Macroeconomic policies and demand management

- Macroeconomic or demand management policies are monetary and fiscal policies aimed at reducing the fluctuations in the business cycle. They may be effective in the short run, but not in the long run.

- Monetarists and keynesians disagree on the effectiveness of macroeconomic policies and on the way they should be implemented.

Aggregate demand

- Shows the total output demanded in an economy at given price levels. It depends on the condition of the goods and monetary markets and can be shifted by monetary and fiscal policy.

- AD = C+I+G+ (X-Q)

  C = C(Y-T)

  I = I (Y,i)

  AD: Y=Y(M/P,G,T)

- It is negatively sloped because a reduction in price levels rise real balances (increase the purchasing power of the public cash balances), reduce nominal interest rates and therefore rises income and spending (C and I).

Aggregate supply

- Shows the total value of real output (real GDP) that is made available at various price levels. It depends on the conditions of the labour and the production markets, and on technological change

- AS: $P = Pe + 1/\alpha\ (Y - Y^*) + Z$

  where: $Y^* =$ output at full employment;

  $\alpha = Y/N$ (labour productivity);

  $Pe =$ expected price level

  $Z =$ labour and product market regulations

- The AS curve is **upward sloping in the short run** due to wages and other factor costs' stickiness and errors in expectations. But it is **vertical at the full employment output in the long run,** when wages and prices have completely adjusted and expectations are verified $(P=Pe)$.

Macroeconomic policies affect aggregate demand (AD), structural microeconomic policies affect aggregate supply (AS)

AD-AS: Canonical Shocks
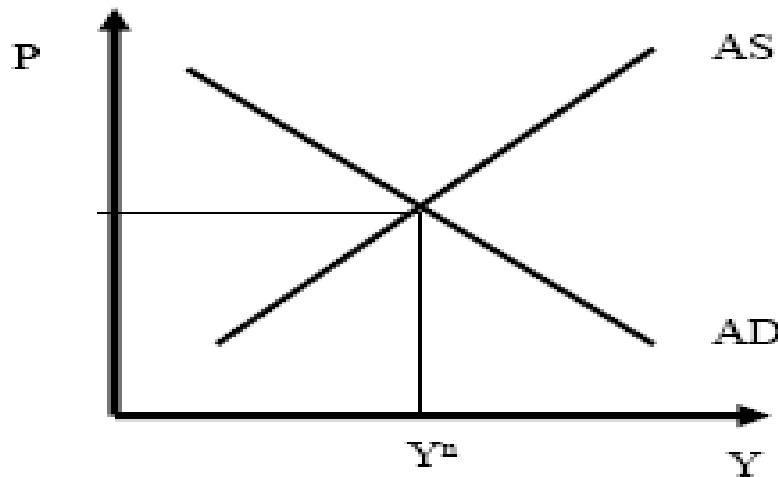
Monetary expansion; fiscal expansion; oil shock

Monetary policy/1

Monetary policy is directed at regulating the money supply, credit availability , the level of interest rates and the exchange rate. The monetary authority is usually the Central Bank.

To control the money supply the Central Bank has two main **operational instruments**:

➢ To control the *monetary base* (which supports the money supply in the economy and can be changed through open market operations: i.e. buying or selling of gvt. bonds and or foreign currencies)

➢ To control *interest rates* (through the definition of the discount rate)

PROBLEM: the Central Bank cannot use both instruments simultaneously:

➢ Either it fixes the interest rate, but then it has to supply all the money which is demanded at the given interest rate;

➢ Or it fixes the rate of growth of the money supply, but than it has to accept that interest rates change to equilibrate the money demand and supply

In an **open economy**, also the management of the exchange rate influence domestic monetary conditions: if the exchange rate is fixed, the CB cannot control the domestic monetary base. For example, if the CB has to counteract the appreciation of the exchange rate it will have to buy foreign currency and the monetary base will increase: in order "sterilize" the increase it will have to sell govt. debt by an equal amount.

Monetary policy/2

Targets (aims) of monetary policy are mainly:

➢ Intermediate targets: money supply, credit, exchange rate, inflation

➢ Final aims: inflation and output

Effects of expansionary monetary policy are:

➢ Temporary increase in output (Y) with lags

➢ Permanent increase in Prices (P) with lags

↓

Monetary policy is NEUTRAL in the long run (it does not affect output and employment, but only inflation), but it is not neutral in the short run.

Short and long run effects of and expansionary monetary policy

1. Starting from a full employment equilibrium, the Central Bank increases money supply $\rightarrow$ the AD schedule shifts upward in the same proportion as the increase in the nominal quantity of money (because the increase in money supply reduces interest rates and increases investment spending).

2. In the short run this creates an excess demand at the initial price level $\rightarrow$ the excess demand gives rise to an expansion in output (Y) and an increase in Prices (P). In the **short run equilibrium E_1: AD=AS, $P_1 > P_0$; $Y_1 > Y_n$; $i_1 < i_0$**

3. *The short run equilibrium is only transitory.* Since $Y_1 > Y_n$ in the labour market we have excess demand for labour and wages start rising. The rise in wages increases production costs and prices. This shifts upward the AS curve, until the **long run equilibrium** is reached where output is back to full employment, all real variables are returned to the initial position and only the nominal variables (MS, P,W) have increased by the same proportion:

$$E_2: \text{ AD=AS, } \Delta P = \Delta W = \Delta M; \; Y = Y_n; \; M_2/P_1 = M_0/P_0$$

Neutrality of Monetary Policy in the long run: Monetary Policy affects output and employment only in the short run, but it is neutral in the long run. In the long run monetary policy affects only nominal variables and prices: the increase in money supply results only in an equi-proportionate increase in prices.

Fiscal Policy or Budgetary policy (chapter 15)

- Fiscal policy (public spending and taxation) has many purposes:

a. **Provides public goods and services,** i.e. goods and services which would not be provided by the market or would be provided in insufficient quantity because they cannot be appropriated for individual consumption or produce externalities, or are characterized by large scale economies, such as defence services, education services, utilities. Difficult to define what should be publicly provided.

b. **Redistribution of income, equity vs efficiency trade-offs:** efficiency (paying production factors according to their marginal productivity) is often resulting in an unequal distribution of income and wealth. Equity is however needed to keep social stability and cohesion, but may introduce disincentive effects.

c. **Offset temporary cyclical fluctuations of the business cycle** and maintain the actual output and employment close to full employment.

Expansionary fiscal policies are increases in public spending (G) or reduction in taxation (T) which increase either directly (public spending) or indirectly (through the increase in consumption) aggregate demand.

Short and long run effects of an expansionary fiscal policy

1.   Starting from a full employment equilibrium the government increases public spending (G) or reduces taxation (T).

2.   This shift the AD to the right and creates excess demand for goods at the initial price level P_0, which induces increases in prices and output to reach the **short run equilibrium at E_1 where: $Y_1>Y_p$; $P_1>P_0$; $i_1>i_0$** (since money supply is given, interest rates increase and this starts to produce a reduction in investment spending).

3.   The short run equilibrium is only transitory. Since $Y_1>Y_n$ in the labour market we have excess demand for labour and wages start rising. The rise in wages increases production costs and prices. This shifts upwards the AS curve, until the **long run equilibrium** is reached where output is back to full employment, but with a different composition: the increase in public spending or in consumption (due to reduction in taxation) has completely crowded out investment spending through the increases in prices and in interest rates. In the long run equilibrium **E_2:** :

$$\textbf{AD=AS, } Y=Y_n; \Delta P>0; \Delta M=0; i_2>i_1>i_0 ; \Delta I<0; \Delta G>0$$

   Expansionary fiscal policies increase the levels of output and prices in the short run, but only increase prices in the long run. It also crowds out other (private) expenditures and has no effects on output and employment in the long run.

Deficit financing: public debt and seignorage

Expansionary fiscal policies produce **primary budget deficits**:
$$BD = G\text{-}T<0$$

- Budget deficits may be financed   by

a. **Monetization,** i.e. by money creation which produces **inflation tax**. The central bank creates money supply in order to finance the public deficits, inflation increases and the value of the debt (the value of the nominal non indexed assets) is reduced. In this case the crowding out of investment is reduced (interest rates do not increase) and fiscal policy is more effective in the short run. But inflation is higher and the credibility of the Central Bank in monetary policy is reduced (no independence of CB from the government);

b. **Increasing the public debt:** i.e. selling nominal assets to the private sector. This increases interest rates and the crowding out of private spending. In addition it increases the **public debt.** If the accumulation of public debt reaches levels too high in relation to GDP, it may become explosive and unsustainable in the long run.

c. **Increasing taxes or reducing expenditure**, which is difficult for political reasons

The sustainability of the public debt and debt stabilization policies/1

The relevant variable is the weight of the accumulated public debt over GDP **(B/Y)** which in some countries has increased to over 100%: 116.8% in Italy in 2000, 109,9% in Belgium; 117,6% in Japan.

The variation in the debt-gdp ratio (ΔB/Y) depends on:
- The primary budget deficits over GDP: **(G-T)/Y**
- the debt service: the interest rates which have to be paid over the accumulated debt-GDP ratio: **rB/Y**
- The rate of growth of GDP: **g**

$$\Delta B/Y = (G-T)/Y + (r-g) \, B/Y$$

A stable B/Y ratio implies: ΔB/Y = 0 when **(r-g) B/Y = - (G - T)/Y = (T-G)Y**

- **if the interest rate is above the growth rate (r>g) the debt process is explosive. In this case, we need that the primary deficit becomes a surplus and be equal to the interest charge**
- **If the interest rate is below the growth rate (r<g), we may maintain a stable B/Y ratio even with budget deficits, because GDP growth compensate for primary deficits**

The sustainability of the public debt and debt stabilization policies/2

Stabilization policies:

1. **Cutting the deficit**

2. **Monetization:**

➢ Monetization of the public deficit consents to relax the budgetary stringency required for debt stabilization

➢ If the public deficit is financed by money creation (monetization), to stabilize the debt we need smaller primary budget surplus, or even we may maintain budget deficits if enough monetary base is created.

➢ However this is not possibile forever, beacuse inflation may become explosive!

In this case: $\Delta B/Y = (G-T)/Y + (r-g) B/Y - \Delta Mb/PY$

and: $\Delta B/Y = 0$ when $(r-g) B/Y - \Delta Mb/PY = - (G - T)/Y = (T-G)Y$

3. Repudiate the debt , but this reduces a government reputation

The limits of demand management policies and the Monetarists-Keynesian debate (chapter 16)

- There is a Monetarists vs Keynesians debate over the effectiveness of fiscal and monetary policies to smooth out business cycle fluctuations, mainly based on **the speed at which goods and labour markets clear,** which depends on :

1. **The degree of nominal wages and price rigidity in the economy**: if markets clear rapidly there is no need to intervene; on the other hand if market adjustment is slow there is a place for demand management policies.

2. **The role of expectations** : if expectations are backward looking (adaptive expectations) there is room for discretionary policies, but if expectations are rational (forward looking) macroeconomic policies should only follow a pre-defined rules of low inflation and budget equilibrium, due to time inconsistency and credibility risks.

The debate:the speed of the adjustment process/1

The speed of the adjustment process depends on the shape of the short run AS curve and on how fast the short run AS shifts after a shock . This in turns depends on **how fast wages and prices reacts to changing labor and product markets conditions and on how agents forms their expectations.**

The shape and adjustment speed of the AS function depends on assumptions on:

- The functioning of **labour markets** (which explain the relation between employment and wages, with nominal wages set on the basis of expectations on future inflation).

- The functioning of **product markets** (which explain the relation between prices and production levels and it depends on the degree of competition)

- **Technology**: i.e. the production functions which relates the quantity produced (output Y) with the amount of production factors used in the production process.

The debate:the speed of the adjustment process/2

There are different assumptions:

- **Classical-monetarist case:** wages and prices are fully flexible, there is perfect competition the labor and product markets and expectations are rational

  $\Rightarrow$ AS is very steep and vertical at the output level which fully employs available resources, because markets adjust rapidly to any shock, thanks to the flexibility of prices and wages $\Rightarrow$ Macroeconomic policies are not effective, especially if they are expected, indeed they may have negative effects and be time inconsistent $\Rightarrow$ It is better to adopt rules (low inflation and public budget equilibrium), which maintain the credibility of economic policy authorities.

- **Keynesian case**: wages and prices are not flexible, $\Rightarrow$ AS is horizontal at the given price level and the adjustment toward the long run level is very slow $\Rightarrow$ Macroeconomic policies (and especially fiscal policies) are effective and increase employment and output $\Rightarrow$ Macroeconomic policies should be discretionary.

- **Intermediate case** (neoclassical, neokeynesians) wages are sticky, there is not perfect competition, expectations are adaptive $\Rightarrow$ AS is upward sloping in the short run, but vertical in the long run at the full employment output. The speed of the adjustment process depends on how expectations, prices and wages are formed.

Why wages and prices are sticky?

- **Regulations:** minimum wages, employment and price regulations determined by the actions of governments (regulation) which introduce **distorsions** in the functioning of the labour and product markets

- **Uncertainty and incomplete information which induce wrong expectations**: individuals and firms only know their own wages and prices, they do not know (or may have wrong perceptions) the aggregate wage and price levels. In addition incomplete information and risk aversion may induce the stipulation of long term wage contracts (implicit contracts) or firms to maintain higher wages than the equilibrium to attract/keep productive workers (efficiency wages).

- **Non perfect competition in the labour and product markets:** firms may have the market power to impose and maintain higher prices than those which would prevail with perfect competition; unions may impose and maintain higher wages than those which would be prevailing in perfect competitive markets

The role of expectations and the Lucas Critique/1

Agents' perceptions of the future are relevant and the actions of private agents are driven more by perception of economic authorities rules of conduct, rather than by their current behaviour.

Expectations are:

➢ **adaptive** if expectations on future trends depend on past experience: $Pe=P_{t-1}$. With adaptive expectations adjustment takes a very long time, because past trends have effects on current ones and macroeconomic policies may have real effects for a long time.

➢ **rational** if expectations are based both on past experience and an analysis of all available information on the basis of a good knowledge of how the economy and economic policy authorities behave (agents know macroeconomics well!!!). If expectations are rational, only incomplete information or unexpected policies may have real effects, but the effects lasts only as long as the expectations are revised (which happens very fast with rational expectations). Since agents do not make systematic mistakes in their expectations, the "surprise" lasts for a very short time.

▪ With **rational expectations**, agents consider the likely behaviour of policy makers so that past behaviour of economic agents may not be a good indicator for assessing the likely effects of policy changes (**Lucas Critique**)

▪ In addition, economic policies must be **credible** to influence expectations: this is particular relevant in relation to inflation expectation which influence actual wages and prices

The role of expectations and the Lucas Critique/2

- **Example 1- monetary policy:**
- ➢ If an expansionary monetary policy is *expected*, the adjustment will be immediate: economic agents will rise prices and wages immediately and the short run AS will shift to the long run equilibrium: the monetary policy is not effective on real variables
- ➢ If the expansionary monetary policy is *not expected*, the adjustment will take a longer time, but as soon as the economic agents understand what has happened they will adjust wages and prices. The adjustment process may take longer if there are nominal rigidities which do not consent to change prices and wages in a short time (for example long term contracts).
- ➢ A monetary policy aimed at reducing inflation only if its *credible* may reduce inflation expectations and thus reduce actual wages and prices increases
- **Example 2 – fiscal policy**
- ➢ A tax reduction may have different effects if it is believed as permanent or temporary.
- ➢ In addition, if agents behave on the basis of rational expectations they know that a tax reduction or an increase in public spending today will have to be covered by tax increases in the future in order to keep the public budget in equilibrium. So they may not change their consumption decisions or even reduce consumption if they feel that they have to increase savings in order to comply with tax increases in the future (Ricardian Equivalence Principle). In this last case expansionary fiscal policies may even have *contractionary effects* on output and employment in the short run. Conversely a restrictive fiscal policy may have expansionary effects.

Policy implications- monetarists

- Fiscal policies are not effective because in the long run they completely crowd out private spending (investment spending is very sensible to interest rates, while money demand is not), have inflationary effects and may have unexpected negative effects with rational expectations. In addition long decision lags.

- Monetary policies have lower decision lags, they are **effective in the short run only if they are unexpected**. In the long run they are neutral. They are effective in reducing inflation only if they are **credible**.

- In the short run, output increases only because economic agents have incomplete information and workers may suffer **monetary illusion**: the increase in inflation increases nominal wages, workers thinks that real wages are increasing and thus labor supply increases. As soon as workers realize that real wages are not increasing, they reduce labor supply and output gets back to the original level. The length of the adjustment process depends on expectations: if they are adaptive it is long, while if they are rational it is very short or even null.

Policy implications- monetarists

- With rational expectations there are risks of **time inconsistency** (policies which appear optimal today, may not be so in the future) and of non **credibility** of economic policy authorities.

- Cost of lack of credibility: cannot influence expectations

- In order to prevent time inconsistency and support the credibility of economic authorities, macroeconomic policies should not be discretionary and follow **rules**:

➢ budgetary balance (in Europe through the Growth and Stability Pact);

➢ adopt policy targets (constant monetary supply, inflation targets, fixed exchange rates, output and inflation targets, such as the so called Taylor rule);

➢ independence and reputation of the Central Bank (the European Central Bank in the Euro area)

Policy implications- keynesians

- The economic system is usually away from the full employment equilibrium and wages and prices are very sticky. In these conditions, without intervention unemployment may remain high for a very long time and productive resources remain underutilized.

- The short run AS curve is almost flat till the full employment output level.

- Fiscal policy is more effective than monetary policy, because investments are not very sensible to interest rates, while money demand is. So the crowding out effect is very small.

- In addition there may be a positive effect on investment (acceleration effect) if the increase in G increases growth expectations

- Hence economic policy should be activist and follow a discretionary approach.

Recent trends in monetary policy

- Increasing use of targets : in 1990 only 57% of world central banks had an explicit targets, in 1998 it was 95%
- Increasing use of inflation targets: in 1990 only 5 countries had an inflation target and only 1 relied solely on an inflation target; in 1998 54 countries had an inflation target and 11 relied solely on an inflation target
- Increasing attention to expectations and reputation / credibility of central banks
- Strategy:
➢ given the variable lags (6-18 months), today CB fix interest rate to maintain future inflation below 2%
➢ Use of escape clauses to stabilize output
➢ Use of communication strategies to influence expectations

Inflation Targeting Countries

FIRST PHASE: BEFORE 1997

|	YEAR	TARGET	OTHER TARGETS	TARGET SET BY:
AUSTRALIA	apr-93	2-3%	no	NZRB Governor and Minister of Finance
CANADA	feb-91	3±1 (f.93) 2,5±1 (dal 94) 2±1 (from 95) 1-3 (from 98)	no	Minister of Finance and Governor of BoC
CHILE	sept-90	from 15-20 (91) to 3,5 (00) 2-4 (from 01)	crawling peg up to sept-99	Central Bank
FINLAND	feb-93 (EMU from jan-99)	2%	no (particular attention to the makka fluctuation band ±15% on the ECU)	Bank of Finland
GREAT BRITAIN	oct-92	1-4 (92-95); 2,5±1	no	Minister of the Treasury
ISRAEL	dec-91	from 14-15 (92) to 3-4 (00-01) 2-3 (02) 1-3 (from 03)	Crawling exchange rate band with progressive increase of the band. From june-97 at 28%	Minister of Finance and Central Bank (period 91-94). Minister of Finance consulting the Central Bank (afterwards)
NEW ZEALAND	mar-90	0-2 (89-96); 0-3 (from 97)	no	Minister of Finance and Governor of the Central Bank by means of the PTA
SPAIN	jan-95 (EMU from jan-99)	<3 (first announcement) 3,5-4 (96); 2,5 (97) 2 (98)	no (attention to the fluctuation band ERM: ±15% in comparison with ECU)	Central Bank
SWEDEN	jan-93	2±1	no	Central Bank

SECOND PHASE: FROM 1998 TO 2002

	YEAR	TARGET	OTHER TARGETS	TARGET SET BY:
BRAZIL	june-99	8±2 (99); 6±2 (00); 4±2 (01),3,5±2 (lp)	no	National Monetary Council after proposal by the Minister of Finance
COLOMBIA	sept-99	From 15 (99) to 8 (01) 6 (02); 3 (LP)	Monetary Base as privileged indicator	Central Bank Board
KOREA	apr-98	9±1 (98); 3±1 (99) 2,5±1 (dal 00)	M3 as privileged indicator	Central Bank consulting Government
ISLAND	mar-01	2,5±1,5	No	Government and Central Bank
MEXICO	Formally from 2001	13 (99); 10 (00); 6,5 (01) <4,5 (02); 3 (03)	Monetary Base up to 2000	Central Bank
NORWAY	mar-01	2,5	no	Central Bank
POLAND	jan-99	6,6-7,8 (99); 5,4-6,8 (00) 6-8 (01) <4 (per il 03)	Crawling peg, fluctuating exchange rate from apr-00	Central Bank
CZECH REPUBLIC	announcement in dec-97 with effect from jan-98	From 5,5-6,5 (98); to 2-4 (01); 3-5 (02) 2-4 (for 05)	no	Central Bank
SOUTH AFRICA	feb-00	3-6 (01)	no	Government consulting Central Bank
SWITZERLAND	jan-00	<2%	no	Central Bank
THAILAND	may-00	0-3,5	no	Central Bank
HUNGARY	jan-01	4,5±1 (02); 3,5±1 (03)	no	Central Bank
PHILIPPINES	Aug-01	4,5-5,5 (03)	no	Government and Central Bank
PERU	Formally from jan-02	From 15-20 (94) to 2,5-3,5 (01) 2,5±1 (02)	Monetary Base (up to 01) From 02 complete I.T.	Central Bank

Sources: Blejer et al. eds (1999), Carare et al. (2002), Debelle (1997), Leidermann-Svensson eds (1995), Gomez et al. (2002), Hemedes (2001), Loyoza et Soto eds.(2002), Masson et al. (1997), Schaechter et al. (2000), Yu (2001), web sites of the central banks

Countries with Inflation targeting have lower inflation

Average, sample 1989-97
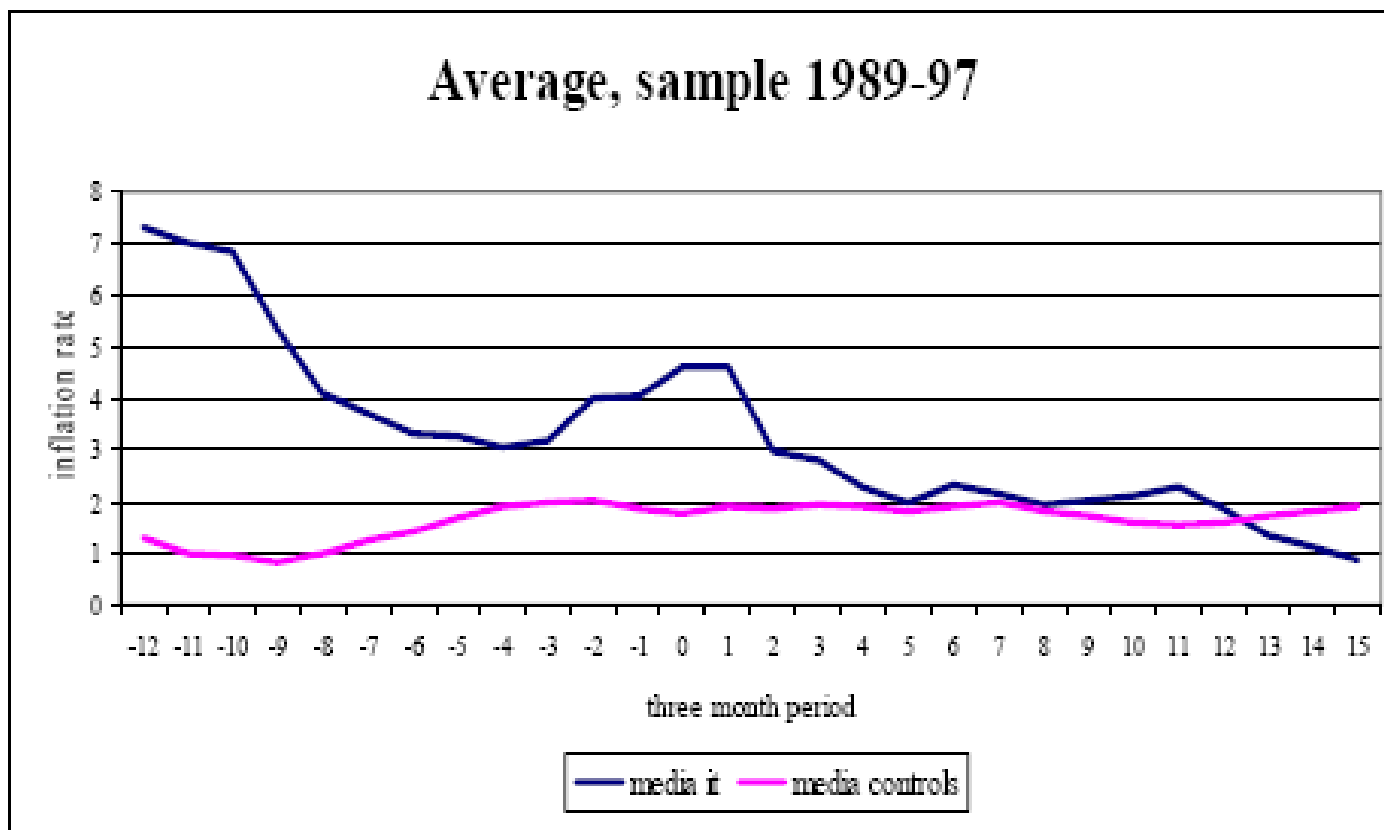
Blueprint for inflation targets

- Explicit and precise π^* (assigned by govt.)
  π : % change over last 12 months

- Core or underlying inflation

- Hierarchical objectives (π more important, particularly early on)

- Explicit or implicit incentives, mission clearly defined
  CB accountable to govt. or legislature

- Transparent procedure (minutes, inflation forecasts are known)
  collective body sets MP

- Absence of other nominal targets (look at all information)