side Economics (Arthur Laffer, Jude Wanniski.)**
- It recalls the Classical School's concern with economic growth as a fundamental prerequisite for improving society's material well-being. It emphasizes the need for **incentives to save and invest** if the nation's economy is to grow.
- It emphasizes that the main source of a country's economic growth is constant improvement in the efficiency with which resources are allocated for production.
- While the policy recommendations of the rival Keynesian school tended to focus almost entirely on what government can do to stimulate or restrain aggregate demand in the short-run so as to even out the business cycle, **supply-side policy analysts focus on barriers to higher productivity** -- identifying ways in which the government can promote faster economic growth over the long haul by removing impediments to the supply of, and efficient use of, the factors of production.
- Supply-siders believe that unwise provisions of the tax laws (and especially high marginal rates of personal and corporate income taxation) produce very damaging incentives that lead people to work less and to invest less (and to do both less efficiently) than they otherwise would.
- Supply-side policy recommendations typically include deregulation of heavily regulated industries, promotion of greater competition through lowering protectionist barriers to international trade, and measures to repeal special subsidies and tax loopholes targeting particular industries in favor of lower and more uniform tax rates across the board.

- Supply-side economics also recommends improvements in factor markets, including labor markets and the need to make investments in human capital (education, training, and health), as major determinant of innovation and productivity growth.

- Supply-siders are now playing a much larger role in economic policy-making in the European Union and the USA, as the focus of attention has shifted toward accelerating the rates of economic growth in order to generate enough resources to deal with large public debt.

The Institutional and Neo-institutional Schools.

- Since the beginning of the 1900's, a group of American economists developed an analytical methodology known as the Institutional School.

- Institutionalist economists rejected the narrow Classical view that people are primarily motivated by economic self-interest.

- They regarded individual economic behavior as part of a larger social pattern, influenced by current ways of living and modes of thought.

- Due to these factors, competitive markets do not work well.

- Thus, they called for greater Government intervention in the economy.

- Opposing the laissez-faire attitude towards government's role in the economy, the Institutionalists called for government interventions to correct widespread market failures and for government controls and social reform to bring about a more equal distribution of income, at the levels desired by the community.

- Although for many years, it was though that this school had disappeared, its influenced continued and has revived recently. Today, it has focused on various economic areas, including:
  - The Theory of "**Public Choice**" – The demand and supply of Public Goods will not follows free competitive market rules; there is the problem of the free rider; differences between public versus individual decisions; influence of vested interest groups in Government decision-making on taxes, public debt, etc; rules for collective choice; etc. (James Buchanan, George Mason University).
  - The "**Theory of Transaction Costs**" – Reviews the effects and distortions caused by Transaction Costs in general equilibrium. Major cause of Externalities. Agency problems.
  - The "**Theory of Asymmetric Information**" – **Joseph Stigler** --Imperfect information by either buyer or seller lead market imperfections since the transacted price would include a significant risk premium or discount for the party that lacks the information (example to the sale of a used car in which the buyer will require a lower price due to the uncertainties on the condition of the car).
- According to these schools, all these market imperfections justify widespead intervention of governments in markets.

Behavioral Economics

- The main foundation of modern economic analysis is that firms and people make economic choices and allocate scarce resources in a "rational" manner, to maximize economic benefits, minimize economic costs and maximizes consumer satisfaction.

- The newest branch of economics, Behavioral Economics argues that in actual practice many economic decisions are not made "rationally" and are in conflict with what conventional economic theory predicts they will do. The field is primarily concerned with the limits of rationality of economic agents.

- **Behavioral economics** study the effects of social, mental and emotional factors on the economic decisions of firms and individuals and the consequences for market prices and resource allocation. The study of behavioral economics includes how market decisions are made and the mechanisms that drive public choice.

- Behavioral models typically integrate insights from psychology with neo-classical economic theory.

- There are three prevalent themes in behavioral finances:
  - **Heuristic**s: People often make decisions based on approximate rules of thumb and not strict logic.
  - **Framing**: The collection of anecdotes and stereotypes that make up the mental emotional filters individuals rely on to understand and respond to events.
  - **Market inefficiencies**: These include *mis-pricings* and *non-rational decision making*.

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- Behaviorists try to expand or replace traditional ideas of economic rationality with decision-making models borrowed from psychology: according to psychologists:
  - People are disproportionately influenced by a fear of feeling regret/failure and will often forgo benefits even to avoid only a small risk of feeling they have failed.
  - People are also prone to cognitive dissonance, often holding on to an old belief plainly at odds with new evidence, usually because the belief has been held and cherished for a long time.
  - Then there is anchoring: people are often overly influenced by outside suggestions and by what other people do (herding behavior).
  - People apparently also suffer from status quo bias: they are willing to take bigger gambles to maintain the status quo than they would be to acquire it.
- Traditional economic theory assumes that people make individual decisions in the context of the big picture to maximize overall utility or satisfaction. But psychologists have found that they generally compartmentalize, often on superficial grounds. They then make choices about things in one particular mental compartment without taking account of the implications for things in other compartments.
- There is also a lot of evidence that people are persistently and irrationally overconfident. They are also vulnerable to hindsight bias: once something happens they overestimate the extent to which they could have predicted it. Behavioral economics, for example, explains why financial market participants make systematic errors. Such errors affect stock prices and returns, creating market inefficiencies. It also investigates how other participants take advantage (through arbitrage) of such market inefficiencies.

• It also highlights inefficiencies such as under- or over-reactions to financial information as causes of market trends (and in extreme cases of bubbles and crashes). Such reactions have been attributed to limited investor attention, overconfidence, overoptimism, mimicry (herding instinct) and noise trading. Technical analysts consider behavioral economics to be the theoretical basis for technical analysis.

• In summary, many economic decisions are made based on 'irrational' economic behavior. There are recurring biases driven by psychological factors that influence people's choices under uncertainty. In particular, behavioral economics assumes that people are more motivated by losses than by gains and as a result will devote more energy to avoiding loss than to achieving gain.

• Some behavioral models assume that people follow simple heuristics or rules of thumb that require relatively little cognitive effort or time (such as focusing on only a few salient details of a problem): "Economic agents make good decisions but not perfectly rational ones."

• Other behavioral models go much further, arguing that individual behavior is affected by a reliance on nominal frames of reference and by considerations such as fairness, envy, social status, and social norms. People also have money illusion, follow rules of thumb, and care about issues like fairness and equity.

• There is a growing literature that shows that economic theories built on behavioral foundations have strikingly different implications from more standard theories. Behavioral research thus offers the promise of unified theories that can explain microeconomic behavior as well as the movements of macroeconomic aggregates.

- Critics of behavioral economics, such as Eugene Fama typically support the efficient-market hypothesis. They contend that behavioral finance is more a collection of anomalies than a true branch of finance and that these anomalies are either quickly priced out of the market or explained by appealing to market microstructure arguments.
- However, individual cognitive biases are distinct from social biases; the former can be averaged out by the market, while the other can create positive feedback loops that drive the market further and further from a "fair price" equilibrium. Similarly, for an anomaly to violate market efficiency, an investor must be able to trade against it and earn abnormal profits; this is not the case for many anomalies.
- In any event, many modern economists are now trying to introduce behavioral economics into the more formal economic models. For example, behavioral economics help to explain why wages may be sticky over the short term.
- As a practical science, research on behavioral economics is based on observation of behaviors, questionnaires sent to many agents, and surveys.   Contrary to traditional economics, it is not based on abstract "models" developed in computers.