Phillips Curve for Advanced Economies on Period 1996-2007 - United States and Euro Area Case

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ABSTRACT

This paper explains and shows us the Phillips Curve for advanced economies on period 1996-2007 for specially for the United States and Euro area case. The informations for 2006 and 2007 was considered being in attention the forecasting of International Monetary Fund (IMF) for these years.

We concluded that the true form of Phillips curve for short and long-run will not be verified always that exist equal evolution of their variables or for others words, always that inflation and unemployment rates growing to same direction, in both regions or in any region, the Phillips curve never will have their normal form and this just happen when inflation and unemployment rates growing for different directions (in the short-run) and when inflation rate is growing and unemployment doesn't (in the long-run).

Keywords: Phillips curve, Inflation, Unemployment

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INTRODUCTION

This paper explains and shows us the Phillips Curve for advanced economies on period 1996-2007 for especially for the United States and Euro area case. The informations for 2006 and 2007 was considered being in attention the forecasting from International Monetary Fund (IMF) for these years (see annex).

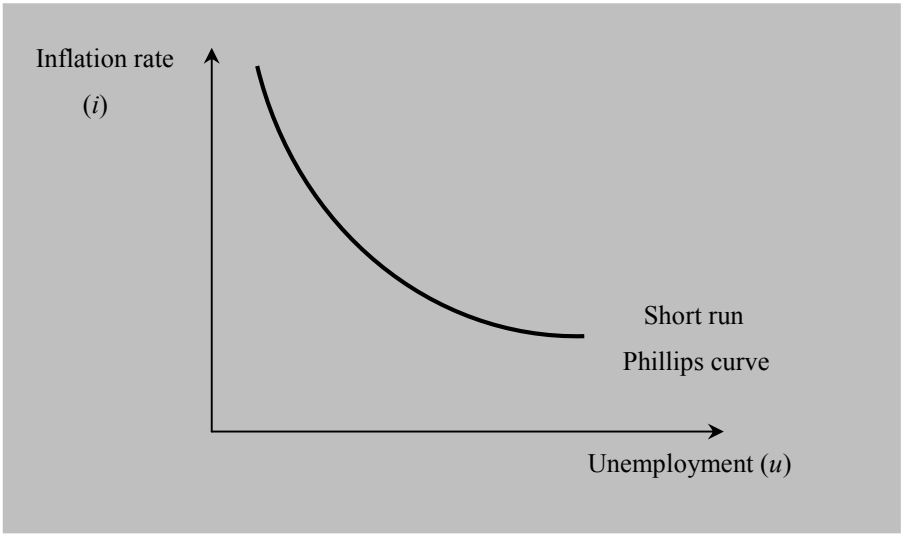
1. THE PHILLIPS CURVE

The Phillips curve was discovered by New Zealander A. W. Phillips of the London School of Economics. In the late 1950s Phillips plotted the annual rate of growth of nominal wages, or wage inflation, in Britain during the period 1861-1957 against the rate of unemployment and found a remarkably robust negative correlation, that was confirmed for a number of other countries.

The **Phillips curve** explain a negative *trade-off* between inflation and unemployment (Burda and Wyplosz, 2001, and Blanchard, 1997).

According to Baumol and Blinder (1994), Phillips curve s a graph depicting the rate of unemployment on the horizontal axis and either the rate of inflation or the rate of change of money wages on the vertical axis. According to these authors, Phillips curve are normally downward sloping, indicating that higher inflation rates are associated with lower unemployment rates.

FIGURE 1.1 – Inflation vs Unemployment



Can the Phillips curve be though of as a "menu of inflation-unemployment combinations from which policymakers can choose?

According to the expectations-augmented Phillips curve, as we saw above, unemployment will fall below the natural only when inflation is unanticipated (Abel and Bernanke, 1995). So the question becomes: Can macroeconomic policy be used systematically to create unanticipated inflation?

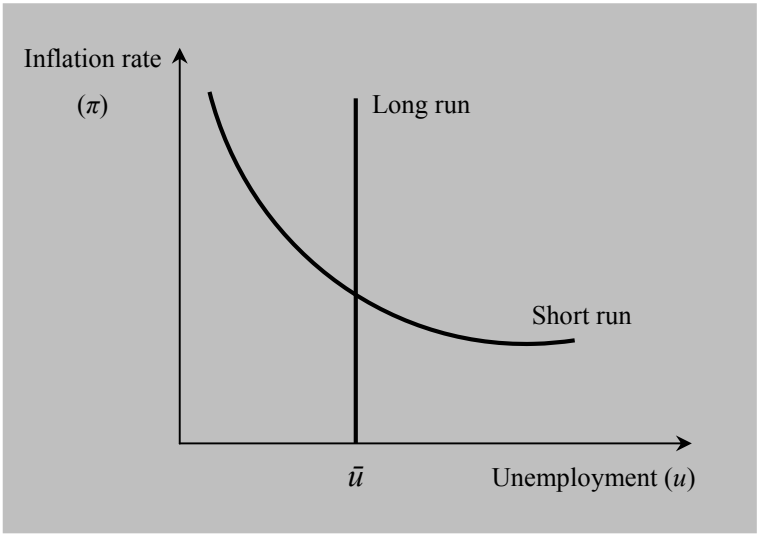
Classical and Keynesian economists disagree on the answer to this question. According to Classicals, wages and prices adjust quickly in response to new economic information, including information about changes in government policies. Furthermore, classicals believe that people have rational expectations, meaning that they make intelligent forecast of future policy changes, because prices and price-level expectations respond quickly to new information, the government can't keep actual inflation above expected inflation – as would be needed to drive unemployment below the natural rate – except perhaps for a very short time. Classicals consider that policies (such as more rapid monetary expansion) that increase the growth rate of aggregate demand act primarily to raise actual and expected inflation and so do not lead to a sustained reduction in unemployment. Because any systematic attempt to affect the unemployment rate will be thwarted by the rapid adjustment of inflation expectations, classicals conclude that the Phillips curve does not represent a usable *trade-off* for policymakers (Abel and Bernanke, 1995).

In contrast, Keynesians contend that policymakers do have some ability in the short-run, at least, to create unanticipated inflation and thus to bring unemployment below the natural rate. Although many Keynesians accept the notion that people have rational expectations, they argue that the expected rate of inflation that should be included in the expectations-augmented Phillips curve is the forecast of inflation made at the time that the oldest sticky prices in the economy where set, because of price stickiness, when policymakers cause aggregate demand to rise above the expected level, time is needed for prices to fully reflect this new information. In the meantime some prices reflect older information and the rate of inflation is higher than the expected inflation rate based on this older information, and in response to increased inflation, therefore, unemployment may remain below the natural rate for a while.

Although Classicals and Keynesians disagree about whether the Phillips curve relationship can be exploited to reduce unemployment temporarily, both agree that policymakers can't keep the unemployment rate permanently below the natural rate by maintaining a high rate of inflation. Expectations about inflations eventually will adjust so that the expected and actual inflation rates are equal, or $i^e = i$. The expectations-augmented Phillips curve implies that when $i^e = i$, the actual unemployment rate u equals the natural rate in the long-run regardless of the inflations rate maintained.

The long-run relantioship of unemployment and inflation is shown by the **long-run Phillips curve,** and in the long-run, by fact of unemployment to be equal the natural rate regardless of the inflation rate, the long-run Phillips curve is a vertical line at $u = \bar{u}$, as show in figure 1.2.

FIGURE 1.2 – Phillips Curve in the long-run



The vertical long-run Phillips curve is related to the long-run neutrality of money, and Classicals and Keynesians agree that changes in the money supply will have no long-run effects on real variables, including unemployment. The vertical long-run Phillips curve carries the notion of monetary neutrality one step further by indicating that changes in the growth rate of money, which lead to changes in the inflation rate, also have no real effects in the long-run.

1.1. PHILLIPS CURVE FOR ADVANCED ECONOMIES

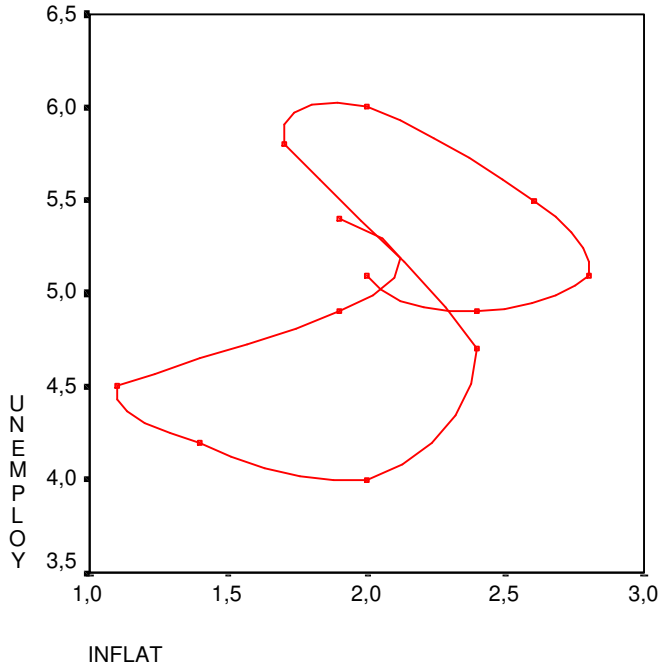
The graphics 1.1 and 1.2 show us the Phillips curve for advanced economies (USA and Euro area), edited according to IMF (2004 and 2006) sources.

According to IMF (2004 and 2006), it exist differences between both regions at level of evolution of inflation vs unemployment, and the Phillips curve in both regions doesn't have their traditional form that we have seem in the figures 1.1 and 1.2.

According to graphic 1.1, the trade-off between inflation and unemployment rates that, as we saw, it is only verified in the short-run, it is just verified in some years (1996, 1997, 2002 and 2003), those that increases of both rates is verified.

And the scenario in the long-run also it isn't verified, because in any year isn't verified equal values for inflation and unemployment rates for United States.

GRAPHIC 1.1 – Evolution of Inflation vs Unemployment in the USA on period 1996-2007

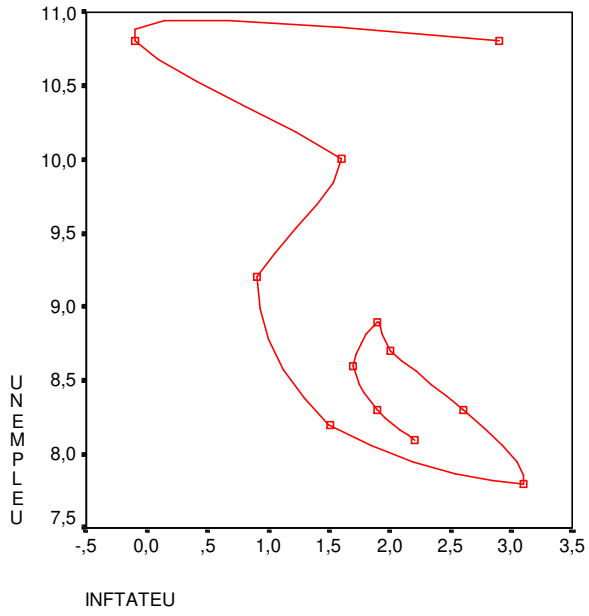


Source: IMF, 2004 and 2006 (Edited by author)

According to IMF, in 2007 will have an increase unemployment and diminution of inflation. So, we can say that in 2007 the trade-off between inflation rate and unemployment will be verified.

According to graphic 1.2, the trade-off between inflation and unemployment rates is verified sometimes as well as happen to USA, because in some years the inflation and unemployment rates diminished and we have as example 2005, by fact this year has registed an increase of inflation and unemployment relatively to 2004, and in this year the inflation rate was 1,9% and unemployment rate was 8,9%. Already in 2005 both rates changed, and the inflation rate was in this year of 1,7% and unemployment rate was 8,6%.

GRAPHIC 1.2 – Evolution of Inflation vs Unemployment in Euro area on period 1996-2007



UnemplEU – Unemployment rate for Euro area

InflatEU – Inflation rate for Euro area

Source: IMF, 2004 and 2006 (Edited by author)

And the scenario in the long-run also it isn't verified, because in any year isn't verified equal values for inflation and unemployment rates for Euro area as happened to Phillips curve for United States.

In 2007, as well as will happen with Phillips curve edited for USA and based in the forecasting of IMF (2004 and 2006), by fact in this year will register an increase of inflation rate and diminution of unemployment rate, and we can say too that the trade-off between inflation and unemployment rates will be verified.

If we see the graphic 1.3 and 1.4 (see annex) of both regions we can see that unemployment rate is more highest in Euro area than in the USA, and this difference can be seem in the graphic 1.4 of annex.

At level of inflation, the difference between two regions isn't regular by fact inflation rates have been in some years most highest in Euro area than in the USA, and it will happen in 2006 and next year, according to forecasting of IMF (2006) for these years. Whereas in for example, 2000, 2004 and 2005, Euro area had registed inflation rates more lowest than USA.

So, we can say that the difference at level of Phillips curve between Euro area and USA results of the difference between both regions at level of inflation and unemployment rates.

CONCLUSION

We saw the brief approach about Phillips curve and their form for advanced economies on period 1996-2007, specially for Euro area and United States case.

We concluded that the true form of Phillips curve for short and long-run will not be verified always that exist equal evolution of their variables or for others words, always that inflation and unemployment rates growing to same direction, in both regions or in any region, the Phillips curve never will have their normal form, because as we saw in chapter 1, this just happen when inflation and unemployment rates growing for different directions (in the short-run) and when inflation rate is growing and unemployment doesn't (in the long-run).

BIBLIOGRAPHICAL REFERENCES

1) ABEL, Andrew B. and BERNANKE, Ben S. (1994), *Macroeconomics*, Second Edition, Addison-Wesley Publishing Company, United States

2) INTERNATIONAL MONETARY FUND (2006), *World Economic Outlook*, "Globalization and Inflation", World Economic and Financial Surveys, April, Washington, USA

3) INTERNATIONAL MONETARY FUND (2004), *World Economic Outlook*, "The Global Demographic Transition", World Economic and Financial Surveys, September, Washington, USA

4) BLANCHARD, Olivier (1997), *Macroeconomics*, International Edition, Prentice-Hall International, New Jersey

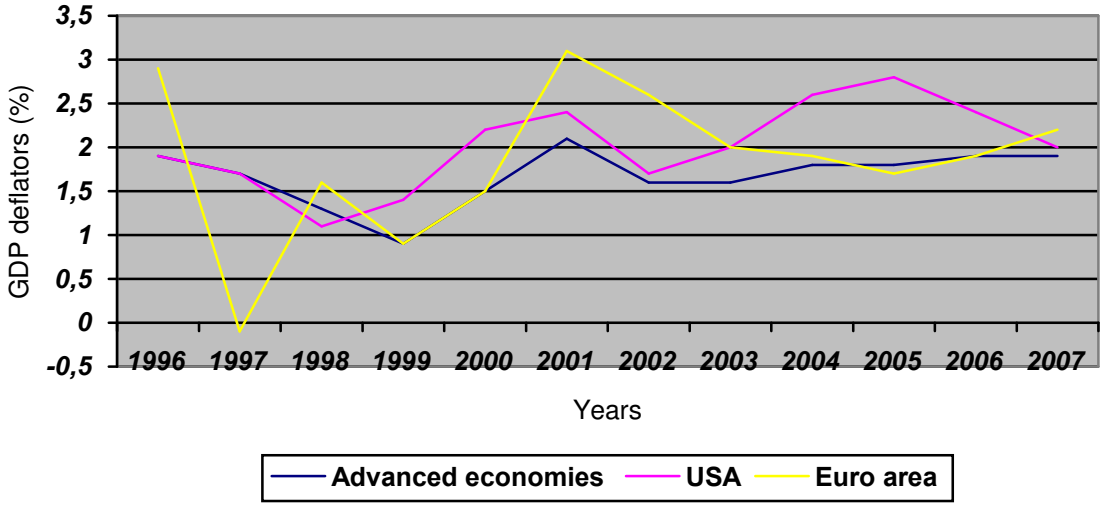
5) BURDA, Michael and WYPLOSZ, Charles (2001), *Macroeconomics – A European Text*, Third Edition, Oxford University Press, Oxford

6) BAUMOL, William J. and BLINDER, Alan S. (1994), *Macroeconomics – Principles and Policy*, Sixth Edition, The Dryden Press, Harcourt Brace College Publishers, USA

7) BRANSON, William H. (1989), *Macroeconomics – Theory and Policy*, Harper & Row Publishers, New York

ANNEXES

GRAPHIC 1.3 – Evolution of Inflation in advanced economies on period 1996-2007



Source: IMF, 2004 and 2006

GRAPHIC 1.4 - Evolution of Unemployment in the USA on period 1996-2007

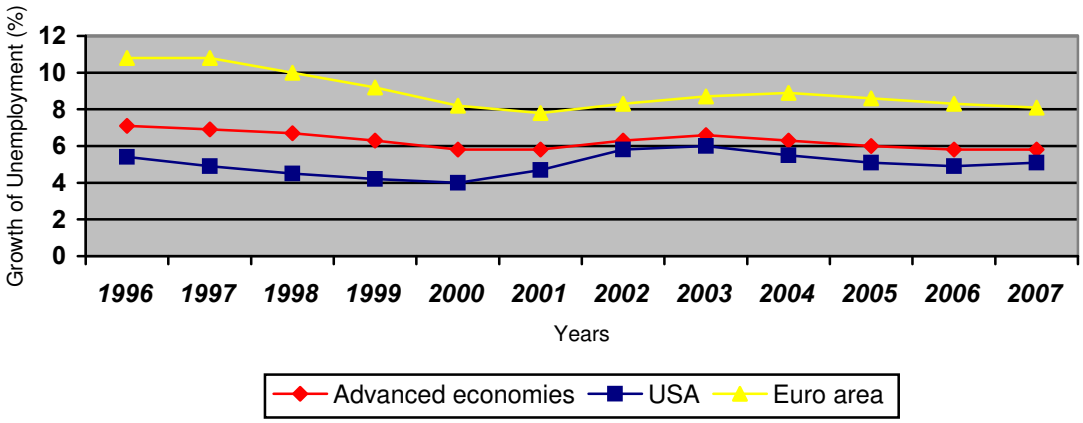


TABLE 1.1 – Advanced Economies: Unemployment and Inflation

(Percent)

	Ten-Year Averages													
	1988-97	**1998-2007**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006***	**2007***
Unemployment rate														
Advanced economies	**6,8**	**6,1**	**7,1**	**6,9**	**6,7**	**6,3**	**5,8**	**5,8**	**6,3**	**6,6**	**6,3**	**6,0**	**5,8**	**5,8**
United States	6,0	5,0	5,4	4,9	4,5	4,2	4,0	4,7	5,8	6,0	5,5	5,1	4,9	5,1
Euro area	...	8,6	10,8	10,8	10,0	9,2	8,2	7,8	8,3	8,7	8,9	8,6	8,3	8,1
GDP Deflators														
Advanced economies	3,1	1,6	1,9	1,7	1,3	0,9	1,5	2,1	1,6	1,6	1,8	1,8	1,9	1,9
United States	2,7	2,1	1,9	1,7	1,1	1,4	2,2	2,4	1,7	2,0	2,6	2,8	2,4	2,0
Euro area	...	1,9	2,9	-0,1	1,6	0,9	1,5	3,1	2,6	2,0	1,9	1,7	1,9	2,2

Sources: IMF, 2004 and 2006

*Estimate