

CAPITAL SHORTAGES AND UNEMPLOYMENT IN OECD COUNTRIES*

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Abstract

The unemployment performance of the OECD countries has dramatically deteriorated over the last three decades. Low investment is likely to have been one of the causes of this rise in unemployment. This paper aims at gaining an insight into the relationship between capital stock and employment. The conducted econometric analysis, provides certain results, underpinning our hypothesis and argues in favour of implementing a Keynesian type macroeconomic policy in the OECD area. JEL B22, E60.

Keywords: *unemployment, economic policy, industrial capacity.*

1. Introduction

The economic performance of the countries of the Organization for Economic Cooperation and Development (OECD) has fluctuated ever since the 1970's. Unemployment in particular has risen inexorably reaching alarming proportions. More specifically the uniformity of the unemployment situation in nearly all OECD countries suggests that such a persistence could be attributed to factors that have influenced all countries in a broadly similar manner, rather than in the individual circumstances of each country.

Many possible sources of the unemployment problem have been cited and investigated both theoretically and empirically in the contemporary literature¹. A growing body of research focuses on the relationship between capital shortages and employment as well as on the adverse impact that the rise of neoliberalism, by which economic policy has been conducted over the past 20

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years, have had on industrial capital accumulation and the way labour markets have functioned.

The main objective of this paper is to empirically investigate the relationship between capital stock and employment. Section 2 examines the way the current macroeconomic policy and more significantly unemployment have been affected by the most frequently cited economic concept the NAIRU (Non-accelerating Inflation Rate of Unemployment). The reliance of policy-makers on the NAIRU may be a potential factor to be held culpable for the destruction of a macroeconomic environment where job-creation could be nurtured. Further, it points out that the conventional tradition overlooks the importance of capital stock in creating employment. Section 3 offers a substantive review regarding the channels through which macroeconomic policy might have led to the erosion of industrial capacity whilst section 4 attempts to provide some empirical evidence of the extent to which capital shortages as well as economic austerity have affect employment in the OECD region. Finally, section 5 provides a string of alternative policy recommendations at the centre of which Keynesian demand macro-policies are of immense significance in the fight towards unemployment.

2. Unemployment, Inflation and Macroeconomic Policy

Since the 1970's deflationary measures have been adopted by all major OECD economies. Initially, policies to reduce demand were fostered by all governments in the fight against the spectre of inflation that the two oil-price shocks brought about. As time went on however the emergence of the neoliberal orthodoxy exerted enormous pressure on the national macroeconomic structures causing a significant shift towards restrictive macroeconomic policies.² Within the EU region the new policy orientation has established a set of rules (Maastricht Treaty) and regulations (Stability Pact), that have been put in place to presumably enable the EU countries achieve economic integration.

The dominance of free-market doctrines has caused a structural change in the model of economic development. Neoliberalism asserts that there is no essential role the state or the public sector can play in galvanising economic activity. In this sense, the state should step aside and let market forces create the economic conditions conducive to economic growth. In this theoretical context, there is no essential role for active macro-policies in stimulating employment and output, while the policy agenda conforms to neoliberal priorities: de-

regulation, privatisation, balanced budgets and disinflation by means of monetary and fiscal restriction.

The current monetary practices of targeting inflation through restrictive money and credit policies have rendered macroeconomic policy ineffectual. The central tenet of the dominant dogma haunting economic policy is a concept familiarly known as the NAIRU (Non-accelerating Inflation Rate of Unemployment). The NAIRU has become a powerful framework that strongly influences the formation of macroeconomic policy since the 1970's.

The NAIRU approach which was formulated in the 1960's (see Milton Friedman³, 1968) implies that if an economy is below its natural rate of unemployment, then inflation will accelerate. As expected, the emergence of such a belief has had profound impact on macroeconomic theory as well as on the way macroeconomic policy has been conducted over the last decades.⁴ The NAIRU explicitly proposes that governments can not use an expansionary fiscal or/and monetary policy to reduce unemployment below its natural rate, except at the cost of accelerating inflation. The hypothesised trade-offs between inflation and unemployment derived by the standard Phillips Curve appears to be valid only in the short-run and under the assumption that workers fail to form perfect expectations and to adapt their real wages to the actual inflation rate in the economy.

In these conditions, any attempt of the government or the policy makers to reduce unemployment by increasing the level of aggregate demand is likely to be effective only in the short-run. In this sense, the existence of the NAIRU places a significant constrain on the extent to which unemployment can be reduced through a Keynesian-type expansionary mix of fiscal and monetary policy. Furthermore, economic expansion will cause a higher inflation rate that will cancel out the effects of the initial stimulus, when expectations will be perfectly adapted. If policy aims to keep unemployment below its natural rate, it should keep aggregate demand sufficiently high. In such a macroeconomic environment inflation would rise more and more rapidly. In order to deflate the economy, policy makers will cut spending but unemployment would return back to its natural rate and inflation would stop accelerating. Inflation will come back to its initial level only after unemployment rose above its natural rate. Hence, the NAIRU requires that macroeconomic policy should be used to prevent unemployment rate from falling below its natural rate.

The rational expectation variant of the NAIRU doubts the effectiveness of macroeconomic policy even in the short-run. Both variants of the NAIRU im-

ply that it is impossible to permanently sustain unemployment below its NAIRU and questioned the desirability of governments to try it because of the cost of an accelerated inflation.

The concept of the NAIRU as well as its policy implications may be coherent from a free-market standpoint. In the NAIRU theoretical construction an increase in the unemployment rate is attributed to changes in the labour market that have led to a secular rise in the NAIRU. Hence, unemployment as well as the persistence in unemployment are put down to labour market rigidities, which together with poor education, and motivation are preventing the unemployed from getting work on existing capital stock (Layard and Nickell, 1986; Layard and Jackman, 1991)⁵. The only way in which unemployment can move to lower levels is to restructure the labour market. The aforementioned argument is rather pervasive in reports such as the OECD Jobs study (1994a) and the OECD Economic outlook (1994b). Any policy choice is reduced to recommendations for more flexibility in the labour market, wage austerity and lower social standards as means to reduce the cost of labour (CEPR, 1995).

The theoretical construction of NAIRU results to a certain macroeconomic environment that institutionalises economic austerity and overlooks the possible effect of economic policy on unemployment. More specifically, within the aforementioned neo-orhodox context, there is no demand-side effects on unemployment. An increase in any components of the aggregate demand will cause an upward movement of the inflation rate. In this sense, Eisner (1995) observes that the concept of the NAIRU is a clear departure from the Keynesian view that inflation is a danger only when increased spending or demand presses against full or near full employment. Baker (1998) notes that in the NAIRU context, demand is a factor that might cause unemployment only to the extent that the actual unemployment rate exceeds the natural rate of unemployment.

Could OECD unemployment be attributed to lack of adequately educated and trained workers or to insufficient demand for output resulted from economic austerity? The latter moves the centre of the analysis to the issue of capacity constraints on employment. Arguably such constraints stem from capital shortages in the productive sectors of those economies which have been triggered by a permanent insufficient demand for output. Capacity constraints could be looked upon, as being of immense economic importance as they condition macroeconomic policy, demand for output, capital accumulation and unemployment⁶.

Within the NAIRU framework, unemployment is totally unaffected by the amount of capital stock. The problem of capital stock is rejected by neo-liberal economists, who regard the issue of job creation as being mainly a matter of encouraging more employment on existing capital stock and not to increase the amount of this stock (Rowthorn, 1995).

Arguably, whilst an attempt to lower the unemployment rate on existing capital stock might cause some inflation⁷ any expansion of capital stock within the NAIRU framework will leave the inflation rate intact. Thus, the way economic policy is formulated is subject to the assumptions we make about the dynamics of capital accumulation. Furthermore, the introduction of additional productive capacity requires the adoption of macroeconomic policies that would be orientated towards the promotion of output and employment. Such a prospect however is far from realistic within the NAIRU framework. Capital stock and employment could be promoted only within a Keynesian type macroeconomic environment that radically differs from the one proposed by the NAIRU and the neoliberal tradition.

3. Macroeconomic Policy, Capital Formation and Employment:

A Theoretical Framework

Amid numerous studies seeking to identify the possible causes of unemployment, only a handful highlight the important role that capital stock plays in conditioning the way labour markets function (Giersch 1981; Malinvaud 1980, 1985; Sneessens and Dreze 1986; Bean, 1989; 1994; Soskice and Carling 1989, Rowthorn, 1995). The main premise of this growing body of literature is that low investment particularly in the business sector in many OECD countries has been a significant factor behind the dramatic decline in their employment performance.⁸

In this perspective, whilst education and training programmes as well as supply side policies in general are considered to be of great importance, at the same time however they are regarded as being inadequate to tackle the unemployment problem. The lack of job opportunities is more crucial. A major reduction in unemployment requires additional investment in productive capacity that will create jobs and will increase the demand for labour. Rowthorn (1995) maintains that this aspect to the unemployment problem has been neglected in the enthusiasm for labour-market issues.

Economic austerity is likely to have contributed to the problem of capital shortages. More specifically, the reliance on deflationary macroeconomic

policies to combat inflation might have led to an erosion of productive capacity in many countries in the OECD region (e.g. Rowthorn, 1955; Smith, 1996; Kitson and Michie, 1996; Arestis and Sawyer, 1998). The resulting erosion especially in industrial capacity has cast considerable doubts as to whether the remaining capacity is sufficient to provide job opportunities to the whole of the potential labor force. In this way, capacity deficiencies are likely to have operated as a significant constraint on employment. Rebuilding of lost capacity is therefore a key requirement for restoring a higher level of employment. However, the latter presupposes the rebuilding of a macroeconomic environment that would promote investment and output.

There are different channels through which a restrictive macroeconomic policy regime might negatively affect productive capacity and employment. On the demand side, the pursue of restrictive macroeconomic policies might have been culpable for the failure in productive investment within the OECD area. Lack of investment, in turn, has constrained technological progress and the expansion of demand to the levels required to increase employment. The cumulative effect of this process has caused capacity problems.

For Scott (1992) any type of investment creates new investment opportunities and *vice versa*. Within a Keynesian framework, investment responds to demand and the expectations of the growth of demand⁹. Smith (1996) advances this argument by stating that the current economic situation is one where there is a danger that increasing demand will lead to shortages of capacity and inflationary price increases, while unemployment might still remains high. It is therefore imperative that capacity is restored to full employment level.

In market economies firms' decisions to expand capacity are influenced by the cost and availability of capital, demand expectations and their perception of risk (Smith, 1996; Driver, 1996), as well as expectations of future profitability and the policy objectives set by governments. The contemporary practices of fiscal austerity and of manipulating interest rates both to combat inflation creates a bias towards higher real interest rates and disinflation. In addition, the steady upward trend of interest rates in conjunction with their unprecedented volatility has contributed to impeding investment and business confidence.

In so far as the cost of expanding capacity is capital costs then high interest rates may have been responsible for the abandonment of investment projects as well as the deterioration of business confidence. Interest rate policies and the availability of finance have been identified as the main policy factors that

have impeded the growth of industrial firms (Rowthorn, 1995; Smith, 1996; Kitson and Michie, 1996).

Over the last two decades, and especially in the 1990s, expectations have been formed predominantly through the implementation of deflationary policies across the OECD. The nature of those policies has had an adverse effect on aggregate demand, sales and in effect on firms' investment decision. Smith (1996) contends that firms' confidence that demand will grow is conducive to validating any expansion of their capacity. In effect, negative prognosis regarding the stance of macroeconomic policy and the growth rate of demand make managers cautious about overestimating future sales, since the penalties associated with such practices tend to be much greater than for losing potential business by failing to expand. The repercussions of such policies have been pernicious to manufacturing investment.

The risk of investing in capacity that will not be fully utilised is related to the possibility of sale's failure and the consequent fall in firm's profits, as well as the ability of firms to absorb it. The latter links the demand with the supply side factors that lie behind the capacity limits on employment.

Finally, the role of capacity scrapping, within a 'hysteresis' framework, is given considerable prominence (Sneessens and Dreze 1986; Van der Klundert and Van Syhaik 1989) as an alternative channel through which changes in aggregate demand may bring about changes in the rate of unemployment. More specifically, a fall in aggregate demand will affect capacity utilisation and, through this, investment. The resulting lower investment induced by lower rates of capacity utilisation causes the size of the capital stock to shrink, which in turn, at least in the medium run, causes the rates of capacity utilisation to rise again. At high rates of capacity utilisation there are reasons to believe that profit margins are widened resulting to an increase in the price level (Soskice and Carling 1989). The increase in prices due to shortages in capacity will induce upward movements to the rate of unemployment. In short, higher demand would have a positive effect on capacity utilisation and through this on investment, which in turn would increase employment at least in the medium-run.

In the sketch of the above arguments, it was considered that within the NAIRU framework the bias towards adopting restrictive macroeconomic policies is likely to have exerted enormous pressure on businesses in terms of both demand expectations and strategies to undertake new productive investment. As a result the decreasing rate of growth of productive capacity, might have in-

hibited the creation of new job opportunities in the OECD area, contributing to the very high levels of unemployment.

4. Econometric Analysis

Having previously elaborated on our main hypothesis it would be rather appropriate to estimate an equation, where the growth rate of employment is regressed on the growth rate of capital stock of the business sector. Such a specification allows us to capture the dynamics behind the process of capital accumulation. Our hypothesis is that an increase in the growth rate of capital stock will create more jobs leading to an increase in employment. The following model therefore provides the platform on which the main hypothesis will be tested.¹¹

$$E_{it} = \beta_0 + \beta_1 C_{it} \quad (1)$$

A panel data approach provides the econometric framework for our analysis. For the estimation of the model a data-set has been used, which consists of N cross-sectional units, denoted $i = 1, \dots, N$, observed at each of T time periods, denoted $t = 1, \dots, T$. In this context, annual data for 16 OECD countries from 1961 to 1998, (so $N = 16$; $T = 37$) has been used.

Estimation

In an attempt to model the growth rate of employment E_{it} , as a function of the growth rate of capital stock C_{it} several specifications of equation (1) following a general to specific approach, were estimated. Table 1 presents the equation that was selected on the basis of the Schwarz (*S.I.C.*) and Akaike (*A.I.C.*) Information criteria:¹²

A number of selection tests (*F-test*, Hausman-test), were conducted to determine the selection of the most coherent model. Both tests¹³ suggest that the fixed effects model is preferred to both the pooled model as well as to the random effects one

Fixed Effects Model

$$E_{it} = 0.36 C_{it} \\ (0.04)$$

(standard error in parenthesis).

$$R^2 = 0.56$$

The individual effects together with their standard errors are given in table 2.

On the basis of the results obtained it can be argued that the estimated parameter bears the anticipated signs and passes the significance test (at the 5% level), with the only exception being the intercept estimates corresponding to Ireland, the Netherlands and Canada which are found to be insignificant.

The positive and statistically significant coefficient of *Cit* reinforces the belief that an increase in capital stock will have a positive effect on employment within the OECD area.

5. Conclusions

The empirical findings do suggest that a potential factor behind unemployment in OECD countries is insufficient growth of capital stock. Therefore measures to stimulate productive investment could play an important role in helping to reduce unemployment.

Achieving economic conditions that promote employment requires an investment strategy that will enable the OECD countries to increase the quality and quantity in terms of both equipment and structure. Training as such can be perceived as being an important supply-side tool to enhance industrial productivity and performance, however, giving the unemployed proper skills, according to the needs of the economy and the evolution of labour markets.

It has been envisaged that the adoption of demand side policies is conducive to nurturing investment growth in the OECD area. For such a prospect to be realised, it may be argued that changes in the current, neoliberal macroeconomic structure take place. This means that macroeconomic policy should aim to ensure a continuous expansion of demand matched, via more productive investment, by increased employment.

Notes

1. For a survey of this literature see Bean 1994.
2. However, economic austerity should not be related only to the rise of neoliberalism. It shall be partially attributed to the global, monetary and financial environment of highly mobile and unregulated speculative financial capital that emerged after the collapse of Bretton Woods.
3. Milton Friedman (1968) argues that the long-run Phillips curve is vertical and an inverse relation between inflation and unemployment stands only in the short run and cannot be a per-

manent economic situation. Friedman put forward this view in response to the Phillips curve that offered to the policy makers a menu of tradeoffs between inflation and unemployment.

4. There is much dispute on how the NAIRU should be estimated, a fact that in itself raises questions about both the theoretical and the practical usefulness of the concept (see Galbraith, 1977; Eisner, 1997; Solow and Taylor, 1998).

5. The importance of education and training has recently been emphasised by endogenous growth rate of productivity is associated with the level of education. An educated and motivated work-force is able to facilitate the development of, adapt more easily to, and exploit more fully new processes and techniques of production (Romer, 1986; 1990, Lucas, 1988).

6. Capital accumulation has no effect on unemployment only under the empirically doubtful assumption that the elasticity of substitution between labour and capital is equal to unity (Rowthorn, 1999).

7. Such a notion however is subject to the direction productivity changes.

8. The erosion of physical capital stock can be thought of as a hysteresis mechanism through which low investment from the mid-1970s has meant that there is insufficient capital to employ all of the labour force at current wages.

9. The important relationship between investment and demand is overlooked in many recent discussions of economic growth, which ignore demand constraints on the level of economic activity. Investment can increase, as well as respond to, the level of demand, affecting the scale of production as well as its structure, organization and technological efficiency (see Scott, 1992).

10. In an attempt to investigate this relationship in a more comprehensive way, the inclusion of a dummy variable was deemed necessary. Such a practice will seek to capture the effect of the shift in economic policy - fueled by the emergence of the neoliberal consensus and reflected by a significant historically economic developments: the collapse of Bretton Woods - on job creation. When this model was estimated the dummy variable was found to be insignificant and therefore dropped from the estimated equation.

11. See Appendix for definitions of variables

12. Pooled model: AIC - 2.65; SIC - 2.48, Fixed effect model: AIC - 2.74; SIC - 2.63, Random effect model: AIC - 2.68; SIC - 2.43.

13. F-test: 19.34 p-value: [0.00], Hausman-test: 18.65 p-value:[0.00]

References

- Arestis, Phillip and Malcolm Sawyer (1998). Keynesian Economic Policies for the New Millennium. *The Economic Journal* 108:181-195.
- Baker, Dean (1998) The NAIRU: is it a real constraint? In *Globalisation and Progressive Economic Policy*. Baker, Dean., Gerald Epstein and Robert Pollin (eds.). pp. 369-387. Cambridge, Cambridge University Press.
- Bean, Charles R. (1989) Capital Shortages and Persistent Unemployment. *Economic Policy* 8: 11-53.

- Bean, Charles R. (1994) European Unemployment: A Survey. *Journal of Economic Literature*. 32 (2): 573-619.
- CEPR (1995) Unemployment: Choices for Europe, Monitoring European Integration 5. London.
- Driver, Ciaran (1996) Tightening the Reins: The Capacity Stance of UK Manufacturing Firms 1976-1995. In *Creating Industrial Capacity*. Michie, Jonathan and John G Smith (eds.). pp. 75-92. Oxford, Oxford University Press.
- Eisner, Robert (1995) Our NAIRU Limit. *The American Prospect* Spring: 58-63.
- Eisner, Robert (1997) A new view of the NAIRU. In *Improving the Global Economy: Keynesianism and the Growth of Output and Employment*. Davidson, Paul and Jan Kregel (eds.). Brookfield, Vt:Edward Elgar.
- Friedman, Milton (1968) The role of monetary policy. *American Economic Review* 58 (March):1-17.
- Galbraith, James (1997) Time to Ditch the NAIRU. *Journal of Economic Perspectives* 11(1): 93-108.
- Giersch, Schneider H. (1981) Aspects of Growth, Structural Change and Employment: A Schumpeterian Perspective. In *Macroeconomic Policies, Growth and Stability*. Giersch, Schneider H (ed.). Tybingen.
- Kitson, Michael and Jonathan Michie (1996) Manufacturing Capacity, Investment and Employment. In *Creating Industrial Capacity*. Michie, Jonathan and John G. Smith (eds.):24-51. Oxford, Oxford University Press.
- Layard, Richard and Stephen Nickell (1986) Unemployment in Britain. *Economica* 53(S): 121-170.
- Layard, Richard and Richard Jackman. (1991) *Unemployment*. Oxford, Oxford University Press.
- Lucas Robert (1988) On the Mechanics of Economic Development. *Journal of Monetary Economics* 22: 3-22.
- Malinvaud, Edmond (1980) *Profitability and Unemployment*. Cambridge, Cambridge University Press.
- Malinvaud, Edmond (1985) *The Theory of Unemployment Reconsidered*. Oxford, Blackwell.
- OECD. (1994a) *Jobs Study*. Paris, Organisation for Economic Co-operation and Development.
- OECD. (1994b) *Economic Outlook*. December, Organisation for Economic Co-operation and Development.
- Romer, Paul M. (1986) Increasing returns and long-run growth. *Journal of Political Economy* 94:1002-32.
- Romer, Paul M. (1990). Endogenous technical change. *Journal of Political Economy*. 98: 71-102.
- Rowthorn, Robert (1995) Capital Formation and Unemployment. *Oxford Review of Economic Policy* 11(1): 26-39.