

# The Rise of the Natural-Rate of Unemployment Model

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*This essay examines Milton Friedman influence as a political economist, focusing attention on his successful prediction that inflation would be associated with increasing rates of unemployment. As a consequence of this predictive success, it became widely accepted that policy-induced unemployment would produce long term benefits as unemployment gravitated back towards its Natural-Rate (a magnitude influenced by frictional and structural factors) at a lower level of inflation. This article presents an alternative view of this policy-revolution by suggesting that the magnetic pull of the Natural-Rate of unemployment is not required to explain the stagflation which ended the Old Keynesian era. As inflation was increasing in the 1960s, several economists argued that rates of unemployment were also increasing. These perceptions were clearly at variance with the prevailing trade-off interpretation of the Phillips curve, which suggested that the rise in inflation would be accompanied by a reduction in rates of unemployment. This article, therefore, attempts to describe the largely forgotten, dissenting pre-history of Friedman's successful assault on the trade-off orthodoxy of the 1960s. These dissenting perceptions were mostly based on factors other than expectational considerations. They consisted of insights based on observations of labour market behaviour. In contrast, Friedman's insight was couched in macroeconomic terms, with strong microeconomic foundations. This episode may shed some light on the nature of influence in the economics profession in the 1960s. It may also serve to question the validity of the Natural-Rate Expectations Augmented Phillips (N-REAP) curve model.*

## 1 Introduction<sup>1</sup>

With respect to political mythology, the Northern spring of 1968 is chiefly remembered (like its forerunner of 1848) as a 'springtime' of youthful and hirsute left-revolutionary fervour. This revolutionary wave could plausibly include a US President amongst its victims, broken by the weight of office.<sup>2</sup> In contrast to all this tragedy and melodrama, with respect to influence over economic policy and all that flows from that, the most revolutionary call to arms of that time, was Milton Friedman's American Economic Association (AEA) Presidential Address. Neither youthful nor hirsute, he was an advocate of floating exchange rates, monetary targeting, low if not zero inflation, the abandonment of fine tuning, lower taxes and less regulated markets.

Within a decade or so all this became part of the fabric of economic policy, at least at the level of the rhetoric of commitment. By 1970, all countries seemed to be "off the [Phillips] curve' in the same direction" (Solow 1970, 95, 103); in 1971, the Bretton Woods system was effectively scuttled; from the mid-1970s Phillips curve targeting was replaced by monetary targeting; and fine tuning was abandoned. Markets were increasingly deregulated, and no political party, it seemed, could win power unless committed to a reduction in taxes. Everywhere, it seemed, reducing inflation took priority over reducing unemployment, and the British Prime Minister announced the death of the Keynesian order to the 1976 Labour Party

conference. In Tony Crosland's words 'the party is over', and *The Fiscal Crisis of the State* had arrived (O'Connor 1973; Stigler 1988, 10). The 'left wave' surged and broke, leaving the Democratic Party and the British Labour Party out of office for much of the following two decades.<sup>3</sup>

There are many interesting aspects of this policy revolution; some relating to the process of knowledge destruction (McIvor 1983). Milton Friedman formulated the Natural-Rate Expectations Augmented Phillips curve (the N-REAP model) at least as early as 1960, but his first written exposition came only in April 1966 (Leeson 1996a). In the intervening period, Barry Goldwater (who had been advised by Friedman) had been defeated in the 1964 Presidential election; policy advice of the Keynesian variety was sought from Cambridge, Massachusetts; and the times appeared to be uncondusive to the Chicago cause. Friedman was clearly influenced by Goldwater's defeat. During his tenure as AEA President, Friedman (1967, 87-8) reflected that "The fact - or what I allege to be a fact - that differences about policy reflect mostly differences in predictions is concealed by the widespread tendency to attribute policy differences to differences in value judgements ... I was particularly impressed by the seductiveness of this approach during the 1964 Presidential election campaign, when most of the intellectuals, of all people, largely cut off the possibility of rational discussion by refusing to recognise the possibility that Senator Goldwater might have much the same objectives as they and simply differ in his judgement about how to achieve them".

There are several other interesting aspects of this revolution. In *A Tract on Monetary Reform*, Keynes (JMK IV [1923], 27) argued that rises in money wages would be unstable if caused by "some temporary and exhaustible influence connected with inflation"; and it was a common-place of the somewhat marginalised economists of the Mont Pelerin Society that "There is no need today to dwell on the problem of the falsification of economic calculation under inflationary conditions" (von Mises 1974 [1951], 127). But von Mises (1974 [1958], 154, 159) specifically spelt out that "Inflation can cure unemployment only by curtailing the wage earner's *real* wages" [emphasis in text]; unemployment increased as inflationary expectations are revealed to be lower than actual inflation. An almost identical analysis of the way incorrect inflationary expectations can temporarily reduce unemployment can be found in the work of Hayek (1958; 1972 [1960], 65-97) and Haberler (1958, 140). William Fellner (1959, 227, 235-6) and Raymond J. Saulnier (1963, 25-27), both highly influential economists, also worked out versions of the N-REAP model at this time.

These critiques made little impression at the time, and unlike Friedman's AEA address, are rarely remembered. Alvin Hansen, the American Keynes, discussed and dismissed "misguided expectations", preferring instead the "objective causes of the cycle" (1964, 342-3, 288). Paul Samuelson, Hansen's successor in the American Keynesian hierarchy, pondered before a blackboard in academic year 1964-5, and dismissed these early N-REAP models as being of doubtful validity (Akerlof 1982, 337). This paper presents evidence which suggests that there were many economists who made statements which cannot be reconciled with the original Phillips curve trade-off. Inflation was clearly increasing; some economists also argued that unemployment was likely to increase. This implies stagflation; but before Friedman's AEA speech, this made little impression on professional opinion. This paper, in part, therefore, analyses the pre-history of the belief that ongoing inflation would be accompanied by *increasing* rates of unemployment.

The conventional view of this episode is that Friedman patiently accumulated evidence relating money and prices, and (if we ignore Phelps) used this understanding to uniquely predict stagflation. This predictive success enhanced the reputation of both the quantity theory of money and Friedman's methodology of positive economics; it also elevated the N-REAP model to centre stage. Friedman (1968a, 8) constructed his N-REAP model in Walrasian terms, despite being a Marshallian sceptic about the practical significance of Walrasian economics. Using this

Walrasian language, Friedman made a prediction (about stagflation) which would evict Keynesians from their position of policy influence (section 2). It was not a prediction that was unique to him, although his prediction was the most comprehensive. Section 3 describes the inflationary momentum of the 1960s (the prelude to the Natural-Rate revolution). The trade-off interpretation of the Phillips curve stated that this should be accompanied by a *reduction* in rates of unemployment. Section 4, in contrast, highlights the writings of those economists (mostly labour economists) who diagnosed that unemployment would *increase* during this period. Concluding remarks are provided in section 5.

## 2 Predictive Success

The N-REAP model (the vehicle for Friedman's challenge) is an equilibrating story which can be described, in inflation-unemployment space, using the analogy of a \$ (or an 'S' spiked by a vertical Natural-Rate of unemployment). The macrosystem is constrained to move along this 'S' shaped trajectory. Along the top half of the 'S', a Keynesian fall in the price of money can only be temporary - an inflationary boom can only dissipate itself, as Keynesian money turns 'dishonest'. Along the bottom half of the 'S', a monetarist rise in the price of money will dissipate itself by inducing self-destructing delusions about inflationary expectations (the short-run Phillips curve will shift inwards as unemployment increases). Monetarist money becomes 'honest', as the rate of inflation is forced down by the reduced rate of growth of the money supply. Monetary discipline, tied to accommodating wage behaviour, can be relied upon to produce permanent reductions in both inflation and unemployment.

Predictive success along the top half of the 'S' (representing macroeconomic 'bads') was regarded as sufficient evidence to formulate disinflationary policies on the expectation that the system could be moved along the bottom half of the 'S' (a temporary macroeconomic 'bad' plus a 'good', followed by two macroeconomic 'goods'). Friedman is one of the most brilliant economists of all time; but some of his predictions have been falsified. At the start of the Monetarist decade, Friedman (1974, 12) predicted that "The world crude oil price cannot stay at \$10 a barrel; it will drop dramatically within the next six or nine months ...". He also stated (1968a, 9) that the Natural-Rate of unemployment was held high by the strength of labour unions; but as trade union power waned during the 1980s, estimates of the Natural-Rate increased. And disinflation, at least in the UK, was far more costly than imagined (Laidler 1985). The N-REAP model gave policy-makers confidence in monetary contractions as a vehicle for disinflation, at a time when some form of disinflation was urgently required. But it has not, unambiguously, been *predictively* successful in the disinflationary period of its policy-influence - at least if one does not resort to epicycle explanations, such as a simultaneous increase in the Natural-Rate.<sup>4</sup>

There are no truly *general* theories in science; only *competing* explanations which, for a variety of reasons (not all to do with the 'classical' process) command varying degrees of respect among practitioners. The N-REAP model challenged its primary adversary, the trade off interpretation of the Phillips curve, and is now challenged by models which invoke hysteresis, implicit contracts, insiders and outsiders, an expectations trap, efficiency wages etc. Not all of these models deny that "at any point in time" (to use Friedman's phrase) a Natural-Rate of unemployment might emerge from the Walrasian equations; but they tend to deny that the gravitational pull of any particular Natural-Rate is stronger than the gravitational pull of the *actual* rate of unemployment. The system is perceived as being path-dependent: the natural-rate is a weak, not a strong, attractor (Phelps 1996). For Alfred Marshall (1920, 564), "The most valuable of all capital is that invested in human beings"; and unemployment above the Natural-Rate tends to reduce the stock of human capital (thus increasing the Natural-Rate), leaving a large pool of outsiders who have only a limited ability to affect the wages of insiders. Thus the idea of a unique and stable equilibrium configuration exerting an all-powerful influence on the

actual course of unemployment has been challenged by the idea that the Natural-Rate limps behind, and tracks, the actual rate, with (in Keynes's phrase) "not so lame a foot".

One of the reasons for the success of the Monetarist challenge is Friedman's (1966a, 1966b, 1968a) prediction of (and an explanation for) stagflation (or positive co-movements of Phillips curve observations). Friedman made the "prediction... *There will be an inflationary recession*" in his *Newsweek* column on 17 October 1966; and as even his critics put it, "a prophet has only to be right once for his reputation to be secure forever" (Desai 1981, 8); "Basically, accelerationism was a pessimistic forecast rather than an explanation of experience; whatever else one thinks of the theory, the prophetic accuracy of its pessimism has to be admired ... we are all accelerationists now" (Okun 1975, 354).

Yet, the judgement that *both* inflation and unemployment would simultaneously increase was by no means a rare occurrence prior to the Keynesian discomfiture. Gottfried Haberler (1961, 10), for example, noted that "we remain alert to the possibility that inflation may be combined with depression (or recession) ... it is not at all unlikely that inflation will either eventually bring about deflation and depression or make it difficult to counteract a depression that has arisen independently. This is, in fact, one of the main economic dangers (apart from the social injustice that it engenders) of even a mild inflation". The editorial in the (highly influential) *Journal of Commerce* for 13 February 1957, declared that "creeping inflation will not lead to additional employment but will ultimately cause a decline in employment". In a letter to the editor, published in the same journal on 27 February 1957, Sumner Slichter, of Harvard University - "undoubtedly the best known economist of his day to the American community generally" (Dunlop 1961, xxi) - interpreted this editorial as implying "that the next decade or so will see, first, rather slowly rising, then rapidly rising prices, and finally, a big collapse and a severe depression". Saulnier (1963, 26) also predicted that inflation would be followed by recession. Almost all economists were forecasting that inflation was on the increase; many economists also calculated that unemployment would *also* increase. Yet the trade-off interpretation of the Phillips curve appeared to imply that increases in inflation would be accompanied by reductions in rates of unemployment.

For Keynes, the long period was a "subject for undergraduates" (Joan Robinson 1962, 75), and John Taylor (1979, 108), whilst accepting the vertical long run Phillips curve, also noted that "it has proven distressingly unspecific as a framework for the development of short-run dynamics". Friedman concluded, in his famous methodological essay, that "The weakest and least satisfactory part of current economic theory seems to me to be in the field of monetary dynamics, which is concerned with the process of adaptation of the economy as a whole to changes in conditions and so with short-period fluctuations in aggregate activity. In this field we do not even have a theory that can be appropriately called 'the' existing theory of monetary dynamics" (1953, 42; see also 1950, 467). Friedman later referred to the short-run Phillips curve as the missing equation in the monetarist model (Laidler 1981, 8). The N-REAP model subsequently became 'the' theory of monetary dynamics, because it was perceived to have predictively out-performed the (supposedly Keynesian) trade-off misinterpretation of Phillips' curve.

Thus, Friedman is credited with an achievement that normally guarantees immortality in the history of any science, that of using theory to predict what at the time was yet to be observed. In the nineteenth century, John Couch Adams and Leverrier deduced from general astronomical theory the existence and location of a hitherto unobserved planet. The planet was located at the time and place that Adams and Leverrier had predicted (Kline 1990, 243). Uranus and Neptune were unknown to Newton, but were deduced by the application of his law of universal gravitation. Einstein became the most famous scientist of all time when his prediction about the effect of gravity on the frequency of light received empirical support from observations of a solar eclipse (Clark 1984, 295). Likewise, Hubble's discovery that the universe is expanding had

been independently predicted from the general theory of relativity by Alexander Friedman in 1922, and A.G. Lemaître in 1927, several years before Hubble's discovery (Kilmister 1971, 37, 97-8). By adding "one wrinkle" to Phillips in the same way as Irving Fisher added "only one wrinkle to Wicksell" (1968a, 8), Friedman predicted that the trade-off between inflation and unemployment always existed temporarily, but not permanently.

Robert Gordon (1978, xv) explained that he had found Milton Friedman's views "outrageous" when he first joined the Money and Banking Workshop in 1968, but found them "remarkably sensible" when he left in 1973. The first edition of Gordon's *Macroeconomics* was organised entirely around the N-REAP model, illustrating the extent to which even neo-Keynesians were retreating from previously held perspectives. Temporary recessions - which persisted only as long as expectations about inflation were inaccurate - would reduce inflation "to any desired amount, to zero or even a negative number" (Gordon 1978, 305). The N-REAP model became profoundly influential during the 1970s (Hargreaves Heap, 1980). In the 1960s, the Phillips curve came to be interpreted as a proposition that "one can do business with the [inflation] dragon - buying some reduction in the degree of inflation by feeding him a certain number of jobs" (Lerner 1967, 3). At the AEA Conference, in the year following Abba P. Lerner's Richard T. Ely Lecture, Friedman suggested that the inflation dragon would not digest the unemployed, but merely detain them away from the workplace, only as long as their delusions about inflationary expectations persisted. Unemployment came to be viewed by many economists as a variable that could not be directly targeted: it was "a state of mind not a state statistic" (Cole *et al.* 1983, 93).

At the time of his AEA Presidential address, Friedman was regarded as a brilliant phenomenon, but was also tainted with the failure of Barry Goldwater's 1964 US Presidential election challenge (Tobin 1964). Many delegates to the 1967 AEA Conference believed that both Friedman and his prediction of stagflation would be shot down in flames (conversation with Ashenfelter, 2 October, 1993; see also Hall and Taylor 1986, 115). Yet stagflation appeared to discredit Keynesian economists, and for a decade from the mid-1970s policies derived from Friedman (at least rhetorically) were implemented in a variety of countries. He was credited, even by his opponents, with the introduction of inflationary expectations into the analysis of inflation and unemployment, and of using this approach to uniquely predict stagflation (Mankiw 1990, 1647; Desai 1981, 1-9). Inflation was clearly rising in the 1960s (section 3); and many other economists also calculated that unemployment was simultaneously increasing (section 4). But it was Friedman whose reputation was incalculably strengthened by this predictive success - which fitted in exactly with his method of positive economics.

### 3 Prelude to the Natural-Rate: the Accelerating Inflation of the 1960s.

Arthur Okun (1972 [1969], 150) described the war in Vietnam as "the Danish Prince in the *Hamlet* of our economic history". In the mid-1960s, the Johnson administration was increasingly losing control of both the economy and the war in Vietnam. The Chairman of the Council of Economic Advisers (CEA), Gardner Ackley, told a reporter from *The Wall Street Journal* (19 October, 1966) that one could date the rapid rise in GNP to President Johnson's press conference (June 28, 1965) announcing the dispatch of 50,000 American soldiers to Vietnam (Rosen 1969, 84-5). During 1965 economists within the Johnson Administration became increasingly concerned that the twenty-five per cent increase in military expenditure might overwhelm the Guideposts, and a special price-cost fighting apparatus was established (Cochrane 1975). On December 10, 1965, the CEA urgently recommended a tax increase to finance the Vietnam war, although this recommendation was not included in the January 1966 *Economic Report of the President*, possibly because 1966 was an election year (Lekachman 1973, 19). This was the year that the wage-price policy began to collapse (Cochrane 1975, 263). According to Okun (1972 [1969], 154) this was "the first defeat of the new economics by the old

politics" since 1962. In late 1966 the CEA again argued for a tax increase, and in January 1967 Johnson proposed an income tax surcharge, which was finally passed in July 1968. This belated tax increase "ended the period of inappropriate budgetary stimulus, thirty-five months after it started, thirty months after it was first diagnosed by the President's economic advisers, and eleven months after the President urgently requested Congress to act. By [then] the boom and wage - price spiral had developed enormous momentum and they proved terribly difficult to stop ... By the middle of 1968, inflation had become a raging disease" (Okun 1972 [1969], 163; see also Cochrane, 1975, 263). Thus, even with inflation hovering around five per cent, some Keynesians perceived that it was acquiring a dangerous *momentum*.

The 1970 CEA Annual Report, signed by Paul McCracken, Hendrick Houthakker and Herbert Stein, declared that "The current inflation was generated by the mounting budget deficits and rapid monetary expansion that began in 1965 with the escalation of the Vietnam War and the massive increase in federal spending for domestic programs" (cited by Okun 1972, 180; de Marchi 1975). The budget deficit for fiscal 1967 was \$9.8 billion, and for 1968, \$23 billion. The underestimate for defence outlays for fiscal 1967 was \$10 billion (Tobin 1988, 132). Walter Heller (1969, 36) acknowledged that the CEA and the Treasury were unaware of the Pentagon's expenditure plans for Vietnam, which were consistently underestimated. "Covert operations" were also apparently required to finance the war. For Johnson, the price of honesty with respect to expenditures in Vietnam would have been the demise of his Great Society program (Lekachman 1973, 19). The war was clearly being financed in an inflationary manner, and the second half of 1965 saw the beginning of a dangerous inflationary boom (Okun 1972 [1969], 153; Cagan 1979, 106).

The 1962 CEA Report (signed by Walter Heller, Kermit Gordon and James Tobin) had concluded that any expansion of demand above a "full employment [figure of] 4.0 per cent [could] be met by only minor increases in employment and output, and by *major increases* [emphasis added] in prices and wages" (in Tobin and Weidenbaum 1988, 46). Heller (1972 [1966], 145) warned that at full employment "the line between expansion and inflation becomes thinner". Paul Samuelson (1953, 83) saw 4 per cent unemployment as a "high employment ceiling". The unemployment rate in both 1966 and 1967 was 3.8 per cent; and 3.5 per cent in 1968. Samuelson and Solow's original US Phillips curve became very steep at low levels of unemployment (1960, 192). The same is true for Phillips' and Lipsey's original curves (Phillips 1958, 285; 1959, Fig 6; Lipsey 1960, 4, 24). Regardless of whether or not a Phillips curve of any kind existed, inflation in the US had been increasing every year since 1962, rising from 1.1 per cent in that year to 4.0 per cent in 1968.

The non-financial business sector increased eightfold its volume of commercial paper issued between 1964-70. In 1967 and 1968 the average share price of a stock listed on the New York Stock Exchange increased by 40 per cent, well in excess of the earnings of listed companies (Burns 1972, 225-6). On July 21, 1967 Ralph Saul, President of the American Stock Exchange wrote to all 573 members warning that "market conditions indicate a serious level of speculative activity".<sup>5</sup> Pratson (1978, 98) stated that a group of money managers were warning of impending inflation in 1968.<sup>6</sup> Fiscal irresponsibility with respect to the Vietnam war (at least prior to the 1966 Congressional elections), was compensated for by a credit crunch. Following the election, on November 22, the Open Market Committee of the Federal Reserve voted to 'uncrunch' the liquidity crisis, and in 1967 and 1968 the money stock was expanded faster than at any time since the Second World War (Cochrane 1975, 266).

The US had formal wage and price 'guideposts' between 1962-66. Solow (1966, 46) argued that these guideposts had left wage inflation 1.7 per cent lower, and wholesale price inflation 0.7 per cent lower than previous experience would have suggested. Heller declared them to have exercised a moderating influence in the 1961-5 period (1972, 149; Perry 1967, 897-904). The Committee for Economic Development concurred,<sup>7</sup> as did the Chairman of the

CEA,<sup>8</sup> and *Time* magazine.<sup>9</sup> In the UK, the Prices and Incomes Act was passed in August 1966. (A 6 month freeze was proclaimed in October 1966, followed by 6 months of severe restraint.) However, the seamen's strike of May 1966, and the dock strike of 1967, were signs of impending wage inflation.<sup>10</sup> Indeed, Sterling had been devalued from \$2.80 to \$2.40 in the month before Friedman's Presidential address. The Nixon administration had a fully fledged control program between August 1971 and April 1974. In November 1972 a statutory 90-day freeze on pay, prices, rents and dividends was imposed, and this was later extended by a further 60 days. Solow (1966, 54, 47) argued that high employment and rising productivity "depend for their success upon the containment of the inflationary forces which their pursuit may generate". The guideposts, he argued, had facilitated structural change. The implication of Solow's analysis is that, in the absence of the guidelines, the inflationary forces unleashed would undermine high employment and rising productivity; in other words generate stagflation. Some Keynesians appeared to recognise that inflation was likely to be followed by stagflation, especially if the guideposts were abandoned.

Many economists were aware that inflation had acquired a powerful momentum and was likely to become a major political issue. In Phillips curve space this implies, at worst, a vertical co-movement of inflation-unemployment observations. Friedman's AEA Presidential Address implied a simultaneous increase in *both* inflation and unemployment. But stagflation is equally well explained by forces other than the gravitational pull of the Natural-Rate of unemployment (section 4).

#### 4 Increasing Unemployment

Friedman (1968a, 9) argued that legally enforced minimum wage rates, the strength of labour unions, plus the Walsh Healey and Davis-Bacon Acts had all combined to increase unemployment. The authors of the trade-off interpretation of the Phillips curve agreed. Solow (1966, 51) argued that the Davis-Bacon Act was an impediment to the achievement of full employment and should be repealed. Samuelson (1967, 56, 85, 64) stated that the location of Phillips curve observations was determined by, and was a problem for, anti-trust enforcement, labour legislation, excessively high minimum wage laws, manpower retraining, and labour market mobility programs. A low unemployment rate may have been purchased at the cost of a higher future rate: the idea that there exists a trade-off between unemployment today, and unemployment tomorrow is "true in part. I think that this effect is plausible from economic reasoning. I think that there is some experience in the statistics which suggests that this is in fact the case".

Friedman (1977, 458) also argued that measured unemployment had increased because of the shifting structure of the labour force, reflecting an increase in the proportion of females, young people and part-time workers.<sup>11</sup> This had been a general trend of the post-war period. Between 1955-75 the proportion of the US labour force accounted for by 16-24 year olds increased by over fifty per cent (Gordon 1978, 251). The birth rate had increased substantially in the 1940s, and this led to a large increase in the number of new entrants into the US labour force - requiring an additional 1.5 million jobs per annum simply to avoid an increase in unemployment originating from these demographic factors (Cooper and Johnston 1965). Even the 'aggregative'-dominated 1961 CEA concluded that approximately 22 per cent of the increase in measured unemployment could be attributed to changes in the age-sex composition of the labour force (Demsetz 1961, 90, n7). Cooper and Johnston (1965, 129, 130) calculated that by 1970 there would be a "dramatic" increase in the number of young workers. Part-time work was perceived to be particularly prevalent amongst these cohorts, many of whom would be seeking inexperienced entry level occupations. The increased job mobility of these cohorts would tend to increase frictional and therefore aggregate measured unemployment. Lekachman (1966, 162) concluded that these circumstances could explain the very high levels of unemployment among

the young. These high rates exerted an upward pressure on the aggregate unemployment rate. Both Lekachman and Demsetz (1961) concluded that a micro approach to these structural problems was needed, rather than the use of aggregative techniques.

There had also been a considerable amount of discussion about increasing levels of structural unemployment in the US as a result of automation and technological advance. The 'majority' position was that the bulk of unemployment could be attributed to inadequate aggregate demand. The 'minority' position was that structural change would generate increasing joblessness, even in the context of general prosperity. The primary problem was not aggregate demand but structural barriers in the labour market.<sup>12</sup> The majority 'inadequate demand' position dominated the 1961 Joint Economic Committee (Knowles-Kalacheck) Report. Heller (CEA chairman) denied the significance of structural unemployment, and the 1961 CEA statement argued that the 'structuralist' argument was false (Tobin and Weidenbaum 1988, 60): "we' thought then, and Tobin and I think now that the arguments of the 'structuralists' were part muddled and part wrong ... the real question was not the existence of structural unemployment which no one denied, but whether it had increased since 1955-6" (correspondence from Solow, 11 August, 1992).

Gilpatrick (1966, 12) argued that Heller's definition of inadequate demand appeared to suggest inadequacies even at cyclical peaks, and his test for structural unemployment was deemed to be inappropriate because he confined his examination to the 1957-60 period.<sup>13</sup> Demsetz also conducted statistical tests of the hypothesis that the number of hard-core unemployables was growing secularly and had come to account for a significant proportion of the unemployed. For none of the groups that Demsetz examined was this hypothesis rejected. He concluded that the hard-core unemployed appeared to be growing in importance; he predicted that structural unemployment would continue to become increasingly significant. The National Planning Association also calculated that structural unemployment had relentlessly increased (Demsetz 1961, 81, 84, 87, 89, 90, 7).<sup>14</sup>

Gilpatrick (1966) argued that technological change had been rapid in the post-war period; there had been a change in the composition of final demand away from goods and towards services; distressed areas were identified as being caught in a vicious spiral. The permanent loss of jobs led to an out-migration of younger workers who typically had more transferable skills, thus reducing the attractiveness of these distressed areas to new enterprises. The four mechanisms of labour market adjustment - participation rates, job mobility, geographic mobility and educational attainment - were found to be inadequate to eliminate labour bottlenecks at both the top and the bottom of the skill hierarchy. The post-1956 period showed increasing signs of structural skill shortages; the pool of inappropriately trained youth had been growing dramatically; and the percentage of black workers in low unemployment agriculture had severely declined. Low educational attainment led to a vicious spiral of poverty and a rise in black unemployment rates. Haber (1964, 11-14) calculated that sixty million workers in the US were in jobs that would cease to exist within 25 years, and that most were unprepared for this change.

Charles Killingsworth (1962) argued that over 9 per cent of those without an eighth-grade education were unemployed, whereas almost no college graduates were unemployed. In consequence, boosting aggregate demand may lead increasingly to a shortage of skilled labour, while leaving unskilled workers surplus to requirements (Garraty 1978, 236-7). Structuralists argued that labour market imperfections required specific remedies. Gunnar Myrdal identified a 'manpower drag' which could be solved only by modernising the labour market (Schlesinger 1965, 497). Lekachman (1966, 162-3) concluded that structural unemployment was increasing alarmingly and that middle management in particular was faced with obsolescence. Stanley Lebergott (1964) noted that the long term unemployed (more than 15 weeks) had tripled since 1957 (Garraty 1978, 236-7, 244).



Friedman argued that the increased availability of unemployment assistance had tended to increase measured unemployment. Much of the stigma attached to claiming unemployment benefits had disappeared. Most economists would accept that unemployment compensation has the unintended side-effect of providing firms with an incentive to adjust to a temporary drop in demand by laying off workers. It also reduces the incentive for laid-off workers to search, and increases the incentive to wait to be recalled to their old job. In addition, it increases the incentive for the non-laid-off unemployed to continue searching.<sup>15</sup> All of this tends to increase frictional unemployment which, together with structural unemployment, comprised the 'full' employment level of unemployment of the 1962 CEA Report.

Theobald (1968 [1964], 62) argued that official US unemployment figures were biased downwards. If the statistics were to include discouraged workers, plus the 4 per cent of the labour force who wanted full-time employment but could find only part-time employment, plus the underemployed in the depressed agricultural, mining and industrial areas, then measured unemployment would be around 8 million instead of the 3.6 million in official statistics. The Secretary of Labor drew attention to the 350,000 males between 14 and 24 who have stopped looking for work (Theobald 1968 [1964], 62). The increased availability and generosity of unemployment assistance, tended to increase the incentive to register for work and thus reduce the gap between measured unemployment and the true variable for which it is acting as a proxy.

Friedman's AEA address came shortly after two important pieces of legislation (1965-6) in the UK, the Redundancy Payments and National Insurance Acts. Both Acts had the effect of increasing measured unemployment by subsidising job search. British unemployment almost doubled between 1966-7. The unemployment-vacancies curve shifted upwards from 1966; unemployment was higher for any given level of vacancies (Gujarati 1972a). The net benefit earnings ratio for a family with two children rose from an average of 40 to 70 per cent between 1960-7. The jump in 1966 is very prominent. Unemployment was calculated to be 200,000 higher as a result. The proportion of the labour force who had been unemployed for more than 26 weeks doubled between October 1966 and October 1967 (Brittan 1975, 56, 65).

In addition to these supply side responses, these two Acts increased the quasi-fixed, or overhead element of labour costs. The 3.0 per cent annual increase in GDP during 1967 and 1968 in the UK did not affect the unemployment rate, but the index of average of weekly hours worked per worker increased, as did the percentage of those working overtime. There appeared to have been a 'shake out' of previously hoarded labour (Taylor 1972, 1360, 1354; see also Foster 1973; Gujarati 1972b, and 1973).

Many economists noted that the business cycle had changed quite significantly in the post-war period, becoming shorter with average unemployment higher throughout. Lekachman, for example, noticed that the 1949-53 expansion resulted in a 2.7 per cent unemployment rate; the 1955-7 expansion culminating in a 4.2 per cent unemployment rate; and the 1958-60 expansion resulted in an unemployment rate of 5.2 per cent. Prophetically, Lekachman (1966, 189) suggested that the last recession (1958-60) had been accompanied by significant price inflation, generating a "new paradox, simultaneous recession and price inflation".<sup>16</sup>

## 5 Concluding Remarks

The N-REAP counter-revolution was a genuine structural break in the history of economic research (Buchanan 1987, 195-6; Lucas 1994, 221; Plosser 1994, 280). In his Nobel Lecture, Friedman explained the success of the monetarist intellectual and policy revolution in terms of the classical process by which scientific theories are discarded: "brute experience proved far more potent than the strongest of political or ideological preferences ... The natural rate hypothesis is by now widely accepted by economists" (1977, 470, 459; 1975, 176). This 'classical' or 'idealist' internal assessment was accompanied by some external pressure: "the resurgence of the quantity theory (renamed non-descriptively as 'monetarism') and the rejection

of simple Keynesianism have been a reaction to the emergence of inflation and stagflation" (Friedman and Schwartz 1982, 70).

As a challenge to this widely-accepted view this article has reconstructed some of the judgements made about the expected movements of inflation and unemployment in the period prior to the unambiguous collapse of the original Phillips curve trade-off. Inflation was commonly perceived as being on an upwards trajectory; many economists (without necessarily invoking the analysis of inflationary expectations) also calculated that unemployment would simultaneously increase. Much of the detailed analysis of labour market conditions in the inflationary environment of the 1960s, calculated that increases in inflation would be associated with increasing rates of unemployment, although the Phillips curve trade-off was believed to be a hard empirical constant (having lasted over 100 years). But these (mostly scattered) judgements were not packaged in such a way as to convince the economics profession of the un-wisdom of believing in the long run inverse trade-off. Only Friedman, it seems, was able to accomplish that.

In so far as these intimations of stagflation were not scattered, they originated from the structuralist analysis of unemployment. The equilibrating power of the Natural-Rate of unemployment is not required to explain the stagflation which ended the Old Keynesian era. Friedman was one of several economists who perceived that *structural* unemployment had increased. Those who concluded that structural unemployment was increasing along with the inflation of the 1960s had their scientific competence questioned: "Talk of 'structural unemployment' was loose in the land - indeed, very loose ... Careful analysis of the statistical record within CEA convinced us that the structural-unemployment thesis was more fancy than fact ... Employment decisions in 1965-66 rendered a clear cut verdict on the structural-unemployment thesis: the alleged hard core of unemployment lies not at 5 or 6 per cent, but even deeper than 4 per cent - how deep still remains to be ascertained" (Heller 1966, 63-64); "Never did so many write so much that is nonsense and inconclusive on this topic. The special American problems, that you [in Britain] seem not yet to have met, of whether there is a secular increase in 'structural unemployment', provided a marvellous example of what the new and brilliant Council of Economic Advisors (Heller, Tobin, Gordon, Solow and others) could contribute in their first months of office to this murky issue" (Samuelson 1962, 22). For Samuelson (1967, 54-5), the inverse trade-off was "one of the most important concepts of our time. Any criticism of the guideposts which does not explicitly take into account the Phillips curve concept, I have to treat as having missed the fundamental point of all economic discussions". Few, it seems (and this applies with particular force to the textbook writers, almost all of whom were copying Samuelson's best-selling formula) chose to be so treated in the 1960s.

The Chicago defenders of microeconomic orthodoxy believed that the advocates of monopolistic competition had defined terms which "evades the issue, introducing fuzziness and undefinable terms into the abstract model where they have no place, and serves only to make the theory analytically meaningless" (Friedman 1953, 38). George Stigler (1982b, 6) cautioned that no economist has "any professional knowledge on which to base recommendations (concerning antitrust and monopolies) that should carry weight with a skeptical legislator"; he also defined the short run as "at least a generation or two" (1982a, 32). Friedman (1968a, 11) initially estimated that full adjustment back to the Natural-Rate of unemployment would take "a couple of decades". Perhaps there is something inherently optimistic at the heart of successful revolutions, but Friedman's Natural-Rate (disinflation) prediction to the House of Commons Select Committee on Monetary Policy was less accurate than his Natural-Rate (inflationary) prediction to the AEA. Unlike the inflationary prediction that elevated the N-REAP model to centre stage, the disinflation prediction described the lower half of the 'S' - that is it described the *reduction* in unemployment that would (after a brief interval) follow from disinflation policies.

From "the best evidence", Friedman (1980, 61) predicted that "(a) only a modest reduction in output and employment will be a side effect of reducing inflation to single figures by 1982 and (b) the effect on investment and the potential for future growth will be highly favourable". Unemployment was "an unfortunate side effect of reducing inflation"; only rigidities stood in the way of a rapid return to the natural rate of unemployment: "The mechanism causing the contraction in output is the slowing of nominal spending in response to the slowing of monetary growth and the inevitable lags in the absorption of slower spending by wages and prices". Policies designed to produce "high employment had led to high unemployment", but subsequent British unemployment experience was much worse than he predicted: "a temporary retardation in economic growth" (Friedman 1980, 61, 56). Harry Johnson's (1971) AEA prediction appears in retrospect to be quite accurate: "The most serious defects of the Monetarist counter-revolution from the academic point of view are, on the one hand, the abnegation of the restated quantity theory of money from the responsibility of providing a theory of the determination of prices and output [analysing the supply response of the economy to monetary impulses ... whether monetary changes affected prices or quantities] and on the other hand, its continuing reliance on the methodology of positive economics ... Personally, I expect [Monetarism] to peter out".

Stigler (1976, 351) concluded that "economists exert a minor and scarcely detectable influence on the societies in which they live"; but faith in the Quantity Theory of Money gave President Reagan an unshakeable faith in the monetary method chosen to defeat inflation, even in the face of alarmingly high unemployment figures (conversation with Friedman, 7 August 1995). For Nigel Lawson (1992, 102), "the most important point is that [the transitional cost in reducing inflation] is not a lasting cost". Stigler (1973) contributed to this confidence by finding that the volume of unemployment had no statistically significant effect on voting behaviour, but the rate of inflation was negatively related to the incumbent's share of votes. Stigler (1949b, 103) also ran (possibly) the first Keynesian-Monetarist statistical race, finding for the latter a correlation coefficient of 0.904, and for the former, 0.395.

It was on empirical grounds that Friedman had taken his stand (1968b, 439; 1970, 234; 1974, 61; Friedman and Meiselman 1965, 761). Yet, as A.J. Brown has pointed out, in the UK these positive co-movements were "very visible from about 1966. Friedman's 1967 lecture had a powerful impact because he made a neat theoretical point which chimed in with what was being observed empirically" (correspondence from Brown, 1 June, 1993; see also Cole *et al.* 1983, 88; Ball and Burns 1977, 822). Some other economists also formed the judgement that both inflation and rates of unemployment would simultaneously increase, without invoking the idea of the gravitational pull of equilibrium. But Friedman offered the profession a model, or at least a tight macroeconomic narrative, with which to explain stagflation; the Phillips curve Keynesians did not; neither did the labour market analysts discussed in this paper. Economists have a tendency to "float on the tide of theory" (Stigler 1957, 9) and in Alvin Hansen's words, "it takes a theory to kill a theory" (cited by Salant 1977, 46). This explains, in part, the earlier success of the Keynesian revolution: The "classical synthesis ... for the first time, was confronted with a competing system - a well-reasoned body of thought containing among other things as many equations as unknowns. In short, like itself, a synthesis; and one which could swallow the classical system as a special case. A new system, that is what requires emphasis. Classical economics could withstand isolated criticism. Theories can always resist facts ... Inevitably, at the earliest opportunity, the mind slips back into the old grooves of thought since analysis is utterly impossible without a frame of reference, a way of thinking about things, or in short a theory" [emphasis in text] (Samuelson 1964 [1946], 318).

Policy influence subsequently came to Friedman partly as a result of the perception about predictive success discussed in this essay. His influence can be attributed, in part, to his commitment to the vocation that Roy Harrod detected in Keynes, "to intervene actively in shaping public opinion" (cited by Parsons 1989, 52); in part, to his "Ruthless Concentration"

(Solow 1964); and in part to the often unexamined dynamics of economic knowledge construction and destruction.

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## Notes

1. This paper has benefited from helpful comments from, or conversations with, Orley Ashenfelter, A.J. Brown, Steven Dowrick, Milton Friedman, Peter Howitt, Donald McCloskey, Stephen Resnick, Robert Solow, and Herb Thompson; plus seminar participants at Murdoch University, the University of Western Australia, the London School of Economics, the University of Western Ontario, Simon Fraser University and the 1995 Australian Conference of Economists, plus two anonymous referees from this journal. Only the author can be implicated in any of the errors, or interpretations, contained in this paper.
2. Following the shock of the Tet offensive, Johnson concluded his March 31 television address on the Vietnam War with an unprecedented announcement: "I shall not seek and I will not accept the nomination of my party for another term as your President" (cited by Alpert 1981, 97).
3. Steven Resnick, in correspondence to the author, concluded that "What Friedman and others accomplished was the transformation of their idea about reality into the reality. That is an accomplishment worthy of economic priests ... an intellectual war had to be waged against collective support for higher wages. Friedman became the Luther of an individualism that helped to win the war. The struggle over Phillips' work is but one important battle in that war".
4. Ironically, Robert Solow's instincts were predictively more successful in this context: "Nobody believes the deflationary half of the [Natural-Rate] proposition. I don't know anybody who would lie out in the sun, let alone be burned at the stake, for the belief that if the unemployment rate is  $U^*$  [the Natural-Rate] plus epsilon and we wait long enough, there would be accelerating deflation. That part nobody believes" (1978, 207).
5. *Retrospective: Economics 1923-1989*, 58.
6. Pratson does not disclose a source for this statement.
7. They concluded that "the available evidence seems to suggest that the Guideposts did make a notable though modest contribution to stability in 1962 - 65" (cited by Okun, 1972, 198).
8. On August 12 1966, Gardner Ackley, Chairman of the CEA admitted that this period of restraint had ended: the "guideposts had recently suffered some stunning defeats ... this problem must be solved if we are to maintain full employment" (*Time Retrospective: Economics 1923-1989*, 62).
9. Time concluded on August 12 1966 that "more inflationary effects may be expected to set in soon" (*Time Retrospective: Economics 1923-1989*, 58).
10. Richard Crossman (1978, 208, 341) confided to his *Diary* that "we have just given huge concessions to the doctors, the judges and the higher civil servants. It is an ironical interpretation of a socialist incomes policy". Callaghan's 1967 Budget was a reflection of "his new doctrine that we should abandon artificial prices and incomes policy and revert to a higher rate of unemployment".
11. Alternatively, a younger and more energetic labour supply might increase productivity and therefore restrain inflation. I am grateful to A.J. Brown for this suggestion.
12. Myiernyk (1966, vii) concluded that "By the end of 1965 it should have been evident to even the most casual observer that the demand stimulus [of the 1965 tax cuts] was not enough and that further application of the same medicine could have at least mildly inflationary consequences". (Unemployment had reached four per cent by December 1965.)
13. Demsetz concluded that the CEA report contained a "serious logical error ... the discriminating powers of the Council's test are practically nil ... the Council's test ... leaves much to be desired" (1961, 84-5, n2).
14. In 1964 the US Secretary of Labor stated that "The confluence of surging population and driving technology [is creating] a human slag-heap ... a separate nation of the poor, the unskilled, the jobless" (cited by Theobald 1968 [1964], 64).
15. It may be anachronistic to refer to these activities by the term 'search', which perhaps only entered the vocabulary of economists in the late 1960s.
16. These points were also emphasised by the CEA's 1961 Statement and 1962 Report (Tobin and Weidenbaum, 1988).

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