6. Macroeconomic policy

1. Basic outline of economic policy

Definition 1.1. The economic policy of a government consists of all the decisions by the government that affect the economy with the purpose of achieving certain preestablished goals.

<p style="text-align:center">

Tools or instruments at the disposal of the governement   *economic policy* →   **Targets (desired goals)**

</p>
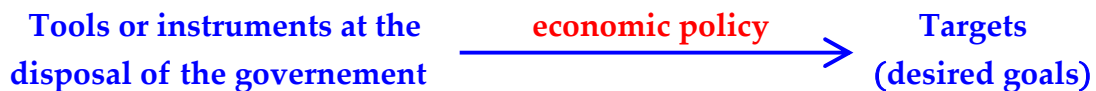
The above sketch represents the basic outline of economic policy. For macroeconomic policy, the desired goals are expressed as values of certain macroeconomic variables one wishes to influence.

2. Targets, instruments, indicators

Definition 2.1. A target of economic policy is a goal of policy identified with precision.

Definition 2.2. An instrument of economic policy is a tools that the policymaker can control and manipulate directly.

Definition 2.3. An indicator of economic policy is a variable that informs about the degree of fulfillment of a target.

Definition 2.4. An ultimate target of economic policy defines the goal in which the policymaker is really interested. An intermediate target of economic policy is a goal considered relevant or necessary to achieve the ultimate target; as it signals closeness to the ultimate target, it may be used as an indicator.

3. The Tinbergen precept

Definition 3.1. Formulated by Jan Tinbergen, the Tinbergen precept (also known as "basic rule of economic policy") states that, when designing a specific economic policy, the number of independent instruments under the policymaker's control cannot be smaller than the number of ultimate targets.

The short version of the precept is "Have at least as many instruments as goals" (no policy tool can be presumed to serve two objectives: do not expect to kill two birds with one stone). For instance, to achieve three goals, the precept demands at least three instruments, each one of them capable of complying with a different goal.

Example 3.2. An economy is described by the following five equations (N is employment, whereas the bar over a symbols means "constant").

AS function $Y = \pi \cdot N$ **Consumption function** $C = \bar{C} + c \cdot Y$ **Government purchases** $G = \bar{G}$

AD function $AD = C + I + G$ **Investment function** $I = \bar{I}$

In macroeconomic equilibrium, $Y = AD$. Therefore, in equilibrium,

$$Y = \frac{1}{1-c} \cdot (\bar{C} + \bar{I} + \bar{G}).$$

Suppose the target is a certain level of employment $\bar{N}$ and the tool is $\bar{G}$. Using the previous result and the AS function,

$$\frac{1}{1-c} \cdot (\bar{C} + \bar{I} + \bar{G}) = \pi \cdot \bar{N}.$$

Solving for $\bar{G}$,

$$\bar{G} = \pi \cdot (1-c) \cdot \bar{N} - (\bar{C} + \bar{I})$$

The above equation links the target $\bar{N}$ with the tool $\bar{G}$. For example, letting $c = 0.9$, $\pi = 2$, and $\bar{C} + \bar{I} = 100$, the condition linking the tool $\bar{G}$ with the target $\bar{N}$ is $\bar{G} = 20 \cdot \bar{N}$. By way of illustration, if the goal is to have $\bar{N} = 7$, then the necessary amount of government purchases is $\bar{G} = 20 \cdot 7 = 140$.

Example 3.3. Let the economy is described by the following six equations (where, as in Example 3.2, the bar indicates a constant, exogenous variable).

AS function $Y = \pi \cdot N$ **Consumption function** $C = \bar{C} + c \cdot Y$ **Government purchases** $G = \bar{G}$

AD function $AD = C + I + G$ **Investment function** $I = \bar{I} - b \cdot i$ **Fisher equation** $i = \bar{r} + \pi$

The policy goals are $\bar{N}$ (an employment level) and $\bar{\pi}$ (an inflation rate). The policy tools are $\bar{G}$ (fiscal policy) and i (monetary policy). The Fisher equation $i = \bar{r} + \pi$ (where $\bar{r}$ is supposed given and known) directly links the target $\bar{\pi}$ with the instrument i: $i = \bar{r} + \bar{\pi}$. For example, if $\bar{r} = 1$ and the inflation rate target is $\bar{\pi} = 3$, the interest rate should be set at $i = \bar{r} + \bar{\pi} = 2 + 3 = 5$.

On the other hand, using the equilibrium condition $Y = AD$,

$$Y = \frac{1}{1-c} \cdot (\bar{C} + \bar{I} + \bar{G}) - \frac{b}{1-c} \cdot i \,.$$

Inserting this into the AS function

$$\frac{1}{1-c} \cdot (\bar{C} + \bar{I} + \bar{G}) - \frac{b}{1-c} \cdot i = \bar{\pi} \cdot \bar{N}$$
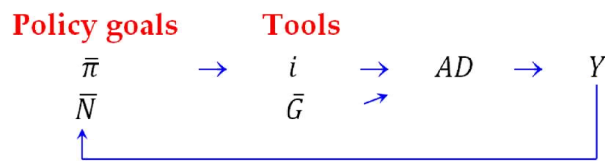
or

$$\frac{1}{1-c} \cdot (\bar{C} + \bar{I} + \bar{G}) - \frac{b}{1-c} \cdot (\bar{r} + \bar{\pi}) = \bar{\pi} \cdot \bar{N}.$$

Solving for $\bar{G}$,

$$\bar{G} = \bar{\pi} \cdot [b + (1-c) \cdot \bar{N}] + b \cdot \bar{r} - (\bar{C} + \bar{I}).$$

This expression determines the value of the fiscal policy tool $\bar{G}$ that, given the monetary policy goal $\bar{\pi}$, makes it possible to achieve the fiscal policy goal $\bar{N}$. Decisions and outcomes are summarized next.

$$\begin{array}{ccccccc} \textcolor{red}{\textbf{Policy goals}} & & \textcolor{red}{\textbf{Tools}} & & & & \\ \bar{\pi} & \rightarrow & i & \rightarrow & AD & \rightarrow & Y \\ \bar{N} & & \bar{G} & \nearrow & & & \end{array}$$

4. Implementing problems

The implementation of economic policies is subject to several limitations and constraints.

• <u>Lags</u>. Policymaking does not hit the economy immediately: there is a delay between the moment at which intervention is needed and the moment at which the economy responds to the policies.

• Credibility of policymakers and the <u>temporal inconsistency of policies</u>.

• Policymaking should take into account <u>people's reaction to policies</u> (<u>Goodhart's law</u>).

• <u>Unintended consequences</u> of policies and the rethoric of reaction to policies.

5. Lags

Definition 5.1. The <u>recognition lag</u> is the period between the moment at which a disturbance (problem) occurs and the moment at which it is recognized the need to take some action (this lag makes <u>policymaking analogous to driving a car looking backwards</u>).

Definition 5.2. The <u>decision lag</u> is the time between the recognition of the problem and the policy decision.

Definition 5.3. The <u>action lag</u> is the delay between the policy decision and its execution.

Definition 5.4. The <u>effectiveness lag</u> is the time needed for the policy action to affect the economy and achieve the desired goal (the effects of the policy take time to appear).

Example 5.5. An oil tanker is heading to some obstacle at sea. The time took to detect the obstacle (from the time where it can be recognized) is the <u>recognition lag</u>. The <u>decision lag</u> refers to the time between the obstacle is detected and the captain decides whether to turn to port or turn to starboard. The <u>action lag</u> is the time needed to communicate that decision to the helmsman. The <u>effectiveness lag</u> is the time the tanker takes to turn.

6. Temporal inconsistency of policies

Definition 6.1. A decision made at time t to be carried out at a later time t' is <u>temporally inconsistent</u> if, at time t', it is better for the decision-maker not to carry it out.

Temporal inconsistent policies are ineffective because they are <u>not credible</u>: when it is the policymaker's turn to execute a temporally inconsistent, he or she will have an incentive to not execute it.

Example 6.2. To attract foreign investors, a government promises not to tax profits from firms created by foreign investors; but, once the firms get the profits, the government has an incentive to tax them.

7. Goodhart's law

Definition 7.1. Named for Charles Goodhart, a former chief advisor to the Bank of England, it was originally formulated in 1975 as "Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes".

Marilyn Strathern's formulation is "When a measure becomes a target, it ceases to be a good measure". Goodhart's law expresses for the social world what the Heisenberg principle expresses for the phyical world: the act of measuring reality changes reality. By Goodhart's law, an empirical regularity tends to vanish when it is used to control the evolution of the variables involved in the regularity.

Example 7.2. Imagine that it is an empirical regularity that the students attending more than 85% of the classes pass the course. To avoid the cost of setting and correcting exams, a teacher may use this regularity to, by controlling attendance, give a pass to those students coming to at least 85% of the classes. If students knew that policy, attendance would no longer be a good measure of the students' performance. Why?

Example 7.3. The Lucas critique. Formulated by Robert Lucas, the critique points out that changes in policies may alter the coefficients in macroeconometric models used to formulate the policies, so policies designed to have effects on one reality could end affecting a different reality. Consequently, when designing policies, it should be taken into account how policies change reality.

By Goodhart's law, when a policymaker makes use of some empirical regularity as a policymaking instrument, the regularity will tend to disappear. Empirical regularities link variables (course attendance and course performance in Example 6.2). If one of the variables is taken as target (performance), the other variable (attendance) may act as indicator. But taking the indicator as a measure of the target invalidates the indicator: controlling the indicator instead of the target destroys the empirical regularity.

Example 7.4. "The most famous example of Goodhart's law should be the soviet factories which, when given targets on the basis of numbers of nails, produced many tiny useless nails and, when given targets on basis of weight, produced a few giant nails. Numbers and weight both correlated well in a pre-central plan scenario. After they are made targets (in different times and periods), they lose that value."
http://lesswrong.com/lw/1ws/the_importance_of_goodharts_law/

8. Unintended consequences and the rethoric of reaction to policy proposals

Definition 8.1. A side effect of an economic policy is a change caused by the policy on a variable that the policy did not intend to alter. Side effects could be positive (favourable) or negative (unfavourable).

Definition 8.2. A revenge (boomerang, blowback) effect of an economic policy is a change caused by the policy on a variable that the policy intend to alter but in the opposite direction as intended: the policy has the opposite effect of the one intended. By definition, a revenge effect is negative.

Side and revenge effects occur because new possibilities, devices, systems… interact and react with people in unforseeable ways.

Example 8.3. To insure bank depositors against losses, suppose the government provides deposit insurance. If, as a result of deposit insurance, more people deposits cash in banks, banks lend more money, and the spending made with the additonal borrowing expands economic activity and GDP, then the GDP increase is a side effect of deposit insurance. If, on the other hand, banks adopt a more imprudent lending policy, this makes the banking system much more vulnerable to bankruptcy and endangers deposits and, hence, losses by depositors are more likely. That deposit insurance makes more likely that depositors may suffer losses is a revenge effect of deposit insurance.

Example 8.4. Imagine a drug helping to reduce weight. If the consumption of the drug in effect lowers the weight but, at the same time, changes the skin's colour, then the skin colour change is a side effect. If consuming the drug under stress turned out to accelerate weight gain that would constitute a revenge effect of the consumption of the drug.

Example 8.5. Home washing machines were publicized as a means to free time for houseviwes. The widespread adoption of home washing machines apparently created a side effect: the number of commercial laundries decreased. This forced housewives to do more washing at home, thereby generating a revenge effect: rather than reducing the time housewives spent on washing, washing machines increased it.

Example 8.6. The Jevons paradox. "It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth." W. S. Jevons (see David Owen (2012): *How scientific innovation can make climate problems worse*). Jevons argued that if technological advance allowed a blast furnace to produce iron using less coal, then profits would go up, investment in iron production would be attracted, the price of iron would fall, and demand for coal would be stimulated. The technological improvement making it possible to produce iron with less coal (more efficiently), increases the total consumption of coal: even if each furnace diminishes the consumption of coal, the larger number of furnaces created by the new investments increases total consumption of coal. Adapting Jevons paradox to the present oil industry, it may be argued that new methods for producing using less oil will not stimulate the adoption of alternative energy sources, but rather the opposite: oil will be more intensely consumed.

Example 8.7 (An apparently well-planned project leading to a surprising adverse result; Helen Margetts et al (2010): *Unintended consequences of public policy reform*). Eighteenth-century German scientific foresters recommended growing trees in serried ranks, to render the forests easily countable. But in creating forests without disorderly clusters and without fallen trees among the living ones, the ecosystem needed for healthy forest growth was destroyed. So the foresters unintentionally killed the forests they were attempting to manage.

Example 8.8. "The only way to control unanticipated events is to have Washington [= the government] do as little as possible." Milton Friedman, quoted on page 1 of W. A. Sherden (2011): *Tyranny of unintended consequences and how to avoid them*. [Untintended consequences are attributed to public authorities, as if private agents were immaculate and free from the sin of causing unintended effects out of their decisions.]

In *The rhetoric of reaction* (1991), Albert Hirschman identifies a triad, in the form of three theses, representing three <u>ways of criticizing and ridiculing new policy proposals</u>. Each thesis is formulated against a given, specific policy measure.

Definition 8.9. The <u>perversity thesis</u> (thesis of the perverse effect) holds that the attempt to solve a problem (or improve some condition) by means of the policy proposal under attack only serves to exacerbate the problem (worsen the condition).

The perversity thesis claims that trying to move things in one direction, results in a move in the opposite direction and is an expression of the motto "Everything backfires".

Example 8.10. The perversity thesis is invoked when "well-intentioned" policies are accused of making things worse: social welfare programmes create more poverty; universal suffrage at the time was criticized on the grounds of alleged perverse effects derived from allowing eveyone to vote (even "idiots"); if only believes that markets self-regulated, a minimum wage policy is said to create more unemployment.

Definition 8.11. The <u>futility thesis</u> asserts that the policy proposal under attack is unavailing and fails to solve the problem (or does so in an illusory way) or alter the condition of interest.

The classic expression "Plus ça change plus c'est la même chose" captures the futility thesis (for example, the opinion the it does not matter what party you vote, for all of them end behaving likewise).

Definition 8.12. Goodhart's law could be related to the futility thesis, as economic agents will tend to nullify policies. The most orthodox economists invoke the futility thesis when contending that the government should not interfere with market outcomes: it is futile (the alternative contention that it is counterproductive involves the perversity thesis). The claim that universal suffrage and democratic elections bring no real social or political change (already made by Vilfredo Pareto a hundred years ago) is another expression of the futility thesis.

Definition 8.13. The <u>jeopardy thesis</u> postulates that the cost of the policy proposal under attack is so high that it endangers some previous, desirable accomplishment: the proposed change, even if considered desirable, involves unacceptable costs or consequences.

The jeopardy thesis relies on the presumption that a new advance will imperil an older one.

Example 8.14. The jeopardy thesis is involved in the claim that, if Catalonia or Scotland becomes independent countries, many rights (like social security benefits and, specifically, pensions) and welfare levels will be lost.

Example 8.15. In *The Constitution of Liberty* (1960), Nobel laurate Friedrich Hayek attacks the welfare state on the grounds that it is a danger and a menace to liberty and democracy.

9. Policy debates: intervention vs no intervention / rules vs discretion

Definition 9.1. The <u>nonactivist position</u> (no intervention, <u>policy nihilism</u>) contends that public authorities should, as a general principle, abstain from intervening the economy.

The nonactivist position is based on the belief that the economy is self-regulating and works better when left by itself. Arguments offered by the supporters of this position include the following (and rely on the perversity, futility, and jeorpady theses).

• Intervention may make things worse: policymakers have an imperfect knowledge of both the economic reality and the effects of policies, and may be guided by personal interests.

• Crises are considered good for the economy, as they purge it of inefficiencies and weaknesses.

• Policy design is subject to several constraints that limit their effectiveness: lags, temporal inconsistency, short-termism, policymakers cannot be trusted because they pursue their personal interests (giving rise to the political business cycle)…

Definition 9.2. Political business cycle. Oscillations in economic activity caused by the adoption of expansionary policies just before political elections and contractionary ones some time after.

The nonactivist position invokes the complexity of an economy and the obscure, unpredictable way in which macroeconomic variables interact to justify the conclusion that policymakers lack the necessary knowledge to understand the consequences on the economy of specific policy measures. The existence of lags further complicate the prediction of effects (particularly, when they will take place). Even if there existed policies improving the state of the economy, the difficulty in finding them justifies, according to this view, the safer option of doing nothing.

Definition 9.3. The <u>activist</u> (interventionist) <u>position</u> contends that public authorities must, as a general principle, consider the prospect of intervening the economy.

When an activist position is adopted, the choice is between flexibility and certainty of the policy, that is, between discretion and rules. <u>Flexibility</u> means that policymakers do not tie their hands when choosing targets or using tools (because the economy and what is known about it changes over time). <u>Certainty</u> means that policy is conducted by preannounced rules that describe how the policy targets are determined and instruments used in every situation.

Definition 9.4. Policymakers are guided by <u>discretion</u> the chosen policy measures adapt, and try to respond adequately, to changing circumstances of the economy.

Definition 9.5. A <u>policy rule</u> is a way of mechanically relating circumstances, states, or conditions in the economy to precise policy measures: a policy rule makes policy actions automatic responses to changes in the economy.

Example 9.6. A rule, advocated by Nobel laureate Milton Friedman, is the <u>constant-money-growth-rate rule</u>: the money stock has to grow at a constant rate regardless of the state or conditions of the economy.

Example 9.7. Inflation targetting. Taylor's rule (due to John B. Taylor, 1993) is a monetary policy rule telling the central bank how to set the nominal interest rate. The rule is given by an equation of the sort

$$i = \pi + \bar{r} + A \cdot (\pi - \bar{\pi}) + B \cdot (y - \bar{y})$$

where: $\bar{r}$ is the long-term real interest rate (assumed constant by Fisher hypothesis); $\bar{\pi}$ is the central bank's target inflation rate (π is current inflation); $\bar{y}$ is the "normal" growth rate of the economy (y is current growth); constant $A > 0$ measures the central bank's sensitivity to deviations from target $\bar{\pi}$; and constant $B > 0$ measures the central bank's sensitivity to deviations from normal growth $\bar{y}$. If the central bank only cares about inflation (and not about growth or unemployment), then $B = 0$. In this case, Taylor's rule becomes

$$\boxed{i = \pi + \bar{r} + A \cdot (\pi - \bar{\pi})} \tag{1}$$

When $\pi > \bar{\pi}$ (the central bank's goal is met), then $i = \pi + \bar{r}$. That is, $i - \pi = \bar{r}$: the current real interest rate $r = i - \pi$ equals the equilibrium real interest rate $\bar{r}$. Taylor's rule then generalizes the Fisher equation. The larger A, the more aggresive the central bank is in fighting inflation.

Under rule (1), if $\pi > \bar{\pi}$, then, to cool off the economy by cutting aggregate demand, the central bank rises i so that the current real interest rate $r = i - \pi$ is above the equilibrium interest rate $\bar{r}$. Conversely, if $\pi < \bar{\pi}$, then, to heat up the economy by expanding aggregate demand, the central bank reduces i so that the current real interest rate r is below the equilibrium interest rate $\bar{r}$.

Definition 9.8. The Taylor principle is the advice to monetary authorities that, in response to a rise in inflation, the nominal interest rate should be increased by more than the inflation rise in order to cause an increase in the real interest rate.

Example 9.9. Let $\bar{r}$ = 1%, $\bar{\pi}$ = 3%, and A = ½ (so, for each inflation point above the goal, the central bank rises i by 0.5 points). Suppose π_0 = 3%. Then the central bank sets $i_0 = \pi_0 + \bar{r} + (\pi_0 - 3)/2 = 3 + 1 + 0/2 = 4\%$. If π_1 = 5%, $i_1 = \pi_1 + \bar{r} + (\pi_1 - 3)/2 = 5 + 1 + (5 - 3)/2 = 7\%$, so $r_1 = i_1 - \pi_1 = 7 - 5 = 2 > \bar{r} = 1\%$.

Definition 9.10. Constrained discretion (suggested by Ben Bernanke and Friedric Mishkin) defines a type of policy framework in which policymakers commit in advance to general objectives and tactics, not to specific actions. This option combines the certainty of rules with the flexibility of discretion.

The following are arguments for rules and for discretion furnished by their supporters (see chapter 21 in Frederic S. Mishkin (2011): *Macroeconomics: Policy and Practice*).

9.1. Advantages of rules

• When making decisions, private agents anticipate the policymakers' actions (uncertainty reduced).

• Policymakers cannot be trusted: they make policy errors systematically and are tempted for electoral reasons to pursue overexpansionary policies guided by their short-term consequences and disregarding long-term undesirable effects. Rules constitute a mechanism to discipline policymakers, avoid the political business cycle, and prevent the temporal inconsistency problem.

The commitment to rules is not free of problems, practical and conceptual.

• Rules will be eventually changed. If the change is frequent, there is no much difference with discretion. Moreover, must there be rules for the change of rules?

• People need to believe that rules will be followed and this requires policymakers to have developed a reputation for respecting the rules.

• Rules cannot foresee every contingency (since the onset of the financial crisis of 2008, for instance, the European Central Bank has adopted several unprecedented extraordinary measures).

• Rules are formulated presuming a model of the economy. If the model is wrong, the policy prescription by rules.

• The "sanctification" of rules in the theory of economic policy (see K. Vela Velupillai (2014): "Towards a political economy of the theory of economic policy", Cambridge Journal of Economics 38, 1329–1338). In its origins, macroeconomics was inseparable from policy activism. By denying the significance of the fallacy of composition through the transformation of macroeconomics into microfounded macroeconomics is how the prevalence of rules is actually justified. Recognizing the fundamental importance of the fallacy of composition is the unifying vision of activism.

9.2. Advantages of discretion

• Using discretion, unexpected or serious economic problems can be attacked efficiently. Success of a policy could depend on the ability to act flexibly using discretionary measures.

• Not all the information concerning an economy is quantifiable (which what rules require), for which reason the best course of action for the policymakers would involve making judgements (which is what rules replace).

• Is it easier under discretionary policy to handle the impact of structural changes in the economy.

One of the problems of using discretion is that predicting the policymakers' actions becomes a new problem for the agents in the economy (since policies may be erratic and arbitrary). It could also be argued that policymakers need not possess such an accurate knowledge of how an economy works to make policies always produce the desired results and never generate unintended non-favourable effects.

10. How important is credibility?

The orthodox view favours the adoption of rules to avoid the negative effects of political short-termism (to care only about short-run effects of policies, neglecting the possibly non-favourable long-term consequences) and temporal inconsistency problems. Given also the inflationphobia of the orthodox view (though the inflation of the prices of financial assets never gives rise to complains), the central bank is considered the central policy-making institution.

The orthodox view recommends a central bank to be <u>independent</u> (free from "political interference") and <u>credible</u> (to have the reputation that induces people to believe that the rules adopted and the general mandate of price stability will be respected at all cost centra banks have become the "guardians of an economy's credibility"). Necessary or not for the performance of a central bank's functions, central bankers have developed an interest in maintaining the belief that central banks should be independent (which contributes to preserve their status) and supply credibility.

Example 10.1. The <u>Maastricht Treaty</u>, Art. 107 (emphasis added): "When exercising the powers and carrying out the tasks and duties conferred upon them by this Treaty and the Statute of the ESCB, <u>neither the ECB, nor a national central bank</u>, nor any member of their decision-making bodies <u>shall seek or take instructions from Community institutions or bodies, from any government of a Member State</u> or from any other body. The Community institutions and bodies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the ECB or of the national central banks in the performance of their tasks."
www.eurotreaties.com/maastrichtec.pdf

The heterodox reply to this view of central banks is that central bank independence contradicts the democratic principle of policymakers being responsible (accountable) to citizens. It is then regarded as undemocratic to have one of the policies affecting most people in the economy (monetary policy) under the control on an elite group responsible to no one. Another heteredox argument against central bank independence is that this independence has not always been successfully exercised (currently, the eurozone CPI is far below the target and in the pre-crisis period is was frequently above target).

The orthodox view has identified some <u>approaches to establish central bank credibility</u>.

• <u>Approach 1</u>. Adopt the monetary policy strategy known as "<u>inflation targeting</u>", which typically involves:
   ▪ public announcement of inflation targets;
   ▪ the adoption of price stability as the primary goal of monetary policy;
   ▪ following a transparency strategy in which governors of central banks may their plans and objectius public, often through press conferences
   ▪ accountability of the central bank for attaining the inflation objective.

• <u>Approach 2</u>. Appoint central bankers who have a known strong aversion to inflation. This type of central bankers are called "conservative", "tough" or "hawkish on inflation".

• <u>Approach 3</u>. To give the central bank more independence from the political process. The presumption is that a politically insulated central bank has more freedom to pursue long-run goals (among them, price stability).

Example 10.2. The example, based on Fig. 1, illustrates the importance of credibility and commitment) for the effectiveness of policy by means of an extensive-form game. There are two players (decision-making agents): the firms and the central bank. Firms choose first between adopting decisions that lead

to a high inflation rate or decisions that lead to a low inflation rate. In the latter case, the outcome of the game situation is an economy with stable prices, in which case the central bank needs not intervene. In the former case, it is the central bank's turn to move by choosing to fight inflation (by conducting, for instance, contractionary open market operations) or not (by doing nothing, for example).

Fig. 1. A game to illustrate central bank credibility
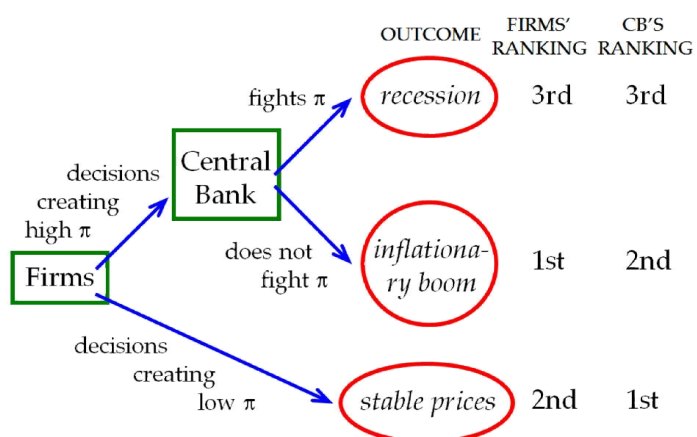
If the central bank fights inflation, the outcome is a recession; if it does not, an inflationary boom obtains. Fig. 1 indicates the preference rankings over outcomes of each player. Firms like most of all an inflationary boom; after that, they prefer an economy with stable prices; and the least preferred outcome is a recession. The central bank's most preferred situation is price stability, followed by an inflationary boom, and the worst option is to have a recession. Consider two cases.

• Case 1: <u>the central bank acts discretionally</u>. Solving the game by backwards induction, the central bank prefers not to fight inflation: by fighting it, the central bank achieves the third most preferred option (recession), whereas, by not figthing it, the second most preferred one is attained (inflationary boom). Given that the central bank is going to choose not to fight inflation, firms choose the high inflation option. This leads to the firms' best outcome (but the central bank's second best): an inflationary boom.

• Case 2: <u>the central bank commits itself to fighting inflation</u>. Assume the central develops a <u>reputation for fighting inflation</u> regardless of any other consideration. Firms then choose the low inflation option: if the create inflation and expect the central bank to fight it, firms anticipate a recession, which is their worst option; yet, by choosing not to create inflation, firms can ensure achieving a better option (price stability). In this case, the central bank gets its best outcome (price stability) without having to engineer recessions: the <u>belief</u> that the central bank is willing to generate a recession to fight inflation suffices. Developing and maintaining reputation (credibility) is a mechanism to make credible what otherwise would be considered an incredible threat: that the central bank will choose the worst option, causing a recesion, in case firms do not act consistently with price stability.

11. Typology of macroeconomic policies

Macroeconomic policies can be classified into two broad categories: supply-side and demand-side.

Definition 11.1. A supply-side policy is a policy measure that aims at shifting the AS function to the right by <u>improving the productive capacity of the economy</u>. Typical supply-policies include measures to

- <u>rationalize the government intervention in the economy</u>: remove unnecessary regulation, efficient provision of public services, privati-zation of public monopolies, tax reductions…

- <u>improve the way markets operate</u>: stimulate competition, reduce market power…

- <u>improve the quality of inputs</u> (retraining programmes for unemployed people) and to <u>encourage technological progress</u>.

Definition 11.2. <u>Supply-side economics</u> is a term designating a school of economic thought that contends that the best way to stimulate growth consists of <u>removing the obstacles to production</u>.

Two typical recommendations of supply-side economics are

• <u>less regulation</u>: the less a government interferes with the economy, the better for the economy; and

• <u>cut the income tax rate</u> and the capital tax gain rate to provide incentives to people and firms to work and produce more (this policy is justified by the Laffer curve and the presumption that the economies lies at a point like a in Fig. 2).

Definition 11.3. The <u>Laffer curve</u> is a theoretical relationship (shown in Fig. 2) between the revenues obtained from taxation and the average tax rate.
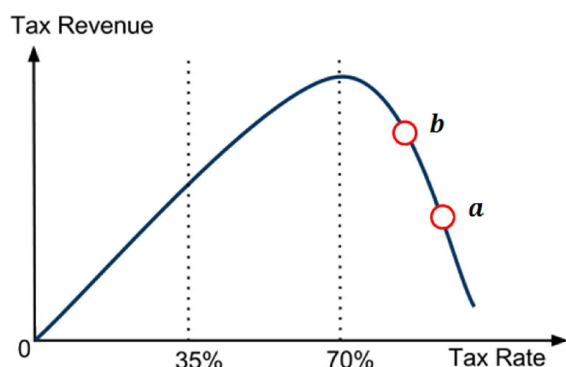
The tax rate reduction from a to b benefits the economy and the government: a smaller tax rate induces people to work and produce more, and more production yields higher revenues. Those opposing the principles of supply-side economics call it "voodoo economics".

Fig. 2. A non-symmetric Laffer curve with a maximum revenue point at around a 70% tax rate │ http://en.wikipedia.org/wiki/Laffer_curve

Definition 11.4. The expression "<u>trickle-down economics</u>" refers to the presumption that the poorer members of an economy will eventually benefit from economic privileges given to firms and the richer members of the economy (a rising tide lifts all boats). http://en.wikipedia.org/wiki/Trickle-down_economics

Supply-side economics could be viewed as trickle-down economics in disguise: rather than directly proclaiming that one must first take care of the wealthy, it is claimed that certain tax policies (which incidentally benefited more the wealthy) are good for the economy (and, hence, for everyone).

> "There are <u>two ideas of government</u>. There are <u>those who believe that if you just legislate to make the well-to-do prosperous, that their prosperity will leak through on those below</u>. The Democratic idea has been that <u>if you legislate to make the masses prosperous their prosperity will find its way up</u> and through every class that rests upon it." William Jennings Bryan, US Democratic Presidential candidate, 1896

Definition 11.5. "The <u>Matthew effect</u> (or accumulated advantage) is the phenomenon where 'the rich get richer and the poor get poorer'". http://en.wikipedia.org/wiki/Matthew_effect

Definition 11.6. A <u>demand-side policy</u> is a policy measure whose intended immediate target is to change the AD function, either to contract or to expand it.

The main demand-side policies are the <u>fiscal policy</u> (decided by the governement) and the <u>monetary policy</u> (decided by the central bank, when it is independent from the government). In general, demand-side policies tend to modify the AD function <u>faster</u> than supply-side policies modify the AS function.

Definition 11.7. The <u>fiscal policy instruments</u> are government expenditure (G), net transfers payments to the private sector (TR), and the tax rate (t, the proportion of income paid to the government as taxes).

Definition 11.8. The <u>fiscal policy targets</u> are, typically, GDP growth, unemployment, the unemployment rate and, atypically, the budget deficit.

Definition 11.9. The <u>monetary policy instruments</u> are open market operations, interest rates set by the central bank, and reserve requirements.

Definition 11.10. The main <u>monetary policy target</u> is, typically, the inflation rate. Secondary targers are GDP growth, the unemployment rate, and the exchange rate.

Definition 11.11. An <u>expansionary fiscal policy</u> consists of ↑G, ↑TR, and/or ↓t. A <u>contractionary fiscal policy</u> consists of ↓G, ↓TR, and/or ↑t. Table 3 shows the immediate presumed effects of fiscal policy.

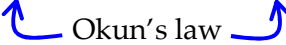| Initial (primary) effects of an	instruments			effect on		
	G	TR	t	Y	π	u
expansionary fiscal policy	↑	↑	↓	↑	↑	↓
contractionary fiscal policy	↓	↓	↑	↓	↓	↑

Okun's law

Table 3. Presumed effects of a fiscal policy

Definition 11.12. An <u>expansionary monetary policy</u> consists of an expansionary open market operation, a reduction of the discount rate, and/or a reduction in the reserve requirements. A <u>contractionary monetary policy</u> is given by the opposite. Table 4 shows the immediate presumed effects of monetary policy.

An expansionary fiscal or monetary policy tries to shift the AD function to the right (increase expenditure). An contractionary fiscal or monetary policy pursues the opposite.

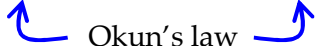| Initial (primary) effects of an	implies		effect on		
	r	M1	Y	π	u
expansionary ("easy") monetary policy	↓	↑	↑	↑	↓
contractionary ("tight") monetary policy	↑	↓	↓	↓	↑

Okun's law

Table 4. Presumed effects of a monetary policy

12. Fiscal policy

12.1. Government deficit

Definition 12.1. The <u>total spending by the government</u> (government outlays) consists of three items.

- G = government consumption expenditures (purchases on currently produced goods) + government investment (purchases on capital goods).

- TR = transfer payments made to individuals (like unemployment insurance benefits or pensions) from whom the government does not receive current goods in return.
- INT = net interest payments = interest paid to the holders of government financial assets (such as T-bills and government bonds) – interest paid to the government

Definition 12.2. The four main categories of <u>tax receipts</u> (T) are:
- personal taxes, which are composed of income taxes and property taxes;
- corporate taxes, which are primarily taxes on the profits of firms;
- taxes on production (sales taxes) and imports (tariffs); and
- contributions for social insurance.

Definition 12.3. <u>Government budget</u> deficit (or just deficit) = government outlays – tax receipts = G + TR + INT – T.

Definition 12.4. <u>Primary government budget</u> deficit (or just primary deficit) = deficit – INT.

There are three basic <u>ways of financing a deficit</u>:
- by increasing current <u>taxes</u> or creating new ones (= *tax now* option);
- by issuing <u>financial assets</u> (like government bonds and T-bills) (= *tax later* option);
- by <u>monetizing the deficit</u> (= creating monetary base = printing money and/or selling financial assets to the central bank).

12.2. Qualifying the expansionary effects of an expansionary fiscal policy

When considering the effects of an expansionary fiscal policy, the way it is financed should be taken into account, as it may offset the primary effect of the fiscal policy.

• **Case 1: adverse effects of taxing now.** Suppose the government implements an expansionary fiscal policy consisting of an increase in govt consumption (ΔG). The immediate effect of this policy is an increase in the deficit. Let the deficit be financed by raising taxes now. Since people have less disposable income, it is likely that they will cut consumption. Hence, <u>the expansionary effect of ΔG on the AD function is followed by a contractionary effect</u> caused by a reduction in consumption. This qualifies the primary effect of an expansionary fiscal: it may not alter *Y**.

• **Case 2a: adverse effects of taxing later by issuing government bonds and the Ricardian equivalence proposition**. As debt financing by bond issue just postpones taxation, people realize that bonds will be paid off with future increases in taxes, so it is likely that they will save more <u>now</u> to be able to pay higher taxes in the future. This increase in savings will cause a consumption contraction, thereby making the expansionary fiscal policy what caused the deficit increase less expansionary.

Definition 12.5. <u>Ricardian equivalence proposition</u>. Suggested by David Ricardo (1772-1823), the proposition holds that an increase in the government deficit leads to an increase in saving equal to that deficit, so it does not matter if the deficit is financed by more taxes or by bond issue. <u>If people save now the taxes to be paid in the future, consumption is reduced now and the effect of an expansionary fiscal policy may be neutralized</u>.

The rationale behind Ricardian equivalence is that people is forward-looking in anticipating that a tax cut that increases the budget deficit in the present will have to be paid for with higher taxes in the future and, for this reason, people will save more in the present to pay those future taxes. In sum, lower taxes do not imply more spending (nor more aggregate demand), though some effect on the supply-side is not ruled out. Further, as lower taxes today induce more private saving, people use the additional savings to purchase government bonds and, as a result, there is no need to monetize the debt by increasing the money stock. Since it is presumed to money growth produces inflation, Ricardian equivalence predicts that no inflationary pressure is created.

There are some objections to Ricardian equivalence (leaving aside that the empirical evidence does not seem to support its predictions).

• Objection 1. People may be <u>myopic</u> and hence may not anticipate that lower taxes in the present will lead to more taxes in the future. Moreover, it is uncertain when that future will occur: is it a near or a distant future?

• Objection 2. The people who benefits now from tax cuts could not be <u>alive</u> in the future to pay the higher taxes.

• Objection 3. People suffering from <u>borrowing constraints</u> may be unable to spend what they would. A tax cut would allow them to do so.

• **Case 2b: adverse effects of taxing later by issuing government bonds and the crowding-out effect.**
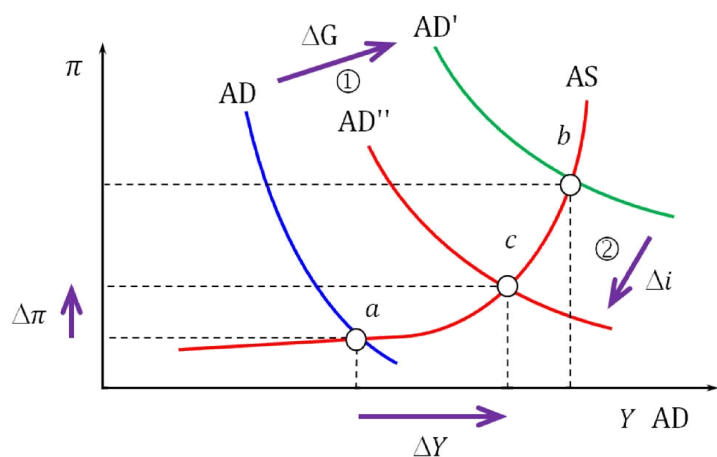

Fig. 5. Crowding out

Suppose an expansionary fiscal policy consisting of an increase in G is financed by bond issue. This shifts the demand for liquidity in the liquidity market to the right causing the interest rate i to go up. The increase in i will presumably have a negative impact on consumption and investment. Therefore, private spending is reduced. As a result, G (public spending) crowds out $C + I$ (private spending). Fig. 5 illustrates crowding out: instead of reaching b, the economy reaches c due to the effect of the fiscal policy on i.

12.3. Rolling debt over

Definition 12.6. To <u>roll debt over</u> is to pay debt with more debt.

Rolling debt over allows a country, or even a major corporation, to <u>never</u> repay the debt. A major corporation may allow the debt to grow period after period, even choosing not to pay back the original loan, because the funds that would cancel the debt can be used in investment projects that generate sufficiently high profits.

A government may roll debt over (take on more debt) in a booming economy if there is a better use for the funds than debt repayment and the revenue obtained from the GDP increase suffices to pay the interest on the new debt.

Definition 12.7. The burden of the (government) debt refers to the annual interest on the debt as a percentage of annual GDP or, alternatively, to the taxes, as a percentage of GDP, needed to pay the interest on the debt.

For instance, if interest payments on the debt rise by 3%, government spending is not altered, and debt is not rolled over, then taxes must rise by 3%. Part of the additional taxes collected go abroad if foreigners own part of the debt. On the other hand, higher taxes tend to reduce AD and, therefore, GDP. This limits the government's ability to repay debt in the future.

Definition 12.8. A possible debt rule: the growth rate of nominal debt should not be higher than the growth rate of nominal GDP.

For example, according to the debt rule, if nominal GDP grows at 3% per year, then nominal debt cannot grow by more than 3% per year.

Under the debt rule, a rising government debt does not imply a rising burden of the debt. To prevent the burden from rising, it is not necessary to run budget surpluses or reduce total debt. It all boils down to control the rate at which total debt grows.

Example 12.9. Table 6 shows an example in which debt grows but the burden of debt remains constant. The example assumes that debt and nominal GDP both grow at 5%.

| | | | | | | | **burden of debt** |
t	GDP_n growth	GDP_n	nominal debt	$\dfrac{debt}{GDP_n}$	i	interest payment	$\dfrac{interest\ payment}{GDP_n}$
1	5%	100	80	80%	3%	2.4	2.4%
2	5%	105	84.2	80%	3%	2.526	2.4%
3	5%	110.25	88.2	80%	3%	2.646	2.4%
4	5%	115.7625	92.61	80%	3%	2.7783	2.4%
5	5%	121.550625	97.2405	80%	3%	2.917215	2.4%

Table 6. Burden of debt with nominal debt and nominal GDP grow at 5%

Example 12.10. Table 7 provides an example in which debt grows and the burden of debt rises. The example assumes that debt nominal grows at 10% wheras nominal GDP grows at 5%.

| | | | | | | | **burden of debt** |
t	GDP_n growth	GDP_n	nominal debt	$\dfrac{debt}{GDP_n}$	i	interest payment	$\dfrac{interest\ payment}{GDP_n}$
1	5%	100	80	80%	3%	2.4	2.4%
2	5%	105	88	83.8	3%	2.64	2.51%
3	5%	110.25	96.8	87.8	3%	2.904	2.63%
4	5%	115.7625	106.48	91.9	3%	3.1944	2.75%
5	5%	121.550625	117.128	96.3	3%	3.51384	2.89%

Table 7. Burden of debt with nominal debt grows at 10% and nominal GDP grow at 5%

Example 12.11. Greece's debt disaster is shown in Figs. 8 and 9: Fig. 8 displays nominal GDP and nominal debt in Greece and Fig. 9 charts the annual interest rate on 10-year government bonds. The recession after the 2008 financial crisis increased Greece's budget deficit. Since GDP was falling, Greece's debt-to-GDP ratio went up rapidly. Lenders started worrying about a possible debt default and demanded a higher interest rate, which caused the debt to increase faster, which escalated fears of default, which led to higher interest rates…
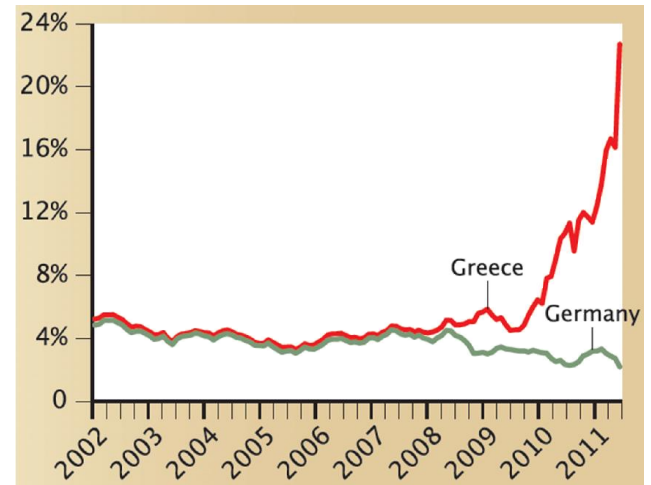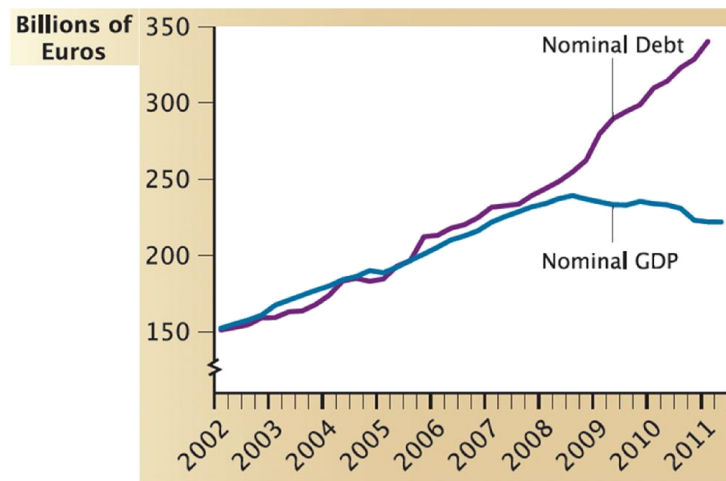

Fig. 8. Greece's nominal debt and nominal GDP   Fig. 9. Long-term interest rate, Greece and Germany
R. E. Hall; M. Lieberman (2012): *Macroeconomics. Principles and applications*, p. 346

Violations of the debt rule can only be transitory, since taxes collected from nominal GDP to pay the burden have nominal GDP itself as the upper limit. Violation of the debt rule rises the debt burden. Lower government spending and/or higher taxes are necessary to cover the additional interest payments. If the rule is restored, spending need not be reduced further nor the tax rate raised again. The problem is that, in comparison with the values before the burden increased, spending is now (permanently) lower and/or the tax rate higher.

To reduce the debt burden, the nominal GDP growth rate must be higher than the nominal debt growth rate, at least temporarily. This can be achieved by means of two options.

• Option 1. Rise the nominal GDP growth rate above the nominal debt growth rate.

• Option 2. Lower the nominal debt growth rate below the nominal GDP growth.

Allowing more inflation is the easiest way to implement Option 1. But, by the Fisher effect, a rise in the interest rate is to be expected. The interest payments of the new debt will then be higher, so the burden reduction will be in danger.

To implement Option 2, the government budget deficit must be lowered. This requires a temporary rise in tax rates and/or a cut/slowdown in spending ("fiscal austerity"). A fiscal stimulus leads to an initial GDP boom, but the long-run effects on GDP could be negative if taxes have to be raised to pay for the stimulus. By symmetry, fiscal austerity may contract GDP at first, to next expand it as lower taxes are expected in the future due to lower government debt.

12.4. Austerity economics

Definition 12.12. The expression "<u>austerity economics</u>" refers to a set of policy recommendations that rely on the presumed expansionary effect of contractionary fiscal policies that aim at balancing the government budget.

How can a contractionary fiscal policy be expansionary for economic activity? In the AS-AD model, the immediate effect of a higher budget deficit (arising from a tax a cut or a rise in government spending) is expansionary. Symmetrically, a reduction in the budget deficit would have a contractionary effect.

What austerity economics claims is that a sustained balancing of the budget may have favourable effects because deficit reduction would imply that taxes need not be increased in the future to finance deficits. Lower taxes are said to stimulate capital formation, which represents a positive supply shock. The story goes on with people and firms expecting the higher future income, which would encourage them to spend more now.

A reduction in government spending would crowd in private investiment: as the government does not contributes to push interest rate by asking for funds in the liquidity market to finance the deficit, the interest rate diminishes, which expands private investment, GDP growth, and employment. In addition, fiscal austerity may calm down financial markets in a debt crisis. Interest rates fall and, through the rise of value of financial assets, financial wealth rises.
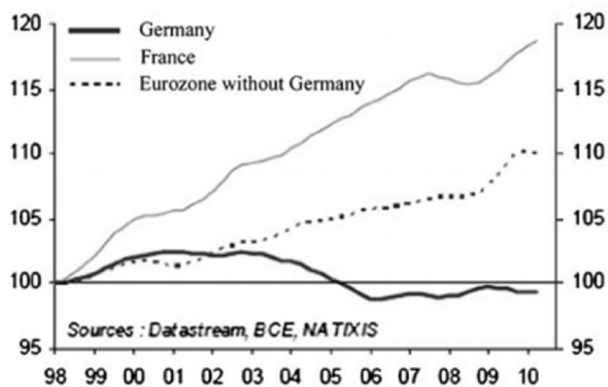
To sum up, even if fiscal austerity reduces GDP in the short-run (mandated social spending may increase and tax revenues decrease when economic activity declines), it is argued that long-term positive effects outweigh short-term negative effects. Hence, in the end, an initial contractionary measure economagically turns out to be expansionary by boosting both aggregate supply and aggregate demand.

Example 12.13. Two apparent expansionary fiscal contractions: Denmark 1983-86 and Ireland 1987-89. In 1982, the new government of Denmark began a fiscal austerity programme which loweredthe budget deficit by 15% of GDP in four years. Real GDP averaged a 3.6% growth rate from 1983 to 1986. In 1987, the new government in Ireland launched an austerity programme that brought down the deficit by 7% of GDP. After this fiscal retrenchment, Ireland experienced the "Irish miracle", as the economy started growing at high growth rates.

Examples like Denmark and Ireland notwithstanding, successful expansionary consolidations are the exception, not the rule (see Robert Boyer (2012): "The four fallacies of contemporary austerity policies: the lost Keynesian legacy", Cambridge Journal of Economics 36, 283–312).

Example 12.14. The new "German miracle" in the early 2000s has been considered a the strategy to be emulated to implement successulf expansionary fiscal contractions: wage moderation, welfare reforms (including lower compensation for unemployment) and countercyclical tax policy to sustain an export-led growth model. But this strategy forgets the fallacy of composition effect that the trade surplus of an economy requires the trade deficit of others. The German experience was successful because its trade partners had growing domestic demands that made room for German exports; see Fig 10 (from Boyer).

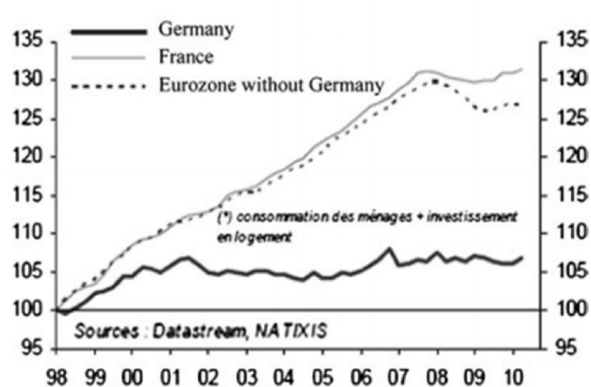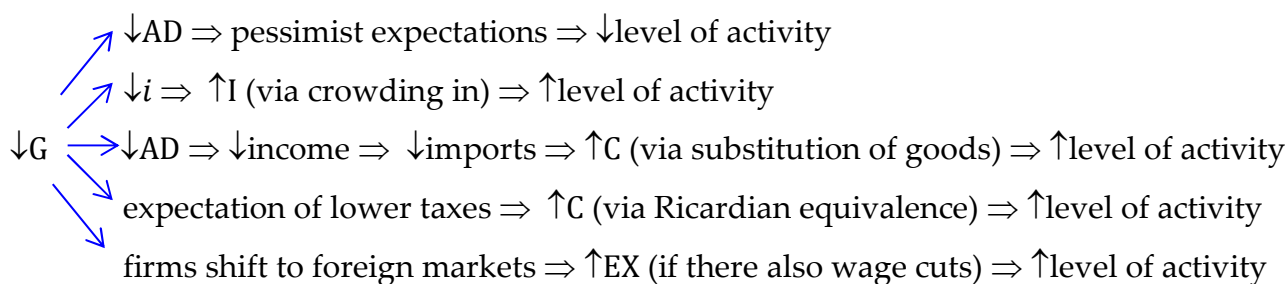| A – The evolution of real wage per capita | B – The evolution of aggregate demand |

Fig. 10. The German fiscal contraction worked because the rest did not launch austerity programmes

The underlying vision of austerity economics is that a market economy free from public intereferences is structurally stable and that crises are triggered by inappropriate public interventions.

To determine whether fiscal policy (for instance, an increase in government spending G) is expansionary or contractionary on should consider the various channels by means of which G affects the level of activity. Some of these channels are identified next.

$\downarrow G$

$\downarrow AD \Rightarrow$ pessimist expectations $\Rightarrow \downarrow$level of activity

$\downarrow i \Rightarrow \uparrow I$ (via crowding in) $\Rightarrow \uparrow$level of activity

$\downarrow AD \Rightarrow \downarrow$income $\Rightarrow \downarrow$imports $\Rightarrow \uparrow C$ (via substitution of goods) $\Rightarrow \uparrow$level of activity

expectation of lower taxes $\Rightarrow \uparrow C$ (via Ricardian equivalence) $\Rightarrow \uparrow$level of activity

firms shift to foreign markets $\Rightarrow \uparrow EX$ (if there also wage cuts) $\Rightarrow \uparrow$level of activity

In view of the above, whether austerity measures stimulate economic activity is a matter of empirical analysis: there are channels contracting activity (direct spending reduction and creation of adverse expectations) and others than potentially expand it (crowd in effect, Ricardian equivalence effect, competitiveness effect). Presenting the possible expansionary effect of contractionary fiscal policy as a necessary result would constitute an example of policy based on wrong economic ideas that make economic problems worse, with persistence in wrong policies multiplying problems and the harm done.

12.5. Intertemporal government budget constraint

According to the intertemporal government budget constraint, total debt outstanding has to be balanced by the present discounted value of future government budget surpluses. The current debt burden is considered sustainable if lenders believe that it will be repaid by future budget surpluses. But how distant is that future? That is, when is this constraint actually binding? Is debt repayment more certain if smaller surpluses are immediately obtained or if larger surpluses are obtained later?

To illustrate the effects of the budget constraint, suppose a government "lives" two periods, 1 and 2. Let G_t the government spending in period t, T_t taxes collected in period t, and B_t the bonds issued in period t to finance a possible budget deficit. The interest rate of the bonds issued at t is i_t.

In $t = 1$, the government budget constraint is $G_1 = T_1 + B_1$: spending is financed by taxes or debt.

In $t = 2$, $G_2 + (1 + i_1) \cdot B_1 = T_2$, where $(1 + i_1) \cdot B_1$ is the debt the government must pay back in $t = 2 : B_1$ (the loan) $+ i_1 \cdot B_1$ (interest payment). $B_2 = 0$ because no one will lend (by purchasing bonds) in $t = 2$ to a goverment that no longer exists at $t = 3$ (so lenders will not be paid back).

Dividing by $1 + i_1$ the constraint in $t = 2$, $\frac{G_2}{1+i_1} + B_1 = \frac{T_2}{1+i_1}$. Adding up both constraints, B_1 cancels out and the intertemporal government budget constraint is obtained.

$$G_1 \quad + \quad \frac{G_2}{1 + i_1} \quad = \quad T_1 \quad + \quad \frac{T_2}{1 + i_1}$$

present discounted value of the government spending $\quad = \quad$ present discounted value of the government revenue

The intertemporal government budget constraint means that the there is a limit (a constraint) to what the government can spend: <u>the actual value of all outlays cannot be larger than the actual value of all taxes collected</u>. The constraint implies that, eventually, taxes pay off (the value of) all government spending. Consequently, <u>debt is merely a instrument to postpone payment</u> not a means of payment itself: more debt today means higher taxes tomorrow (T_2 is obviously higher with a positive B_1).

12.6. Debt-to-GDP ratio

<u>Deficit is a flow variable</u>: the current borrowing of the government (in one year, for instance). <u>Debt is a stock variable</u>: what the government currently owes as a result of past deficits. The government budget constraint implies that the <u>change in the government debt in period t equals the government budget deficit in period t</u>. That is,

$$B_t - B_{t-1} \quad = \quad r_{t-1} \cdot B_{t-1} \quad + \quad (G_t + TR_t - T_t)$$

(real) change in debt $=$ (real) interest payment $+$ (real) primary deficit

Defining $PD_t = G_t + TR_t - T_t$, and letting the real interest rate be constant, the previous expression can be rewritten as

$$B_t = (1 + r) \cdot B_{t-1} + PD_t.$$

Let real GDP Y grow at a constant rate g, so $Y_t = (1 + g) \cdot Y_{t-1}$. Dividing both sides by Y_t,

$$\frac{B_t}{Y_t} = (1 + r) \cdot \frac{B_{t-1}}{(1 + g) \cdot Y_{t-1}} + \frac{PD_t}{Y_t}$$

and using the approximation $\frac{1+r}{1+g} \approx 1 + r - g$

$$\frac{B_t}{Y_t} \approx (1 + r - g) \cdot \frac{B_{t-1}}{Y_{t-1}} + \frac{PD_t}{Y_t}.$$

In sum,

$$\frac{B_t}{Y_t} \quad - \quad \frac{B_{t-1}}{Y_{t-1}} \quad \approx \quad (r - g) \quad \cdot \quad \frac{B_{t-1}}{Y_{t-1}} \quad + \quad \frac{PD_t}{Y_t}. \tag{1}$$

change in the debt-to-GDP ratio $\qquad$ real interest rate minus GDP growth $\quad$ initial debt-to-GDP ratio $\quad$ primary deficit-to-GDP ratio

Since $B_t = (1 + r) \cdot B_{t-1} + PD_t$, when PD_t is always zero, debt grows at a rate r. As GDP grows at rate g, the difference $r - g$ is the rate of growth of the debt-to-GDP ratio under zero primary deficit. According to (1), a reduction of the debt-to-GDP ratio requires

- that $g > r$ (<u>the GDP growth rate is larger than the real interest rate</u>), o

- that $PD_t < 0$ (<u>the current primary deficit is reduced</u>).

The increase in the debt-to-GDP ratio will be larger

- the higher the <u>initial</u> debt-to-GDP ratio $\frac{B_{t-1}}{Y_{t-1}}$;

- the higher the real interest rate r;

- the lower the growth rate g of real GDP; or

- the larger the primary deficit to GDP ratio $\frac{PD_t}{Y_t}$.
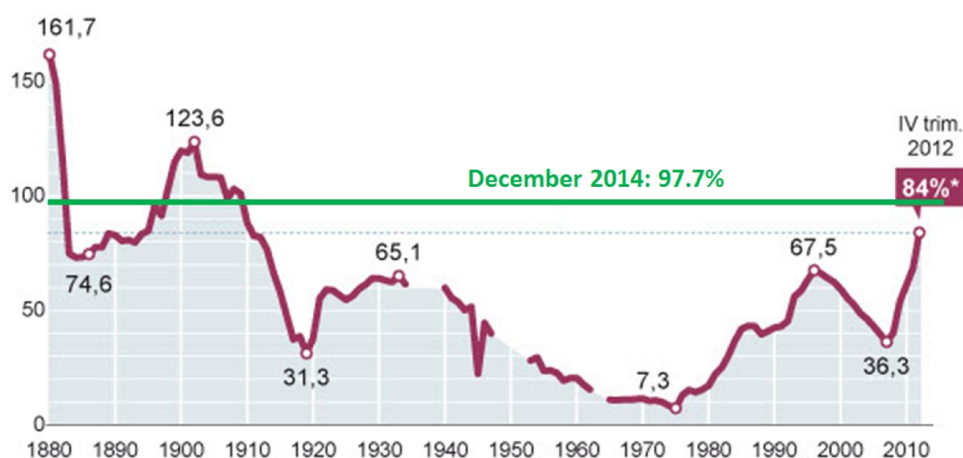
High $\frac{B}{Y} \Rightarrow \uparrow$default risk $\Rightarrow \uparrow i \Rightarrow \uparrow r$ $\Rightarrow \downarrow AD \Rightarrow \downarrow Y \Rightarrow \downarrow g \Rightarrow$ need to $\downarrow \frac{PD}{Y}$ $\Rightarrow$ fiscal austerity $\Rightarrow \downarrow AD \Rightarrow \downarrow Y \Rightarrow$ $\downarrow g \Rightarrow \uparrow$default risk $\Rightarrow i \Rightarrow \uparrow r \Rightarrow \ldots$ debt-to-GDP ratio harder to lower and more likely a <u>debt explosion</u> is.

Fig. 11. Spain's debt-to-GDP ratio
http://www.zerohedge.com/news/2013-02-18/chart-day-spanish-debt
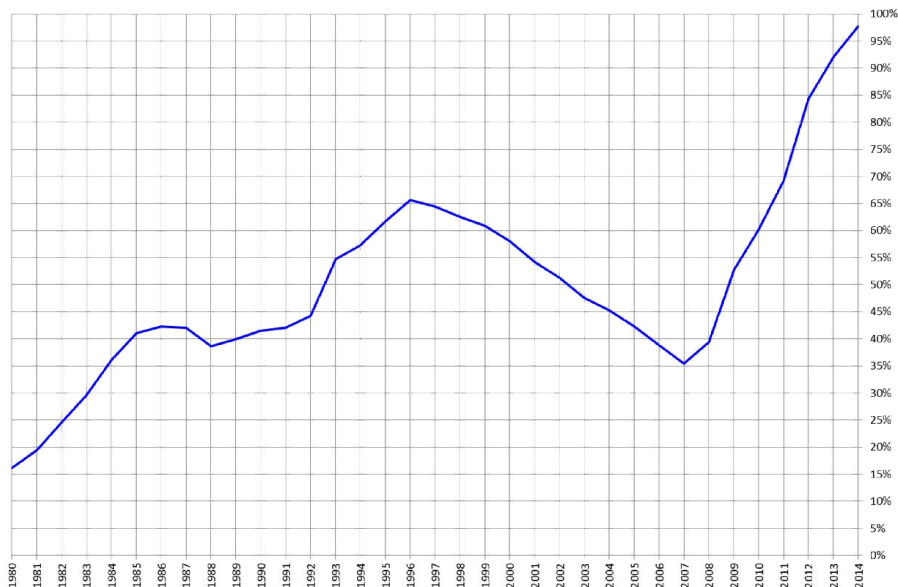
Remark 12.15. The Spanish government debt amounted to €1,033,857m. in 2014. This is an increase of €67,676m. with respect to 2013. Spain's debt-to-GDP ratio in 2014 was 97.70% (92.10% in 2013, 36% in 2007). In 2004, debt amounted to €389,888m. and debt-to-GDP ratio was 45,30%. Debt per capita was €22,256 in 2014, €20,739 in 2013 and €9,105 in 2004; in this category, Spain ranks 163 out of 179 countries.

Fig. 12. Spain's debt-to-GDP ratio
http://www.datosmacro.com/deuda/espana

12.7. Is government debt a burden?

There are arguments supporting the view that a rising government debt represents a burden; see chapter 6 in Frederic Mishkin (2011): *Macroeconomics: Policy and practice*.

- Crowding out, less investment, less production, future generations worse off.

- Government is supposed not to make wise investments in physical and human capital: most government spending is consumption and government investment may be unproductive, like airports without airplanes or high-speed trains without passengers.

- A growing government debt increases indebetedness to foreigners.

- Government budget deficits and rising government debt involves a transfer of wealth in the future to government bondholders. Since bondholders are likely to be richer than those who do not own bonds, rising government debt involves redistributing from relatively poor people to relatively rich people, which widens income inequality.

- Debt intolerance (spreads): when the amount of government debt relative to the size of the economy becomes very large, investors may begin to fear the government will default on the debt and, by engaging in debt repudiation, fail to pay it all back (a default on government debt could send the economy into a financial crisis).

- A rising government debt may led to high tax wedges (difference on income before and after paying taxes), and a high wedge makes people and firms less willing to work or invest.

12.8. Automatic stabilizers and destabilizers

Definition 12.16. An <u>automatic stabilizer</u> is a variable or mechanism that smooth out fluctuations in GDP by stimulating aggregate demand during recessions and dampening (or slowing down) aggregate demand during expansions. An automatic destabilizer does the opposite.

Example 12.17. A progressive income tax is an automatic stabilizer. During an expansion, as income grows, takes a growing fraction of income. Since income grows less than otherwise would have grown, spending and, therefore, GDP is slowed down. In a recession, taxes take a smaller bite out of income, for which reason spending (and GDP) does not fall as much as otherwise would have felt.

Example 12.18. Unemployment insurance is an automatic stabilizer. During an expansion, taxes replenish the insurance fund and moderates aggregate demand. In a recession, the unemployed receive payments from the fund, propping up aggregate demand.

Example 12.19. Deficit targeting is an automatic destabilizer (K. E. Case, 2011, *Principles of macroeconomics*). Without deficit targeting, suppose a negative demand shock causes income to falls As income falls, tax revenues drop and transfer payments increase. Given that both are automatic stabilizers, the demand expansion derived from falling taxes and increasing transfers in part offsets the initial negative shock. With deficit targeting, what is new is that the deficit increase arising from the fall of tax revenues and the rise in transfers has to be neutralized to reach the deficit target. Hence, taxes must raise and/or government spending cut. This reinforces the initial negative shock and worsen the income fall.

13. Further remarks on economic policies

The last two or three decades has witnessed a <u>shift in economic policy towards neoliberalism</u>; see Philip Arestis; Malcolm Sawyer (2004): *Neo-Liberal Economic Policy*, p. 1.

Definition 13.1. Neo-liberalism is the doctrine that economic policy is reduced to a basic strategy of "leaving it to the market" and eliminating any public intervention in markets.

The shifts in economic policy along the neoliberal lines include:

- discarding fiscal policy in favour of monetary policy;

- policy goals no longer concentrating on employment and growth but on inflation and price stability;

- ascribing the causes of unemployment to the operation of the labour market and, in particular, its "inflexibility";

- unemployment can only be solved through labour market "reforms" and remove their "rigidities", associated with trade union power, long-term employment contracts, and minimum wage regulations;

- the solution to the unemployment problem does not stem from demand-side policies nor regional and industrial policies designed to tackle structural unemployment;

- the liberalization and deregulation of markets (particularly, financial markets) and the removal of capital controls that regulate the flow of capital between countries.

Definition 13.2. Robert Mundell's <u>principle of effective market classification</u>: "Policies should be paired with the objectives on which they have the most influence".

"In countries where employment and balance-of-payments policies are restricted to monetary and fiscal instruments, monetary policy should be reserved for attaining the desired level of the balance of payments and fiscal policy for preserving internal stability. The opposite system would lead to a progressively worsening unemployment and balance-of-payments situation"
http://robertmundell.net/major-works/the-appropriate-use-of-monetary-and-fiscal-policy-for-internal-and-external-stability

Remark 13.3. The Swan diagram would illustrate how to assign policies (fiscal policy and the exchange rate policy, for instance) to reach each of the two policy goals, internal and external balance

Definition 13.4. A <u>pro-capital distributional policy</u> is a policy that reduces the wage share in aggregate income. A <u>pro-labour distributional policy</u> is one that result in an increase in the wage share.

"Pro-capital distributional policies usually claim to promote 'labour market flexibility' or wage flexibility, rather than increasing capital income. They include measures that weaken collective bargaining institutions (by granting exceptions to bargaining coverage), labour unions (for example, by changing strike laws) and employment protection legislation, as well as measures (or lack of measures) that lead to lower minimum wages. There are also measures that alter the secondary income distribution in favour of profits and the rich,

such as exempting capital gains from income taxation, or reducing the corporate income tax. Ultimately, pro-capital policies impose wage moderation.

Pro-labour policies, in contrast, are often referred to as policies that strengthen the welfare state, labour market institutions, labour unions, and the ability to engage in collective bargaining (…). Pro-labour policies are also associated with increased unemployment benefits, higher minimum wages and a higher minimum wage relative to the median wage, as well as reductions in wage and salary dispersion. All else being equal, with a pro-labour distributional policy, the wage share will remain constant or will increase over the long run, as real wages grow in line with labour productivity or exceed productivity. By contrast, in the case of a pro-capital distributional policy, real wages will not grow as fast as labour productivity."

Marc Lavoie; Engelbert Stockhammer (2013): *Wage-led Growth: Concept, Theories and Policies*, chapter 1

		Distributional policies and strategies	
		Pro-capital	Pro-labour
Economic regime	Profit-led	'Neoliberalism in theory' Trickle-down capitalism	'Doomed social reforms' (TINA)
	Wage-led	'Neoliberalism in practice' – Unstable, has to rely on exogenous growth drivers (debt-led growth or export-led growth)	Social Keynesianism Post-war Golden Age

Fig. 13. Economic regime, pro-capital policies, and pro-labour policies, *Wage-led Growth*, p. 20

Fig. 13 identifies the four scenarios that arise from the combination of economic regimes (profit-led or wage-led) with redistribution policies (pro-capital or pro-labour).

• <u>Pro-capital policies in a profit-led economy lead to a profit-led growth process</u>. This scenario is associated with trickle-down economics, as policies that favour entrepreneurs are presumed to lead to an expansion, with workers eventually benefiting from wage cuts as higher profit margins induce entrepreneurs to increase productive capacity and more employment.

• <u>Pro-labour policies in a wage-led economy lead to a wage-led growth process</u>. This scenario seems to define what characterized the interval 1945-1970s: the expansion of the welfare state in advanced economies led to a golden age of growth of rising real wages and labour productivity that benefited workers and entrepreneurs.

• <u>Pro-labour policies in a profit-led economy generate stagnation or unstable growth</u>. In this context, social reforms are doomed to fail. This is the situation that neoliberals presume that occur when progressive social reforms are implemented and would correspond to the 'there is no alternative' (TINA) scenario: it is futile to try to conduct policies favouring workers because they are inconsistent with the nature of the economic regime and will eventually have to be abandoned.

• <u>Pro-capital policies in a wage-led economy generate stagnation or unstable growth</u>. This is described as "neoliberalism in practice" insofar as a couple of decades of pro-capital policies (1980s-2000s) has resulted in more inequality and disapointing economic growth in comparison with the 1945-1970s period. Pro-capital policies have been complemented by an excessive reliance on the financial sector (debt-led growth) and/or on foreign demand (export-led growth). Such a reliance has produced economic and financial instability.

Some of Warren Mosler's (2010, *Seven deadly economic frauds of economic policy*, Valance) deadly economic frauds of economic policy are reproduced next.

• "Deadly Innocent Fraud #1: The federal government must raise funds through taxation or borrowing in order to spend. Fact: The federal government can always make any and all payments in its own currency, no matter how large the deficit is, or how few taxes it collects. If the government doesn't tax because it needs the money to spend, why tax at all? Answer: The federal government taxes to regulate what economists call "aggregate demand" which is a fancy word for 'spending power'".

• Deadly Innocent Fraud #3: Federal Government budget deficits take away savings. Fact: Federal Government budget deficits ADD to savings. Any $U.S. government deficit exactly EQUALS the total net increase in the holdings ($U.S. financial assets) of the rest of us. In other words, government deficits equal increased "monetary savings" for the rest of us, to the penny. Simply put, government deficits ADD to our savings (to the penny). This is an accounting fact, not theory or philosophy."

• Deadly Innocent Fraud #5: The trade deficit is an unsustainable imbalance that takes away jobs and output. Facts: Imports are real benefits and exports are real costs. Trade deficits directly improve our standard of living. Jobs are lost because taxes are too high for a given level of government spending, not because of imports. In economics, it's better to receive than to give. Imports are real benefits. Exports are real costs. In other words, going to work to produce real goods and services to export for someone else to consume does you no economic good at all, unless you get to import and consume the real goods and services others produce in return."

• Deadly Innocent Fraud #6: We need savings to provide the funds for investment. Fact: Investment adds to savings. Second to last but not the least, this innocent fraud undermines our entire economy, as it diverts real resources away from the real sectors to the financial sector, with results in real investment being directed in a manner totally divorced from public purpose. Savings is the accounting record of investment. Mainstream economists get this all wrong, and somehow conclude that we need more savings so that there will be funding for investment. What seems to make perfect sense at the micro level is again totally wrong at the macro level. Just as loans create deposits in the banking system, it is investment that creates savings."

14. Monetary policy

14.1. Monetary policy design

Monetary policy can be summarized by the following sketch:

       Instruments (tools) the central bank has $\rightarrow$ Intermediate targets $\rightarrow$ Ultimate targets

Definition 14.1. Instruments of monetary policy are the tools under the central bank's direct control: open market operations, interest rates set by the central bank, and reserve requirements.

Definition 14.2. Intermediate targets are variables that the central bank can influence directly and signal if the central bank is closer to the desired target: i, M2, M1, growth of M1…

Definition 14.3. <u>Ultimate targets</u> are the goals of monetary policy (GDP, GDP growth rate, inflation rate, unemployment rate, that is, variables in which the central is really interested [desired target] and can be affected in a predictable way by the intermediate targets.
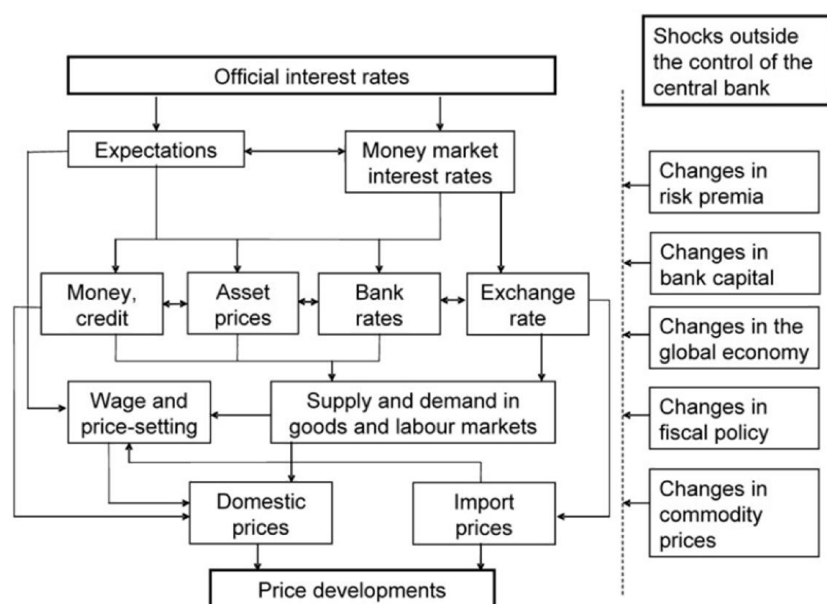

Fig. 14. Transmission mechanism from interest rates to price
http://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html

14.2. Transmission mechanism from interest rates to prices

There are at least four main channels through which monetary policy affects the price level

Definition 14.4. The <u>interest rate channel</u> of monetary policy collects all the effects on the economy that work through changes in the (real) interest rate.

The following sequence illustrates how the channel works when the monetary policy measure consists of an expansionary open market operation (the sequence presumes that <u>i reacts quicker than π</u>, which seems reasonable since the prices of financial assets change typically faster than the prices of goods).

$$\uparrow M0 \Rightarrow \uparrow M1 \Rightarrow \downarrow i \Rightarrow \downarrow r \Rightarrow \uparrow C \uparrow I \Rightarrow \uparrow AD \Rightarrow \uparrow Y$$

Definition 14.5. The <u>exchange rate channel</u> of monetary policy collects all the effects on the economy that work through changes in the (real) exchange rate e_r.

A tightening of monetary policy raises e_r. Since e_r is a mesure of the economy's competitiveness, <u>a contractionary monetary policy erodes competitivenss</u>. The following sequence shows how this channel works when the monetary policy measure consists of an expansionary open market operation.

$$\uparrow M0 \Rightarrow \uparrow M1 \Rightarrow \downarrow i \Rightarrow \downarrow e \Rightarrow \downarrow e_r \Rightarrow \uparrow NX \Rightarrow \uparrow AD \Rightarrow \uparrow Y$$

Definition 14.6. The <u>credit channel</u> of monetary policy collects the effects on the economy that work through credit supply and demand.

• <u>Supply</u>. If the reserve ratio is increased, banks cut lending to accumulate more reserves. Purchases by consumers or small firms that depend on that lending cannot be carried out and aggregate demand falls.

• <u>Demand</u>. A tight monetary policy makes borrowers less eligible for loans: if i rises, the firms' financial costs also rise (so their profits fall) and, for consumers, their financial wealth is reduced ($\uparrow i \Rightarrow \downarrow$price of shares).

Definition 14.7. The <u>stock market channel</u> of monetary policy collects all the effects on the economy that work through changes in the stock prices (and, in general, in the financial asset prices).

The following sequence shows how this channel works when the MP consists of an expansionary open market operation.

$$\uparrow M0 \Rightarrow \uparrow M1 \Rightarrow \downarrow i \Rightarrow \uparrow \text{price of financial assets} \Rightarrow \uparrow \text{wealth} \Rightarrow \uparrow C \uparrow I \Rightarrow \uparrow AD \Rightarrow \uparrow Y$$

14.3. Classical dichotomy

Definition 14.8. The <u>classical dichotomy</u> holds that real variables do not depend on nominal variables, at least in the long run.

For instance, according to the dichotomy, real GDP or employment levels are not affected by changes in M1 or the price level. The classical dichotomy is not consistent with the Phillips curve, which describes a relationship between a real variable, u, and a nominal variable, π.

It appears that <u>most macroeconomists</u> (and virtually all textbooks) <u>believe that the classical dichotomy holds in the long run</u>: even though nominal variables may have an impact on real variables in the short run, in the long run that effect vanishes. Therefore, <u>in the long run, monetary policy is ineffective</u> and, in particular, cannot be used to reduce the unemployment rate.

Definition 14.9. Money is <u>neutral</u> if changes in the money stock do not affect real variables (but merely the price level).

The belief that the classical dichotomy holds in the long run implies the belief that money is neutral in the long run. Money neutral in the long run means that <u>more money in the economy only amounts</u>, eventually, <u>to more inflation not more wealth</u>. Orthodox economists accept that money is neutral in the long run (that justifies the present role of central banks: regulate just a nominal variable, the inflation rate).

14.4. Monetarism

Definition 14.9. Monetarism is a school of econommic thought that holds that <u>the money stock is the chief determinant of the</u> (short-run) <u>aggregate demand</u> (and, therefore, the nominal GDP, the price level, and the inflation rate).

The main policy recommendation of monetarism is to regulate the inflation rate by <u>controlling the money stock</u>. According to Milton Friedman (1912-2006), monetarism's leading exponent, "Inflation is always and everywhere a monetary phenomenon". Monetarism is based on the quantity equation.

Definition 14.10. The quantity equation (or equation of exchange) is

$$M \cdot V = P \cdot Y$$

where M = money stock, V = velocity of money (number of times per year a euro turns over), P = price level, Y = real GDP (so $P \cdot Y$ is nominal GDP).

The equation says that <u>the total number of euros spent in a year</u> ($M \cdot V$) <u>equals the nominal value of the goods produced that year</u> (nominal GDP = $P \cdot Y$). That is, the nominal value of everything sold equals the nominal value of everything bought

Using lower case letters to designate rates of change, the rates of change version of the quantity equation is

$$m + v \approx \pi + y$$

If the velocity of money remains constant, $v = 0$. In this case, $m \approx \pi + y$. That is, $\pi \approx m - y$.

This means that the excess of money growth with respect to the economy's growth is inflation. If the economy does not grow ($y = 0$), then $\pi \approx m$: <u>all the increase in the money stock becomes inflation</u> (more money, higher inflation).

Heterodox economists question that inflation is a monetary phenomenon. For instance, John Weeks (2012, *The Irreconcilable Inconsistencies of Neoclassical Macroeconomics: A False Paradigm*) contends that

"it cannot be demonstrated in logic that:

1   real wages and the aggregate level of employment are negatively related;

2   unregulated markets automatically equilibrate to bring about full utilization of resources ("full employment"), nor that they equate supply and demand in single markets;

3   the aggregate price level is determined by the supply of money, and inflation is the result of changes in the supply of money".

14.5. Monetization of budget deficits and central bank independence

Definition 14.11. A central bank <u>monetizes budget deficits</u> when it purchases debt issued by the government to finance a deficit.

In practice, monetizing the deficit is like paying the budget deficit by issuing/printing new money. This source of revenue for governments is known as <u>seigniorage</u>.

Monetization may feed <u>inflation</u>. If the central bank does not monetize the deficit and the government finances it by issuing bonds, the interest rate will rise and <u>crowd out private expenditure</u>.

Example 14.12. Zimbabwe experienced <u>hyperinflation</u> from 2004 to April 2009, with an unemployment rate of 94% at the beginning of 2009, thereby becoming one of the worst economies in the world. By

December 2008, annual inflation was estimated at 6.5×10^{108} % (6.5 octodecillion = 650 million googol; 1 googol = 10 sexdecilliard = 10^{100}). In 2007, President Mugabe unsuccessfully <u>declared inflation illegal</u>. Final solution: in April 2009 the home currency (Zimbabwean dollar) was suspended and foreign currencies were adopted instead

The following summarizes the orthodox reasons to defend the independence of the central bank from the government, whereas Figs. 15 and 16 show empirical evidence typically provided in support of the claim that independent central bank achieve greater price stability.

> "The central banker's task is to provide the monetary and credit conditions that achieve the ideal balance between accommodating economic expansion and engendering inflation or deflation. […] Why do we have independent central banks? <u>To provide a barrier between government and the money supply</u>. Why is this necessary? Because doing the right thing for the long-term interests of the people can be very hard to do. Monetary policymakers often have to make decisions that can cause economic pain for real people in the short term, or decide not to do things that could help people out of an immediate bad situation, in or-der to preserve the welfare of the people over the long run."
> http://www.dallasfed.org/news/speeches/fisher/2008/fs080207.cfm
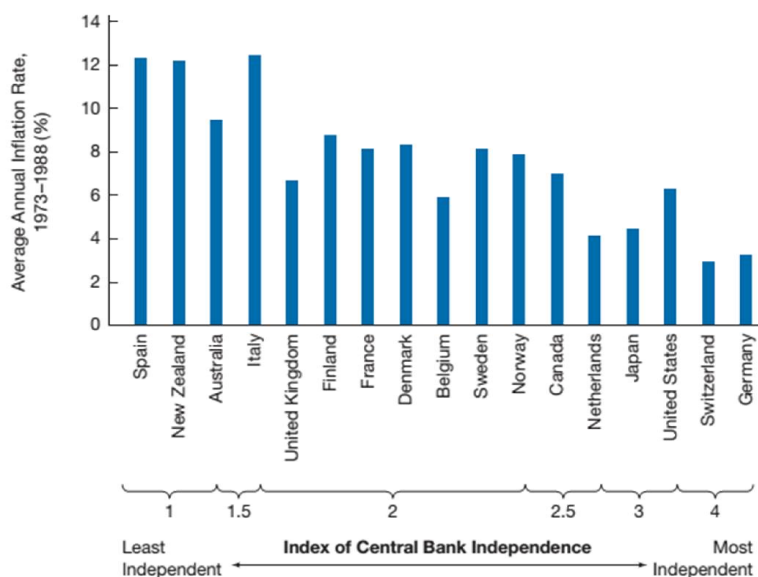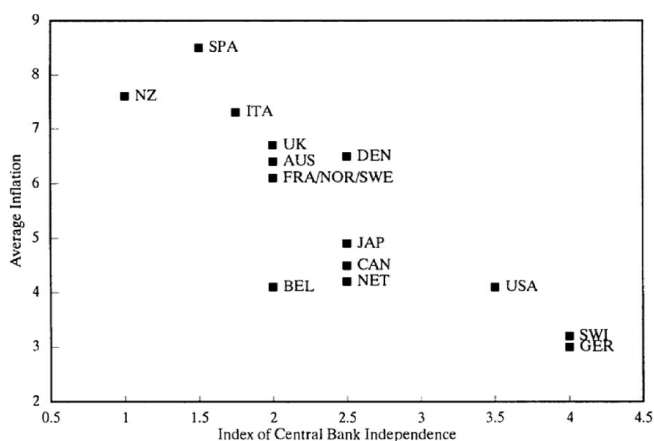
Figs. 15 and 16. Central bank independence and inflation performance

http://www.deu.edu.tr/userweb/yesim.kustepeli/dosyalar/alesinasummers1993.pdf
F. Mishkin (2011), *Macroeconomics: Policy and Practice*, p. 561

14.5. The costs of inflation

• <u>The cost of holding money rises with inflation</u>. A cost of holding money is the interest forgone by not holding an interest-bearing asset. By the Fisher effect, more inflation leads to higher interest rates.

• <u>Inflation as a tax</u>. A rising inflation reduces the purchasing power of money (is like losing money).

• <u>Wealth redistribution</u>. Inflation redistributes we-alth between debtors and creditors: it benefits nominal debtors and hurts those receiving fixed nominal payments (like pensioners).

15. Key features in orthodox macroeconomic analysis

The "new neoclassical synthesis" represents the principles on which (according to orthodox economists) "almost all modern macroeconomists agree". These principles are listed next.

1. "Inflation is always and everywhere a monetary phenomenon" and monetary policy determines the inflation rate in the long run.

2. Low and stable inflation (price stability) provides important benefits, because high inflation leads to uncertainty about the future price level, which makes more difficult for people to identify the best decisions.

3. In the long-run there is no Phillips curve, that is, no long-run tradeoff exists between unemployment and inflation. In the long-run, the Phillips curve would be vertical over some "natural rate of unemployment". Attempts to lower unemployment below the natural rate only generates more inflation.

4. Expectations play a crucial role.

5. The Taylor principle, which establishing the view that monetary policy must raise the nominal interest rate by more than the rise in inflation, making the real interest rates rise in response to a rise in inflation.

6. The time-inconsistency problem: discretional monetary policy may lead to high inflation with no gains in output, as politicians are shortsighted because they are mostly interested in winning elections.

7. An independent central bank insulates itself from political pressures to pursue excessively expansionary policies stimulated by the myopia of politicians. In an independent central bank bankers are presumed to be more averse to inflation, more credible (mostly, in the eyes of the financial markets) in the pursuit of low inflation. With a more credible policy lower expectations of inflation result and this contributes to achieve low inflation.

8. Commitment to a nominal anchor, that is, stabilization of a nominal variable such as the inflation rate, the money supply, or an exchange rate—is crucial to successful macroeconomic policy outcomes. Commitment to a nominal anchor: (i) makes it difficult for the government to run large budget deficits; (ii) leads to policy actions that promote price stability; and (iii) helps to stabilize inflation expectations.

9. Credibility is central to successful policy making.

Areas of disagreement in orthodoxy include:

- the flexibility of wages and prices: very flexible or sticky in the short run;

- time to reach te long run: it takes a short time or a long time to get to the long run;

- sources of the business cycle: aggregate supply shocks or aggregate demand shocks;

- effectiveness of stabilization policy: no role for policymakers to try to stabilize economic activity or a stabilization policy that provides benefits (self-correcting mechanism act slowly and therefore activist policies can reduce the severity of the business cycle);

- how dangerous are budget deficits? Most believe they are highly dangerous: budget deficits reduce savings and investment, burden future generations, and are inflationary. The minority who believes in Ricardian equivalence holds that budget deficits that arise from tax cuts do not burden future generations, higher personal saving do not crowd out investment and see no inflationary dangers.

16. Keynes' basic contributions

Keynes's *General Theory* tried to explained two anomalies inconsistent with the orthodox theory: unemployment persistence despite price and wage flexibility and absence of an automatic mechanism thats market economies towards full employment. He proposed three alternative ideas.

• Fallacy of composition effects. Orthodox microeconomic analysis cannot be be automatically extrapolated at the macroeconomic level.

• Uncertainty cannot be avoided. The role of expectations about the future is fundamental in financial markets, and the result of different views concerning the future there afterwards investment and production decisions.

• Unemployment is determined by aggregate demand, itself deeply influenced by investment decisions.

According to this view, if, existing involuntary unemployment, people decide to save more, aggregate demand contracts, unemployment increases further and the government deficit worsens. In this context, austerity policies aggravates the unemployment problem and the fiscal deficit problem.

17. Key features in heterodox macroeconomic analysis

1. <u>Aggregate demand</u> influences economic activity in any run (short and long).

   Orthodox view: (i) aggregate supply determines the long run at full employment; (ii) market forces propel aggregate demand towards the long-run supply-side equilibrium; and (iii) the real balance effect is an instrument for demand to adjust to supply.

2. <u>Investment</u> is both a component of aggregate demand and adds to the productive potential of the economy (through the stock of capital).

   Investment responds to current events and, particularly, to those determined by aggregate demand, like the firms' capacity utilization and profitability. Investment generates new productive equipment, which is the way technological progress enters the economy.

3. Aggregate demand depends crucially on the <u>distribution of income</u>.

   This feature is captured by the aphorism "workers spend what they earn, capitalists earn what they spend". The propensity to spend out of wages is presumed larger than the propensity to spend out of profits.

A distinction is made between wage-led and profit-led aggregate demand regimes (or wage-led and profit-led economies). The distinction is important because in a wage-led regime, the orthodox medicine for unemployment (the restraint of real wages) is counterproductive.

4. Aggregate demand and aggregate supply are <u>interdependent</u> and the dynamics of the economy is <u>path dependent</u>.

   For instance, aggregate demand determines the general economic activity, which in turn influences the rate of productivity change.

   Path dependency means that short-term shocks to the economy (accidental features) may have long-term (permanent) consequences: the path followed by the economy is the result of an evolutionary process (if the economy reaches a resting point, that point is influenced by previous states of the economy).

   The orthodox view

   (i)   rejects path dependency: the path of the economy is pre-determined (by supply forces);

   (ii)   postulates the independence of aggregate demand and aggregate supply (the AS-AD model reproduces at the macro scale the separation between supply and demand at the micro level, where the interaction between supply and demand occurs only through prices); and

   (iii)   separates the real from the financial side of the economy (the classical dichotomy: real variables are not influenced by nominal variables, at least in the long run).

5. <u>Money is endogenous</u> (created through the credit system).

   The real balance effect cannot operate under endogenous money because endogenous money does not constitute net worth (real wealth).

   With endogenous money, banks and credit institutions hold the key to economic activity, since the expansion of aggregate demand depends on their decision to supply liquidity (grant loans). The decision of who is granted a loan affects the path followed by the economy: banks may prefer funding individuals from certain social classes, firms from certain sectors (traditional or leading technologies) or having certain characteristics (large or small, national or international), or favour some economic activities (real estate investment, construction of infrastructure, public firms…).

   When money is endogenous, monetary policy becomes interest rate policy. Endogenous money makes the financial sector more unstable and volatile by its own nature: speculative bubbles and financial crises become more likely.

   The orthodox view holds, as an implication of the classical dichotomy, the neutrality of money: changes in the stock of money do not affect economic activity, at least in the long run. With endogenous money, money is not neutral: the productive potential of the economy is linked to investment, which is linked to the credit creation process, which is what creates money.

6. <u>There is no "labour market" determining any supply-side equilibrium</u> to which the economy converges.

Firms determine prices and production and base employment offers on aggregate demand conditions and expectations in connection with existing productive capacity. Wages are determined directly by firms to encourage workers to be productive (disencourage shirking) or through collective bargaining with the workers' representatives.

The heterodox view rejects the existence of any automatic mechanism bringing aggregate demand to a presumed supply-side equilibrium derived from the labor market. In particular, real wages do not adjust to clear the labor market and the real balance effect is not operative.

7. <u>Inflation is not a monetary phenomenon</u>.

The orthodox view presumes a causal connection between the money stock and the inflation rate. The heterodox view regards many other factors as having more influence on the inflation rate. Inflationary pressues may come from:

(i)   changes in aggregate demand (demand-pull inflation) in relation to productive capacity;

(ii)   cost-push factors, like changes in import prices and the nominal exchange rate; and

(iii)   the conflict over the distribution of income (wages versus profits).

"If all groups and classes in society were in effect content with the existing distribution of income, then it could be expected that there would not be a problem of inflation: at a minimum it would mean that the rate of inflation was constant." Malcom Sawyer (2009): "The central core of heterodox macroeconomics", in J. P. Goldstein; M. G. Hillard; eds.: *Heterodox Macroeconomics: Keynes, Marx and globalization*, p. 30)

8. The (nominal) <u>exchange rate does not insulate an economy</u> from the rest of the world.

For example, no purchasing power parity exists ensuring that inflation differentials with respect to the rest of the world are neutralized through modifications of the exchange rate. Therefore, it is to be expected that inflation from the rest of the world will impact on domestic inflation.

Exchange rates (nominal and real) are extremely volatile and their changes are mostly determined by financial (not by real) transactions. Rather than knowing what explains exchange rate movements, it is known what does not explain them: uncovered interest rate parity. In addition, the exchange rate does not vary to equilibrate the balance of payments.

Addendum. Krugman's baby-sitting cooperative miniature economy

In *The return of depression economics and the crisis of 2008* (2009) and *End this depression now!* (2012) Nobel laurate Paul Krugman explains how recessions may occur, and how to dela with them, with the help of a cooperative described in an article by Joan and Richard Sweeney ("Monetary Theory and the Great Capitol Hill Baby-sitting Co-op Crisis", 1978).

The authors of the article were, during the 1970s, members of a baby-sitting cooperative: an association of some 150 couples who were willing to baby-sit each other' s children. The cooperative issued coupons that served as money: a coupon entitled the bearer to one hour of baby-sitting, so that, after the babies were sat, the baby-sitters were paid with coupons owned by the baby-sittees.

The decision to spend or accumulate coupons depended on the couples' plans to go out: evenings with plans to go out stimulated spending coupons (baby-sitting services required), whereas evenings without such plans encouraged couples to supply baby-sitting services (and thereby accumulate coupons reserves).

What eventually happened is that some couples came to believe that they holdings (reserves) of coupons were insufficient and decided accordingly to accumulate more coupons, by increasing the amount of baby-sitting offered and decreasing the amount of baby-sitting demanded. Yet, a couple cannot accumulate coupons without some other couple spending them: if most couples are reluctant to spend their coupons (because they want to increase the reserves of coupons), then it will be difficult for them to obtain the coupons, as few couples are demanding baby-sitting services. When this occurs, the co-op can be said to enter into a recession.

The cause of the recession is a lack of demand for baby-sitting time (what is produced in this minature or toy economy) because there is a sufficiently generalized desired to accumulate coupons (the money of the economy). At a fundamental level, there is a <u>coordination problem</u>: the demand for goods (baby-sitting services) is low at a time where the demand for money (coupons) is high, but a high demand for coupons can only be satisfied with an also high demand for baby-sitting. Krugman remarks that the problem has nothing to do with the supply side of the economy, namely, the ability of the co-op to produce baby-sitting. Structurally, the co-op economy is as strong as ever: couples were not performing baby-sitting badly (the good produced has the usual quality using the same technology as in the past). Krugman summarizes this observation as "bad things can happen to good economies".

Krugman tells that the co-op's officers initially applied the lawyers' solution: make more rules. A rule was passed demanding each couple to spend every week a certain number of coupons. The solution did not seem to work, so the economist's solution was adopted: to increase the supply of coupons (the money stock). And problem solved: with more reserves, couples were more willing to spend the coupons (made more plans to go out), and this made the opportunities to baby-sit more abundant, which in turn encouraged couples to go out more often and, hence, spend more coupons. The result was a rise in the economy's GDP (time spent in sitting babies, not because couples had become better baby-sitters or because the co-op had implemented "flexibilizing structural reforms". It was simply because the monetary bottleneck had been broken: couples wanted more coupons (demand for liquidity had increased) and more coupons were created (the supply of liquidity was subsequently expanded).

The lesson Krugman derives from this experience is that "Recessions (…) can be fought simply by printing money —and can sometimes (usually) be cured with surprising ease". The real problem was technical: too many people chasing too few coupons.

In modern economies the issuers of coupons are called "central banks". If some event induces people to accumulate more money (decline in consumers' confidence, a drop in the prices of shares) and, accordingly, they spend less, an attentive central banker should respond by giving people what they demand: more money.

The above explanation conceptualized money as exogenous. In a strict sense, it actually was: couples could not create coupons at will; they can only accumulate or transfer existing coupons. This notwithstanding, in practice, the endogeneization of coupons through borrowing is to be expected. For instance, a couple needing this week 5 coupons may ask some other couple to lend the coupons so that 7 coupons will be repaid in two weeks. This possibility amounts to adding debt (no merely money) to the economy. And if that debt circulates, money is created endogenously (the debt circulates when the lending couple needs more coupons before the two weeks and finds a couple willing to accept the borrowing couple's debt in exchange for paying less than 7 coupons, say, 6 coupons).

Krugman considers a more orthodox possibility: couples, instead of lending and borrowing among themselves, can borrow from the managers of the co-op (who would act like a central bank) in order to repay the coupons (plus possibly interests, that is, extra coupons) in the future. Granting couples the right to borrow from the management makes couples less willing to hold reserves: in case of need, the management will lend the necessary coupons. When the demand for baby-sitters is scarce, borrowing terms (the interest rate of lending coupons) can be softened (the interest rate lowered) to encourage people to go out more and, hence, create more opportunities for baby-stting. When the demand for baby-sitters is abundant, borrowing terms can be hardened to encourage people to go out less and, thus, reduce the opportunities for baby-stting.

In this case, the managers would behave like a central bank that stimulates a depressed economy by decreasing the interest rate and cools off an overheated one by increasing it.