'A rising rate of inflation may reduce unemployment, a high rate will not.' (Friedman, 1968)

Discuss this statement, and the implications of this statement for the conduct of monetary policy

Introduction

Friedman's statement was made in March 1968 following a decade of reviving interest in monetary policy. Phillip's discovery of a relationship between wage inflation and unemployment intensified the focus on full employment as the primary aim of monetary policy throughout the West (the focus began due to the high level of unemployment between the wars).

Friedman's statement summed up his entire address. He denied the existence of a long-run inflation-unemployment trade-off, and implied that monetary policy could not alter real economic variables in the long-run. Accepting this removed the use of this trade-off as a stabilization policy (where Government policies aim to stabilise output and inflation). But it presented problems of time inconsistency and policy credibility, provoking debate about how much discretion monetary policy makers should be able to exercise.

The Phillips Curve

In 1958 Phillips charted a negative relationship between wage inflation and unemployment based on 95 years of UK data. "The rate of change of money wage rates can be explained by the level of unemployment and the rate of change of unemployment, except in or immediately after those years in which there is a sufficiently rapid rise in import prices."[1] Similar correlations were found in other developed countries too, so Phillips plotted what is now known as the Phillips Curve:

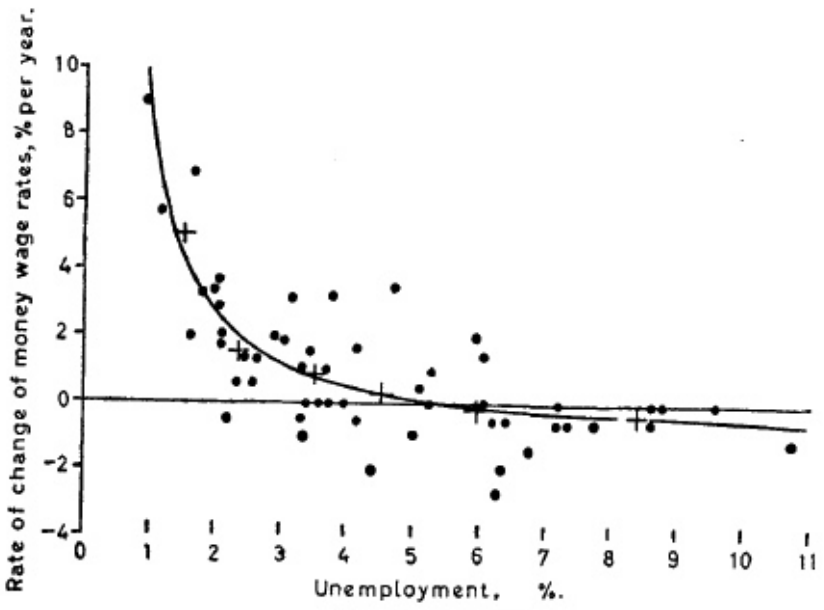

Fig.1. 1861 – 1913

[1] Phillips, A.W; *The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957; Economica, New Series, Vol. 25, No. 100 (Nov., 1958)*; Blackwell Publishing; Pg 299

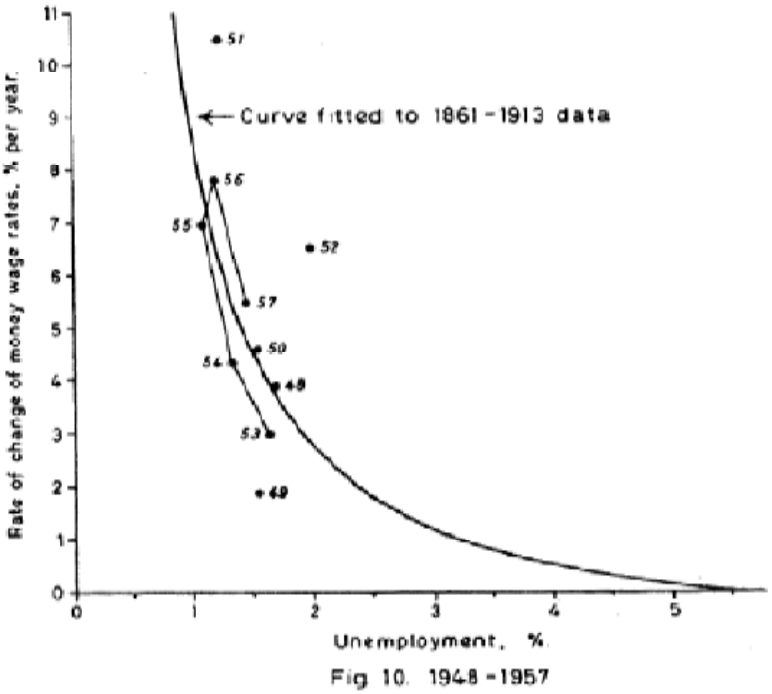

Fig 10. 1948-1957

[2]

Both sets of data, from 1861-1913 and 1948-1957 show that 5.5% unemployment meant zero inflation in UK money wage rates. As the relation had not seriously changed in 100 years Phillips was able to conclude the relation was stable i.e. that as unemployment grew wage inflation declined, and vice versa.

The curves exist because wages rose faster when unemployment was lower and slower when unemployment was higher in Phillip's data. If demand for labour is high then it is harder to replace employees, and hence their ability to negotiate wages increases; but when unemployment is high employees' ability to negotiate declines.

Samuelson and Solow popularized the curve in 1960. They recommended that policy makers treat the relation between general price level inflation (not just wage rates) and unemployment as a trade-off[3]. Replacing wage rates with inflation seemed justified because wage costs reflected a huge proportion of overall company costs, and when firms' costs increase businesses tend to increase prices, hence inflation. They even advertised the modified model as presenting a "menu of choice between different degrees of unemployment and price stability."[4] The idea that high inflation could lower unemployment and vice versa proved popular. US monetary policy makers throughout the late fifties and early sixties used this trade-off as a tool of stabilization policy. Friedman however, thought that such policies could only result in increased inflation in the long term.

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[2] Phillips Curves; Available on internet at: http://www.alisterair.com/2009/11/06/the-phillips-curve-and-inflation-expectations/; Last Accessed January 11th 2010

[3] Samuelson, P & Solow, R; *The Problem of Achieving and Maintaining a Stable Price Level: Analytical Aspects of Anti-Inflation Policy*; American Economic Review; May 1960; Pg 177-194

[4] Samuelson, Paul A & Solow, Robert M; *Analytical Aspects of Anti-Inflation Policy; The American Economic Review, Vol. 50, No. 2; Papers and Proceedings of the Seventy-second Annual Meeting of the American Economic* Association; May 1960; Pg 192

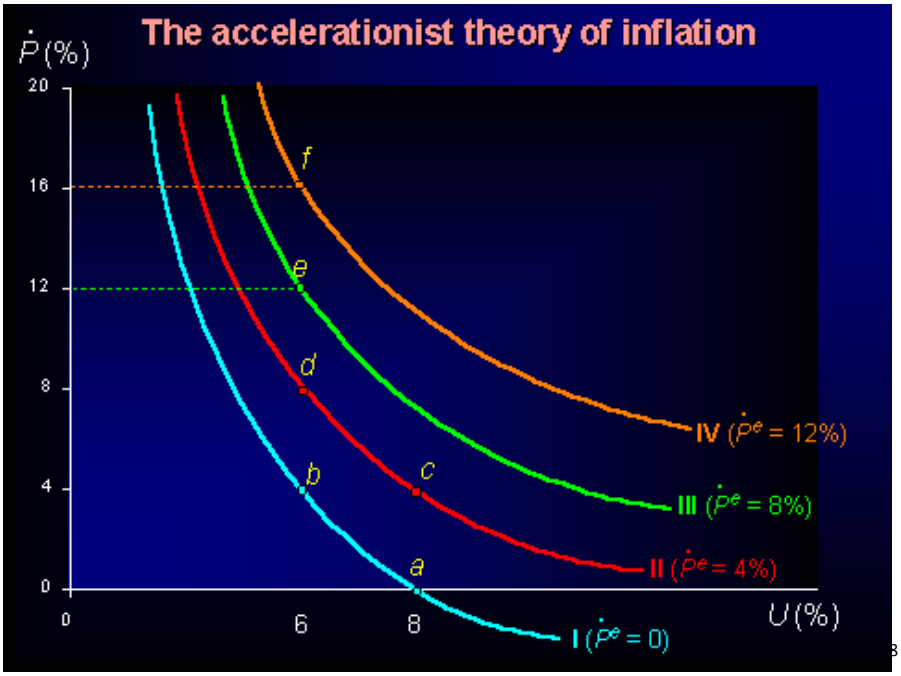
Friedman's Theory

Friedman presented flaws within the logic behind Keynesian stabilisation policies, such as the exclusion of inflationary expectations from the initial Phillips Curve. The curve effectively assumes one unchanging expected rate of inflation. Friedman argued that the Phillips Curve trade-off gave too great a role to monetary policy. "I fear that [...] we are in danger of assigning to monetary policy a larger role than it can perform."[5] Based on Okun's Law (that increasing unemployment decreases GDP) and the trade-off, monetary policy makers thought they had a huge economic role.

Friedman accepted that there could be a short-run curve due to a mismatch between inflationary expectations and actual levels. "The temporary trade-off comes not from inflation per se, but from unanticipated inflation, which generally means, from a rising rate of inflation."[6] Friedman said the main cause of short term variations in the unemployment rate was inflationary expectations differing from actual rates. The trade-off could exist while inflation was rising, but only until inflationary expectations were adapted to the new economic circumstances.

This implies that monetary policy can't hold the unemployment rate without increasing inflation. The argument wasn't that monetary policy wasn't important, but rather that it shouldn't be used to control a perceived trade-off between inflation and unemployment, that did not exist in the long term[7].

The model below shows how new inflationary expectations cause the Phillips Curve to shift. It has become known as the expectations-augmented Phillips Curve.



[8]

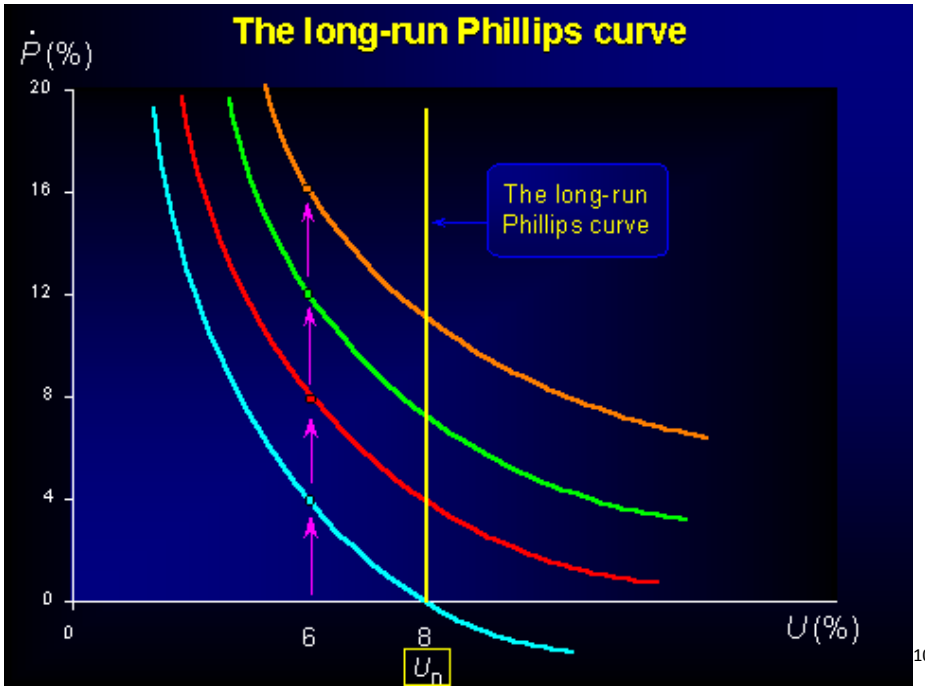
[5] Friedman, Milton; *The Role of Monetary Policy The American Economic Review, vol 58, No. 1, March 1968*; Cambridge, Mass: American Economic Association, Pg 5
[6] Friedman, Milton; *The Role of Monetary Policy The American Economic Review, vol 58, No. 1, March 1968*; Cambridge, Mass: American Economic Association, Pg 11
[7] Friedman, Milton; *The Role of Monetary Policy; American Economic Review*; *vol 58, No. 1, March 1968*; Cambridge, Mass: American Economic Association; Pg 1-17
[8] Real Output and the NAIRU (Phillips Curve); http://www.revisionguru.co.uk/economics/phillips.htm; Last Accessed January 11th 2010

From point A if the Government has a target rate of unemployment lower than the natural 8% it's at then they could increase monetary supply and provide fiscal stimulus to expand aggregate demand. The increased demand would create rising prices. Friedman said that employees' expectations of the future adapt to past experience. Hence employees would not expect this sudden increase in prices and not demand higher wages (wages are therefore termed 'sticky'). Business profits would increase temporarily with higher revenues but level wages. Firms could then employ more people and unemployment would fall as inflation climbed to point B. However wages would catch up as realisations of employees' lower real wages and the improved negotiating power of employees when unemployment is low, took hold. When wages and prices equal each other once more, profits would decline and unemployment rise, leaving only the increased wages and prices i.e. inflation but no long term change in unemployment. From point C the process can repeat, except that as inflation increases inflationary expectations would continually adapt to predict higher future inflation. Hence pursuit of the inflation-unemployment 'trade-off' results in the curve shifting upwards. Inflation occurs but real values continue to return to their original rate. The graph is labelled the 'accelerationist theory of inflation' because the government continually has to accelerate price increases to keep unemployment below the equilibrium of 8%. This equilibrium in the labour markets was termed the 'natural rate of unemployment' by Friedman. It's now often called the 'non-accelerating inflation rate of unemployment' (NAIRU) for obvious reasons. At the NAIRU the rate of inflation will not change.

Johnson's (LBJ's) term of office supported these ideas. LBJ tried to keep 3% inflation and 4% unemployment. Yet because people were used to lower rates of inflation, expectations rose. As expectations increased, employees started demanding wage increases to take account of inflation, which in turn increased firms' prices. So by the end of 1968 there was 6% inflation and 4% unemployment. "Since Milton Friedman's renowned presidential address to the American Economic Association in 1968, expected inflation has played a central role in the analysis of monetary policy and the business cycle."[9] As this quote indicates these ideas have since played a dominant role in monetary policy making, largely due to the existence of supporting empirical data.

The following graph shows the long-run Phillips Curve if the trade-off was used as a stabilization policy.

[9] Mankiw, N. Gregory & Reis, Ricardo & Wolfers, Justin; *Disagreement about Inflation Expectations*; Research Paper 1807, Stanford, CA: Stanford Graduate School of Business; 2003; Pg 2

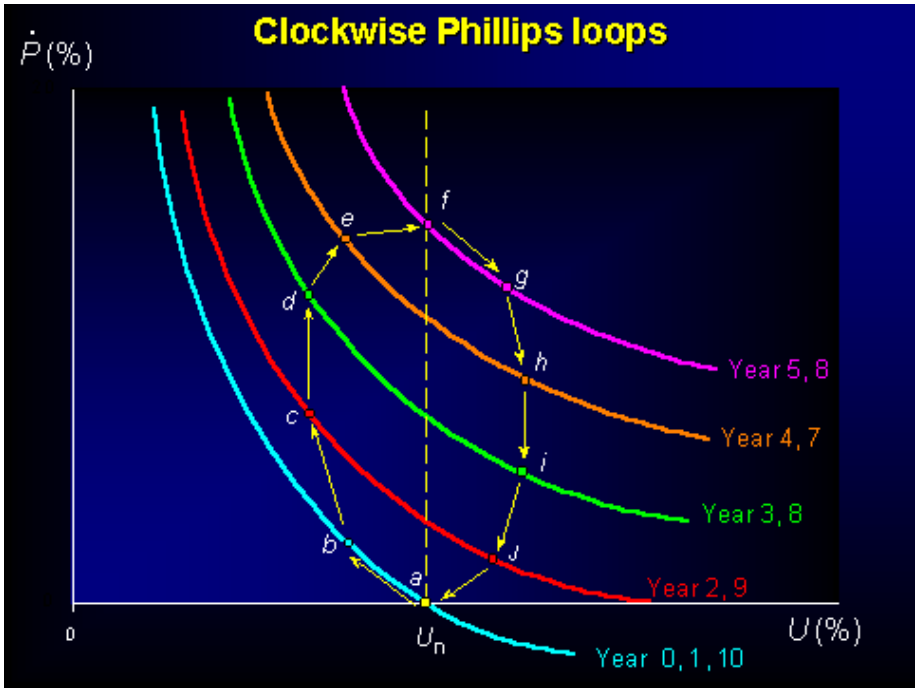


[10]

The yellow line marks the NAIRU, which some people describe as full employment. As the above graphs demonstrate, its existence implies that the long-run Phillips Curve is vertical at this rate. The NAIRU can change however. For example between 1993 and 2007 the UK experienced economic expansion and falling unemployment despite no increased inflation. Unemployment was at 10% in 1993. So it could be said to have been pushed above NAIRU. Yet there is general agreement that the natural rate can be lowered by supply side policies – reducing the power of trade unions, improving training, et al, and it seems likely that economic growth had a role here in changing NAIRU. However, what Keynesians in the 50s and 60s were doing was different; manipulating demand through the money supply.

In order to reverse this inflation, policy makers would decrease the money supply to increase unemployment and create deflationary price and wage pressures. This would lower inflationary expectations and create a 'Phillips Cycle/loop'.

[10] Margetts, Steve; Real Output and the NAIRU (Phillips Curve); http://www.revisionguru.co.uk/economics/phillips.htm; Last Accessed January 11th 2010



Statistics gathered since 1957 support these implications of Friedman's statement. A number of loops have appeared since 1971. Between 1957 and 1997 UK data showed that rising expectations caused increasing inflation and an upwards shift in the Phillips Curve, whereas a decrease in expectations caused a downwards shift. The only way to establish an equilibrium at which there is no rapid deflation or inflation is to maintain the NAIRU, and the only way for unemployment to leave this level is if the current rate of inflation differs from the expected rate. "The negative relationship between inflation and unemployment is only a short-run phenomenon – it is only while wages are sticky relative to prices that this trade-off between inflation and unemployment exists."[11] Nominal wages are likely to stick at certain levels based on inflationary expectations, meaning a decline in real wages. But as expectations adapt and people learn from their mistakes employment will return to the NAIRU.

Opposition to Friedman

The theory has faced opposition. Paul Krugman argued that Friedman's arguments were the antithesis of Keynes', and that modern economics needs to find a synthesis[12]. Cassidy has labelled some of Friedman's theories "utopian economics"[13] due to their assumptions about peoples' actions. The sticky-information model of Mankiw and Reis[14] proved this to an extent in explaining how inflationary expectations differ from actual levels. The role assigned by Friedman to adaptive expectations implies that new information could vastly change these expectations. Yet he implies that society adapts their expectations in the same way. Mankiw, Reis and Wolfers showed that sticky

[11] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 417
[12] Krugman, Paul; *Who was Milton Friedman?*; Available on the internet at: http://www.nybooks.com/articles/19857; Last accessed January 11th 2010
[13] Cassidy, John; *How Markets Fail: The Logic of Economic Calamities*; Farrar, Straus & Giroux; New York; 2009; Pg 8
[14] Mankiw N Gregory, Reis Ricardo & Wolfers Justin; *Disagreements about Inflation Expectations*; June 2003 Research Paper 1807 Stanford CA; Stanford Graduate School of Business; Pg 31

information[15] creates disagreements about inflationary expectations. And they even found a positive association between inflation and the extent of disagreement. The Lucas Critique took it one step further by saying that policy expectations would change as a result of policy change. This would mean incredible difficulties in predicting policy outcomes, because we would not be able to guess at expectations. However Friedman's model has proved durable thus far as most empirical data supports his logic. It seems that on average Friedman was right, even if he neglected to account for differing expectations on either side of the spectrum.

Some people have criticized Friedman's attention to stabilization policies. Friedman's logic in disputing the use of demand management as a stabilization policy is strong. However "stabilization policy is designed to stabilize output and unemployment around some long-run trend rather than have to try to drive the level of output (or unemployment) permanently above (or below) that long-run trend."[16] Yet Friedman's argument does not imply that stabilization policy must fail. It simply implies that policy makers should not manipulate demand to drive output or unemployment permanently below the natural trend. In fact the NAIRU shifts over time anyway (despite the fact that it's very difficult to measure and predict), as does output. And supply side shocks can shift the NAIRU. Hence supply side policies could shift the whole of the long-run Phillips Curve inwards and lower the NAIRU.

The impact of Friedman's statement was triggered by real events, not just his ideas. "It was that experience [the stagflation of the 1970s] which more than anything else led to a basic change in public and intellectual attitudes toward money."[17] Attempts to exploit the Phillips Curve trade-off continued after 1968 (e.g. in Nixon's wage and price controls) and "contributed significantly to the Great Inflation of the 1970s."[18] The 1970s saw the combination of high inflation and high unemployment, termed 'stagflation'. It provided empirical evidence for Friedman's argument, while discrediting the original Phillips Curve.

Accepting the importance of adaptive expectations has implied increased importance for policy credibility. If governments try to lower inflation without credibility then inflationary expectations will remain high. Whereas if expectations can be lowered then the 'sacrifice ratio' (the level of increased unemployment needed to lower inflation in the short term) will be lowered.

The following graph shows how the sacrifice ratio changes according to levels of policy credibility.

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[15] Mankiw, N. Gregory & Reis, Ricardo & Wolfers, Justin; *Disagreement about Inflation Expectations*; Research Paper 1807, Stanford, CA: Stanford Graduate School of Business; 2003; Pg 1-58

[16] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 421

[17] Friedman, Milton (edited/questioned by Russ Roberts); *EconTalk Library of Economics and Liberty; Milton Friedman on Money*; George Mason University; Released 28/08/2006; 2.57-3.07

[18] Bernanke, Ben; *Friedman's Monetary Framework: Some Lessons*; http://www.dallasfed.com/research/pubs/ftc/bernanke.pdf; Last Accessed January 11th 2010; Pg 210

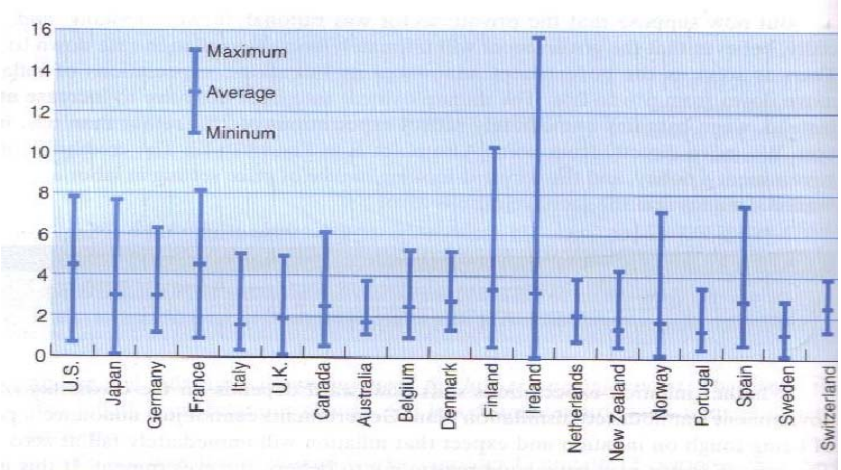

FIGURE 16.13 **The sacrifice ratio in developed economies, 1985–1998.** The cost of bringing dow inflation differed substantially across countries in the 1980s and 1990s because the credibili of policy was diverse. *Source:* Andersen and Wascher, "Sacrifice Ratios and the Conduct of Monetary Policy in Conditions of Low Inflation," BIS working paper no. 82 (1999).[19]

Some economists argue that the only reason data shows variations is due to the relative emphasis of each country on keeping inflation low. For instance, when questioned about the aims of monetary policy, Brazilians were one of the only peoples to answer that low unemployment should be valued above low inflation. This was due to a history of higher inflation, which meant inflationary expectations were already high and people were less concerned about the effects of rapid inflation.

This view says that because dislike of inflation did not run very high in Brazil, they would face a high sacrifice ratio. They say that dislike of inflation, rather than higher policy credibility due to the use of fixed rules and independent Central Banks, is the reason for lower sacrifice ratios in some of the sample countries. However this view is discredited because almost every developed country displays a strong desire to keep inflation low.

Time inconsistency also implies a problem. Knowledge of the existence of the short-run Phillips curve creates inflationary pressures. Although governments insist they will not manipulate the trade-off today, people may doubt whether they might exploit the trade-off for political goals in the future (as Nixon did to avoid electoral defeat). Therefore inflationary expectations are higher than might otherwise be the case. Informing people about policy decisions in advance may actually intensify a time inconsistency problem. If the Government acts in a way it said it would not then problems of policy credibility mount.

Friedman advocated Monetarism as a means to minimize discretionary intervention. The idea was that abstaining from discretionary intervention would eliminate the inflationary bias created by the time inconsistent promise to stick to a low inflation policy. However these ideas were attacked when tried at the end of the 70s. Both the US and UK proved unable to use the rules to prevent serious recessions. More recently, a new solution based on the same principle, has been to give Central Banks independence. By assigning non elected policy makers targets with no reference to unemployment the danger of the trade-off being manipulated is virtually eliminated. Indeed Taylor noted a greater emphasis on the coefficient of monetary policy rules today due to the success of Friedman's advice on incorporating expectations into policy evaluation[20].

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[19] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 424

[20] Taylor, John; *A Half Century of Changes in Monetary Policy: Written version of remarks delivered at the conference in honour of Milton* Friedman; University of Chicago; 2002; Pg 9

Conclusion

Friedman's impact on monetary policymaking was not immediate or complete. In a 1977 ammendment to the US Federal Reserve Act the goal of promoting maximum employment was retained, contrary to Friedman's lessons. However the implications of Friedman's statement are huge. The main message stemmed from a critique of the inital Phillips Curve, that due to adaptive expectations monetary policy cannot alter real variables such as unemployment in the long term. "Essentially all practising macroeconomists now accept Friedman's critique of the original Phillips curve."[21] The trade-off has hence been removed as a tool to operate stabilization policy.

Most economists now accept "unemployment will show short-term fluctuations around this level [NAIRU], but eventually it will return to this equilibrium level."[22] The idea has therefore impacted upon later academia and also key policy makers. Volcker made fighting inflation his primary objective. Greenspan made deliberately ambiguous speeches/statements because he realised that the markets adapted their expectations to what he implied about whether or not monetary policy was going to change. Bernanke is also full of praise for Friedman. "Friedman's monetary framework has been so influential that, in its broad outlines at least, it has nearly become identical with modern monetary theory and practice."[23] Bernanke wrote in support of the principle of long run neutrality; the monetarist principle that changing money supply does not change real variables in the long-run.

Yet through this theory, and subsequent monetarist statements Friedman implied that fixed rules are a better strategy for monetary policy than use of discretion. Due to concerns about the reliability of information, government's ability to control demand, and problems of time inconsistency and policy credibility Miles and Scott say that "most governments no longer try to use fiscal and monetary policy to fine-tune the economy."[24] The frequent changes made to interest rates suggest monetary policy is used to fine tune the economy. Yet it no longer aims to drive unemployment below the NAIRU. Use of fixed rules removes doubts that the Government will manipulate demand for policy objectives and therefore lowers inflationary expectations. Implementation of this lesson through Central Bank independence has already seen results. "Countries with strong, independent central banks achieve substantially lower inflation."[25] Since 1980 the US money growth rate has seen greater stability than at almost any point in US history.

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[21] Whelan, Karl; Topic 7: The New-Keynesian Phillips Curve; *EC4010* Notes; 2005; Available on the internet at: http://www.tcd.ie/Economics/staff/whelanka/topic7.pdf; Last accessed January 11th 2010; Pg 7

[22] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 142

[23] Bernanke, Ben; *Friedman's Monetary Framework: Some Lessons*; http://www.dallasfed.com/research/pubs/ftc/bernanke.pdf; Last Accessed January 11th 2010; Pg 208

[24] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 429

[25] Miles, David & Scott, Andrew; *Macroeconomics Understanding the Wealth of Nations*; John Wiley & Sons; 2005; Pg 428

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15. Taylor, John; Roberts, Russ (ed); *John Taylor on Monetary Policy*; EconTalk Library of Economics and Liberty; Available on the internet at: http://www.econtalk.org/archives/2008/08/john_taylor_on.html; Last accessed January 11th 2010
16. Whelan, Karl; Topic 7: The New-Keynesian Phillips Curve; *EC4010* Notes; 2005; Available on the internet at: http://www.tcd.ie/Economics/staff/whelanka/topic7.pdf; Last accessed January 11th 2010