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**Macroeconomic Regimes**  
*Business Cycle Theories Reconsidered*

by

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# MACROECONOMIC REGIMES

## *BUSINESS CYCLE THEORIES RECONSIDERED*

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### *Abstract*

The disequilibrium framework is extended to account for investment-savings imbalances that are likely to affect capital accumulation. A simple graphical analysis is put forward to analyse the additional regimes arising out of this imbalance and different adjustment mechanisms are discussed. These different regimes are compared with existing business cycle theories, showing that this framework does allow to analyse approaches as different as Keynesian, Classical and Austrian business cycle theories. Finally, these regimes are used to put forward an alternative explanation for the dynamics of European unemployment and the possible persistent effects of misperceptions by policy makers.

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## 1. Introduction

The debates surrounding the issues of business cycle fluctuations have not yet allowed the convergence towards a unifying theory that would allow to restructure the various arguments within one model. In particular, three hypotheses have been confronted that are – a priori – mutually exclusive. The first and probably most known – the Keynesian theory of effective aggregate demand – analyses the instability of goods markets and the absence of automatic stabilisers to drive the economy back to full employment once it has been drifted away: production and aggregate demand do not match and may lock in durably the economy in an underemployment trap. In this situation, fiscal and monetary policies are deemed necessary in order to drive the economy back to full employment.

The Keynesian theory had been developed as a response to the earlier Classical business cycle theory that stressed self-equilibrating mechanisms that would return the economy back to its full employment equilibrium without further intervention from outside. After the success of Keynes' theory in the 1950s and 1960s around the industrialised world, the Classical theory had been resuscitated first in its Monetarist variation, later in the debates around real business cycles. This last variant of Classical economic understanding produced a lasting impact on academic reasoning by claiming that after all, business cycles can be understood as a series of technology shocks that impact permanently upon an economy's production potential frontier. Calibrating simple stochastic models would, in addition, allow to simulate cycles that bear some resemblance with actually observed business cycle fluctuations.

Compared to these two relatively successful theories (in terms of the interest they have produced in academic debates), the last candidate for the understanding of short and medium-term fluctuations – the Austrian capital-based macroeconomics – has had only a limited impact on developments of business cycle theories. However, Austrian explications of the business cycle put the emphasis on an important consequence of short-term macroeconomic imbalances: the change in intertemporal prices. Any changes in intertemporal prices that do not correspond to preferences inevitably imply a reallocation of resources that is sub-optimal and will trigger further readjustments. In particular when monetary authorities start to interfere with interest rates on the bond markets, important medium-term imbalances in the production structure can be built up that usually end up in a rapid and strong readjustment: a typical boom-bust cycle.

These three theories have undergone different developments and have been subject to important modifications or clarifications regarding their main mechanisms. Keynesian macroeconomics, for instance, has undergone important changes regarding its micro-economic foundations, while models in the vein of Real Business Cycle theories have started to integrate elements of non-clearing markets and real and nominal rigidities. Nevertheless, the analysis of these frictions has continued to follow the original logic: product market frictions continued to be the corner stone for Keynesian theories, labour market frictions for Classical theories and financial market frictions for Austrian theories. Market interactions as a base for business cycle theories, hence, have not been at the forefront in the analysis of short-term fluctuations.

Starting from this understanding of modern business cycle theories, the following paper suggests a first attempt to synthesise the different approaches by simultaneously regrouping frictions on different markets. Introducing disequilibria that can exist simultaneously or successively on product, labour and financial markets, the paper discusses the consequences for what has been labelled “macroeconomic regimes”, characterised by different forms of macroeconomic imbalances. This discussion allows to analyse additional forms of unemployment to those that have been analysed in earlier business cycle theories. This, in turn, will help to develop an alternative understanding of the macroeconomic dynamics in Europe over the last twenty years.

The framework the paper proposes is based on earlier developments of disequilibrium macroeconomics that had been developed during the 1970s and early 1980s. By introducing additional forms of nominal rigidities on the financial market, Austrian-type adjustment mechanisms can be introduced that allow for the explicit analysis of capital stock dynamics as a result of imbalances on all three markets. Market interaction may therefore arise, leaving the economy in a particular macroeconomic regime or, conversely, allowing for a regime switch. The analysis in the paper will be based on a simple graphical illustration that allows to develop the main dynamic patterns that can be generated by this type of modelling framework. In a second step, the results will be used to discuss possible insights for the understanding of macroeconomic dynamics in Europe, in particular regarding the consequences of macroeconomic imbalances in the 1970s for the evolution of the capital stock. This may prove helpful to put forward a more faceted picture of Europe’s unemployment problems that have accumulated over the last two decades.

The interpretation of Europe’s unemployment problem as one related to the lack of capital accumulation is – admittedly – not new. Malinvaud (1980; 1982) has shown the importance of real wage developments for capital accumulation, while Dreze and Bean (1990) have discussed the role of capital accumulation in the process of employment growth. However, the paper proposes to see the process of labour supply and demand shift that characterise Europe’s unemployment evolution (Blanchard, 1997) as the two sides of a coin, being part of a regime shift that has endogenously changed the nature of unemployment in Europe. In addition, these regime shifts are presented in the paper as part of a larger logic of interaction between different markets, giving rise to different macroeconomic regimes and shifts between them.

This is then the fundamental objective of the paper: to contribute to the growing literature on market interaction, from a purely macroeconomic point of view. Indeed, while existing theories mainly discuss microeconomic incentive effects of market interaction, this paper opens up for the possibility of macroeconomic mechanisms interacting with each other, in particular through the intertemporal interdependence between market exchange and investment. The paper should, however, be understood as an issues note that puts forward some important considerations regarding business cycle theories and their implications for the understanding of unemployment dynamics, in particular regarding the European case.

The paper starts by providing an overview of the three main strands of business cycle theories and their main mechanisms underlying macroeconomic imbalances. It then turns to the importance of financial markets as the important link between macroeconomic disequilibria in different periods. Based on this discussion the paper tentatively extends the existing disequilibrium approach by adding frictions on the financial market that allows to include additional regimes in the existing taxonomy. This allows for a simple illustration of regime switches due to the intertemporal linkages between short-run disequilibria. Finally, the paper discusses the implication of these regime changes for the explanation of the evolution of European unemployment. A final section concludes.

## **2. Business cycle theories**

In order to understand the different macroeconomic regimes that may result from economic imbalances, this first section reviews the three main theoretical strands of business cycle analysis and their underlying mechanisms and understanding of the nature of business cycles<sup>3</sup>. In the course of this work, it will be shown that while Classical and Keynesian approaches have fundamentally different opinions about the functioning of an economy and hence about the underlying drivers of business cycle fluctuations, Austrian capital-based macroeconomics combines elements of both, albeit in a relatively limited way. Figure 1 gives an illustration of the different mechanisms that are analysed by the three theories.

### ***1.) The natural rate of output: classical business cycles***

In the Classical economy (regimes (1) and (2) in Figure 1), markets always clear as prices are flexible. Consequently, the economy always operates on the production possibility frontier (PPF). In this economy, nominal shocks will have no impact – hence the neutrality of money in the short and the long run – and be completely absorbed immediately. Two types of shocks may nevertheless affect the economy and may lead to business cycle fluctuations: technology shocks and shocks to the preferences of the (representative) consumer.

Real shocks – such as a technology shock (innovation, oil prices, etc.) – will result in a displacement of the PPF outwards (as shown by (1) in Figure 1) or inwards, hence impacting in a permanent way upon the economy's equilibrium production path. This is the understanding of business cycles in the Real Business Cycle theory (see, for instance, Long and Plosser, 1983).

Conversely, the macroeconomic balance can be affected by changes in the preferences of the (representative) consumer. While preferences are supposed to be exogenous for individual agents, the representative agent may nevertheless experience an increase in its saving rate, thereby moving along the PPF towards higher investment and less consumption (as shown by (2) in Figure 1). While in the short run, changes in preferences will be reflected by a move on the PPF, the relative position will have long-run implication as to the speed with which the economy accumulates productive assets (as

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<sup>3</sup> This section has benefited from the overview given in Oppers (2002), pp. 14-15.

in the Solow model where the long-run *per capita* capital stock depends positively on the savings ratio).

### ***2.) Under-consumption and stagnation: Keynesian business cycles***

In contrast, for Keynesian approaches to the business cycle the economy is in general not on the PPF (as shown by (3) in Figure 1). The economy suffers from a chronic lack of aggregate demand, and entrepreneurs will not be able to hire the number of workers that would be optimal by the standards of a cleared labour market. These approaches may therefore be labelled “stagnationist”.

The general argument for markets failing to clear has been thought to lie with nominal price and wage rigidities that do not allow to attain the market clearing level. However, nominal rigidities may not be the only reason for lack of first-best optimality: in any model with imperfect competition on labour or product markets, rents can be earned by the economic agent on the short side of the market, leaving the economy continuously in a semi-depressed state. For instance, Cooper (1999) shows that in a simple Cournot equilibrium, the (second-best) equilibrium on product markets depend on nominal income: monetary policy will therefore have an impact on the real level of economic activity!

Consequently, with markets generally failing to clear in Keynesian approaches, government intervention is thought to be capable to restore full employment via fiscal and monetary policy impulses. However, given that only short run imbalances are considered, the impact – in particular of fiscal policies – on the savings and investment balance is only relevant from the point of view of product market equilibrium. At least in the textbook version of Keynesian approaches, intertemporal aspects of government policies do not play an important role.

### ***3.) Intertemporal mismatch: Austrian boom-bust cycles***

Austrian approaches to the business cycle (so called capital-based macro-economics, see Garrison, 2000) recognise that (momentous) deviations from the PPF may be possible<sup>4</sup> (as show by (4) in Figure 1). These deviations will, however, have an impact upon the intertemporal allocation of resources between capital goods and consumer goods industries, two sectors that are supposed to produce for different stages of the (macro-economic) production process. A move along the PPF (and even more a deviation from it) is therefore not innocuous but may have long-term consequences that will also affect the potential for governments to intervene.

In general, equilibrium between savings and investment reflects intertemporal preferences of consumers for consumption today relative to consumption tomorrow. A credit-financed investment boom, therefore, – whether government financed or as a consequence of herd behaviour on financial markets – will cause a mismatch between the structure of production and planned future consumption: the increased production potential cannot be matched by increase future consumption as savings have

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<sup>4</sup> Both into the unemployment area as well as into the overheating area, which may also be labelled the Phillips curve area, see Oppers (2002) p. 14.

not expanded accordingly. This causes intertemporal relative prices to change, raising the interest rate and provoking a recession.

In the downturn, surplus capacity will be scrapped and opportunity costs for the reallocation of assets and the introduction of innovative production processes decrease, which will contribute to help the economy quit the recession. Nevertheless, some have stressed that expansionary monetary policy can have a beneficial impact in this situation to improve the outlook for the economy (Arnold, 2002, p. 156).

### **3. Macroeconomic regimes**

After this brief overview of three of the most prominent business cycle theories, we now turn our attention to the considerations of macroeconomic regimes that would be formed by these different business cycle mechanisms. In particular, we want to consider how the interaction between the different mechanisms – causing macroeconomic imbalances – can be the source of possible regime switches. First, however, we will start this section with a short discussion of frictions on financial markets as these will turn out to constitute the corner stone of the following considerations.

#### *1.) Financial market frictions*

Financial markets play an important role for the macro-economy, both in the short and in the long run. Asymmetric information, missing markets and undiversifiable risk lead to an imperfect transformation of savings into productive investment as well as to overly sensitive investment demand. This, in turn, will affect both the long-run investment ratio, its variability as well as the transmission of exogenous shocks (such as monetary policy) through the system.

For instance, imperfect substitutability between money and bonds create a credit-channel of monetary policy transmission in addition to the traditional interest-rate channel where credit rationing makes financial funds overly sensitive to monetary supply conditions. Moreover, when credit rationing occurs, exogenous shocks will have distributional effects depending on the structure of the firm-size distribution as well as on the concentration in the banking sector with possible long-run implications for business investment.

Consequently, in the long run, the structure of the financial market affects incentives to build up productive capital, which in turn fuels into the process of job creation and output growth (Wasmer and Weil, 2000). Depending on the underlying assumptions of the production process, multiple equilibria can arise that will display characteristic differences regarding the relative investment by stakeholders and their dynamic behaviour. Hence, frictions on the financial markets leave room for the financial structure (sources of funds, competition and size distribution in the banking sector) to affect shock transmission and investment behaviour.

Given this relationship between the financial structure of an economy and the behaviour of the real economy, several transmission channels regarding financial market frictions can be distinguished,

some of which are potentially important for our discussion of the macro-economy. First, when the financial structure changes (i.e. the composition of different asset holders in an economy, for instance from banking assets to stockholders) the objective function of firms may change. Instead of concentrating on maximising growth, these firms are likely to optimise profitability in order to respond to shareholder objectives. This transmission mechanism hence puts weight on the nature of the investment but not so much on the size of the investment. Thus, while this – and similar mechanisms – is potentially important to understand the characteristics of a firm's asset structure (short-term vs. long-term, specific vs. unspecific assets), it is not necessarily related to quantity constraints regarding the investment function (Stockhammer, 2004).

A different transmission mechanism can be put forward when considering the sources (or flow) of funds together with the structure of the banking sector. It is well known that a negative balance-sheet shock (interest-rate shock, energy-price shock, technology shock) will affect the lending behaviour of banks in the presence of insufficient collateral (credit rationing). Depending on the structure of the banking sector (relationship banking may overcome some of these problems), such a shock will affect the size of the investment undertaken by non-financial firms and will generally lead – except for particular cases – lead to an under-investment compared to the socially optimal investment size.

All transmission mechanisms thus far described rely, however, on microeconomic effects regarding the decision to undertake investment. Macroeconomic relations that consider Austrian-type intertemporal shifts of savings and investment between different periods do not seem to have played an important role in this literature. Introducing financial market imbalances that rely on intertemporal adjustment mechanisms will be the task to be pursued in the following two sections.

## *2.) Fixed price models and macroeconomic regimes*

In order to present the disequilibria on different markets and their macroeconomic implications, we rely on a simple representation of a branch of macroeconomics, which had been developed during the 1970s and early 1980s and is commonly known as disequilibrium macroeconomics or fixed price models<sup>5</sup>. These models rely on nominal rigidities on labour and product markets to analyse different regimes of unemployment and inflation in a simple macroeconomic framework.

At its current stage<sup>6</sup>, the disequilibrium approach differentiates between product market and labour market failures to bring prices and quantities into equilibrium. However, given the static nature of these models, they usually fail to take into account the differences between excess demand and supply on the one hand and savings and investment imbalances on the other. These differences are more than just semantic ones as saving and investment decisions regard the long-run behaviour of the economy while excess demand or supply situations are – or should be – resolved in the short run.

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<sup>5</sup> A good introduction into fixed price models can be found in Muet (1992), ch. 4.

<sup>6</sup> See, for instance, Benassy (2002)



The distinction between the two time dimensions allows for the understanding of two important aspects of business cycle theories: first, a fully-fledged bond market that funnels savings into productive investment opens the analysis for dynamic considerations through financial structure-arguments; second, the current “trioctomy” between short-run Keynesians, long-run Neoclassicals and medium-run Austrian economists can be overcome through a unified treatment.

For the moment, however, regimes that are analysed by in the fixed-price models literature concern only the left half of Table 1 (where  $r = r^*$ ).<sup>7</sup> Depending on whether firms are on their labour demand curve ( $p = p^*$ ) or not ( $p = \bar{p}$ ), nominal wage rigidities will generate Classical or Keynesian unemployment. Only when prices and wages are fixed on the elastic part of their respective supply side do markets clear.

**Table 1: Fixed price regimes**

		$r = r^*$		$r = \bar{r}$	
		$p = \bar{p}$	$p = p^*$	$p = \bar{p}$	$p = p^*$
$w = w^*$	Limit case, no separate regime		Markets cleared	Excess supply on financial and product markets (Under-investment trap)	No separate regime
$w = \bar{w}$	Excess supply on labour and product markets (Keynesian U)		Excess supply on labour markets (Classical U)	Excess supply on all three markets (Keynesian U in the ST and LT)	Excess supply on labour and financial markets (Classical U in the ST, Keynesian U in the LT)

When introducing financial markets in such a framework, product markets are effectively split into a product market for current consumption that determines the savings outcome and one for future consumption or capital goods (actually the financial market) that determines investment opportunities: The two are intimately linked through intertemporal decisions. This distinction allows for additional regimes that combine imbalances today with imbalances tomorrow (see the right hand side of Table 1). An issue arises on how these different imbalances can be accommodated simultaneously in a closed economy: in the case here, we want to follow Garrison (2000) and to assume that the savings and investment balance is guaranteed through an adjustment of the money base. Alternatively, one could consider that in an open economy the market for foreign exchanges plays the role of the ultimate adjustment mechanism.

These financial market frictions create interesting interactions between short- and long-run imbalances, such as the ones that have been described by Table 1. For instance, suppose that the economy is in Keynesian unemployment where investment is demand-driven. Now, a protracted period of low investment triggered by nominal rigidities on the financial market reduces (at least in

<sup>7</sup> Prices reflecting market-clearing levels are indicated by an asterisk. Prices reflecting rationing equilibria are indicated by a bar.

relative terms) production capacity. In the medium to long run, this could drive the economy from Keynesian into Classical unemployment.

Similarly, when the economy is in Classical unemployment, income distribution is distorted in favour of capital owners. In addition, financial market imbalances will withdraw liquidity from the economy. As a result, in the medium to long-run, while capital accumulation will be lower, consumption may decrease even more strongly, pushing the economy from a Classical to a Keynesian regime. In this situation, therefore, a structural demand deficit arises that stems from the distorted intertemporal allocation and its implications for income distribution.

As we have mentioned in section 2, the interaction between short- and long-run imbalances has been addressed by different business cycle theories, comprising approaches such as (Post)-Keynesian economics and Austrian capital-based macroeconomics. However, while combination of different types of macroeconomic imbalances has been recognised, its interaction has only rarely been taken up. Hayek (1933), for instance, discusses financial market disequilibria – through distorted interest rate structures – and their impact on short-run equilibria in the future but does not take up the possibility that these equilibria may travel through time differently, depending on the imbalances on product and labour markets. On the other hand, authors in the vein of Post-Keynesian macroeconomic models recognise the different modes of short-run disequilibria – quite similar to the ones that are represented in Table 1<sup>8</sup> – but usually do not pursue this issue when it comes to accumulation regimes<sup>9</sup>.

### 3.) *A simple illustration*

The aforementioned mechanisms can be illustrated in a simple macroeconomic framework that has been adapted from Garrison (2000). In addition, they allow to analyse the macroeconomic regimes that arise when financial markets are rationed, such as those represented on the right-hand side of Table 1. First, however, we want to provide a quick overview of the market-clearing equilibrium before we turn to discuss the short-run macroeconomic regimes that arise out of disequilibria on the labour and product markets. In a second step, we then introduce imbalances on the financial market that allow for medium-term regime switched.

The following considerations rely on a very simple model of capital accumulation. In particular, we want to make the assumption that capital depreciates in one period (hence investment today equals the available capital stock tomorrow) and that no technological progress takes place, as we want to concentrate on the macroeconomic effects of market imbalances. When all markets clear, prices for goods, labour and capital are all on the elastic part of their respective supply curve:

[ Figure 2 about here ]

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<sup>8</sup> See Taylor (1991), ch. 3, for a discussion of the relationship between structural macroeconomic models and the disequilibrium approach.

<sup>9</sup> A prominent exception is You (1994).

Labour and goods market equilibria are such that production and consumption choices correspond to the intertemporal preferences for savings and investment. Moreover, the production potential is fully employed (the economy is on the Production Possibility Frontier, PPF).

*i. Dynamics with classical unemployment*

In this situation, Classical unemployment arises when – for whatever reason – the labour demand schedule cuts the labour supply in the horizontal segment where wages are downward rigid and fixed at  $\bar{w}$ .

[ Figure 3 about here ]

In this situation, labour markets do not clear and production will be reduced to  $\bar{Q}$  with the price level being fixed above the market clearing level. As we have seen in the preceding section, given that firms are on their labour demand schedule, unemployment is generated in this case through real wages that are above the market clearing level. Given the downward rigidity of nominal wages, unemployment can only be resolved when firms move to a more productive production technology, thereby raising marginal productivity levels and pushing the labour demand schedule back into the elastic part of the labour supply curve.

Malinvaud (1980, 1982) was, however, one of the first to mention that actually the contrary might happen given the impact of depressed production on future investment and the capital stock. The non-clearing level of production and consumption will push the economy towards a position below the PPF. With homothetic preferences the Engel curve between investment and consumption will be a straight line out of the origin and hence both investment and consumption expenditures will lie strictly below their market clearing levels. Consequently, the savings and investment equilibrium will be depressed as well (for simplicity's sake, the interest rate in Figure 3 is supposed to remain constant), reducing the economy's capital stock and moving its PPF inwards.

Second-round effects can be expected from this mechanism as the labour demand schedule moves further into the wage rigidity territory, further depressing employment and production possibilities. As long as the labour demand schedule does not change or wages start to adjust downward, a reinforcing spiral will entail that locks the economy into depressed capital accumulation and employment growth. Notice that this disequilibrium story does not rely on any kind of market imbalances between savings and investment.

*ii. Dynamics with Keynesian unemployment*

Similar dynamics can be analysed in the case of Keynesian unemployment. Here, the analysis starts on the goods market, where demand is too low, cutting the supply curve on the vertical branch where prices are downward rigid and fixed at  $\bar{p}$ .

[ Figure 4 about here ]

Consequently, the goods market does not clear and only  $\bar{Q}$  can be produced and sold. Firms are therefore demand constrained and hire only  $\bar{N}$  at wage  $\bar{w}$ . As can be seen in Figure 4, this means that firms are not on their labour demand curve and Keynesian unemployment will be as high as  $N^* - \bar{N}$ . Contrarily to the preceding case, where unemployment was Classical, a reduction of the real wage would not help to restore equilibrium given that firms are not on their labour demand curve. Conversely, an *increase* of the real wage would help to improve aggregate demand (which is at the source of the depressed goods market outcome), increase production and close the gap between actual and market-clearing employment. This is very similar to the wage-led regime analysed by Bhaduri and Marglin (1990) and Taylor (1991): in their model, the fact that firms are not on the labour demand curve is reflected by different levels of capacity use.

It is important to understand that this situation can arise not only as a result of a monopsonistic situation on the labour market but quite simply following depressed demand on the goods market, for instance as a result of imperfect competition. The classical adjustment mechanism, where firms would try to stay on their labour demand curve, is no longer feasible as demand constraints make the profit maximising level of labour input impossible to reach.

Rowthorn (1999) has shown that such a depressed outcome on goods and labour markets will have consequences for the long run equilibrium as well. Quite similar to previous situation where Classical unemployment prevailed, investment is affected by the rationing equilibrium. However, while in the former case capacity increases have been slowed down following real wages being above the market-clearing level, with Keynesian unemployment capacity adjustment is constrained by low utilisation ratios, further depressing product markets. This may have a self-reinforcing effect, as long as depressed investment depresses employment and hence income growth strongly enough so that utilisation ratios remain low.

### *iii. Regime switches I: Keynesian-Classical switch*

The preceding cases correspond quite mechanical to the fixed price regimes that have been analysed in the disequilibrium theory or the distinction between profit-led and wage-led regimes in the structuralist macroeconomics literature.<sup>10</sup> The long-run consequences of the two short-run disequilibria have been very similar to the situation in the short term, albeit reinforced by the positive feedback mechanism that underlies the two adjustment processes. The next two cases show, however, that in the presence of financial market frictions, these self-reinforcing equilibria may change and regime switches may arise.

Hence, we are interested to analyse how imbalances on the bonds market would change the nature of the regimes on labour and product markets over the medium run. Here, we will make use of Austrian-like mechanisms that put forward the mismatch of consumption and production structures when bonds

<sup>10</sup> For a good introduction, see Taylor (1991).

markets do not reflect correctly intertemporal preferences (see the discussion in section 2). In particular, we want to assume that interest rates on bonds markets are downward rigid at rate  $\bar{r} > r^*$  such that planned investment and savings do not match<sup>11</sup>. For this to happen in a closed economy, however, we have to assume particular rationing rules: Several alternatives are possible, here, we want to assume that monetary authorities withdraw money from the economy such as to make savings match planned investment<sup>12</sup>.

[ Figure 5 about here ]

We start with the situation where Keynesian unemployment prevails in the economy due to depressed demand. This may quite simply have to do with the disequilibrium on the bond market that extracts liquidity from the market, leaving demand for both consumption and investment goods subdued. Hence, initially the economy will be inside the PPF defined by the market-clearing equilibrium at point A.

Compared to the situation with cleared financial markets, not only is demand depressed but intertemporal relative prices do not correspond to intertemporal preferences as interest rates are fixed above their market-clearing level  $r^*$ . This implies that investment will be too low compared to the intertemporal optimum and savings will be too high. The capital stock therefore adjusts strongly downwards (given the assumptions we have made about the accumulation process) while demand may actually increase in the second period, or at least will not adjust as rapidly as the supply curve. In relative terms, therefore, there will be higher aggregate demand in the second period than there is installed capacity, pushing the economy away from the Keynesian regime.

When the supply adjustment is strong enough and demand adjusts more sluggishly or even increases, then a situation may arise as that depicted in Figure 5: The economy moves out of Keynesian unemployment and straight into Classical unemployment, provided that the nominal rigidities on the labour market continue to hold. Hence, contrarily to the discussion in the preceding case of Keynesian unemployment, the financial market imbalance introduces a block on the self-reinforcing effect and pushes the economy out of its depressed demand into a situation where production is structurally falling behind aggregate demand. Consequently, a regime switch occurs and the economy may find itself stuck in a new regime.

#### iv. *Regime switches II: Classical-Keynesian switch*

This previous regime switch is, however, not the only possibility for an economy to move out of one type of unemployment into another one. In particular, the regime switch may also take place moving the economy from a Classical to a Keynesian regime. As we have seen in the preceding section, the

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<sup>11</sup> In Figure 5 and Figure 6, additional savings curves have been drawn ( $S'$ ) to illustrate the downward rigidity of interest rates; nothing changes substantially when they collapse with S, provided the interest rate rigidity remains.

<sup>12</sup> This rationing rule is quite similar to the discussion in Garrison (2000) who mentions that bending interest rates away from market-clearing levels would leave the economy in an unsustainable path of disequilibrium that cannot persist given the accounting equation nature of the savings and investment balance.

disequilibrium on the bond market will change the relative intertemporal prices between consumption today and consumption tomorrow with the possible consequences for a regime switch on product and labour markets. However, the disequilibrium on the bond market not only changes the intertemporal prices but modifies also the income distribution. For the following regime switch to happen, we will therefore take into account the particular distribution dynamics that underlie the different disequilibrium regimes.

[ Figure 6 about here ]

Here, the economy starts with Classical unemployment, the starting point will therefore be the labour market where wages are downward rigid and do not allow the adjustment that may have been made necessary following productivity shocks. A usual policy response is to raise interest rates; hence, the imbalance on the bonds market follows naturally in this example. However, increasing interest rates and withdrawing liquidity from the market bears two consequences: on the one hand, the aggregate fall in liquidity reduces aggregate demand. On the other hand, an increase of the interest rate relative to intertemporal preferences redistributes income from low savers to high savers, i.e. in usual understanding from workers to capitalists. It is this latter effect that will reinforce the former and lead to a regime switch.

Given the initial Classical unemployment, real wages are too high relative to both market-clearing levels and the interest rates, pushing firms to deepen capital intensity. Moreover, given that initially, firms are on their labour demand, profit-maximising position, the investment curve remains unaffected by developments on the product market and actual investment will only follow relative price developments regarding the capital-labour trade-off. As we saw before, this will affect negatively capital accumulation in the medium run.

However, in the case where the macro-economy is not only restricted on labour markets but also on financial markets, liquidity will be subdued and income will be transferred from relative consumption-prone workers to relative investing-prone capitalist, given the differences in savings propensities between the two income groups. This is, in turn, creates a tendency for second-period consumption to fall short of installed capacity. Again, a mismatch arises between installed capacity and aggregate demand, leaving the economy in a depressed state with Keynesian unemployment. Quite a paradoxical outcome resulting from Austria-type adjustment dynamics!

Whether the income distribution effect or the intertemporal mismatch effect dominates is obviously a matter of empirical analysis. However, the regime switches that have been described in the preceding two examples depend – each in its own way – on the predominance of either of the effects, i.e. on the relative importance of intertemporal relative prices vs. income distribution dynamics.

*v. Some immediate consequences for monetary policy*

An immediate consequence for monetary policy following the considerations related to the previous regime switch is that a restrictive monetary policy that aims at reducing inflation, and a sluggish adjustment of the nominal interest rate reduces the rate of accumulation, eventually pushing the economy into the wage-led region with unemployment switching from Classical to Keynesian. This is in itself an interesting second-round effect of restrictive monetary policy and may play an important role for the understanding of the dynamics of European unemployment, as we want to discuss in the next section.

A more classical case arises when the economy is in Keynesian unemployment and monetary policy aims at reducing shortfalls in aggregate demand by reducing interest rates. A usual Austrian adjustment mechanism – as discussed in section 2 – leads to an increase of the accumulation rate, eventually pushing the economy from the wage-led region into the profit-led region, switching unemployment from Keynesian into Classical. However, this bears the risk of intertemporal mismatch and the creation of over-accumulation, a bubble that is likely to burst at some point.

In both stories, the switching mechanism is very much Austrian in the sense that financial markets and the interest rate therein are playing the main role to understand the dynamics.

**4. European unemployment and the political economy**

The above considerations of different macroeconomic regimes and endogenous changes between them can be used to illustrate how such mechanisms do explain the changing nature of European unemployment over the last two or three decades without referring to particular microeconomic stories that some have put forward<sup>13</sup>. Referring to existing studies, we first present how the nature of European unemployment has changed since its initial rise in the 1970s. We then turn to the role of monetary policy as one important (endogenous) force that modified the nature of the unemployment experienced by European countries. In particular, we discuss to what extent the particular monetary policy strategy – and its change over the period of the late 1970s, early 1980s – may have actually contributed to the regime change. Finally, we consider the importance of misinterpretation of the prevailing regime as one additional force underlying regime change.

*i. European unemployment reconsidered*

One of the puzzles of the evolution of European unemployment has been the apparent change in nature over the last three decades. Much of the existing literature recognises that unemployment has undergone in Europe a particular evolution that can be broadly characterised by two distinct periods<sup>14</sup> (Laroque, 1989; Blanchard, 1997):

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<sup>13</sup> See Layard, Nickell and Jackman (1991) for a good overview of this strand of the unemployment literature.

<sup>14</sup> This distinction into a supply and demand shock period is, moreover, confirmed by several analytical pieces that try to go about this subject from different angles. For instance, looking at business cycle shocks, Kevin Ross from the IMF reports a similar separation of periods in a recent selected issues paper regarding the euro area.

- A first period of labour supply shocks and decreasing productivity, both in Europe and the US. The analysis on the underlying driver of these supply shocks differ and include oil price shocks (the standard argument), the lack of labour discipline (Weiskopf, Bowles and Gordon, 1983) and the end of the Fordist comprise (underlying the analysis of much of the Régulation school, see for instance Boyer, 1990).
- A second period of labour demand shocks and persisting unemployment, in particular in Europe, while in the US unemployment followed (long) cycles, regaining its immediate post-war levels during the second half of the 1990s. The analysis for this phenomenon is even more heterogeneous, ranging from lack of capital accumulation (the standard Post-Keynesian argument), to lack of sufficient productivity gains that would trigger increased capital investment (the “New Economy”-hypothesis) to generalised “Eurosclerosis” where inflexible labour (and product) markets do not allow for adjustment to earlier (negative) shocks.

Following the distinction between these periods, this paper argues that European unemployment has undergone a development that very much resembles the discussion of different macroeconomic regimes in section 3 and will present some arguments for the story that is likely to underlie the long-run evolution of unemployment in Europe.

Indeed, it is straightforward to construct a link between the regime switch from Classical to Keynesian unemployment that we have described earlier and the evolution of European unemployment. Quite similar to this type of regime change, European unemployment started from a deterioration of the supply side of the economy, leaving real wages above the market clearing level. This, however, triggered a strong reaction by monetary authorities in Europe leaving real interest rates above their market-clearing level during the 1980s.

This last phenomenon can be related to the particularities of the monetary set-up in Europe. Indeed, since the introduction of the European Monetary System (EMS) and in particular since the introduction of a hard peg in 1986, national monetary authorities have lost much of their power to the leading institution, the German Bundesbank. The latter, however, has clearly observed a regime change over the 1970s when accommodating monetary policy strategies came out of fashion, following the Monetarist revolution. It is therefore not surprising to observe that interest rates in all European countries have been following an upward trend as a response to supply shocks in the 1970s.

The impact on income distributions of these and other regressive macroeconomic policies have by now already largely been documented, in particular as regards the increase of the profit share during the 1980s, a phenomenon that is quite specific to Continental Europe (see Blanchard, 1997). Hence, while rising real interest rates have been responsible for slow capital accumulation, they also redistributed income from labour to capital owners, opening up for the possibility of Keynesian unemployment due to a lack of aggregate demand. Hence, it is the very (double-sided) nature of financial market disequilibria that pushes the economy out of the supply constrained Classical



unemployment into a region where aggregate demand falls short of installed capacity, much in line with the observed regime switch as reported, for instance, by Laroque (1989) for Continental European countries.

This double-sided impact of financial market frictions would also explain how subdued capital accumulation and Keynesian unemployment can be part of the same phenomenon. In particular, it should be noted that the regime switch from Classical to Keynesian unemployment described in the preceding section allows to disentangle some Austrian complications that arise with standard Keynesian explanations of Europe's unemployment problem. Indeed, slow capital accumulation can be held responsible for the rise in unemployment over the last twenty years. This, however, is at variance with the idea of Keynesian unemployment as one being caused by too low aggregate demand relative to installed capacity. Lowering capital accumulation in this situation actually should help to close the gap, much in the spirit of the regime switch between Keynesian and Classical unemployment.

Additionally to these macroeconomics aspects, political economy considerations have certainly played an additional role giving a more balanced, microeconomic picture of the labour market developments. For instance, an interesting aspect of the European unemployment story that has been recalled recently by Blanchard (1997) and Stockhammer (2000) is the fact that profits shares have risen simultaneously to unemployment. This makes stories about Classical unemployment less likely or at least difficult to defend. One possible line along which Classical unemployment may still be defended as an explanation consists of introducing technological change. Blanchard notices that this would constitute an explanation as to why unemployment has risen among the unskilled workers, at least in most European countries ("skilled-biased technological change").

The story may, however, be extended with considerations regarding the political economy of the 1970s. After the supply shocks, following the oil price shocks and – more importantly – the end of the social consensus underlying the Fordist accumulation regime (see Weisskopf, Bowles and Gordon, 1983; Boyer, 1990), European governments raised replacement ratios and employment protection to battle rising unemployment. As can be easily shown, in countries with collective bargaining systems such policy measures raise the equilibrium wage and the wage drift. One possible strategic action, entrepreneurs can undertake is to raise the elasticity of capital of their installed capacities, for example by opening foreign affiliates or investing money in overseas bonds. For sufficiently strong reaction functions, this would lower wages but still raise unemployment, similarly to what is observed.

The bottom line of these considerations is that it is important to see European unemployment not as a series of shocks (which may be important at particular points in time) that affect the macro-economy via their interaction with institutions but as a causality running from the economic system to the political system and back again. To some extent, these ideas have been presented by Caballero and Hammour (1998) stressing the importance of sunk investment for the understanding of the unemployment dynamics in Europe. The problem of their approach is that they rely on real wage

rigidity that makes up for appropriation of quasi-rents by labour. This does not seem to correspond to macroeconomic dynamics in the 1980s and 1990s (even though it may correspond to behaviour of European economies in the 1970s).

*ii. Policy perceptions and regime switches*

Some final remarks may be in order to understand the importance of misperceptions of macroeconomic imbalances. In fact, this area has originally triggered the interest by Austrian economist and has made them conclude that policy makers should shy away from intervening in the market. However, as soon as one acknowledges the possibility that markets can get stuck in under-investment equilibria where markets do not automatically reverse to full equilibrium this is not a (politically) very helpful stance.

Indeed, it should be noted that given the different regime changes that have been discussed before, misperception is likely to have long-lasting and possibly irreversible effects on the macroeconomic regime. Looking at the debate on the underlying roots and causes of European unemployment, the possibility for misperceptions is by no means a trivial aspect and should be taken serious. The question arises, obviously, (but cannot be taken up in the context of this paper) what a prudent approach could look like for policy makers.

In particular, consider Keynesian unemployment to prevail but to be misinterpreted as being one caused by real wage rigidities, hence to be Classical. In this situation, policy makers would opt for a rise in interest rates to reduce absorption but would – by the same mechanism as discussed before – push the economy into the Classical unemployment area: a typical case of self-fulfilling prophecies. Quite naturally, this would have long lasting consequences as output and capital accumulation are lost, which could have been avoided by the appropriate policy mix. A cynics view on this is, obviously, that policy makers may be tempted – for reasons of political regimes or ideology – to pursue a particular policy mix until the economy has been pushed into the corresponding macroeconomic regime.

## **5. Conclusion**

The preceding discussion of macroeconomic regimes and their implications for the understanding of European unemployment was deliberately incomplete and meant to be an issues note regarding ongoing research and the development of a particular research agenda in this field. The analysis has been limited to a general discussion of the implications of introducing some Austrian ideas into existing Keynesian and Classical business cycle theories. In particular, it has been argued that this could be an interesting additional element that allows for an integrated theory of the business cycle.

In a next step, this analysis will be extended in two ways: First an explicit modelling framework will be set up that allows for a more quantitative analysis of the long-run implications for growth and employment of the various market imbalances. Second, it will be applied to the data in order to come up with an alternative, more elaborate story of European unemployment developments.

## 6. References

- [1.] *Arnold, Lutz G. (2002)*, BUSINESS CYCLE THEORY, Oxford University Press, Oxford
- [2.] *Bean, Charles R. (1994)*, “European Unemployment: A Survey”, JOURNAL OF ECONOMIC LITERATURE, 32, pp. 573-619
- [3.] *Benassy, Jean-Pascal (1983)*, “The Three Regimes of the IS-LM Model”, EUROPEAN ECONOMIC ACTIVITY, 23, pp. 1-17
- [4.] *Benassy, Jean-Pascal (2002)*, THE MACROECONOMICS OF IMPERFECT COMPETITION AND NONCLEARING MARKETS. A DYNAMIC GENERAL EQUILIBRIUM APPROACH, MIT-Press, Cambridge, MA.
- [5.] *Bhaduri, Amid and Stephen Marglin (1990)*, “Unemployment and the Real Wage: the Economic Bases for Contesting Political Ideologies”, Cambridge Journal of Economics, 14/4, pp. 375-393
- [6.] *Blanchard, Oliver Jean (1997)*, “The Medium Run”, BROOKINGS PAPERS ON ECONOMIC ACTIVITY, pp. 89-158
- [7.] *Boyer, Robert (1990)*, LA THEORIE DE LA REGULATION. UNE ANALYSE CRITIQUE, La Découverte, Paris
- [8.] *Caballero, Ricardo J. and Mohamad L. Hammour (1998)*, “The Macroeconomics of Specificity”, JOURNAL OF POLITICAL ECONOMY, 39/2, pp. 257-273
- [9.] *Cooper, Richard (1999)*, COORDINATION GAMES. COMPLEMENTARITIES AND MACROECONOMICS., Cambridge University, Cambridge, UK.
- [10.] *Drèze, Jacques H. and Charles R. Bean (1990)*, EUROPE’S UNEMPLOYMENT PROBLEM, MIT Press, Cambridge, MA.
- [11.] *Garrison, Roger (2000)*, TIME AND MONEY. THE MACROECONOMICS OF CAPITAL STRUCTURE, Routledge, London
- [12.] *Hayek, Friedrich (1933)*, MONETARY THEORY AND THE TRADE CYCLE, Harcourt, Brace & Co., New York
- [13.] *Jackman, Richard, Richard Layard and Stephen Nickell (1991)*, UNEMPLOYMENT: MACROECONOMIC PERFORMANCE AND THE LABOUR MARKET, Oxford University Press, Oxford
- [14.] *Keynes, John Maynard (1936)*, The General Theory of Employment, Interest and Money, MacMillan, London
- [15.] *Laroque, Guy (1989)*, “Comparative Estimates of a Macroeconomic Disequilibrium Model. France, Germany, the UK and the USA”, EUROPEAN ECONOMIC REVIEW, 33, pp. 963-995

- [16.] *Long, John B. and Charles I. Plosser (1983)*, “Real Business Cycles”, JOURNAL OF POLITICAL ECONOMY, 91, pp. 39-69
- [17.] *Malinvaud, Edmond (1980)*, PROFITABILITY AND UNEMPLOYMENT, Cambridge University Press, Cambridge
- [18.] *Malinvaud, Edmond (1982)*, “Wages and Unemployment”, THE ECONOMIC JOURNAL, 92, pp. 1-12
- [19.] *Muet, Pierre-Alain (1992)*, THEORIES ET MODELES DE LA MACRO-ECONOMIE, Economica, Paris
- [20.] *Oppers, Stefan Erik (2002)*, “The Austrian Theory of Business Cycles: Old Lessons for Modern Economic Policy?”, IMF WORKING PAPER, WP/02/2
- [21.] *Ross, Kevin (2003)*, “Euro Area Business Cycles: The Role of Supply and Demand Disturbances”, IMF SELECTED ISSUES, August
- [22.] *Rowthorn, Robert (1999)*, “Unemployment, Capital-Labor Substitution, and Economic Growth”, IMF WORKING PAPER, WP/99/43
- [23.] *Stockhammer, Engelbert (2000)*, “Is there an Equilibrium Rate of Unemployment in the Long Run?”, VIENNA UNIVERSITY OF ECONOMICS, Working Paper in Growth and Employment in Europe: Sustainability and Competitiveness, no. 10
- [24.] *Stockhammer, Engelbert (2004)*, “Financialization and the Slowdown of Accumulation”, CAMBRIDGE JOURNAL OF ECONOMICS, forthcoming
- [25.] *Taylor, Lance (1991)*, INCOME DISTRIBUTION, INFLATION, AND GROWTH. LECTURES ON STRUCTURALIST MACROECONOMIC THEORY, MIT Press, Cambridge, MA.
- [26.] *Van Marrewijk, Charles and Jos Verbeek (1993)*, “Disequilibrium Growth Theory in an International Perspective”, OXFORD ECONOMIC PAPERS, 45, pp. 311-331
- [27.] *Van Marrewijk, Charles and Jos Verbeek (1994)*, “Two-Sector Disequilibrium Growth”, EUROPEAN JOURNAL OF POLITICAL ECONOMY, 10, pp. 373-388
- [28.] *Wasmer, Etienne and Philippe Weil (2000)*, “The Macroeconomics of Labor and Credit Market Imperfections”, IZA DISCUSSION PAPERS, no. 179
- [29.] *Weisskopf, Thomas, Samuel Bowles and David Gordon (1983)*, Hearts and Minds: A Social Model of U.S. Productivity Growth, BROOKINGS PAPERS ON ECONOMIC ACTIVITY 2, pp. 381-450
- [30.] *You, Jong-Il (1994)*, “Macroeconomic Structure, Endogenous Technical Change and Growth”, CAMBRIDGE JOURNAL OF ECONOMICS, 18, pp. 213-233

## 7. Graphs and Tables

Figure 1: Alternative business cycle theories

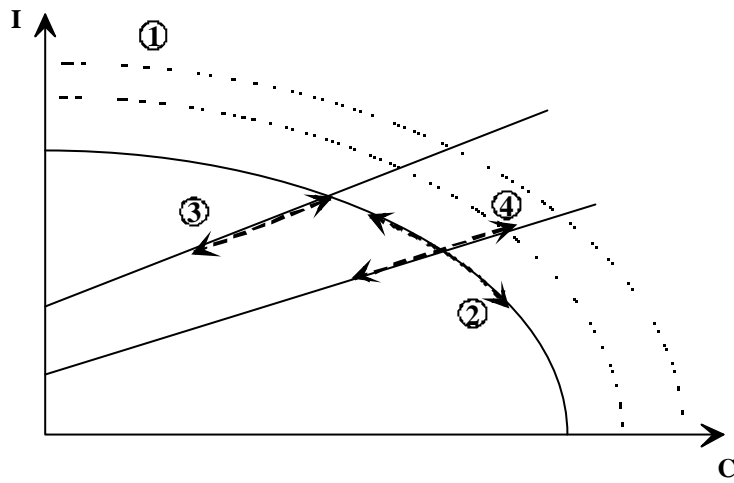


Figure 2: The market-clearing equilibrium

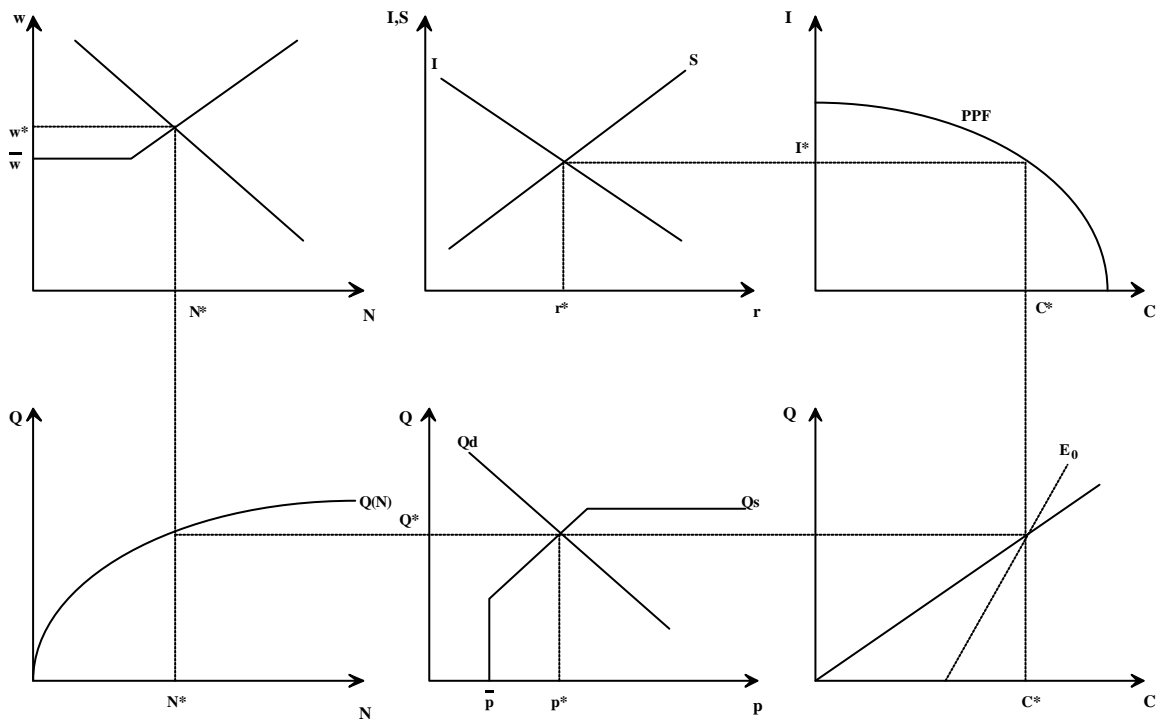


Figure 3: Classical unemployment

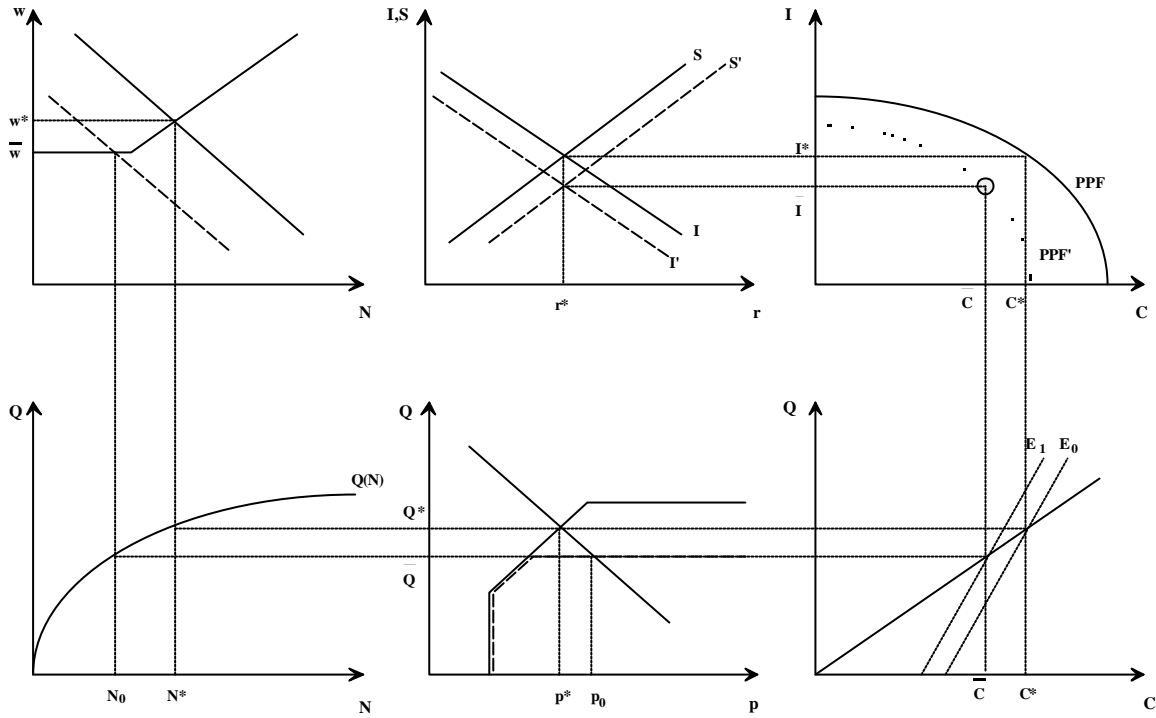


Figure 4: Keynesian unemployment

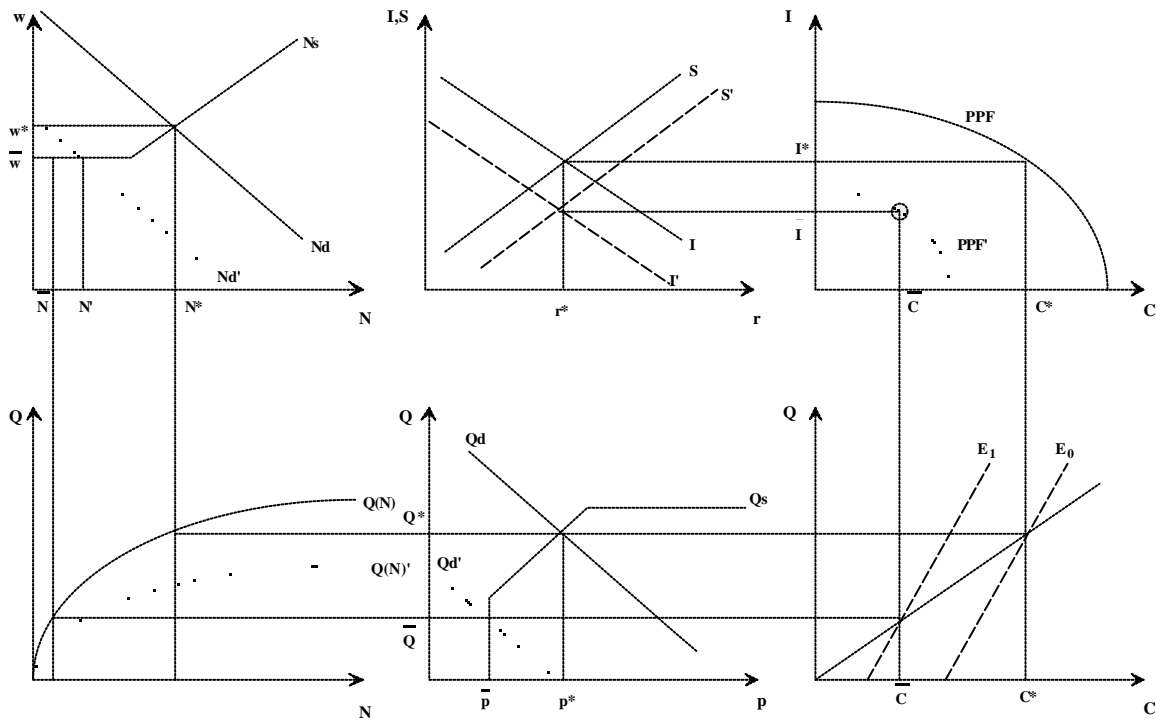


Figure 5: The Keynesian-Classical regime switch

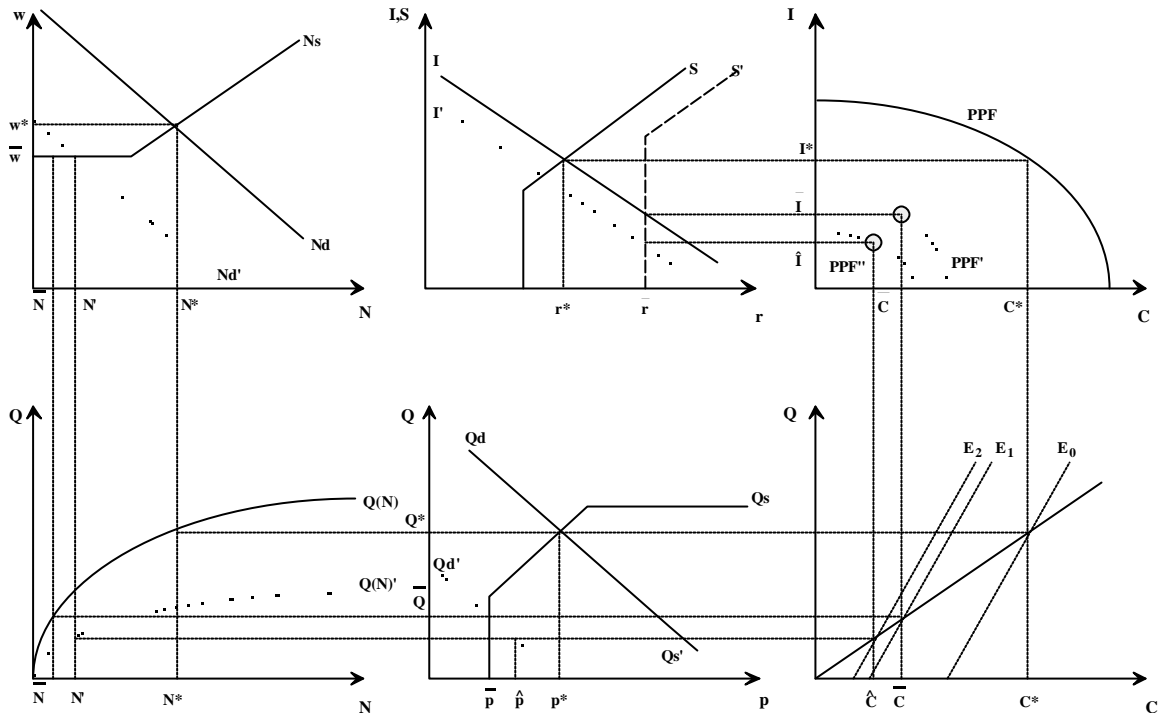
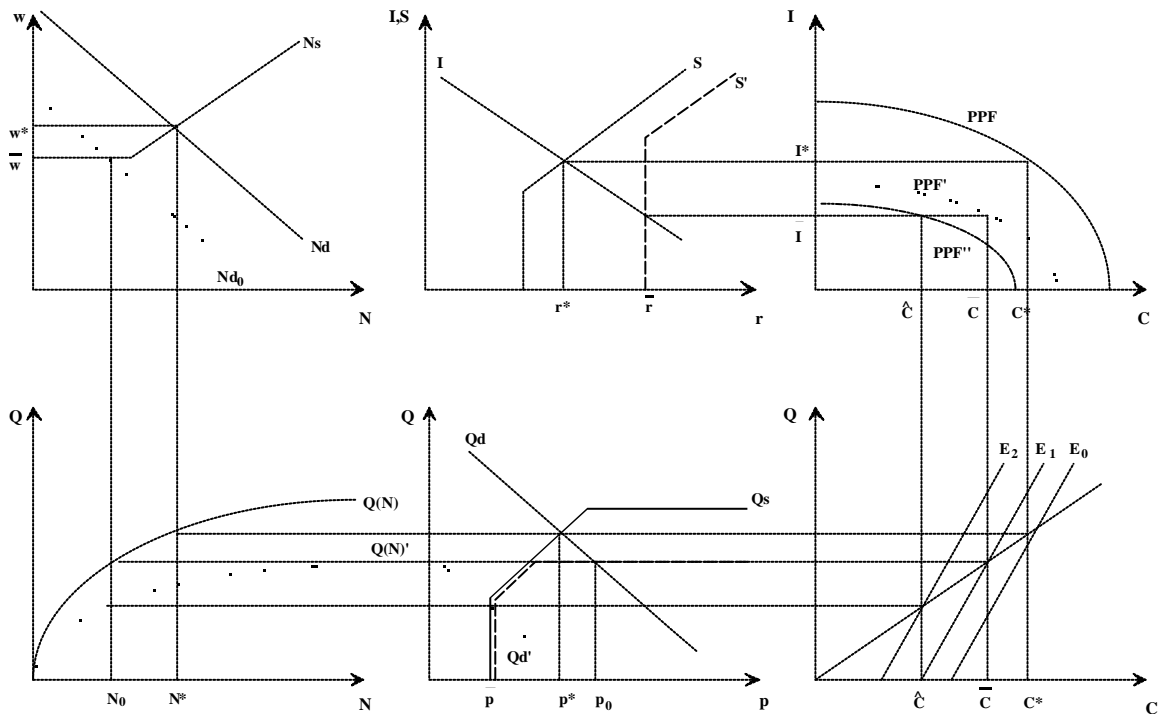


Figure 6: ... and back



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