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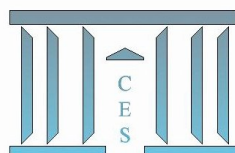
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A Psychological Way of Thinking**

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The New Classical Explanation of the Stagflation: A Psychological Way of Thinking

Aurélien GOUTSMEDT*

February 26, 2016

Abstract

The stagflation phenomenon is regarded as one of the cause of the Keynesian paradigm breakdown in the 1970s. The New Classical school took advantage of this breakdown. However, its discourse on the stagflation was not so clear and remained in a implicit shape. The paper aim at rebuilding the New Classical tale of the stagflation that stroke the United-States economy in the 1970s. We show that psychological ideas (expectations, beliefs, credibility) lay in the heart of the explanation. In the same time, oil shocks were left in the background. Besides, the New Classical school put much more emphasis on the inflation issue and experienced some difficulties to deal with the increase in unemployment.

Keywords: History of Macroeconomics; Macroeconomics; New Classical School; Stagflation.

JEL codes: B220; E320; E520; N120.

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Introduction

It is not striking to consider macroeconomics as one of the subdisciplines within economics that is the most permeable to the current economic context. Ever since its own birth during the Great Depression, macroeconomics

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had made proof of the permeability of its borders, which render the discipline more susceptible of being attacked during times of crisis. This is, for instance, what economists think happened during the 1970s when ‘the economic problems of the [decade] brought the Keynesian bandwagon to an abrupt (...) halt’ (Snowdon and Vane, 2005, p.18)¹. ‘Stagflation’ was a phenomenon that economists had never seen before the 1970s. This phenomenon was characterized by a situation of economic stagnation combined with both a high rate of unemployment and a high rate of inflation. This unprecedented economic context in United-States casted the doubt on the existence of a negative relationship between inflation and unemployment – the Phillips Curve². The Keynesian paradigm was accused of being unable to explain the stagflation, striking hard on the bases of its domination.

The New Classical challenge of Keynesian orthodoxy in the 1970s was directed on two fronts. First, the Keynesian paradigm was attacked for its lack of microfoundations and for the use of *ad hoc* assumptions – such as money illusion or wage rigidity. The other target was the empirical weakness of Keynesian macroeconomics. However, when one ask for macroeconomists what Robert Lucas, Thomas Sargent and others has brought to macroeconomics, they usually underline the theoretical improvements. Yet, if the New Classical authors succeeded in transforming their offensive into a ‘revolution’, one can suppose that it is because they had some concrete economic explanations to offer that would explain the stagflation phenomenon.

Paradoxically, the more comprehensive stories of the stagflation published in the 1970s and the early 1980s have to be found in Keynesian contributions³. Such contributions do not exist on the New Classical side but that does not mean they said nothing on the economic situation of the 1970s. Consequently, the aim of this paper is to rebuild the New Classical narrative on stagflation. To do so, I extract from the New Classical models some important elements

¹ For example, Pedro Garcia Duarte also defends the point when he explains that ‘the stagflation of the 1970s made economists question the ability of the Keynesian device to incorporate inflation into their IS-LM framework’ (Duarte, 2012, p.196). Lucas did not say something different in its interview with Brian Snowdon and Howard Vane :

The main ideas that are associated with rational expectations were developed by the early 1970s so the importance of the inflation that occurred was that it confirmed some of these theoretical ideas. In a way the timing couldn’t have been better. (Snowdon and Vane, 1998, p.122)

² On the ambiguity of the label ‘Phillips Curve’ and on its place in the Keynesian paradigm, see Forder (2014) and Hoover (2015).

³ See for instance the well documented book of Blinder (1979), *Economic Policy and the Great Stagflation*, or Solow (1980). See also the book of Bruno and Sachs (1985).

accounting for the simultaneous increase in both the inflation rate and the unemployment rate.

This construction of the narrative is useful for, at least, three reasons. First, the battles between economist in the public sphere converged to the stagflation issue. In *Newsweek* (28 April 1980), Samuelson blamed the New Classical school for being too ‘optimistic that inflation can be wiped out with little pain’ (see Sargent 2013, p.39), whereas in the *New York Times*, Mark Willes (1978), president of the District FED of Minneapolis (the stronghold of the New Classical school in the Federal Reserve System), claimed the necessity of making the disinflation policy more credible, in order to reduce the cost of such a policy. McGregor and Young (2013, pp.177-186) showed how, during the meeting of the Federal Open Market Committee, Mark Willes defended the Rational Expectations framework to understand what was at stake in the 1970s. One cannot regard the New Classical ideas as pure abstract concepts that do not say anything about the ‘real world’. Their ideas were recovered and used to bring an explanation of economic disturbances in the 1970s. That is why making clear to which explanation Rational Expectations models gave birth is useful.

Second, the contributions of the New Classical economists represent an inspiration for one of the dominant explanations of the stagflation today, that we usually labeled as the ‘Ideas Hypothesis’. Following Cristina Romer ‘economic ideas [in the 1970s] were the key source of the Great Inflation’ because ‘both monetary and fiscal policymakers were constrained or driven by the misguided economic framework of the time’ (Romer, 2005, p.177)⁴. The study of the work of Lucas, Sargent, or Kydland and Prescott enable to understand the genesis of such a type of explanation.

Third, this narrative reconstruction is a way to replace the New Classical school within the economic context that has accompanied its development. Knowing the influence of New Classical ideas on today macroeconomics, there is no doubt that the economic situation of the 1970s had an important effect on the shape of the discipline, which is still visible in the present state of macroeconomics. DeLong (1997) shows how the Great Depression has haunted macroeconomists and policymakers for many years, until the stagflation upstaged macroeconomists’ emphasis on unemployment, giving way to a stronger sensibility for inflation issues.

To clarify the New Classical views and the questions that a New Classical ‘theory’ of stagflation should answer to, I begin by presenting some of the most important economic facts of the 1970s. In a second time, I show what

⁴ Contributions in the same direction could be found in Romer and Romer (2002b,a, 2004), Orphanides (2003) or Nelson (2005)

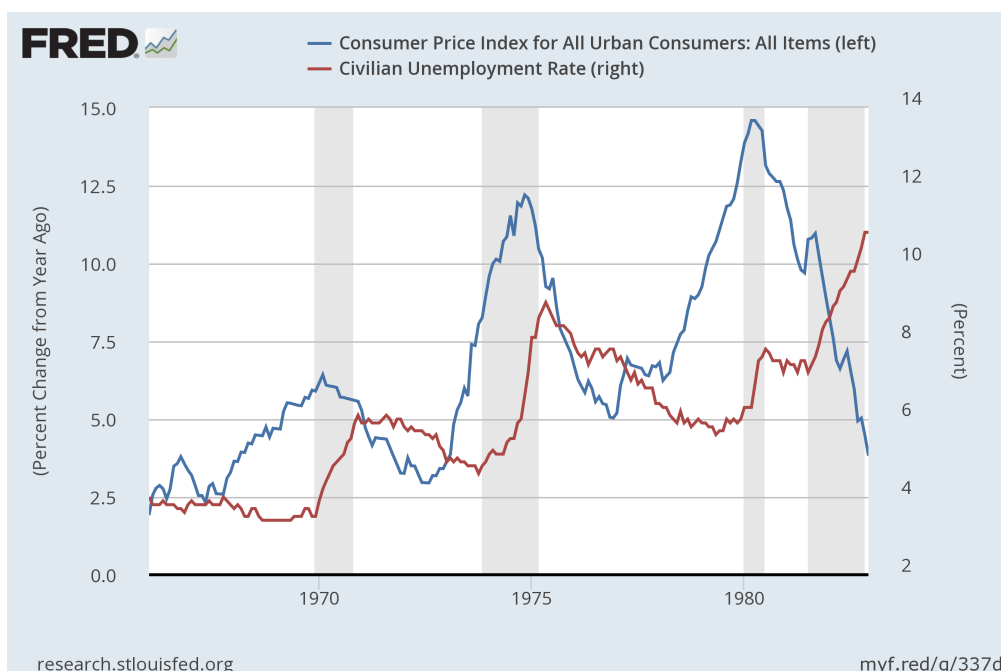


Figure 1: Inflation and unemployment in the United-States in the 1970s

is the fundamental cause of stagflation for the New Classical economists and what are the channels of transmission from this fundamental cause to the increase of inflation and unemployment. Third, I describe what would be the concrete political program that NC economists proposed (more or less explicitly) to deal with the turbulent 1970s period. Finally, I underline that two variables were scarcely concerned by New Classical economists: the general trend of unemployment and supply shocks (more precisely, oil shocks).

1 What are the facts to explain?

For most of the industrialized countries the 1970s represent a break with the ‘Golden Ages’ of the two preceding decades. The 1970s are the decade when inflation was the highest in the whole XXth century. However, what really stroke economists was the collapse of the negative relationship between inflation and the rate of unemployment, which was regarded by many as a crucial component of the Keynesian framework.

Figure 1 clearly shows the break in the relationship. Until 1980, before the Volcker deflation and the rebirth of a negative relationship, the correlation is rather positive : inflation and unemployment increase together.

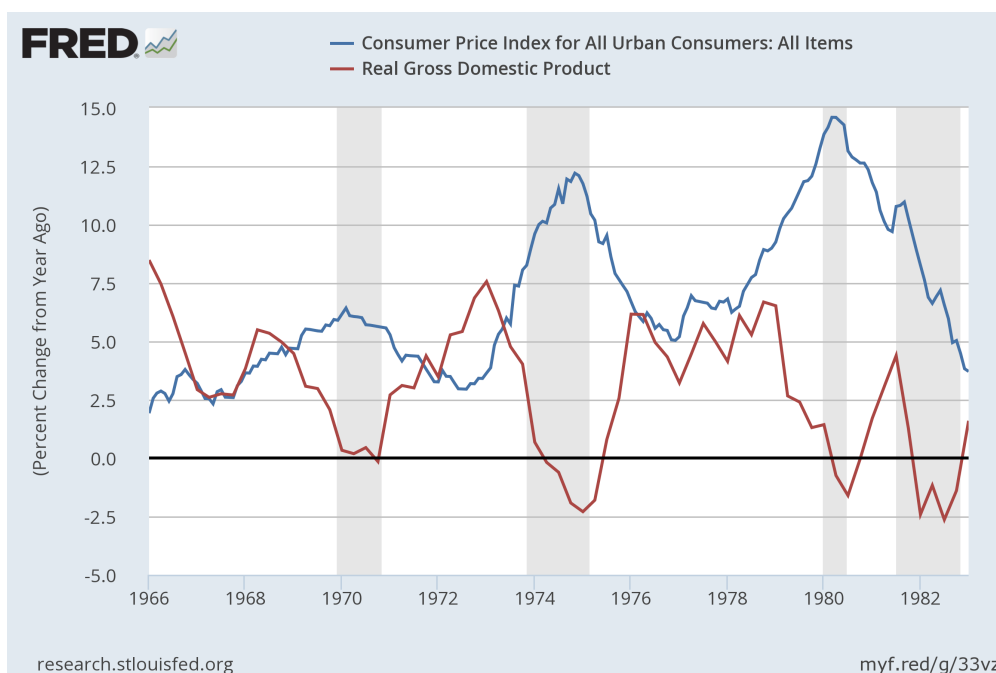


Figure 2: Change of the real GDP and inflation in the United-States in the 1970s

Unemployment lags behind inflation and rises strongly during the recession periods (shaded areas in the graph). Figure 2 shows that during the 1970s prices were not procyclical. During the 1970s the inflation rate presents three peaks: 1970 (6,5%), 1974 (12,3%) and 1980 (14,8%). The last two are by far the highest peaks. A recession is associated with each peak, being that between 1973-74 the longest and the deepest recession of the decade. Inflation seems to lead slightly the cycle. The question is then, why was the usual correlation between the inflation and the unemployment rate reversed.

The layman's conception of the disturbances in the 1970s is based on the events occurred in the middle east during these years and on the oil shocks. Before 1973, the price of oil in the United-States was rather stable, mainly for one simple reason: the production was domestic and the price was fixed by the Texas Railroad Commission (Galbraith, 2014, p.31). With the peak oil reached at the end of the 1960s, the United-States economy was forced to import more and more oil from other countries⁵. This increased the United States vulnerability to price fluctuations. In October 1973, OPEC countries

⁵ The marginal extraction flow of the oil well decreases with the reduction of the stock in the well. We talk about a peak oil when this threshold is reached by the majority of the wells, leading to a reduction in the oil extraction growth.

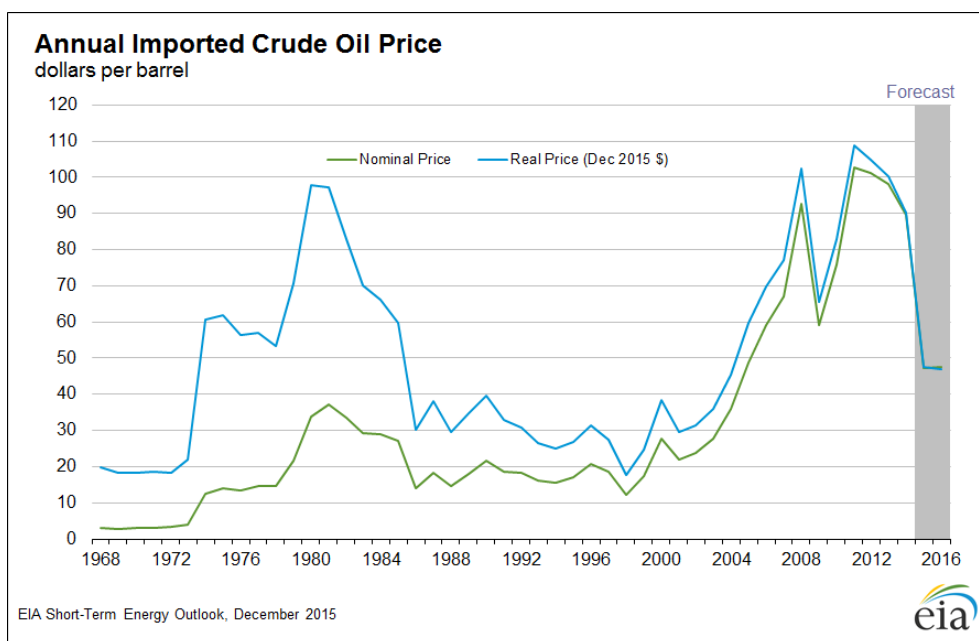


Figure 3: Oil Price in the United States in the 1970s

renegotiated the ‘posted price’ of oil with the oil companies⁶. After failing to reach an arrangement, OPEC decided on October 16 to unilaterally rise the posted price by 70 percent. On October 17, the Arab states announced a reduction of the oil supply for the US, in reaction to the conflict between Israel, on the one hand, and Egypt and Syria on the other. This situation produced the first oil shock⁷. The second oil shock followed the Islamic revolution in Iran in 1979, and the conflict between Iran and Iraq the next year.

However, if we refer to the oil shocks as a major fundamental cause of the stagflation, it remains to answer two questions⁸. First, what explains the first inflation peak at the very end of the 1960s? Then, how could one justify the persistence in inflation after the temporary shock? As I will show later, New Classical economists (and monetarists) referred to economic policies as responsible for the rise in inflation.

⁶ The posted price was the price that serves to calculate the rate at which OPEC countries tax oil companies

⁷ See Mitchell (2013, chapter 7) for a detailed account of the oil shocks and the confusion between the renegotiation by OPEC countries and the embargo by some Arab states.

⁸ In a more general way, we could talk of supply shocks, because oil was not the only commodity which experienced a strong increase in its price. Blinder (1979, chapter 3) underlined the role played by food prices following bad harvests?

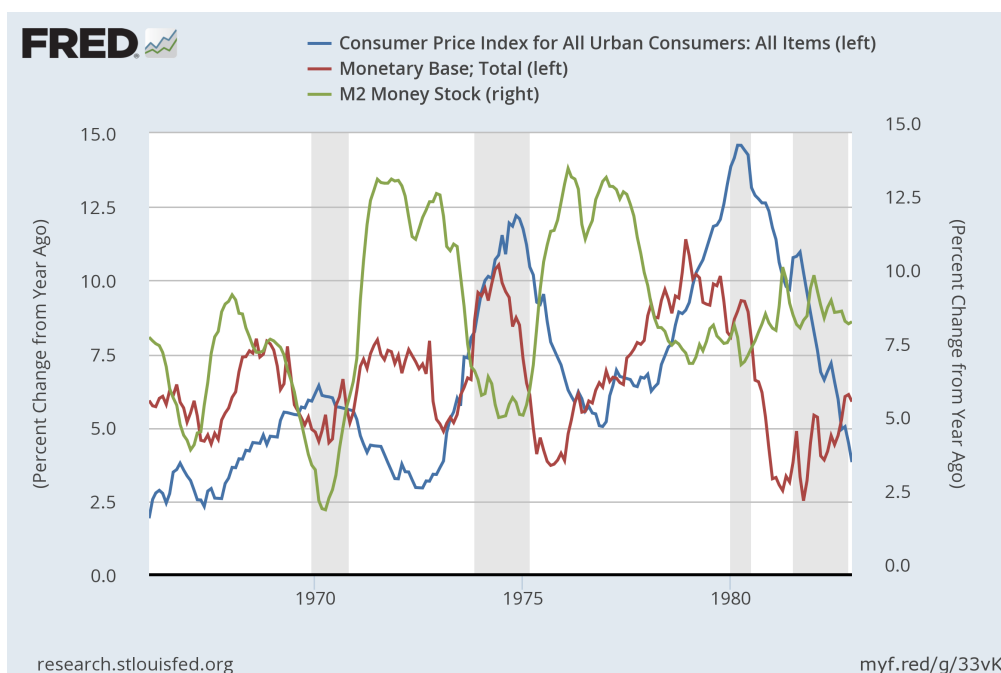


Figure 4: Inflation, change in Monetary Base and in M2 in the United-States in the 1970s

The Figure 4 shows the features of both the monetary base created by the Federal Reserve, and the money stock M2 for the United States. The Monetary Base seems to lead inflation during the peak in the increase of prices, even if this movement is less clear for the second peak, in 1973-1974. Concerning the third variable, no clear pattern emerges between inflation and the monetary aggregate M2.

In Figure 5, we replace M2 by the Federal surplus/deficit in percent of GDP. First, the three great increases of the Federal deficit came after inflation had started to rise at the beginning of the three peaks. In addition to this, there is no apparent relationship between deficit and Monetary Base – the increase of public deficits does not seem to have led to a patent increase in M0 in order to fund this increase.

Of course, the purpose above is rather vague and a more detailed and technical analysis would be necessary to draw any conclusion. And yet, these graphs by themselves might provide a good first general impression of what was going on in the 1970s with the US economy. Besides I intentionally leave aside several variables, like wages or exchange rate, to simplify the picture we have sketched.

After exposing some of the major facts of the period, now it is time to

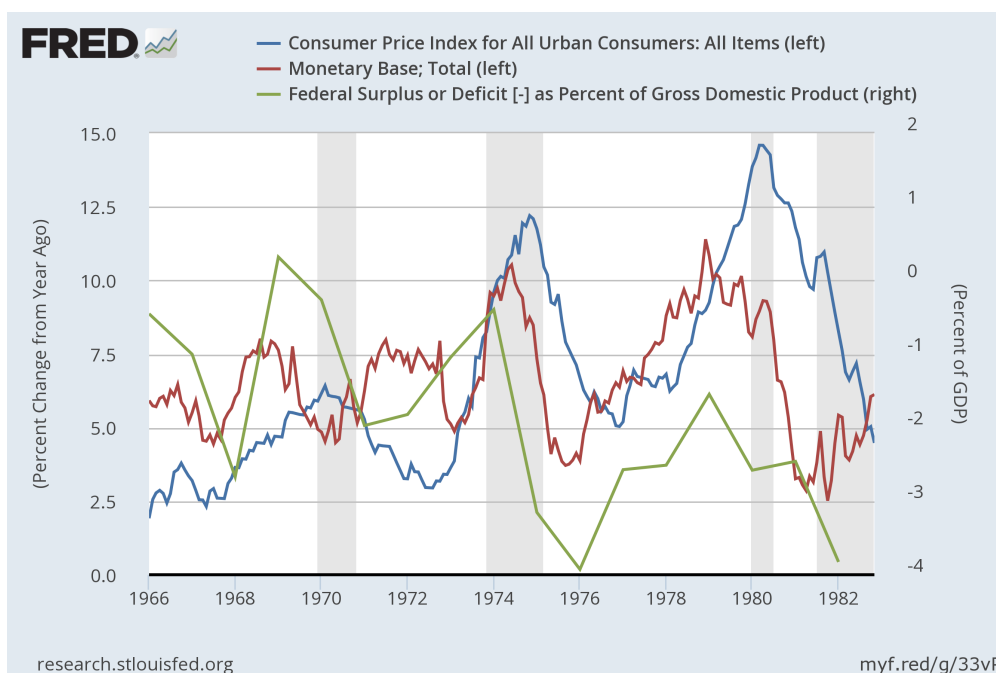


Figure 5: Inflation, change in Monetary Base and federal deficit in the United-States in the 1970s

describe the questions that a theory of stagflation should answer. The first essential issue is to target the fundamental cause of the simultaneous increase in unemployment and inflation. What is the initiating event or the ‘trigger component’ of the disturbances of the 1970s? Is there a particular context in the labor market? Or are supply shocks the main factors? Or is it a question of economic policies? Are fiscal and/or monetary policies guilty? The last solution seems to be the preferred explanation for New Classical economists.

Then, an explanation of the stagflation must describe by which mechanisms the fundamental cause has led to an increase in unemployment and inflation. What is the channel of transmission between this first impulse and the poor outcome of U.S. economy in the 1970s? I will show that expectations played a crucial role for New Classical economists to understand the stagflation phenomenon.

Defining the fundamental cause and the channel of transmission implies explaining why some other causes are considered as secondary or insignificant, and why some other economic mechanisms that would link the fundamental cause and stagflation are excluded.

Finally, as a part of the explanation is in the solution you propose to cure the disease, the study of the treatment recommended enables to gain further

insights into the diagnosis.

Two preliminary remarks are required before going into the details of the New Classical explanations of stagflation. First, I deliberately exclude international issue related with the value of the dollar and with the disturbances engendered by the shift in the regime of exchange rates. I made this choice not only to limit the length of the paper, but also because New Classical models has generally left this issue aside. This choice might be more easily justified to analyze the U.S. economy in particular, because one talks about a big country. Besides, the addition of international economic considerations does not seem to inflect seriously the New Classical explanation.

Second, I have chosen to focus on the contributions of the major New Classical economists, published in the 1970s or the early 1980s. I have payed attention to three types of contributions: the work of Robert Lucas (1972, 1976) around the signal extraction problem and the Lucas Critique; the work of Thomas Sargent (1982, 2013) on the theory of inflation and disinflation policies; the contributions on time inconsistency (Kydland and Prescott, 1977; Barro and Gordon, 1983a,b). It seemed reasonable to talk about *a* New Classical tale. Even if Lucas, Sargent or Barro did not always focus on the same point, or did not defend exactly the same set of ideas, what prevails is a solid consistency in the global narrative, mainly around the Rational Expectations hypothesis.

In what follows, I discuss separately the different types of models because each of them brings some original features. The addition of them makes it possible to rebuild a global story of the 1970s stagflation.

2 Explaining stagflation: which fundamental cause and which channel of transmission?

Even if the New Classical school has deeply renewed the way of think about inflation, their arguments belong to a well defined faction. Generally speaking, one can consider that inflation can have two origins – see for example Gordon (1976). On the one hand, inflation can be ‘cost pushed’. A strong market power on the Unions side is likely to push wages higher. More generally, an increase in production costs can originate from any ‘struggle for income shares among any set of subgroups in society’ (Gordon, 1976, p.188).

On the other hand, there is the ‘Demand Pull’ theory. In standard Keynesian theory inflation is demand pulled. However monetary factors do not play any role in causing inflation. On the contrary, for Milton Friedman and other monetarist economists, the Quantity Theory of Money is at the heart

of a monetary demand pull theory. It was this line of thought that New Classical economists followed. For them, monetary creation is the point of departure of every inflation phenomenon. As I will illustrate with the models displayed later, expansionist monetary policies are regarded as the point of departure of prices take-off.

The questions remaining are concerned with the justification of these monetary policies and with their consequences in inflation and unemployment. Concerning the question of transmission the 1970s opposed two points of view, well summarized by Tobin (1980a, p.789):

the main practical controversy of the day is to what extent, if any, the ongoing inflation is inertial – i.e., reflects sluggishness in the adjustment of paths of nominal wages and prices – as well as expectational.

The same opposition is to be found in Robert J.Gordon (2011) discussion of the two roads followed by the Phillips Curve after 1975. On the one hand, a Keynesian approach – defended mainly by Gordon – advocated that inflation is an inertial phenomenon that depends on past inflation:

the role of past inflation is not limited to the formation of expectations, but also includes a pure persistence effect due to fixed-duration wage and price contracts, and lags between changes in crude materials and final product prices. Inflation is dislodged from its past inertial values by demand and supply shocks. (Gordon, 2011, pp.10-11)

Sargent referred to this point of view as ‘momentum’ or ‘core inflation’ theories (Sargent, 1983)⁹. The dynamic movements of prices are different in the Rational Expectations faction. What is characteristic of this theory is ‘the absence of inertia, the exclusion of any explicit treatment of supply shock variables, the ability of expected inflation to jump in response to new information’ (Gordon, 2011, p.11). The capacity of expectations ‘to jump’ is a crucial feature of New Classical models and explained for example that disinflation policies can be costless: if private agents appraised such a policy credible, they adjust consequently their inflation expectations downwards, enabling for a reduction in inflation without any increase in unemployment¹⁰.

⁹ The ‘core inflation’ concept was developed by Otto Eckstein (1981), which defined it as ‘the price of aggregate supply’ or ‘the cost of the factors of production’. In a statistical sense, core inflation corresponds ‘to ‘underlying inflation’ (the portion of overall inflation that is free from transitory influences) or to a measure of the common trend in all prices’ (Lebow and Rudd, 2008).

¹⁰ I will go back in more details on this mechanism in the next section on economic policy questions.

It is on the second approach that the paper focuses. In this section, I focus on Lucas's contributions to analyze the role of intertemporal substitution and agents' reaction in case of a change in the policy regime. Then, I will analyze the way Sargent integrated expectations in the definition of inflation. Finally, I direct attention to the time inconsistency question, raised by Kydland and Prescott, which is at the heart of an 'inflationary bias'.

2.1 The role of expectations for Robert Lucas

Even if he played without any doubt the leading role in the change that occurred in macroeconomics in the 1970s, Robert Lucas never offered a systematic and comprehensive story of the economic events of the period. However, as his work was focused on the interpretation of the Phillips curve and on the role that monetary policy could perform, some lines of interpretation can be drawn to clarify his position on stagflation. Lucas's major input to the discussion was definitely his emphasis on the role that expectations play in the economic mechanisms.

The Lucas and Rapping (1969) model represents a good point of departure to understand the place held by expectations. Their aim was to reinterpret the Phillips Curve as an equilibrium phenomenon on the labor market. They used a utility function in which workers substitute current and future leisure. In the case of a temporary increase of the current real wage, the normal real wage stays the same and workers are likely to work more today in order to take advantage of this increase and to maximize their own utility function. If they face a permanent phenomenon, no substitution effect takes place (an income effect is possible but it is treated as unimportant by Lucas and Rapping). In this framework, transient fluctuations in the real wage could cause workers to substitute leisure today for leisure tomorrow, and so it explains fluctuations in total employment. The dynamics of employment which is the consequence of intertemporal substitution depends on the utility maximization and on how agents perceive a change in real wage.

This issue of perception was extended in Lucas (1972). Lucas wanted to bring together the existence of a downward sloping Phillips Curve and the neutrality of money without appealing to money illusion, as Friedman (1968) was forced to do. Lucas rejected the short-term long-term split of Friedman, for a separation between anticipated and unanticipated monetary policies. In the case when agents have Rational Expectations and if information is perfect, monetary policy cannot have any real effect, and the Phillips Curve is vertical – Unemployment stays at its natural rate and any increase in monetary creation, because it is anticipated, is inflationary. But if agents make no systematic mistake as in the model of Friedman, how is it possible

to explain the existence of a negative relationship between unemployment and inflation?

Lucas introduced some imperfection in information. Economic agents can observe their own price (for example, wage for workers), but are unable to know the current general price level before the next period. If they face an increase in their relative price, they must assess which part of this increase really concerns the relative price, and which part is the consequence of a general increase of prices, following a monetary expansion – this is called a ‘signal extraction problem’. Thus, this model displays an inverse relationship between inflation and unemployment for two reasons. First, output and employment react to changes in relative prices¹¹. Second, an increase in the general level of prices can be partially perceived by some producers and workers as an increase in their relative prices, what pushes them to produce/work more. In other words, if an expansionist monetary policy is unanticipated, the general price increase that follows will be interpreted by each agent as an augmentation of relative prices. Consequently, monetary policy will have real effect, increasing output and employment¹².

The question is how do agents determine what is the current general price level, knowing only the current and past relative prices, and the past price levels? As they have rational expectations, they efficiently use all the available information. They use their data in an ordinary least square regression allowing them to find the best estimator of the current general price level. One of the direct consequences of the Lucas’s model is that if the volatility of general price level is high, agents tend to attribute a greater part of the observed increase of their relative price to inflation. If one push the interpretation a bit further, a discretionary monetary authority which often changes the price level in a non stable way is likely to have no real effect and to push inflation higher. Economic agents adapt to such policy and change their perception of the part of inflation in an increase of their relative price.

Generally speaking, the role of agents’ reaction in the face of changes in economic policy is crucial for Lucas. It is the point underlined by the famous ‘Lucas Critique’ (Lucas, 1976). The argument was directed against the possibility for traditional macroeconomic models to correctly predict the effects of alternative economic policies in quantitative terms. Lucas introduced the problem in the following way:

¹¹ If a producer sees its own price grow, he will choose to produce more, because the real wage of his workers has fallen.

¹² The Lucas’s model could be partially summed up by a simple equation, the ‘Lucas supply function’: $y_t = y_{N_t} + \alpha[p_t - p_t^e]$, $\alpha > 0$ where y_t is the current growth rate, y_{N_t} the normal growth rate, p_t inflation and p_t^e inflation expected with the information of the last period. We will see the role played by ‘monetary surprises’.

These contentions [in “the theory of economic policy”] will be based not on deviations between estimated and “true” structure prior to a policy change but on the deviation between the prior “true” structure and the “true” structure prevailing afterward. (Lucas, 1976, p.20)

Model parameters estimated on past data, which are determined by a previous economic policy, are no longer correct if the economic policy changes: in one word, a correctly identified model cannot include decision rules that are *invariant* of the economic policies. The mechanism underlying the variation of parameters is the individual behavior (the rules governing individual decisions), which take into account economic policies and so change along with the policy regimes. Indeed, Lucas (1976) essentially consists on a prescriptive statement about the “right” way of modeling that would produce a sound quantitative evaluation of the distinct effects of alternative policies.

However, Lucas’s paper holds a positive scope too¹³. It represents a way to understand the simultaneous rise of inflation and unemployment in the 1970s. The paper constitutes an attack against ‘the inference that permanent inflation will therefore induce a permanent economic high’ which ‘has [recently] undergone the mysterious transformation from obvious fallacy to cornerstone of the theory of economic policy’ (Lucas, 1976, p.257). Implicitly, Lucas considers that the belief in a long-term trade-off between inflation and unemployment was at the heart of economic policy in the 1960s. Yet, this belief relied on the ignorance by economists of agents’ reaction to economic policies which rendered irrelevant ‘theory of economic policy’. And so, it is not striking to interpret the Lucas Critique as aiming at making the Keynesian policy-advisers responsible for stagflation. The implicit idea would be that the U.S. government and the FED, influenced by Keynesian economists, implemented an expansive policy in the 1960s. But with time, private agents adapted their behavior to this new policy regime and anticipated its implementation. Monetary policy became inefficient and inflation expectations were pushed higher.

Actually, this interpretation was reinforced a few years later by Lucas, in a paper co-authored with Thomas Sargent, called ‘After Keynesian Macroeconomics’ (Lucas and Sargent, 1979). This paper provided the opportunity for Lucas to extend the scope of his Critique in a more positive direction. The Lucas Critique led to accuse Keynesian models for having underestimated the role of optimizing behavior and expectations when new economic policies were implemented. From that perspective, according to Lucas and Sargent, the early 1970s have represented a key test for the relevance of the

¹³ For a further analysis of the Lucas Critique and its positive scope, see Goutsmedt et al. (2015).

Keynesian models, especially from the point of view of the predicted trade-off between inflation and unemployment:

The models of the late 1960s predicted a sustained unemployment rate in the United States of 4 percent as consistent with a 4 percent annual rate of inflation. Many economists at that time urged a deliberate policy of inflation on the basis of this prediction. [...] the inflationary bias on average of monetary and fiscal policy in this period should, according to all of these models, have produced the lowest average unemployment rates for any decade since the 1940s. In fact, as we know, they produced the highest unemployment since the 1930s. This was *econometric failure* on a grand scale. (Lucas and Sargent, 1979, p.6, our emphasis)

Lucas repeated the same claim in an other paper REEEF. Defending the empirical relevance of his Critique and underlining ‘the faulty treatment of expectations in [modern macroeconomic] models’, he concluded by what he regarded as a fatal argument : ‘let me cite the most graphic illustration: our experience during the recent "stagflation"’ (Lucas, 1981, p.221). The expansionist policies of the 1960s represented a kind of ‘policy experiment’ with an outcome ‘too clear to require a detailed review’ (*Ibid.*)¹⁴.

Even if Lucas and Sargent refused to attribute the failure of 1970s economic policies to Keynesian macroeconomic models – “Certainly the erratic ‘fits and starts’ character of actual U.S. policy in the 1970s cannot be attributed to recommendations based on Keynesian models” (Lucas and Sargent, 1979, p.6) – no doubt that they inspired their followers who defend the ‘ideas hypothesis’.

the work of Lucas – and other New Classical economists – contains a way of reasoning that puts Keynesian economic ideas in the dock. The models which included these ideas and which were used for economic policy evaluation did not integrate the potential agents reaction to change in economic policy. And so policy makers regarded the Phillips Curve as stable, believing that they could maintain a low unemployment without increasing too much inflation. Besides, if inflation would start to be worrying, they supposed that it would be sufficient to reduce money creation. However, such a discretionary policy increased volatility and agents began to anticipate it.

¹⁴ Miller and Rolnick (1980, p.191) clearly stated the point too. ‘Anticipated changes to more stimulative policies, then, might explain why the observed Phillips Curve has shifted up since the early 1960s’, they claimed, in a paper attacking the Congress Budget Office model, and published in the journal of the District Federal Reserve of Minneapolis.

They changed their behavior *via* intertemporal substitution and monetary policy lost its real effect. Expansionary policies just pushed inflation higher and the unemployment rise because of a decrease in the real wage – workers preferred to work less now because leisure was cheaper. That is the implicit Lucas tale for the stagflation. Contrary to Lucas, the purpose of Sargent was a bit more explicit on inflation and the U.S situation in the 1970s.

2.2 Sargent and inflation

Inflation is a subject of major interest for Sargent: he published a twice-reedited collection of articles, called *Rational Expectations and Inflation*. He explained in the preface to the first edition that he aimed at ‘putting rational expectations macroeconomics to work at an informal, noneconometric level in order to describe and interpret some recent and historical economic events’ (Sargent, 2013, p.xxi). The Sargent’s approach was a realist one and he used a ‘rational expectations theory of inflation’ to bring some light on interesting historical events.

The most famous paper of this collection, ‘The ends of four big inflations’, was first published in Hall (1982). Sargent studied how some periods of hyperinflation came to an end in different countries. He regarded such examples as ‘laboratories for the study of regime changes’ and considered that they are ‘consistent with the “rational expectations” view but [...] difficult to reconcile with the “momentum” model of inflation’ (Sargent, 1982, p.43). Its target was clearly the ‘momentum’ theory of inflation, defended by Keynesian, and claiming that any attempt for running a disinflation policy in the 1970s would be costly.

The formal model of inflation he had in mind followed the famous article of Cagan (1956) on the German hyperinflation episode, in whom he added the Rational Expectations hypothesis. The demand for monetary base is as following:

$$\frac{M_t}{p_t} = \alpha - \beta E_t \left[\frac{p_{t+1}}{p_t} \right] \alpha > \beta \geq 0$$

where M_t is the stock of base money at time t , p_t the price level, and $E_t[\cdot]$ is the value of $[\cdot]$ expected to prevail by economic agents at time t . In this equation, the demand for money is a decreasing function of the expected inflation, $E_t \left[\frac{p_{t+1}}{p_t} \right]$. After some transformations (see Sargent, 2013, p.24), we obtain the following expression for inflation :

$$p_t = \frac{1}{\alpha} \sum_{j=0}^{\infty} \left(\frac{\beta}{\alpha} \right)^j E_t M_{t+j}$$

The price level is a function of the supply of base money expected for today and for all the future periods. Thus, inflation is determined by the perception that agents have of monetary policy. The distinction between anticipated and unanticipated monetary policy appears again. If agents think that the Central Bank will increase money creation, the prices will go up (regardless the Central Bank finally do it or not). Therefore, inflation could be relatively high only because agents expect that monetary policy would be expansionist, and it is the ‘policy regime’ chosen by the government in a long term perspective that has an effect on agents’ perception:

An alternative ‘rational expectations’ view denies that there is any inherent momentum in the *present* process of inflation. [...] it is held that people expect high rates of inflation in the future precisely because the government’s current and prospective monetary and fiscal policies *warrant these expectations*. [...] Thus inflation only seems to have a momentum of its own; it is actually the *long-term government policy* of persistently running large deficits and creating money at high rates that imparts the momentum of the inflation rate.¹⁵ (Sargent, 1982, p.42)

The New Classical revolution has produced a kind of psychological turn in macroeconomics. I will analyze in the next section how ‘credibility’ plays a crucial role for Sargent in any attempt to reduce inflation. But the time inconsistency literature equally appeals to some psychological ideas, as credibility too, or reputation.

2.3 The time inconsistency issue

According to Snowdon and Vane (2005, p.250), ‘dynamic consistency problems have now become the leading theories of moderate inflation’. The time inconsistency problem was first introduced by Kydland and Prescott (1977) in a game theoretic model with strategic agents adopting a forward-looking behavior. They dismissed the use of control theory in economic policy evaluation and the paper could thus be seen as a complementary piece of work with Lucas (1976). In the standard theory of economic policy at that time, the use of control theory – advocated for example by Tinbergen (1952) – was

¹⁵ It is worth noting that Sargent also paid attention to the role of public deficits in generating the inflation of the 1970s. One of the two fundamental principles that he advocated in the preface to the first edition of *Rational Expectations and Inflation* is that the monetary policy should not be separately thought from fiscal policy (Sargent, 2013, p.xxii). I will go back to the issue in the next section.

crucial¹⁶. Kydland and Prescott (1977, p.474) argued that control theory is only relevant if the movement of the economic system simply depends on the current state of the system as well as current and past policy decisions. If the agents in the economic system are forward-looking and if they take into consideration policy decisions, then control theory is inappropriate for policy planning.

The game theoretical model built by Kydland and Prescott could be summarized in an intuitive story. In an economy with an expectational Phillips Curve, the Central Bank announces that the monetary base growth rate will be fixed at its optimal value for every period – the value that warrants the maximization of the social welfare function for all the periods. If agents believe this policy, inflation will be at the optimal level targeted by the Central Bank and unemployment at its natural rate. However, in the next periods, the Central Bank has an interest to renege and to run an expansionary policy to diminish unemployment. We talk about time inconsistency because the optimal policy in the following periods is not the same as in the first period. Having rational expectations, private agents know that the Central Bank would not bind its action to the optimal policy announced in the first period: ‘the announcements can have no credibility in the first place’ (Blackburn, 1987, p.113) and inflation will be higher than targeted. The conclusion was clear for Kydland and Prescott: ‘stabilization efforts have the perverse effect of contributing to economic instability.[...] active stabilization may very well be dangerous and it is best that it not be attempted’ (Kydland and Prescott, 1977, p.487). As long as the monetary authority is not bound by some strict rules, there exists an inflationary bias. It is not the money creation by discretionary policies which generates inflation, but more deeply that monetary authority *has the possibility* of implementing a discretionary policy at any time.

Barro and Gordon (1983a,b) popularized the time inconsistency problem in a model in whom they added the issue of the ruler’s reputation. In the absence of binding rules, the monetary authority could have interest to maintain the initial optimal policy to warrant its own reputation. Every deviation

¹⁶ Snowdon and Vane (2005, p.250) define control theory in a literary way as follows:

First, the policy maker must specify the targets or goals of economic policy (for example, low inflation and unemployment). Second, given this social welfare function which the policy maker is attempting to maximize, a set of instruments (monetary and fiscal) is chosen which will be used to achieve the targets. Finally, the policy maker must make use of an economic model so that the instruments may be set at their optimal values.

from the first period optimal policy leads to a ‘punishment’ by private agents which expect higher inflation rates. In Barro and Gordon’s own words, ‘a different form of equilibrium may emerge in which the policymaker forgoes short-term gains for the sake of maintaining a long-term reputation’ (Barro and Gordon, 1983b). According to Robert Barro, this model had not only a normative goal – the promotion of binding rule policy – but it brought a positive theory of inflation:

Aside from predicting ‘high’ average inflation and monetary growth, the model indicates the reactions to changes in the benefits from unexpected inflation or in the costs of actual inflation. For example, a rise in the natural rate of unemployment can raise the benefits from lowering unemployment through surprise inflation. It follows that a secular rise in the natural unemployment rate will lead to a secular rise in the mean rates of monetary growth and inflation. (Barro, 1986, p.26)

It was not a mere coincidence if the literature on time inconsistency was born and knew such an ascent at the end of the 1970s. It was interpreted as a good way for explaining a high average inflation regime, as it was the case in the U.S. It is still used today for accounting of the situation of that period (see Romer 2001, chapter 10, or Chappell et al. 2005, chapter 10). Once again the perception of economic policy by private agents is crucial. Do they think that the announcement of the authority is credible? Is its reputation sufficient for private agents to be confident and to expect a lower inflation rate¹⁷? The time inconsistency issue also introduced a more institutional way of thinking in macroeconomics. Macroeconomists have to care about the *institutional design* of public authorities, in order to maximize the outcome of their policies – I will go back to the issue in the next section. In the 1960s and 1970s, fiscal and monetary authorities were supposed to be badly designed: fine-tuning has created an unstable environment that made the public institutions non-credible. The U.S. economy was stuck in a high-inflation equilibrium.

We now have several elements on the New Classical speech on stagflation. Such an analysis enabled them to formulate – more or less explicitly – some

¹⁷ Backus and Driffill (1985) introduced an interesting refinement. They imagine that there exist two types of Central Bank: a conservative one, and a more expansionist one. In order to maximize its social welfare function, the second type could have interest to mimic the actions of the conservative Central Bank to mislead private agents. Its policy would be more credible and it would renege its commitment with more benefits in the future.

political propositions. Propositions which – though some similarities with monetarist ones – represented an original program, as I will show in the next section.

3 A New Classical political program ?

In its book on the New Classical school, Hoover (1988, chapter 9) wondered if the New Classical school could be legitimately labeled ‘monetarism mark II’ as James Tobin (1980b, 1981) claimed it. Despite some obvious theoretical differences, the monetarists and the New Classical economists shared on the whole a similar view on economic policy, either in their common reject of fine-tuning and too active stabilization policy or in the defense of policy rules. In commenting its ‘only policy paper’ called ‘Rules, Discretion, and the Role of the Economic Advisor’ (Lucas, 1980b), Lucas himself acknowledged the political proximity with Milton Friedman: ‘This must have been a disappointment to those in attendance who believed that rational expectations imply an entirely new point of view on policy’ (Lucas, 1981, p.17).

However, that is not to say that there existed no difference between the monetarist and New classical schools. A major difference lied in disinflation policies and the estimated value of the sacrifice ratio¹⁸. If ‘inflation is always and everywhere a monetary phenomenon in the sense that it can be produced only by a more rapid increase in the quantity of money than in output’ (Friedman, 1970), inflation has to be reduced by decreasing the growth rate of the money supply. However, such a reduction would be costly and would increase the level of unemployment. This is what has pushed some monetarists to defend a gradualist policy, that is to say a progressive slowing down of the growth rate of the money supply (Snowdon and Vane, 2005, pp.182-185). The New Classical economists are in some sense more optimistic on the sacrifice ratio issue. Once again the psychological dimension of their analysis plays a central role: if a disinflation policy is credible, inflation expectations can ‘jump’ downwards and the policy will be costless. It is the heart of the argumentation of Sargent (1982) on disinflation policies, as we will see in a first time. However, we will see that influencing the perception of private agents is not regarded as so simple by the New Classical school and that the economic program they defended actually was rather a long-term program.

¹⁸ The sacrifice ratio is a measure of the unemployment or output costs of reducing the inflation rate. Different measures of the sacrifice ratio exist (see, for instance, Ball 1994).

3.1 Assessing the sacrifice ratio

Disorientated in the fog of the stagflation, economists searched for original solution to fight inflation without imposing a cost too high for society. Friedman (1974) defended the use of indexation under certain conditions to make easier the downward adjustment of inflation. Keynesians, through the *Council of Economic Advisers*, advocated income policy to reduce inflation without implementing too restrictive monetary and fiscal policies (Okun 1977). One of the representants of the New Classical school, Preston Miller, rose against the use of income policy in a paper published in the journal of the FED of Minneapolis. He claimed that ‘incomes policies, therefore, are very expansive as both a tax and an inflation fighter, and we should be wary of using them’ (Miller, 1978, p.15). There is no need to search for miracle solution whereas the standard tools remains relevant: ‘the government should rely on normal ways to get resources. And it should use the only proven way to control inflation: sound monetary and fiscal policies’ (*Ibid.*).

For New Classical economists, reducing inflation in the 1970s was not as costly as it seemed. It was the point of Sargent (1982) who rejected the pessimistic assessment of some Keynesian economists. Sargent refused the highest estimations of the sacrifice ratio because they relied on models that did not take into account the strategic interrelations between the ruler and private agents, and the fact that the later could change its behavior in function of the former actions : ‘an implication of this view is that inflation can be stopped much more quickly than advocates of the ‘momentum’ view have indicated and that their estimates of the length of time and the costs of stopping inflation in terms of foregone output [...] are erroneous’ (Sargent, 1982, p.42). The crucial element for a successful disinflation policy is its credibility in the eyes of private agents. But this does not mean that credibility is easy to acquired.

In the collection *Rational Expectations and Inflation*, Sargent carried out analyses of several historical or contemporary disinflation policies. In addition of the hyperinflation cases of Sargent (1982), he studied the disinflation policies of Poincare, Thatcher, or Reagan. A list of the preconditions needed for a successful disinflation policy according to Sargent can thus be established. He claimed that ‘the ‘measure’ that would accomplish this would be a once-and-for-all, *widely understood*, and *widely agreed* upon change in the monetary or fiscal policy regime’ (Sargent, 2013, p.114, I underline). A first fundamental precondition for credibility is thus the understanding of the policy by private agents, what put special emphasis of the ability for the public authority to communicate about its actions¹⁹. The ‘agreement’ condition

¹⁹ The question of credibility has led to the development of a large literature on the com-

makes reference to a more political issue: do the whole government, the political parties, the different economic institutions agree on the implemented policy?

The last point is linked with what Thomas Sargent regarded as a crucial question: ‘monetary and fiscal policies must be coordinated’ (Sargent, 2013, p.xxii). It led Sargent to consider at the time he wrote ‘Reaganomics and Credibility’ (republished in Sargent 2013) that Reagan’s disinflation policy would be a failure. Despite some ‘announcement effects’, the policy of Reagan was ‘incredible’ because ‘it was simply not feasible simultaneously to carry out both the fiscal and the monetary aspects of Reaganomics’ (Sargent, 2013, p.34)²⁰. To insure the credibility of their policy, public authorities have to fix a consistent ‘policy regime’, what implies to exclude ‘isolated actions’ and ‘temporary departures’ (Sargent, 2013, p.39). To ‘eradicate inflation’ in the 1970s, Sargent considered that:

It would require far more than a few temporary restrictive fiscal and monetary actions. It would require a change in the policy regime: There must be an abrupt change in the continuing government policy, or strategy, for setting deficits now and in the future that is sufficiently binding as to be widely believed. (Sargent, 1982, p.42)

What determines the cost of such a disinflation policy? The more ‘resolute and evident the government’s commitment’ (*Ibid.*) would be, the quicker inflation would fall and the less costly the policy would be in terms of output. We see that the criteria for success are not so clear and that it is not easy to determine the potential credibility of a policy. Ironically, it seems in a first time that New Classical economists are more optimistic on the cost of disinflation policy, but in the same time, it depends on so many conditions that there is no guarantee for success in the short-term. Actually, it seems more coherent to see the New Classical propositions as a long-term economic program.

3.2 A long-term economic program?

The New Classical economists displayed a rather pessimistic view on the possibilities of economic policy in the short-term – pessimistic position that

munication about economic policies (Crawford and Sobel, 1982; Stein, 1989; Cukierman and Tommasi, 1998)

²⁰ At the beginning of the 1980s, Ronald Reagan’s government ran fiscal deficits and Sargent considered that ‘rational observers’ would realize that such a policy would not be feasible in the long-term: the Federal Reserve would be forced to create more money to finance these deficits.

relied on their opposition to discretionary policies. In a sense the New Classical economists considered that in wanting to make the things better, the ruler actually run the risk of making the things worst. Coming back to the models developed with Gordon, Barro (1986, p.28) formulated a kind of paradox on economic policy: ‘the pursuit of the first-best tends to push the economy away from the second best of a rule with low inflation, and toward the third best of discretionary policy with high inflation’. In wanting to obtain the best social outcome, governments and Central Banks allow themselves to implement discretionary policies, what leads to an inflationary bias and a ‘third best’ solution in terms of social welfare. Lucas noticed likewise with disappointment the prevalence of short-term discretionary policies in the economists’ toolbox. Yet, it pushed public economists to search for miracle solution that relied on ‘the promise of particular results but without basis in either theory or historical experience’ (Lucas, 1980b, p.204). In fact, the stagflation commanded economists to become aware of their imprisonment in a certain way of thinking economic policy:

Economists who pose this ‘what is to be done, today?’ question as though it were somehow the acid test of economic competence are culture-bound (or institution-bound) to an extent they are probably not aware of. They are accepting as *given* the entirely unproved hypothesis that the fine-tuning exercise called for by the Employment Act is a desirable and feasible one. (Lucas, 1980b, p.208)

According to Lucas, this way of thinking was determined by some economic ‘institutions’ as the Employment Act of 1946 or the Federal Reserve Act of the 1930s, that had encouraged public authorities to favor the fight against unemployment at the expense of the prices stability. The stagflation was the proof that ‘the history of monetary and fiscal institutions, in the United-States and elsewhere, is one of repeated failure, and failure at very high cost’ (Lucas, 1980b, p.202-203). These institutions made citizens think that fine-tuning was feasible and desirable. The Rational Expectations framework allowed to reject this belief and helped to design new aims for economic policy:

An alternative response is to attempt to make clear to our fellow citizens the questions that currently available expertise can hope to answer successfully [...] and to make it as clear as possible that the main task of monetary and fiscal policy is to provide a *stable, predictable environment* for the private sector of the economy. (Lucas, 1980b, p.209-210, I underline)

The setting up of a predictable environment imposes to create some limitations for economic policy²¹. Lucas underlined some progress in this line in the United-States at the end of the 1970s. He cited the California's Proposition 13 that put into the legislation a limitation on property taxes (Lucas, 1980b, p.204). Indeed, Lucas was a clear partisan of the constitutionalization of some economic rules, such as the limitation of the federal budget deficit, promoting the work of Buchanan and Wagner (1977)²². On the monetary policy side, he approved the House Concurrent Resolution 133, that imposed 'the Federal Reserve Board [to] announce monetary growth targets in advance and [to] account for deviations afterward' (Lucas, 1980b, p.208).

The general picture that is emerging gives to economic policy the role of the culprit for the disturbances occurred in the 1970s. If one wanted to cure the U.S. economy, one had to limit the damages caused by discretionary policies. It is as if the oil and other supply shocks have played no role during the period. Similarly, the New Classical political propositions focused on inflation at the expense of the unemployment level. In the next section I will try to understand why these two elements were pushed to the background.

4 Unemployment and oil shocks, the two missing pieces in the story

In the second part of the 1970s, some macroeconomists tried to 'save' the Phillips curve, bringing in the same time an explanation of the stagflation. The contributions of Gordon (1977, 1984) or Phelps (1978) would become the

²¹ Lucas considered by the way that it was in this perspective that citizens would be the more likely to impose their wish:

In policies of either type, it is evidently impossible for large numbers of people to form opinions and exercise influence at anything like the level of detail at which legislators and economic managers and their advisors carry on their discussion. In contrast, it is clearly possible for people to impose limits on these technical discussions, to *bound* levels and rates of change of economic aggregates. Public opinion generally can do little to *guide* the exercise of discretionary economic authority, but it has enormous potential to limit its scope. (Lucas, 1980b, p.204-205)

²² Sargent (2013, p.36-37) also defended this point when he claimed that 'the responsibilities of the monetary and fiscal authorities [have] to be legislatively or constitutionally restricted' in a way that enables to determine 'which institutions are to lead and which are to follow'. For a discussion of the role of 'constitutionalism' as a solution of time-inconsistency problems, see Drazen (2002, pp.134-37).

foundations of what is called the ‘Triangle model’. As the demand elasticity of oil was less than one, the oil shocks led both to an increase in the general price level and to a recession. The general inertia of prices – due to some rigidities in wage and price setting and to the input-output supply chain that generates a certain duration in the transmission of inflation – extended the effects of the initial shocks over time. According to New Classical economists, the high average inflation in the 1970s had no links with the supply shocks which had only produced temporary inflation.

When Snowdon and Vane asked Robert Lucas what he thought about these kinds of models which enabled to save the Phillips Curve and to explain the stagflation by supply shocks, he simply answered that ‘the direct effect of the OPEC shock was minor in [his] opinion’ (Snowdon and Vane, 1998, p.126). The same lack of interest for supply shocks could be found in Barro (1976), at the end of his analysis of the effects of anticipated and unanticipated monetary shocks:

The approach in this paper argues that there is no role for monetary policy in offsetting these real shifts. Adverse shifts like oil and agricultural crises will reduce output and cause painful relative adjustments no matter what the reaction of the monetary authority. Added monetary noise would only complicate and lengthen the process of adjustment. (Barro, 1976, p.26)

The first conclusion was a pessimistic one in terms of stabilization policies: monetary policy could do nothing if a supply shock occurred. Worse, if the monetary authority tries to limit the negative consequences of a shock, it will increase the volatility of the money supply, what is likely to increase the average inflation. The implicit idea was that in searching to fight the oil shocks, the Federal Reserve (and the government) has simply worsened the situation.

Few years after Gordon (1977) had introduced supply shocks in an expectational Phillips Curve and Lawrence Klein (1978) had defended – as the annual president of the *American Economic Association* – the necessity for a better understanding of the ‘supply side’ part of the economic system, Lucas seemed to regard these developments as a reactionary behavior in front of the current events. The Keynesians preferred to consider that the forecast errors of their models in the 1970s was the result of ‘a neglect in controlling for some other factors which, when properly taken into account, reveal the original basic structure to be sound’ whereas it was in fact ‘a symptom of much deeper problems’ (Lucas, 1980b, p.203)²³. The extension of the Phillips

²³ Lucas expressed also its doubts on the empirical validity of considering inflation in the

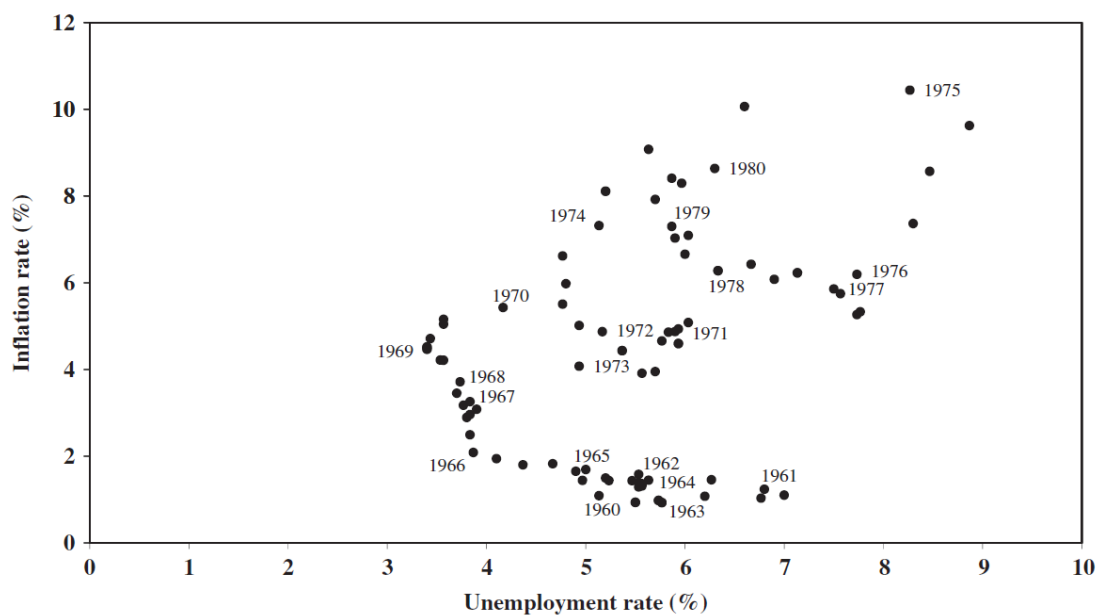


Figure 6: Scatter plot of the unemployment and inflation rates, quarterly data, 1960-1980 (Gordon, 2011)

Curve to integrate supply shocks was just an artifact to hide the fact that the Keynesian models went wrong and had encouraged discretionary policies which were the major determinant of the 1970s inflation.

According to the New Classical economists, supply shocks represented just a secondary cause of the inflation of the 1970s. If one want to understand the stagflation, one must take a look on the consequences of discretionary economic policies. However, we can notice that the New Classical story was pretty clear to explain how these policies, *via* the changes in private agents expectations, led to higher inflation, but that the links with the rise in the unemployment level were not so explicit.

The Figure 6 displays a clear negative relationship between inflation and the rate of unemployment in the 1960s. The correlation seems to become

1970s as mostly the result of supply shocks:

The idea that virtually all of this period was characterized by ‘excess supply’ and hence that virtually all of the inflation must be attributable to ‘supply shocks’ does not seem to be worth taking seriously and I have yet to see a quantitative case for this position made. (This is, of course, not to say that there have not been serious supply shocks over the decade)’ Lucas (1980a, p.705-706).

rather positive in the 1970s. It is clear that the average unemployment level rose, meaning in principle that the natural rate of unemployment should have risen. How could we explain the rise of unemployment in a New Classical framework? If we follow the work of Lucas (see the second section), it has to be the consequence of an intertemporal substitution: in front of the change of their real wage, workers prefer to work less today. However, in this perspective, the unemployment rate should decrease in the next periods. Yet, it was not the case in the 1970s, what implies that a deeper mechanism was at stake: it was not the trade-off of intertemporal leisure which has changed consequently to a change in real wages, but the workers' preferences themselves that have evolved. But Lucas did not bring out any explanation for this change in preferences.

There exists another tricky problem in Lucas's reasoning. If after a decrease of real wages the workers consider that their wage is not sufficient and prefer to wait for better offers, that means that the rise in unemployment is the consequence of resignations – workers have chosen to quit their job. However, during recession unemployment is the result of an increase in layoffs. That's one of the principal flaw in the New Classical explanation of unemployment as Blinder (1987, p.131) or Gordon (1976, p.196) have pointed out.

Actually, this weakness in New Classical Macroeconomics was the result of a more general trend impulse by the Natural Rate Hypothesis; a trend that was well summed up by Lucas himself:

The effect it does have on normative discussion is twofold. First, it focuses discussion of monetary and fiscal policy on stabilization, on the pursuit of price stability and on minimizing the disruptive effects of erratic policy changes. Some average unemployment rate would, of course, emerge from such a policy but as a by-product, not as a preselected target. Second, by thinking of this natural rate as an equilibrium emerging from voluntary exchange in the usual sense, one can subject it to the scrutiny of modern methods of public finance. (Lucas, 1978, p.356)

The first subject is the realm of macroeconomists, whereas the second is the one of labor economics, welfare economic and public finance. It deals with the explanation of the natural rate of unemployment (or the long-term rate) which depends, for instance, on the regulations of the labor market or the level of insurance for unemployed. It could be interesting to assess with scrutiny how the New Classical framework has helped to redesign the partition of tasks for policymakers, but for Gordon (1976) the consequences were rather clear:

The Council of Economic Advisers was now to be divided into two independent branches, one group of labor economists which would tally up the costs and benefits of manpower programs designed to shift the natural unemployment rate, on which monetary and fiscal policies by themselves had no effect, and a second group of monetary economists which determined the optimum rate of inflation as a function of the growth rate of real output and the interest rate paid on money, and the marginal cost of levying conventional taxes. (Gordon, 1976, p.191-92)

In a certain sense the unemployment issue was pushed away of the macroeconomics field. By an ironical reversal comparing to the birth of macroeconomics, explaining why the level of unemployment change in average in the 1970s was not the prerogative of the macroeconomist anymore. Consequently, the incapacity of New Classical macroeconomics to explain convincingly one of the standard features of the stagflation – that is to say the durable rise of unemployment – could not be considered as a true flaw. It became the task of the ‘new economics of labor’ (Phelps, 1968; Mortensen, 1970a,b, 1976).

Conclusion

The study of the New Classical works above enables to outline a general chain of argumentation for accounting of the 1970s economic events. The first impulse is a political one: the 1960s and the 1970s were characterized by expansive discretionary policies to maintain the unemployment rate at a low level. Such policies were based upon the economic belief in a permanent trade-off (the menu of policy of Samuelson and Solow 1960) between inflation and unemployment. Policymakers considered that one could maintain a low rate of unemployment in exchange of a few more points in the inflation rate, but keeping this inflation sufficiently low to avoid strong disturbances. The fundamental trigger element was monetary policy. The federal deficits played a role in encouraging the Fed to finance these deficits (or in letting the agents supposed that the Fed would do it at some point).

Discretionary policies increased the volatility of the money supply, producing an inflationary bias. Inflation was higher in average because agents expected that the Fed would use its discretionary powers and that the inflation rate would rise. Such a policy regime strengthened people in their belief that inflation would remain high and that is this perception which maintain it elevated. The supply shocks alone could not have such a durable effect on inflation.

If one wanted to diminish the average inflation, the only solution was to change the policy regime. Public authorities had build a consistent overall policy which would be credible for private agents. It implied a high coordination between fiscal and monetary policies, and the respect of some economic rules for a time in order to establish the ruler's reputation. This reputation would render the disinflation policy more credible and so more efficient.

Such a summary of the potential mechanisms at stake during the stagflation phenomenon represents without any doubt an extrapolation of the New Classical models, because the New Classical claims were never as explicit on the 1970s event. But I think that it is in a certain way a faithful reconstruction of their ideas. We see easily that expectations and perception of economic policy play a leading role in economic mechanisms for the New Classical economists.

The central place occupied by these psychological ideas in macroeconomics demonstrate a sort of dematerialization in the discipline. Oil shocks and energy in general stay outside of the analytical framework of macroeconomics. The role of energy in the process of production, the question of exhaustion and flow constraints do not represent a subject for modern standard macroeconomics²⁴. Paradoxically, the 1970s energy crisis did not reinforce the place of energy in macroeconomics.

The place of expectations in the New Classical school and in modern macroeconomics raises a second paradox. The Rational Expectations hypothesis constitutes an indirect way for treating expectations. The assumption is defended as an 'as if' hypothesis and macroeconomists do not search how do agents form their expectations in the 'real world'²⁵. New Classical explanations appeal largely to psychological phenomena, but without entering into the psychological details of agents' behavior. Such explanations can thus look like a black box, what leaves the door opened for further refinements (see, for example Sims (2009) on the Rational Inattention which represents an alternative way for modeling forward-looking expectations).

²⁴ It is not fair to claim that oil prices are always an 'exogenous' factor in macroeconomics. Barsky and Kilian (2002) or Kilian (2009) endogenized the price of oil in a 'monetary-expectational framework' in accordance with New Classical insights. They claimed that the oil shocks were partially a consequence of the monetary policy in the 1960s and 1970s

²⁵ The section III of Goutsmedt et al. (2015) deals with this issue.

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