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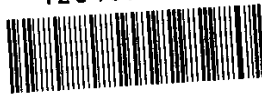
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**Payroll Taxes, Capital Grants,  
and Irish Unemployment**

by

**Frank Barry**

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# Payroll Taxes, Capital Grants, and Irish Unemployment

Frank Barry  
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June 1989

## Abstract

This paper explores the role of factor prices in macroeconomic models which embody the frequently-encountered Classical, Keynesian, and Structuralist perspectives on the causes of Irish unemployment. It is argued that within each framework a strong case can be made for at least partial replacement of the current IDA capital-grants scheme by a policy of payroll-tax reductions for newly-created jobs. Various objections to this type of proposal have been raised in the literature, and these are dealt with here on a point-by-point basis. A range of estimates is given for the likely employment effects and exchequer costs of the proposed policy.

Paper presented at the 1989 Annual Conference of the Irish Economic Association. Helpful discussions with Kieran Kennedy, Gerard Hughes, Michael Moore, Richard Breen and conference participants are gratefully acknowledged; the author alone, however, is responsible for the views expressed here.

## 1: Introduction

With the debt to GNP ratio stabilised, there are indications that the unemployment problem may be moving to the top of the Irish political agenda. Economists have been unanimous in recent years in their call for tax reform as one avenue from which to approach the problem, though they have unfortunately been divided on the precise reforms called for.

One important line of enquiry has been concerned with the impact of the constellation of factor taxes and subsidies in operation in this country; a recent OECD study, for example, concluded that "no other OECD country had a tax system as biased against the use of labour as the Irish". This conclusion about the flawed structure of the Irish tax/subsidy system has been disputed by others, however, and it is the purpose of the present paper to analyse these objections as rigorously as possible in an attempt to move towards agreement on the policy advice to be proffered to government on this issue.

The main question to be pursued here is whether the objections to tax reform of this type stem from a disagreement over the nature of the prevailing unemployment problem. In an earlier paper, Barry (1987b), I attempted to identify the various macroeconomic perspectives on unemployment that distinguish the competing schools of thought in Irish economic debate from one another; three views in particular emerged: firstly, the Classical small-open-economy view that production is cost-

constrained; secondly, the neo-Keynesian view that aggregate-demand deficiency may also be important; and thirdly, the Structuralist view that barriers to world-market entry represent the major growth-inhibiting constraint facing a late-industrialising economy such as Ireland's.

In the present paper I consider the role of capital and labour subsidies within the context of each of these perspectives, and conclude that while neither policy may be optimal (i.e. "first-best"), a strong argument can be made in each case for replacing the current programme of investment grants (which function as marginal capital subsidies) with an alternative one of offering marginal payroll-tax reductions.

In the later sections of the paper I offer a point-by-point response, based on the analysis developed here, to the objections to such a change which have been raised in the literature.

## 2: Factor Subsidies under Classical Unemployment

The pure small-open-economy (SOE) model embodies the view that has been predominant in the 1980's of how the Irish economy functions. It postulates, as a first approximation, that the economy can be thought of as a perfectly competitive firm, or collection of such firms, producing internationally-traded goods at prices determined exogenously on world markets; as a small actor on these markets the economy is assumed to be able to sell

as much as it desires to produce. There can be no demand-deficiency under these conditions, and the level of employment and production will be determined solely by the structure of costs that firms face.

While this model is (obviously?) an oversimplified view of reality, it served an important function in undermining the flawed domestic demand-driven view of the economy that seems to have prevailed in policy-making circles over the course of the 1970's.

Within the SOE model any unemployment above the frictional level must be of the Classical (high-wage) variety. This is illustrated in Figure 1 below, where the level of activity denoted  $L_f$  is taken as our measure of full employment (ignoring frictional factors); it occurs at the intersection of the initial labour-supply and neo-Classical labour-demand functions. Much attention has been focussed in recent years on the "tax wedge" as a factor capable of driving the economy below  $L_f$  [see e.g. Walsh (1987a,1987b), Murphy (1987), Bean, Layard and Nickell (1986)]. By widening the gap between employers' real labour costs, which determine the position of the economy on the labour demand function, and the real after-tax wage received by employees, which determines a point on the labour-supply curve, taxation reduces employment to the level  $L_c$ . Other factors which may operate to reduce employment in this Classical fashion include trade union activity (which shifts the economy up the labour-demand curve), or changes in the replacement ratio (which shift

the labour-supply function).

If factor subsidisation is going to be used to combat Classical unemployment, can it be shown that labour subsidies are preferable to capital grants? This is the type of unemployment that has received most attention in the literature on optimal intervention, and it is not therefore surprising that the standard message emerging from that literature - that intervention should be directed as closely as possible to the source of the distortion - should be applicable in a straightforward fashion in this case. The essential distortion under Classical unemployment is that labour costs are excessive, and a policy of reducing the cost of labour attacks this distortion directly.

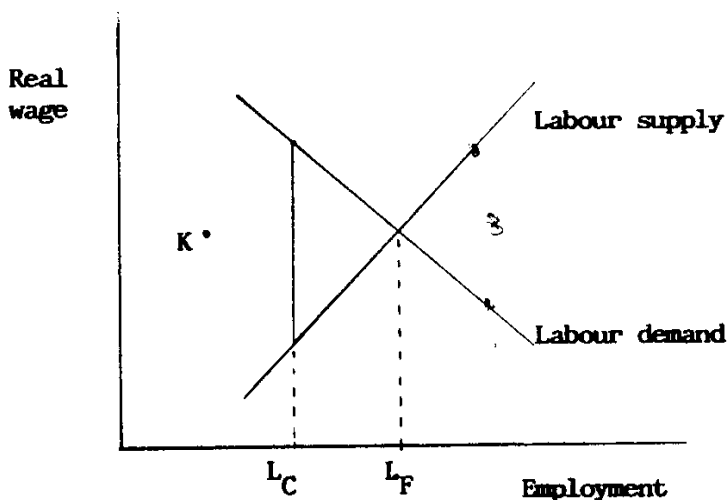


Figure 1: The labour market, indicating employment effects of the tax wedge and of Keynesian recession.

The effects of factor subsidies under Classical unemployment can be easily demonstrated in the following stripped-down SOE model. Since output prices are exogenous, let us hold them constant and set the price level at unity. Hold the real wage,  $w$ , constant at a level sufficiently high to generate unemployment and let the interest rate,  $r$ , be determined exogenously by international capital mobility. Now consider the effects of a labour subsidy,  $m$ , and an investment subsidy,  $g$ , on the decisions of SOE firms. In order to analyse the long-run equilibrium effects it is permissible to ignore the issue of how expectations are formed, and focus only on the long-run equilibrium version of the instantaneous profit level,  $p$ , of firms in the economy. The profit function is:

$$p = F(K_0 + I - \delta K_0, L) - r[ I(1-g) + bI^2 ] - (w-m)L$$

where  $F(K,L)$  is a constant returns to scale production function in capital and labour,  $K_0$  is the initial capital stock,  $I$  is gross investment (whether net or gross investment is subsidised is irrelevant to the issue at hand),  $\delta$  is the rate of depreciation of capital equipment, and  $bI^2$  represents the capital-adjustment cost (resulting from factory-floor disruption, for example.)

The first-order conditions for the solution of this optimisation problem are:

$$F_L(K/L) = w-m$$

and

$$I = (F_K/r + g - 1)/2b$$



The first condition represents the familiar equality between the marginal product of labour and employers' real wage costs. The latter therefore determines the capital-labour ratio. This in turn feeds into the investment equation via the marginal product of capital, and combines with the interest cost of capital and the investment subsidy to determine the long-run capital stock, and hence also the long-run level of employment. Investment is therefore seen to depend, reasonably, both on interest rates and on factors influencing profitability.

The long-run value of the capital stock is found by substituting into the investment equation the long-run equilibrium condition that net investment is zero, i.e.  $I^* = \delta K^*$ , where an asterisk indicates a long-run equilibrium value. This process yields:

$$K^* = (F_K/r + g - 1)/2b\delta$$

An increase in either subsidy under these Classical conditions raises both  $K^*$  and  $L^*$ , although the labour subsidy, by reducing the capital labour ratio, generates more employment per unit of capital as long as substitution possibilities exist either in production techniques or in the choice of goods to be produced.<sup>1</sup>

This outcome is illustrated in Figure 2, in which  $K_0$  and  $L_0$  represent the initial equilibrium of the economy in the absence of any subsidies. The top panel of Figure 2 shows the positive impact that either subsidy exerts on the capital stock, while the

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<sup>1</sup> This model in which a capital grant does not induce substitution against labour is adopted specifically to show how weak the assumptions required for the case being made here can be.

bottom panel depicts the relationship between the resulting stock of capital and the employment level. An investment grant causes the economy to move out along the ray marked *gg*, while an employment subsidy induces movement along *mm*, which is more steeply sloped because of the lower capital-labour ratio generated by this policy.

In terms of employment creation therefore, it is clear that in the Classical case labour subsidies are at least as good as capital subsidies, and are better if factors are substitutable in any way.<sup>2</sup>

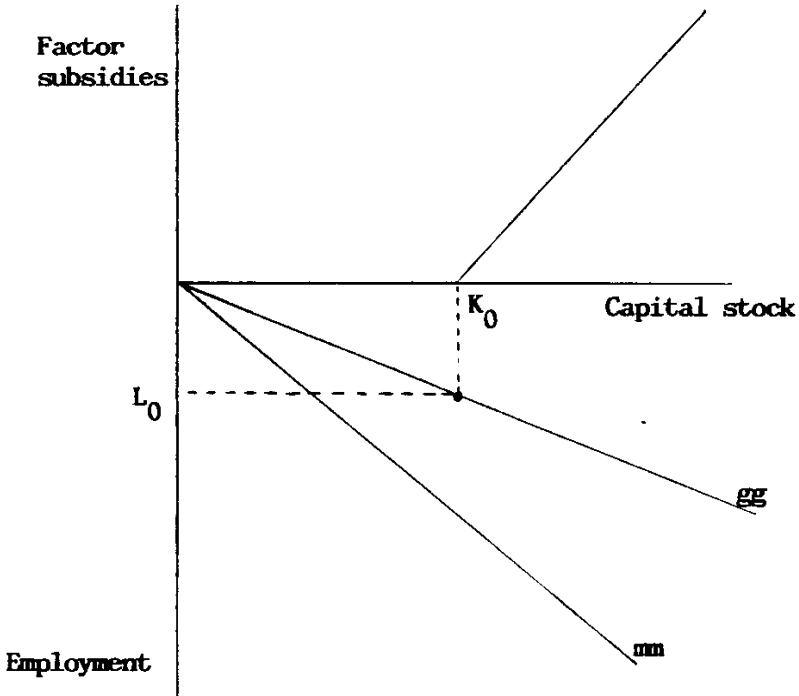


Figure 2: The impact of factor subsidies under Classical unemployment

<sup>2</sup> Defenders of current IDA practices, in response to an earlier version of this paper, have suggested the following scenario within which the above conclusion would be invalid: all goods are produced with a given technique of production; within the conceivable domain of Irish factor prices there is a severely limited choice of goods which could be produced; and foreign industrialists would misread any subsidisation of labour as an indicator of inferior quality. The reader must decide for him/herself how realistic a view of the world this is.

Two further issues, studied in greater detail in Barry (1989), may be mentioned before moving on to a discussion of other types of unemployment. The first concerns the response of wages to policy intervention. In the analysis above it has been assumed that wage demands do not increase when the subsidy programmes are introduced; it may be more realistic to view wage demands as being influenced to some extent by the degree of tightness or slackness in the labour market. If this is so then policies which increase the demand for labour will exert upward pressure on wage costs, and the subsidies will be "shifted" to some extent onto employees. It is shown in the Appendix to the paper mentioned above that allowing for this possibility does not affect the relative positions of capital and labour subsidies in the policy hierarchy. The employment effects already discussed serve as a crude measure of employees' ability to reap wage increases in this fuller model in which smaller employment effects occur alongside wage gains.

The other issue that must be taken into account concerns the tax costs of these public-sector programmes. In his classic discussion of the sensitivity of the results of the theory of optimal intervention to any change in the assumptions upon which it is based, Corden (1974,p.48) argued that "policies at the top of the hierarchy are those which are directed precisely to the point of the divergence; relevant subsidies required will then cost rather little, less than when the subsidies are less discriminating. Hence the welfare gains from choosing a policy high up in the hierarchy as compared with one lower down will

probably be even greater than before". For the case under discussion the validity of Corden's speculation can be demonstrated when marginal labour subsidies are compared with investment grants, which are in effect marginal capital subsidies.<sup>3</sup> The intuition behind this result is that investment grants, in order to achieve any given increase in employment, require more capital than a programme of labour subsidisation does, because of the impact of the latter on the capital-labour ratio.

### 3. Factor Subsidies under Keynesian Unemployment

We have been considering so far only Classical unemployment, which is the type that arises in the "pure" small open economy model in which prices are set on world markets, and the economy can sell, at these prices, as much as it desires to produce. For a number of reasons this pure version of the model has fewer

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<sup>3</sup> The proof is as follows. The first-order conditions above imply:

$$\begin{aligned} dK/dg &= 1/2b\delta \\ dL/dg &= (L/K)dK/dg \\ dK/dm &= (L/K)(1/r)(1/2b\delta) \\ dL/dm &= (L/K)(dK/dm + L/F_L') \end{aligned}$$

where  $F_L'$  is the derivative of the marginal product of labour with respect to the capital-labour ratio. Consider levels of  $g$  and  $m$  that generate equal increases in employment. The cost per period of the investment subsidy is  $rg$  times the amount of investment it stimulates, which is  $rgK/L$  times the amount of employment stimulated. The tax cost of the labour subsidy, on the other hand, is  $m$  times this amount of employment. Is  $rgK/L > m$ ? By the assumption that the subsidies are set such that equal increases in employment are generated, we have  $g = m(dL/dm)/(dL/dg)$ , so the proof requires that  $r(K/L)(dL/dm) > (dL/dg)$ . Substituting in the values derived in the equations above quickly reveals that this is so.

adherents today than was the case several years ago. As far back as 1981 Patrick Honohan showed that foreign demand exerts a significant effect on Irish export quantities independent of its impact on prices, a finding inconsistent with the complete supply-side nature of the SOE model.

The insignificance of aggregate demand in production and employment-determination in Ireland has more recently been thrown open to question by the results reported in Walsh (1987a), who concludes that "an increase in the Irish (structural) budget surplus increases the level of unemployment and lowers the rate of real GNP growth for a given rate of EEC growth...For a given fiscal stance, Irish GNP growth reflects that in the EEC very closely, while Irish unemployment seems to vary slightly more than proportionately with EEC unemployment".

These results clearly point to the inadequacy of macroeconomic models which ignore the impact of demand, and particularly foreign demand, on SOE employment and production. There is a good deal of consistency in the messages emerging from empirical studies of current European unemployment that aggregate demand deficiency has played a major role over the course of the 1980's. While Bruno and Sachs (1985,p.171) argued that "the steady rise in (OECD) unemployment during 1975-79...should be attributed to the fact that real wages remained above market-clearing levels in most economies (but probably not in the United States)" they nevertheless held the view that "the sharp increases in unemployment during 1973-75 and 1979-82 are mostly demand-induced

and resulted from the application of tight monetary policies to the supply shocks and high inflation in 1972-73 and 1979-80". In an update, Bruno (1986, p.549) concluded that "most of the ...increase in unemployment (since then) can be attributed to aggregate demand shifts". Bean, Layard and Nickell (1986) reach a similar conclusion: while cautioning that supply-side factors have played a significant role, they interpret their results as indicating that "the decline in demand, relative to potential, seems to have been an important proximate cause of the rise in unemployment, especially in the European Community".

The next step in the analysis of factor subsidies, then, is to study their impact under conditions of Keynesian (demand-deficient) unemployment. A Keynesian recession arises when a reduction in aggregate demand is met by wage and price stickiness, so that the displacement of resources from declining sectors does not create an incentive for other sectors of the economy to expand and take up the slack. What is the status of the neo-Classical labour demand function depicted in Figure 1 under these conditions? Recall that this curve was drawn under the assumption that all firms could sell as much as they desired to produce at going world prices. This assumption is now clearly violated; even with real wages remaining at their full-employment levels, firms reduce employment because of the demand constraint they face in output markets, and the employment level for the economy lies to the left of the neo-classical function, at a point such as K.

This case can be modelled by assuming that the economy faces a constraint whereby exports cannot exceed the fixed level  $X_0$  which represents the deficient level of foreign demand:

$$X_0 \geq F(K_0 + I - \delta K_0, L) - I - bI^2 - C(Y) + M(Y)$$

$C(Y)$  in this equation is a simple Keynesian consumption function,  $M(Y)$  is domestic demand for the composite import good, and direct government expenditures are ignored. Firms must now take this constraint into account when maximising profits, and, as Barro and Grossman (1971) pointed out, the marginal product of labour and the (constant) real wage will no longer be equated. This changes dramatically the nature of the impact of factor subsidies, as analysed in detail in Barry (1987a). A diagrammatic treatment will suffice for present purposes.

Taking account of the fact that  $I^* = \delta K^*$  in long-run equilibrium reveals that the level of exports in the constrained case is a function only of the capital stock and the level of employment in the economy. This export level is therefore represented as an isoquant in the south-east quadrant of Figure 3. An investment subsidy, as illustrated in the northeast quadrant, raises the stock of capital, but this simply displaces labour because it has no effect on the demand constraint in the long run.<sup>4</sup>

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<sup>4</sup> It might be argued that attracting multinational companies to locate in the domestic economy could relax the export demand constraint because of their highly developed marketing and distribution systems. This argument, however, has no implications for the issue of which factor should be subsidised, since both subsidies, subject to the caveats to be discussed later, are equally capable of attracting firms.

The substitution effect of factor subsidisation therefore manifests itself in the Keynesian case while the output effect has been seen to dominate under Classical conditions. A labour subsidy under present circumstances would exert a substitution effect in the opposite direction, as seen in the southwest panel, leading to an increase in the level of employment.

The conclusion to be drawn from the analysis of the present section, therefore, is that the dominance of labour subsidies over capital grants is even stronger under Keynesian conditions.

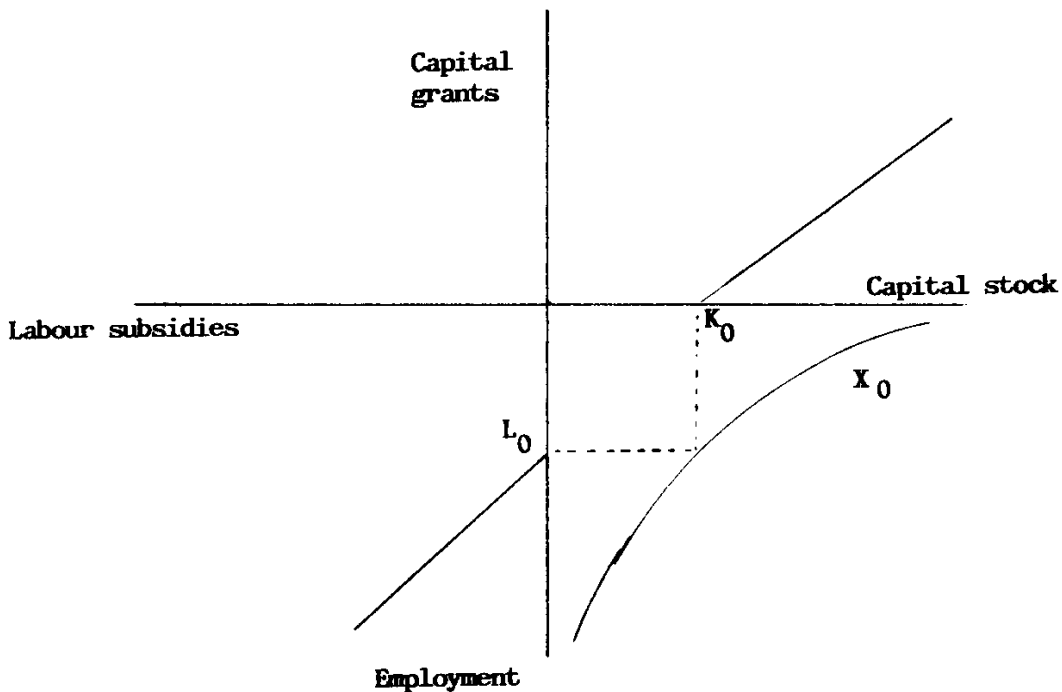


Figure 3: The impact of factor subsidies under Keynesian unemployment



#### 4. Factor Subsidies under Imperfect Competition

The discussion of Keynesian and Classical unemployment in the preceding two sections of the paper has been based on the assumption of perfectly competitive firms. Not only is this empirically unlikely, and unduly restrictive in that firms in this scenario may be either cost-constrained or demand-constrained but not both, it is also basically incompatible with the arguably-realistic assumption that prices may remain at disequilibrium levels for substantial periods of time. The trend amongst many macroeconomists in recent years has therefore been to model the goods market in terms of imperfectly-competitive firms. In this section I want to begin by considering one such popular model of imperfect competition, and then vary the assumptions somewhat to arrive at a related model that may capture some of the characteristics of the Irish economy. The impact of factor subsidies in this model will then be analysed.

Hickman (1987) and Coen and Hickman (1988) study OECD unemployment in terms of imperfectly competitive firms which set prices as a markup over normal costs, and choose inputs of capital and labour to minimise the cost of producing the output they expect to sell at the price they set. The demand for labour is therefore dependent simultaneously on the level of effective demand and on the wage-rental ratio. Keynesian unemployment in this scenario occurs when output is below its potential level, while Classical unemployment exists if the current real wage exceeds the real wage that would generate full employment if

output were at potential. The results reported paint a surprisingly similar picture to the one emerging from Bruno and Sachs' analysis, in terms both of the differences between the structure of European and North American unemployment, and in the breakdown of the overall period into subperiods in which Classical or Keynesian factors dominated.

The Coen-Hickman model cannot, of course, be taken as a realistic representation of the Irish economy, no more than the pure SOE model can be accepted as a valid depiction of the multinational sector of Irish manufacturing industry. The assumption of constant-markup pricing is particularly inappropriate given the number of empirical studies, including Browne (1982) and most recently Callan and Fitzgerald (1989), which show that domestic costs do not exert a significant influence on Irish export prices.

As I suggested earlier in Barry (1987b), the "kinked oligopoly demand curve" model, depicted in Figure 4, provides us with a framework within which these results on the exogeneity of export prices are compatible with Honohan's finding that exporters may be demand-constrained on world markets. Sweezy's (1939) formulation of the demand curve was based on the conjecture of the firm that its rivals would match any price decreases that it were to make, so that the impact on demand for its products would be minimal, while competitors would not be expected to follow suit were it to raise its price. Negishi (1979) provides an alternative interpretation, as follows: "Lower prices asked by

a supplier may not be fully advertised to customers buying from other suppliers who are maintaining their current price, while a higher price charged by the same supplier necessarily induces present customers to leave in search of lower price suppliers".<sup>5</sup>

Interestingly, Kennedy and Foley as far back as 1978 suggested that the Irish export sector might fruitfully be viewed in this light, and the thrust of my argument in Barry (1987b, section 4) was that such a model seemed to capture some of the important aspects of the macroeconomic perspective of the Structuralist school, associated in Ireland with the work of Eoin O'Malley (1985), which emphasises the constraint on economic growth posed by the barriers to entry that indigenous firms in a late-developing economy such as Ireland's will face when attempting to break into world markets already dominated by well-established firms.

Optimal policies within the Structuralist framework will be those designed to aid indigenous export-oriented firms overcome the specific barriers to entry that they face. To the extent that lack of access to capital represents such a constraint, capital subsidies can clearly be beneficial.

Assume for the moment however that the barriers to entry are generally of a different nature, as outlined in the Telesis report (1982). Will labour subsidies or capital subsidies

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<sup>5</sup> Quoted in Hickman (1987, p.1534).

contribute more to employment creation? Note that output, for a broad range of costs, is determined exogenously by the level of foreign demand, as in panel (a) of Figure 4. (The comments contained in footnote 3 are again applicable here.) This output level can be depicted as the isoquant in panel (b), and the position chosen on the isoquant will, as in the Keynesian case, be influenced both by investment grants and by employment subsidies. As in the analysis of Coen and Hickman, therefore, the demand for labour will be a function of aggregate demand (for commodities) and of the relative prices of capital and labour.

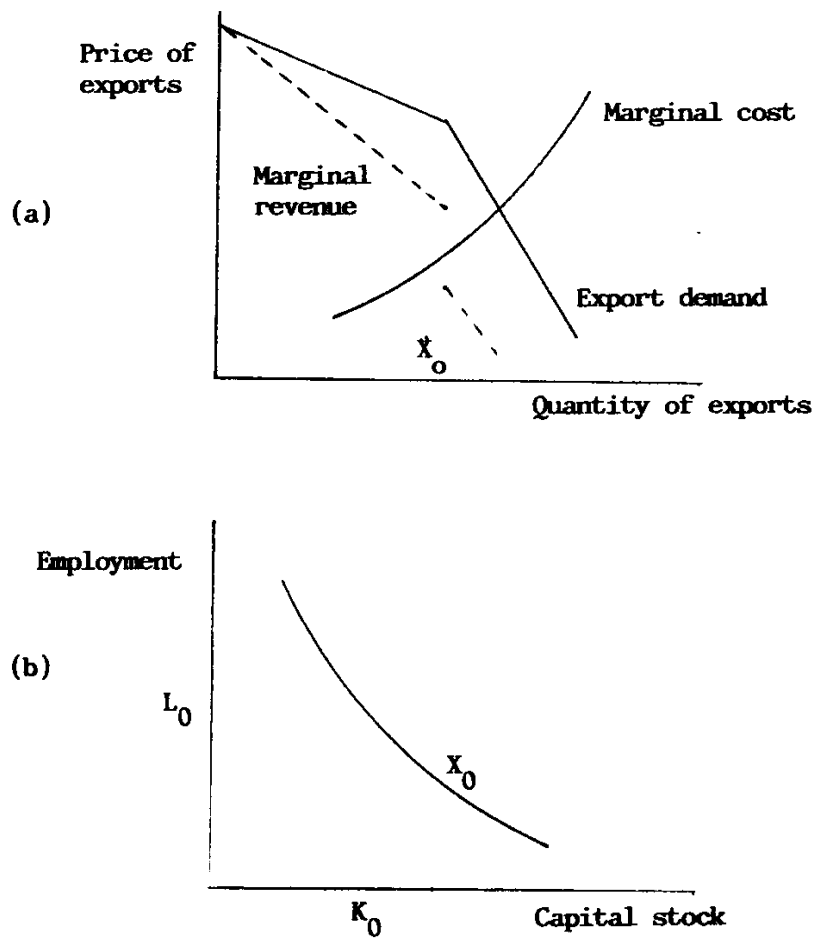



Figure 4: A Structuralist Model

Does this model threaten the conclusions on factor subsidisation arrived at so far? Not in the least. Labour subsidies have been seen to dominate capital subsidies under both Keynesian and Classical conditions; the fact that these conditions may coexist clearly cannot affect this conclusion.

#### 5. Points raised in the literature

I now want to broaden the discussion to consider point by point some other arguments which have been made in defence of capital subsidies. As many of these have been summarised in Conniffe and Kennedy (1984, pp. 178-81), henceforth C & K, I will take this as my main source.

i) C & K note that it is not necessarily true to say that the combination of positive and negative incentives to employment and investment is inconsistent with the goal of employment creation. In particular, "if the mix of factors is close to constant and there is no choice of industry, the output effect will dominate and a subsidy to capital will increase employment". Under the SOE assumption adopted in Section 2 of the present paper this assertion is seen to be correct, and indeed it holds under less stringent conditions than C & K assume. However it is clear from that model that labour subsidies would have exactly the same effects as capital subsidies under these strong assumptions, and would have more beneficial effects if these assumptions were not met.



ii) The Industrial Development Authority argues that its capital grants are in effect capitalised labour subsidies. There are two problems associated with this view. Firstly, a substantial proportion of the jobs projected and created at the time of the grant disbursement prove unsustainable within a relatively short period of time<sup>6</sup>; labour subsidies, on the other hand, are only disbursed for as long as employment lasts. Secondly, any discretionary programme diverts resources away from production and into wasteful lobbying activity; this is known in the literature as "rent-seeking behaviour". As a rule of thumb, Krueger (1974) suggests that this resource cost to society will approximate the amount of economic rents being fought for, which, given the importance of IDA operations, could amount to a very considerable sum. The labour-subsidy programme under discussion here is non-discretionary.

iii) Clearly if the capital market is distorted, then a case can be made for capital grants. Ruane (1987, fn.46) suggests that inadequate access to financial capital may have been a major constraint on manufacturing when the grants were introduced in the 1950's but doubts that this is so today. Coniffe and Kennedy, however, argue to the contrary that "not only may access to capital represent an acute constraint for new enterprises but...can also inhibit expansion in well-established

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<sup>6</sup> NESO (1982, no.66, p.26) reports that "in the case of indigenous grant aided industry 31,200 jobs were created over the period 1973-79 but only 10,300 still existed at the end of the period, i.e. 67% of the jobs which were created were subsequently lost. The corresponding figure for foreign grant aided industry was 43%."

enterprises". A middle ground is perhaps taken by commentators such as NESC (1986,p.273) who recognise "the absence of an adequate capital base on the part of indigenous Irish firms for the purposes of engaging in marketing and the other non-fixed asset investments essential to their sustained growth in international markets". As is widely-recognised since the Telesis report, however, the type of programme required to overcome these distortions is very different from the grants for fixed capital formation which form the bulk of IDA direct aid to industry.<sup>7</sup>

While the notion of imperfections in the market for financial capital seems particularly implausible in the case of the overseas firms which receive a significant proportion of IDA aid, it must be admitted that the apparent adequacy of sources of finance for fixed-asset investment for newer indigenous firms today may be due in large part to the IDA's role in the market. However, it is also clear that Irish private capital markets are developing rapidly over time, and policies directed towards aiding or steering this development would seem superior to the current capital grants programme.

iv) C & K go on to argue that while there may be imperfections in the labour market which keep the cost of labour above its social opportunity cost, labour subsidies or payroll tax reductions could weaken employer resistance to further wage

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<sup>7</sup> "In 1983, 78% of direct aid was towards physical capital formation in machinery and factory construction". [NESC, 1986, p.267].

demands and thereby counteract to some extent the employment effect. This implies an entirely reasonable model in which wage demands are positively affected by profitability and employment buoyancy, but as argued in Section 2 above, this does not overturn the policy hierarchy: it implies that either type of subsidy would raise wage demands, and lesser employment gains would result than would occur in the absence of this response.

v) Kennedy, GIBLIN and McHUGH (1988, p.176), in accepting that capital grants may have substitution as well as output effects, supplement these points by arguing that "a high capital-labour ratio is not itself a barrier to absorbing surplus labour unless there is a shortage of capital". Is this correct? For the Keynesian and Structuralist cases discussed in Sections 3 and 4 above, the cases that actually capture most closely the macroeconomic perspective of their work, we see that it is not. If the shortage is of demand (whether foreign or domestic) for the economy's products, then the output effect vanishes and the substitution effect of factor subsidies dominates.

vi) Several commentators have raised the point that if factor prices are perceived to be out of line with each other, should not the removal of capital grants be capable of alleviating the problem as effectively as reductions in labour costs? The answer is that this would apply in the Keynesian and Structuralist cases, as presented in the text, since either approach would simply induce a movement of the economy along the isoquant. The proposition is not valid for the Classical case,



however, where the output effect is all-important, because the output effects of these policies are quite different. The same conclusion clearly emerges when one takes into account the potential of the various policies to attract multinational investment.

vii) On the tax cost of employment creation, Hughes (1985), by methods to be discussed later, has estimated that a (non-marginal) "payroll-tax cut of £1 per week in the employer contribution would have involved a recurring annual loss of payroll tax revenue of nearly £42,000 per job in 1980 pounds". These figures have been disputed but would still give serious cause for concern, even in the case of a marginal programme which would cost at most 10% of the non-marginal scheme, (taking a figure of 20,000 job gains per annum in a manufacturing sector of 200,000; [Ruane (1987), table 11.3]), when compared with a capital grant cost of around £9,000 per job created as reported by Telesis, were not the Telesis numbers fatally flawed, as Fagan and Murphy (1986) and Ruane have pointed out.

Telesis arrive at their figure by dividing total grant payments by the number of jobs sustained on grant aided projects (which includes almost all manufacturing projects), thereby assuming that none of these jobs, or alternatives, would have existed otherwise. As Ruane suggests, "the logic of attributing the performance of manufacturing industry entirely to the policies being operated would suggest that the IDA policies are disastrous, in that they resulted in a fall in employment between

1973 and 1986!" The equivalent assumption of zero deadweight would yield the highly-desirable costing of £0 per job created under the marginal payroll tax proposal. The logic contained in footnote 2 seems sturdier.

viii) One final point which has received a good deal of attention is the administrative convenience of once-off capital grants as opposed to on-going labour subsidies. Fortunately, whilst indistinguishable on a theoretical level, marginal payroll-tax reductions would not require the same level of on-going administration as a marginal employment subsidy scheme.

## 6. A Policy Proposal

It has been argued here that the subsidisation of labour is preferable to the subsidisation of capital under all the theories of unemployment considered. Marginal labour subsidies, i.e. those applied only to new jobs, avoid most of the deadweight losses to government associated with subsidies distributed across the board. Marginal payroll tax reductions have the added advantages of low administrative costs and the potential to draw in sectors of the black economy.<sup>8</sup>

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<sup>8</sup> The proposal is also not inconsistent with the report of the Commission on Taxation (1982) which envisaged that in the first phase of reform the employer's social insurance contribution would be phased out and replaced by a social security tax on the income that arises to companies. [NESC 1986, p.244].

Abolishing payroll taxes for new jobs would clearly lead to a deadweight loss in tax revenues from the jobs that would have been created in any case. In the present economic environment there is little room for policy proposals put forward without a suggestion as to how they are to be funded. Since the whole thrust of the present argument has been that there are good grounds for replacing at least a proportion of IDA aid by labour subsidies, the obvious means of finance is to reduce the IDA budget by the annual amount lost to the exchequer through the introduction of the present proposal. This should enhance the political feasibility of the proposal also, since concessions would be simultaneously given to , and taken away from, business. It also takes into account the objection to the removal of payroll taxes on the grounds that they are one of the arguably few benefits that the Irish economy receives from the presence on multinational corporations . The means of financing the programme proposed here would certainly entail the loss to the economy of part of this benefit, but this could in turn be offset by making less capital grants to the multinational companies. The economic impact of the policy change would of course remain. As will be argued in a moment, however, the net loss to the exchequer resulting from the introduction of the current policy proposal is in any case likely to be very small, and indeed may even be negative.

A crucial point which has not yet been considered is the problem of time consistency. In order to stimulate the investment required to support new long term employment there would have

to be a credible commitment that the scheme would remain in effect for a minimum of at least five years.<sup>9</sup> The importance of this point seems not to have received adequate attention so far in the literature. In any realistic environment there is greater risk associated with promised future subsidies than with grants paid out today, so that a risk premium would have to be added to future labour subsidies to allow them have the same impact as a capital grant paid out in one lump sum.

A commitment to maintain the programme in place for a minimum period of time would be required to reduce this risk premium, and would represent a major difference between the present proposal and the much less ambitious PRSI-Exemption and Employment Incentive schemes currently in place. The operation of the latter has recently been reviewed by the ESRI. In their report, which concludes, on its job-creation aspects, that a modest "one person-year of employment will have been created per six hirings made under the scheme, taken over a period of about fourteen months", albeit at about breakeven level for the Exchequer, Breen and Halpin (1989) emphasise that EIS is quite different from the type of programme discussed here. In particular, subsidies under the EIS are offered only for particular categories of employees ("the social goal") and only in respect of the first 24 weeks of employment; it may function therefore merely to offset the initial costs associated with taking on extra employees (p.1),

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<sup>9</sup> As Sinclair (1987) notes, the most credible commitment in weak budgetary situations arises when employment programmes are self-financing. This leads him to suggest an employment subsidy financed by a sales tax.

or by playing an educational role "in demonstrating, to a small number of employers, that they can profitably increase their number of employees" (p.79). Furthermore, the EIS is restricted to a maximum of 4 employees per firm. As they note, therefore, it is quite unlike a subsidy programme, such as the present one, specifically designed to establish "a desirable level of relative factor costs...given the implicit and explicit subsidies (in the form of favourable tax treatment and grants) to capital".

Readers might expect a concrete proposal of the type discussed here to be accompanied by an estimate of the employment gains expected to result. There are several reasons for my reluctance to engage in this exercise: firstly, not only would the impact of the tax reduction need to be estimated, but also the impact of the reduction in fixed capital grants; not even Telesis, as we saw above, attempted an econometric evaluation of the impact of capital grants on employment, so such an exercise would go far beyond the bounds of the ambition of this paper. Secondly, and more fundamentally, I have been arguing here that the results of this paper apply for a number of different types of unemployment; an econometric analysis of the impact on unemployment would need to take a position on which theory is most appropriate, and besides being unnecessary for the task at hand, this would also perhaps be more controversial, because of its lack of generality.

With these strong caveats in mind, consider nevertheless the following back of the envelope calculation for the manufacturing sector; (services will be considered in a moment). As in Hughes

(1985) let the % change in employment equal the elasticity of labour supply x the proportion of the benefit of the tax reduction passed on to workers x the % point change in the employers' PRSI contribution. Also following Hughes' discussion let the elasticities of labour demand and supply be approximately equal, and let employers' share of the benefit be about one-half. For an employers' PRSI contribution of 12%, and Fagan and Murphy's (1986) middle-range elasticity of labour demand of -.75 the increase in employment is 4.5%, or 9,000 jobs. The cost of this policy when applied at the margin, in terms of tax forgone, is the number of new jobs that would have been created annually anyway (from Ruane, 1987, table 11.3, let this be 20,000) times the forgone employers' PRSI contribution per worker, (12% of the average industrial wage of £10,000). This measure of annual tax forgone is £24m. Given the more rapid expansion of the service sector, the lower average wage earned there, and an arguably greater elasticity of labour demand, we might not be too far wrong in imagining that the cost of job creation would be roughly similar for this sector. This gives us perhaps 20,000 jobs for £50m., or £2,500 annually per job. Given the savings in social welfare payments, and the increased income tax take, the scheme could clearly do more than break even on these figures.

The elasticity of labour demand used above is the unconditional elasticity, which includes the output effect that arises in the case of Classical unemployment. For the Keynesian and Structuralist cases, however, subsidies only induce a movement along the isoquant, and the relevant elasticity is the labour

demand elasticity conditional on output, which is obviously lower in value. Adopting Hughes' value of -0.2 for this, the programme may produce only 5,000 jobs, at an annual cost of £10,000 per job. Of this sum roughly half would be returned to the exchequer through the increased income tax intake and reduced social welfare outlays.

These two sets of figures therefore represent the range within which the impact of the policy could be expected to lie. These numbers are very rough, and very rounded (if I may be permitted a paradox). They should not distract attention from the main points of the paper, but they might prove useful in stimulating discussion.

## 7. Concluding Comments

This paper has presented models of the determinants of Irish employment that seem to span the spectrum of current economic and political debate in this country. It is clear from these models that subsidising employment at the expense of capital is unlikely to be the optimal policy response to the underlying distortions generating the problem; financing payroll-tax reductions by removing subsidies to housing would seem to make more economic sense, for example. Nevertheless, it has been argued that if factor subsidisation is to take place then labour subsidies are preferable to capital grants in each case. The intuition behind the result is that unemployment may be due either to Classical

(excessive labour cost) factors or to Keynesian demand deficiency, or to some combination of the two. The distortion under Classical unemployment requires intervention to reduce labour costs directly, which labour subsidies do, while factor subsidisation under Keynesian conditions induces a change in factor intensities; labour subsidies are therefore preferable from the viewpoint of employment creation.

These considerations lead to the proposal that employers' PRSI contributions<sup>10</sup> be abolished, for a period of five years at least, for jobs created after a particular date (falling sometime before the policy is announced). The estimated effects of this policy run from a low of 5,000 jobs created, at a net cost to the Exchequer of £5,000 per annum per job, to a high of 20,000 jobs at a net saving of £2,500 each p.a. It may be deemed politically and fiscally advantageous to finance the scheme at least partially, (if necessary), by a reduction in the IDA capital-grants budget.

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<sup>10</sup> A surprisingly resilient result that emerges whether labour markets are characterised by "monopoly union", "Nash bargaining" or perfectly competitive behaviour is the proposition that it is irrelevant, from the viewpoint of either efficiency or equity, whether employers' or employees' taxes are reduced. I am reluctant to incorporate this conclusion, since it accords so little with the perspectives of those actually engaged in labour market negotiations. The resolution of the paradox would seem to lie in the fact that while the conclusion is appropriate to long-run equilibrium, it fails to hold in the presence of short-run wage stickiness, and the policies therefore have different effects on the discounted sum of returns over time, much as the Stolper-Samuelson results on income distribution appear less powerful when short-run capital specificity is taken into account; [see e.g. Neary (1978)].



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The present proposal is very modest indeed in comparison with the scale of Irish unemployment. It must therefore be viewed as only one amongst many changes that would need to be made in order to have an appreciable impact on the problem. Any scheme that raises productive employment, however, may be judged likely to offer the additional benefit of increasing the level of GNP to be shared by society.

A final point to note is that though the policy is consistent with theories of unemployment that allow a role for the authorities in "picking winners", this particular policy leaves that task to the market. X

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