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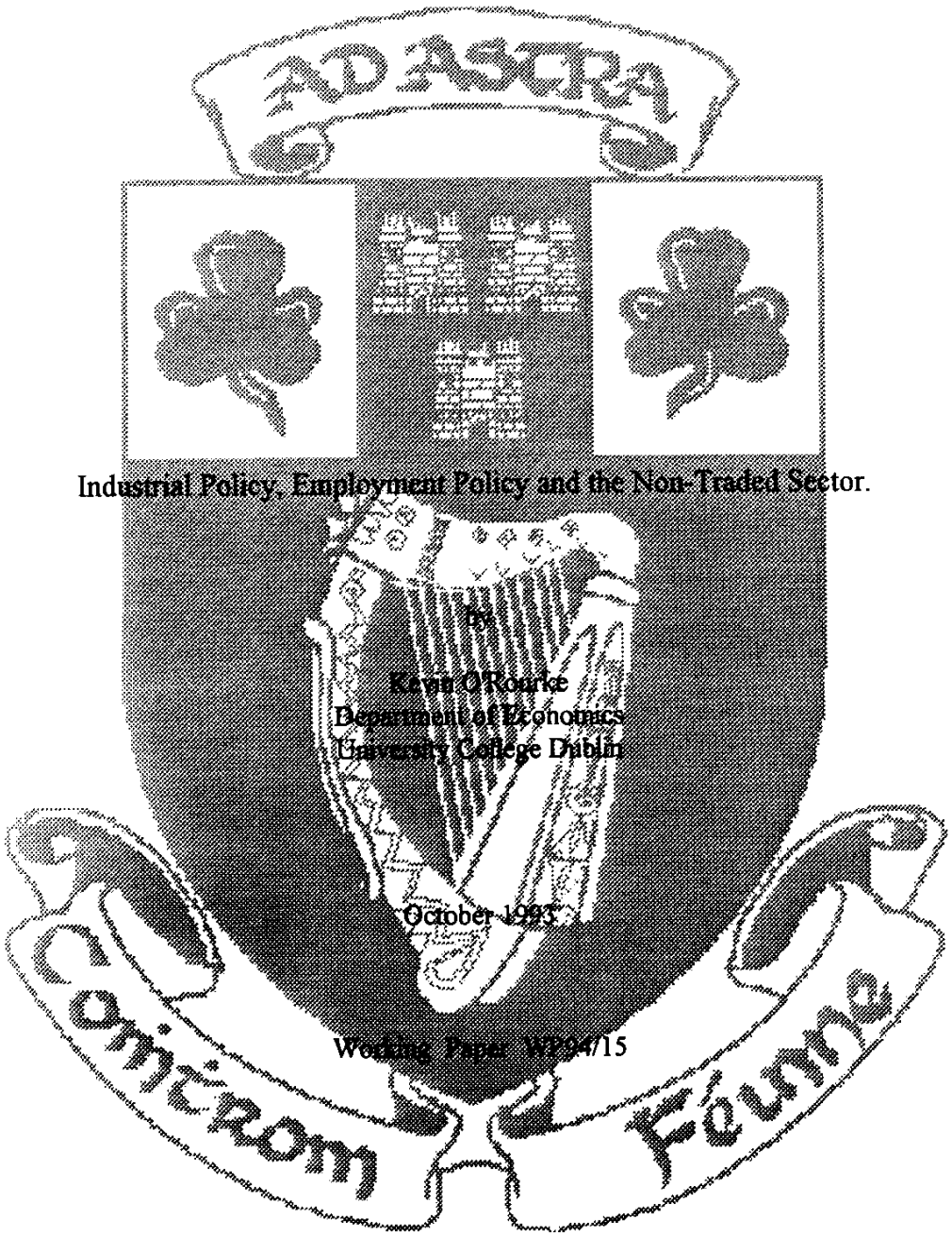

Industrial Policy, Employment Policy and the Non-Traded Sector.

by

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INDUSTRIAL POLICY, EMPLOYMENT POLICY AND THE NON-TRADED SECTOR

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Introduction

For decades industrial policy has been at the heart of Irish government economic planning, although Ireland is still a highly agricultural economy and services are accounting for a growing share of output. The neo-Physiocratic doctrine that industry is more valuable than the service sector has in Ireland been expressed by asserting that the non-traded sector is a purely derivative one, incapable of generating economic growth. Tax policy has reflected this belief, systematically favouring the traded sector over the non-traded sector; and of course the government has further discriminated against non-traded services in its allocation of subsidies to the private sector.

This official stance seems rather out of date. It is a commonplace observation that manufacturing employment is becoming relatively less important, and service employment relatively more important, throughout the affluent world. For example, in William Baumol's recent book on Productivity and American Leadership, it is shown that between 1960 and 1985 the share of total employment accounted for by services increased in every one of 19 OECD countries; the share of manufacturing declined in all but three cases: Japan, Spain and Ireland (see Table 1). In 1980, services accounted for more than 50% of total employment in all 19 countries, barring Spain, Italy and Ireland. The share of manufacturing in Irish employment was 34% in 1980, making it a more industrialised economy (by this criterion) than Sweden, Norway, the Netherlands, Denmark, Australia, Canada, the United States and

New Zealand. Does it make sense to continue chasing industry, when it is becoming less and less capable of providing large scale employment in affluent societies? Does it make sense to discriminate against services, when it would appear that a small service sector is primarily a symptom of underdevelopment?

Irish policy makers have of course had their reasons for doing so. This paper will critically examine the assumptions on which their policies have been based, and suggest a more constructive role for government intervention. The first section will outline the theoretical basis for Irish government policy, and ask whether it makes sense. The second section augments the discussion, by examining the theoretical links between concentration in the sheltered sector, wages and national income in an open economy. The third section will investigate the effects on the Irish economy of opening up the non-traded sector to foreign competition, using a computable general equilibrium model developed by the author, in collaboration with Kevin Denny and Aoife Hannan of UCD. I stress that the third section represents work that is still in progress; the calculations reported therein are to be regarded as purely illustrative.

1. Irish industrial policy and the non-traded sector

The fact that the non-traded sector is largely made up of services must surely explain much of the official bias against the sector. As is well known, the Physiocrats of the eighteenth century viewed agriculture as the only true source

of a country's wealth, with industry playing a derivative role. Faced with the enormity of the changes the Industrial Revolution was bringing about, Classical economists were forced to emphasise the role of manufacturing. Nevertheless, in his distinction between productive and unproductive labour, Adam Smith persisted in the view that some economic activities (in this case services) were second class:

> The sovereign, for example, with all the officers both of justice and war who serve under him, the whole army and navy, are unproductive labourers...In the same class must be ranked, some both of the gravest and most important, and some of the most frivolous professions; churchmen, lawyers, physicians, men of letters of all kinds; players, buffoons, musicians, opera-singers, opera-dancers, &c...Like the declamation of the actor, the harangue of the orator, or the tune of the musician, the work of all of them perishes in the very instant of its production.[1]

Classical economists emphasised the production of a physical surplus which could then be reinvested; not only did service sector workers not add to the surplus, their wages were paid out of it, reducing the amount available for accumulation.

From a neoclassical perspective, of course, classifying the service sector as second class makes no sense. As is so often the case, Marshall made the point best: "It is sometimes said that traders do not produce: that while the cabinet-maker produces furniture, the furniture-dealer merely sells what is already produced. But there is no scientific foundation for this distinction. They both produce utilities, and neither of them can do more: the furniture-dealer moves

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[1] Smith (1776), Book 2, Chapter 3.

and rearranges matter so as to make it more serviceable than it was before, and the carpenter does nothing more."[2]

Put more simply, if the end of all economic activity is consumption, then the production of services is as useful as the production of goods which can be prodded. Many governments, however, persist in viewing manufacturing as the key to prosperity, with all other productive activities having essentially no growth effects; indeed, until recently countries adhering to the views of a well-known Classical economist calculated their annual 'Gross Material Product', rather than GNP.

But there is more to the story than this, however, as the recent extension of manufacturing tax benefits to certain traded services indicates. It is the non-traded sector per se, rather than services alone, which the Irish government seems determined to discriminate against. Why?

Certainly there are numerous instances where official documents have downgraded the importance of the non-traded sector. In 1982 the Telesis report, devised by the architect of the Clinton health plan, noted that "the majority of good-sized, profitable, successful firms in Ireland are in non-traded businesses...from the point of view of the country, the absence of these companies from the effort to build a successful international export base is a serious problem".[3] Two of the report's policy recommendations were, first, that "as a general principle, capital grants and tax-based lending

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2 Marshall (1920), p. 53.

3 Telesis (1982), p. 112.

should not be directed towards non-traded businesses, except in cases of high-skilled sub-supply";[4] and second, that "a greater proportion of total government resources should be committed to promoting indigenous industry in traded businesses. Savings made from the previously mentioned budget cuts should be redirected towards this purpose".[5]

The 1984 White Paper on industrial policy accepted this conclusion of Telesis, while also examining more closely than previous documents the costs of non-traded inputs into traded businesses. The 1986 NESC report, A Strategy for Development 1986-1990 was quite explicit on the subject of the non-traded sector:

> It is the internationally trading sectors, embracing enterprises which compete on overseas markets and those which compete with imports on the home market, which comprise the locomotive of growth...It is only by means of securing output growth in the internationally trading sectors that sustainable growth in employment, both directly and indirectly through induced output and income changes elsewhere in the economy, can take place...those sectors of the economy which exclusively or predominantly serve the domestic market cannot be regarded as an independent source of sustained economic growth...the demand for the goods and services produced by these sectors is a derived demand and the output they produce and the level of employment they provide are ultimately determined by the size of the exposed sector and the strength of the linkages between the exposed sector and the rest of the economy.[6]

Those of you familiar with simple trade theory, or any form of general equilibrium analysis, will already be wondering how

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[4] Ibid., p. 229.

[5] Ibid., p. 230.

[6] NESC (1986), p. 147.

one sector can be considered as derivative, and another as the driving force of an economy, when the size of both is ultimately determined by the tastes, endowments and technology of an economy and the world with which it interacts. Of this, more later.

The 1989 NESC report on 1992 reiterated the view that "the key to economic growth lies in the internationally exposed trading sectors. Those sectors of the economy which predominantly serve the domestic market, such as private non-traded service activities, cannot be regarded as an independent source of sustained economic growth."[7]

There is a theory of sorts underlying all this, which can most succinctly be summed up in the words of the 1984 ESRI report on employment and unemployment policy: "...a primacy attaches to the open or competing sector in that it is the only sector in which expansion will tend to alleviate rather than exacerbate the fundamental balance of payments and fiscal constraints" (which a small open economy faces).[8] This opinion leads Nolan, in O'Hagan's well-known textbook, to state that "increases in the value of national output over time are driven by the expansion of the traded goods sector, with the non-traded sector playing an essentially passive role".[9]

This supposed primacy of the traded goods sector is frequently asserted by appealing to a somewhat curious thought

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[7] NESC (1989), p. 302.

[8] Conniffe and Kennedy (1984), p. 43.

[9] Nolan and Nolan (1991), p. 222.

experiment. Imagine an economy producing both traded and non-traded goods, initially in equilibrium. Imagine that trade is initially balanced: exports equal imports. This also implies that the production and consumption of tradeables are equal: an excess consumption of tradeables would imply a trade deficit, while an excess production would imply a trade surplus. Now arbitrarily expand the size of the non-traded sector. This increases national income, which implies a higher consumption of all normal goods. In particular, the consumption of traded goods increases. If the production of tradeables remains unchanged, the economy now runs a trade deficit: increases in non-traded sector output unmatched by increases in traded sector output inevitably lead to current account problems.

Or at least, so goes the argument. And so in Ireland a mercantilist fixation on exports has been added to the physiocrat's disdain for services, to produce a policy mix strongly biassed against the non-traded sector. A moment's thought, however, should suffice to see that the thought experiment just described is badly flawed, and the inferences drawn from it unjustified. The key is that this hypothetical economy was initially in equilibrium. If the non-traded sector expanded, this must have been due to some exogenous shock: sectors do not expand for no reason at all.

What exogenous shocks could lead to the non-traded sector expanding? Tastes could have shifted towards non-tradeables; this would of course imply that they had shifted away from tradeables, implying a decline in tradeables consumption and

an increase in net exports. The supply curve for non-tradeables could have shifted out, as a result of changes in technology or the economy's factor endowment: the price of non-tradeables would then fall, again implying a reduction in tradeables consumption, which would again tend to improve the current account. If the economy was operating at full employment, of course, then an expansion of non-tradeable production would imply a contraction in the tradeable sector, which would reduce net exports; but in neither case would there any particular reason to suppose that the current account would go into deficit.

This can be seen even more clearly if we think about the current account in modern macroeconomic terms. We all know that

$$Y = C + I + G + (X - M) \qquad (1)$$

and that

$$Y + NFI = C + S^P + T \qquad (2)$$

where Y represents output, C consumption, I investment, G government expenditure, X exports, M imports, NFI net factor income, S^P private savings, and T taxation. It follows that

$$(X - M) + NFI = (S^P - I) + (T - G) \qquad (3)$$

or

$$CA = S - I \qquad (4)$$

where CA is the current account, and S represents total national savings (i.e. private savings plus the government budget surplus).

In other words, the current account is identically equal to savings minus investment, which leads to the obvious question: why on earth would an increase in non-traded sector output change the current account at all?

There is in fact no reason to suspect that it would. Of course, if the cause of the non-traded sector expansion was an increase in the numbers of government employees, then you would indeed see a worsening of the current account (as occurred in the 1970s). This may indeed be the episode the official sources cited above had in mind when formulating their views on the role of the sheltered sector. But it is clear that even in this case, the current account deficit is due, not to an increase in non-traded sector output per se, but to the increase in government expenditure which caused it. And in any case, most of us would agree that more public sector employment is not going to be a catalyst for growth in Ireland. The more interesting issue is surely whether it would not benefit the economy if the private sector were to create more jobs, in either the exposed or the sheltered sector.

Thankfully, there are signs that this strange doctrine, a hangover from the dirigiste thinking of earlier decades, has been quietly dropped. There was no mention of the 'primacy of the traded sector' in either the 1990 NESC report on a Strategy for the Nineties, or in the Culliton Report. Tax

policy speaks louder than words, however: it is still the case that while manufacturing and traded-sector service companies pay 10% corporation tax, firms in the non-traded services sector pay a 40% rate.

2. The non-traded sector and competitiveness

The view that the sheltered sector of the economy is a derivative one is clearly intellectually incoherent. Indeed, one could easily construct large open economy models in which technological progress in the non-traded sector was superior to progress in the export sector (for terms of trade reasons). But there is a more fundamental reason why policy makers should focus on the sheltered sector, rather than dismissing it as irrelevant: in an important sense, it is the sheltered sector alone which determines Ireland's competitiveness.

The argument is simple. Goods and factors which are internationally traded are available everywhere at the same price; only non-traded goods and factors can differ in price between countries. For example, wages are an important determinant of competitiveness precisely because labour is not perfectly mobile internationally.

Lest I be accused of adopting a quirky or original position, let me stress that this argument is not new at all: it crops up in various branches of economics in different guises. For example, in open economy macroeconomic models (Mundell-Fleming and Salter-Swan spring to mind) the real exchange rate plays a crucial role in determining a country's competitiveness. That exchange rate is most frequently

expressed as follows:

$$e = EP^*/P \qquad (5)$$

where e is the real exchange rate, E the nominal exchange rat (the number of Irish pounds per unit of foreign currency), an P^* and P the price level abroad and domestically respectively But the real exchange rate is also frequently expressed as

$$e = P_T/P_{NT} = EP_T^*/P_{NT} \qquad (6)$$

where P_T and P_{NT} are the domestic prices of tradeables and no tradeables respectively. It is trivial to show that there is a one-for-one correspondence between (5) and (6): if traded prices are equal in both countries, then overall price levels will only differ due to differences in non-traded prices. If tradeables prices are exogenous, the only way to achieve a real depreciation in these models is to reduce non-tradeables prices (which, if non-tradeables are only produced with labour, is the same thing as lowering real wages).

There is clearly nothing strange about the argument that non-tradeables prices are crucial for competitiveness; that the non-traded sector has been viewed as derivative in industrial policy documents is symptomatic of the compartmentalised thinking we can all be prone to. Of course if it were the case that there were important external economies of scale in the traded sector, standard neoclassica theory would support subsidising that sector. But it is

equally true that positive externalities in the non-traded sector would justify subsidising the sheltered sector; and in any case, these externalities should be empirically demonstrated before policy is made based on their existence. Moreover, the external economies of scale argument itself often relies on the existence of various non-traded inputs, which become available more cheaply to firms in a given sector as that sector grows in size. Once again, the focus is on non-traded inputs being produced efficiently.

Moreover, lest you be tempted to conclude that non-traded sector efficiency is only important insofar as it boosts traded sector competitiveness, consider the following statistics. The following 5 non-traded sectors-- building, distribution, transport and communications, other market services and non-market services-- accounted for 56% of personal consumption in 1985. Include the utilities sector, which is largely non-traded, and you have 61% of personal expenditure. You may believe that the chief end of economic activity is not merely personal consumption, but government expenditure as well; in that case, the non-traded sectors accounted for 71% (75% including utilities) of what interests you.

Clearly, the non-traded sector is not merely the only determinant of Ireland's competitiveness actually under our control; its health is the single most important determinant of our economic welfare. This becomes even clearer when you consider that a country's educational system, and its institutional infrastructure-- its legal and tax systems, for

example-- are all components of the non-traded sector. The importance of human capital and institutions in determining a country's long run growth rate is now well understood. Rather than targeting grants at the traded sector, in an effort to compensate for the shortcomings of the sheltered sector, government should be attempting to ensure that the latter sector operates efficiently. Get the non-traded sector right, and the rest of the economy will take care of itself.

In the rest of this section, one particular way in which the government can help improve non-traded sector efficiency will be considered: competition policy. There are clearly a priori grounds for suspecting that concentration may be more of a problem in the sheltered sector than in the exposed sector, especially in a small economy such as Ireland. And casual empiricism leads one very quickly to conclude that concentration is widespread in the Irish non-traded sector, in both product and factor markets. First, many of the industries involved (electricity supply, rail transport, and so on) are government monopolies. The implications for the national economy of companies like the ESB being exposed for the first time to foreign competition will be examined in the next section. Second, unionisation is widespread both in these industries and in the public sector generally. Third, there are many restrictive practices limiting competition in the private non-traded sector: the fact that there were as many pubs in Dublin in Sir William Petty's day as there are today is a particularly good example.

Concentration is not always bad for an economy. If an

Irish export industry is monopolised, for example, it may charge high prices to foreigners, to the benefit of the Irish economy. No such benefit accrues, however, in the case of concentration in the non-traded sector. Such concentration reduces consumer welfare in the usual manner, or (in the case of an intermediate input) makes the traded sector less competitive through its direct effects on input costs. Moreover, there is evidence to suggest that in the long run commodity price increases are fully reflected in higher wages: in that case, all consumer goods can be regarded (indirectly) as intermediate inputs, and all sheltered sector concentration will reduce the competitiveness of the exposed sector.

The point can be easily made in the context of a simple trade model. The one presented here is less rich than that which John Fingleton has recently and independently developed, but it serves to get the point across.[10] The country under consideration is a price-taker on world markets, allowing us to aggregate all traded goods into one composite good. This composite good is supplied by a perfectly competitive industry using labour and a non-traded good as inputs. The non-traded good, which is uniquely an intermediate product, is supplied by an industry consisting of n identical oligopolistic quantity-setting firms. Only symmetric equilibria are considered. As is well known, under these conditions, the price cost margin for the non-traded industry, also known as the Lerner index of monopoly power, can be expressed as

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[10] Fingleton (1993). For the algebraic detail, see O'Rourke (1987).

$$PCM = (1 + L)/nN \quad (7)$$

where PCM is the price cost margin, N is the elasticity of derived demand for the non-traded good, and L is the familiar conjectural variation (i.e. it is the marginal effect, perceived by each firm, of changing its own output on the sum of the other firms' outputs). Reducing n can be thought of in some sense as increasing the degree of monopoly power in the non-traded sector; as will be seen this leads to a decline in national income.

The traded goods sector is assumed to produce the traded good T according to

$$T = N^{\alpha}L_T^{1-\alpha} \quad (8)$$

where N is the non-traded input, L_T the labour input into the production of T, and $0 < \alpha < 1$. In general, N, the elasticity of derived demand for N, is given by

$$N = \{(\epsilon + e) + (ke(\epsilon - \sigma)\}/\{\epsilon + e - k(\epsilon - \sigma)\} \quad (9)$$

where ϵ is the elasticity of demand for T, e is the elasticity of supply of labour, k is the share of N in total cost, and σ is the elasticity of substitution in the production function. It is possible to considerably simplify this expression. First, the Cobb-Douglas assumption means that $k = \alpha$ and $\sigma = 1$. Second, assuming that the labour supply is fixed implies that $e = 0$. Third, the small open economy assumption implies that

ϵ is infinite. Taking limits, this implies that

$$N = 1/(1 - \alpha) \qquad (10)$$

The oligopolists in the non-traded sector use labour alone to make N, which they supply to the T-good industry. It is assumed that the production function in the N-industry displays constant returns to scale, with the unit labour requirement for N being set equal to 1 for simplicity. Thus,

$$N = L_N \qquad (11)$$

where L_N is the labour input into the N-industry. The problem for a typical firm in the N-industry is therefore

$$\max_{N_i} (p_N - w)N_i \qquad (12)$$

where p_N is the price of the non-traded good, w is the wage rate, and N_i is the output of the i'th firm. It is assumed that firms in the non-traded sector have enough information to know what the effect of increased output on the price of their product will be; and that they have formed a conjecture as to what the response of other firms' output will be to a change in their own output. However, it is not assumed that they know enough about the structure of the economy to be able to work out what the effect of their actions on general equilibrium factor prices will be. Thus they take w as given.

The solution to **(12)**, taking **(10)** into account, is

$$p_N(n - (1 + L)(1 - \alpha)) = nw \qquad (13)$$

(It is here assumed that the element in the brackets is positive. This will certainly be true in the Cournot case; i.e. when L = 0.)

Equation **(13)** is the first of three key relationships which together determine the model. It expresses the price of the non-tradeable as a mark-up over wages. Equation **(13)** is represented in Figure 1 by the line OM drawn in p_N-w space. Reducing n, the number of firms in the industry, or increasing L, increases the mark-up as expected. Both shocks have the effect of rotating OM in a counter-clockwise direction.

The second key relationship is the full employment condition:

$$a_L(w,p_N)T + a_N(w,p_N)T = L \qquad (14)$$

where a_i is the traded-good industry's unit input requirement of input i (remember **(11)**).

The third key relationship stems from the fact that the non-traded good is purely an intermediate good. This implies that all income is spent on the tradeable:

$$wL + (p_N - w)a_N(w,p_N)T = T \qquad (15)$$

Equations **(14)** and **(15)** together imply that

$$w^{1-\alpha} = Bp_N^{-\alpha} \qquad (16)$$

where B is a constant, equal to $(\alpha/1-\alpha)^{\alpha}(1 - \alpha)$. This negative relationship is drawn as BB in Figure 1.

What is the relationship between national income and the price of non-tradeables? **(16)** implies a negative tradeoff between wages and p_N; a higher non-tradeables price boosts profits but reduces wages. At first sight, therefore, the relationship would appear to be theoretically ambiguous. However, from the assumption of Cobb-Douglas technology it follows that

$$Y = p_N wL/(\alpha w + (1-\alpha)p_N) \qquad \textbf{(17)}.$$

Taking the derivative of Y with respect to p_N, using the chain rule and bearing in mind **(16)**, we have

$$dy/dp_N = -\alpha LC^2 p_N^{-2\alpha/(1-\alpha)}(1 + L)(1 - \alpha)/X \qquad \textbf{(18)}$$

where $C = B^{1/(1-\alpha)}$, $X = [\alpha w + (1-\alpha)p_N]^2[n - (1+L)(1-\alpha)] > 0$, and the derivative is negative. A higher non-tradeables price lowers national income: the relationship is graphed as CC in Figure 1.

The effect of changing concentration in the non-traded sector on national income is now clear. The economy is initially in equilibrium at point E, which corresponds to a national income of Y_0. Reducing the number of firms shifts OM to OM' in Figure 1. Its effect is thus to lower wages and boost non-traded sector prices and profits. This in turn shifts the economy up CC, to a new equilibrium, F, involving a

lower level of national income Y_1. Moreover, since in equilibrium national income equals the value of traded sector output, it is also the case that increasing concentration in the sheltered sector reduces the size of the exposed sector.

3. Some preliminary general equilibrium results

What might the effects be of increased competition in the non-traded sector? How would this impact on output levels both in that sector and elsewhere in the economy? What would be the effects on migration or employment?

What is needed to answer these questions is a model of the Irish economy which explicitly takes account of the many links between the different markets in the economy: in other words, a general equilibrium model. The model should be empirical: in the jargon, a computable general equilibrium, or CGE, model. A CGE model is a series of theoretically based simultaneous equations describing the behaviour of an economy at a point in time. The equations are fitted, or 'calibrated', to the data for an economy in a given base year; they are next solved on a personal computer, to yield the equilibrium configuration for the economy in that base year. The modeler can then selectively change individual equations, and solve the model again, to see what the impact would be on the entire economy of an individual shock taken in isolation.

For the past year, Kevin Denny, Aoife Hannan and I have been putting together the first ever CGE model developed to study contemporary Irish policy issues. The model is a relatively small scale one by international standards, but

contains some unusual features. It is calibrated to 1985 data, since that is the most recent year for which detailed input output data are available. What follows is a cursory verbal description of the model: for further details, see Denny et al. (1994). For the moment the model assumes perfect competition and constant returns to scale, although this could be modified in later work. Production sectors produce 11 producer goods, using domestic and imported producer goods, labour, and capital as inputs. Producer goods and imports are transformed into 10 consumer goods, which are then used to produce an aggregate consumption good. Producer goods can also be exported, or used to produce other aggregate goods (private and public investment, and government consumption).

The representative consumer is endowed with labour and capital, and receives transfers from the government and from abroad. At one level the consumer has to choose between savings and consumption, and at the next level, between different consumption goods. The government levies taxes on consumption, on inputs into production, and on exports (the latter taxes being for the most part negative). It also receives transfers from abroad, and borrows to finance its deficit. It is endowed with capital, but pays interest on the national debt. It makes transfers to households, and consumes the public investment and government consumption aggregate goods.

The treatment of international trade is standard. Import prices are exogenous; however, imported goods are not perfect substitutes for their domestic equivalents. Domestic goods

which are exported face downward sloping (but very elastic) demand curves overseas. These two features of the model ensure that domestic tradeables prices are not formally exogenous. The economy runs an initial trade deficit, the nominal level of which is taken to be exogenous.

The unusual features of the model concern the markets for capital and labour. There are three types of capital in the model: agricultural, high-tech, and other. The first two types of capital are used only in agriculture and the high-tech sector respectively. 'Other' capital is fully mobile between all other sectors. Supplies of agricultural and other capital are fixed; high-tech capital is however perfectly elastically supplied by the rest of the world; its post-tax return is thus fixed. This assumption is obviously made in an attempt to model multinational investment in the economy, which falls mainly in the high-tech sector.

The model's labour market specification can handle both unemployment and migration. The real wage is fixed exogenously, although it is to a small degree sensitive to the unemployment level: this is what generates the unemployment in the model. External migration is then a function of the Irish expected real wage (i.e. the real wage times the probability of finding work).

As mentioned, the model currently assumes perfect competition, which means that it is unable to deal with issues of concentration and competition policy. To incorporate imperfect competition, we would have to have such information as monopoly mark-ups by sector. Unfortunately, there has been

far too little work done on applied industrial organisation questions in Ireland; this must surely be a major area for applied economists to get involved in in the years ahead.

Without the required data, we are stuck with a perfect competition model. It is however possible to use that model in an effort to see if the welfare effects of high non-traded goods prices are likely to be big or small. As is well known, one of the best anti-trust policies available is free trade. The 1992 programme is pro-competitive largely because it is taking sectors that were formerly non-traded (telecommunications or electricity, say) and transforming them into traded sectors. What are the effects of introducing foreign competition into sectors that had previously been sheltered? This is the sort of question that the model as currently set up is able to deal with. It is also, as we are all aware, a question that will assume great policy significance in the years ahead. Policy makers tend of course to be primarily concerned about the effects of such competition on the particular sectors involved, and in particular on employment within those sectors. Headlines emphasise the negative employment consequences of such competition for companies which have been traditionally featherbedded by the state. How many jobs will be lost in the ESB, or Telecom Eireann, or indeed in Aer Lingus, they ask. Frequently lost in the debate, however, is the following crucial question: what are the broader implications of such competition for the economy as a whole?

It should be stressed that the following exercises are

purely illustrative. At most they can give a handle on the order of magnitude of the effects of foreign trade: are they likely to be big or small? It all depends, of course, on how much cheaper foreign products are, and on the degree to which they are able to penetrate the Irish market. In what follows I look at the effects of introducing foreign competition into the utilities, distribution, and transport and communications sectors. I arbitrarily assume that foreign prices are 10% lower than Irish prices. In the case of utilities, there were already some imports in the benchmark year (although the sector is clearly largely non-traded): the shock imposed on the model is thus simply to reduce their price by 10%. In the case of the other two sectors, there were no imports in the benchmark year. The shock involved was thus to introduce the possibility of importing foreign competing goods, 10% cheaper than their Irish counterparts. An additional piece of information was needed: the initial market share that would be achieved by imports in each sector.[11] In both cases, I look at three possible initial figures: 10%, 25% and 50%.[12]

The results are given in Table 2. As can be seen, cheaper utilities, distribution, and transport and communications each implies expansion in other sectors of the economy. Especially strong are the effects of more efficient

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[11] More formally, the pseudo-production function transforming domestic goods and imports into the relevant Armington aggregate has to be calibrated.

[12] This issue could be avoided if I assumed that domestic and foreign products were perfect substitutes. In that case, however, domestic production of the newly-exposed goods would collapse to zero, an absurd result, and precisely the sort of scenario which the Armington assumption is designed to avoid.

distribution on traditional and high-tech manufacturing. The net result is an increase in overall employment: unemployment drops by between 0.5% and 1% in each of the three cases. The greater the market penetration achieved by foreign imports, the greater the increase in overall employment. Cheap imports in all three sectors together implies a drop in the unemployment rate of 2 percentage points, with traditional and high-tech manufacturing rising sharply, and high-tech investment increasing by 10% (the 'ALL' run in Table 2).[13]

A 2 percentage point fall in the unemployment rate is not trivial, but neither is it the answer to all our problems. In fact, the exercises carried out understate the impact of foreign competition on overall employment in two crucial respects. First, when the economy begins to 'import' distribution services, these imports are treated like any others; in particular, there is no Irish employment associated with these imports. This is of course absurd; if US-style discount warehouses, say, were to be established in Ireland, they might not employ huge numbers of people, but they would employ some: domestic distribution is an inherently non-traded activity. Second, there can be both virtuous and vicious cycles at work in an economy. If unemployment falls, and the economy expands, tax revenues will be more buoyant; for a given level of public expenditure, taxes can be cut, which implies still lower unemployment, and so on. The final run performed ('ALLTL' in Table 2) admits foreign competition into

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[13] In this case I assume an initial 25% market share for foreign products.

all three sectors, as in the previous run, and lets employment taxes adjust endogenously so as to keep government expenditures constant in real terms.

The results are dramatic. Traditional manufacturing expands by 35%, high-tech manufacturing by 31%, and construction by 12%. Unemployment drops to a mere 6.6%, despite net immigration. Denny, Hannan and I have found these virtuous and vicious cycles to be of major importance when analysing Irish policy issues. In work completed recently, we have endogenised those government transfers which are unemployment-related. Doing this of course further strengthens the importance of fiscal feedback loops. Indeed, we have found that in several cases there appear to be multiple equilibria: a 'good', low tax, low unemployment equilibrium; and a 'bad', high tax, high unemployment equilibrium. If we are currently stuck in a 'bad' equilibrium, then microeconomic policies which push us in the right direction could have surprisingly large macroeconomic effects in the long run.

4. Conclusion

It makes no sense to regard the non-traded sector as derivative; rather, its health is the key to our competitiveness. Instead of bribing foreign firms to stay here, despite the inefficiencies which plague certain non-traded sectors of the economy, government should target the non-traded sector directly. This may involve working more vigourously to promote competition within the sheltered

sectors of the Irish economy.

It would appear that foreign competition in sectors which have up to now been non-traded may have profound and beneficial implications for Ireland. While the calculations presented above are meant to be suggestive rather than conclusive, the magnitude of the effects involved is such that further study into non-traded sector efficiency would appear to be warranted. Moreover, the calculations understate the impact of foreign competition, to the extent that such competition would involve not just lower prices, but an end to monopolistic market structures and associated welfare losses.

Industrial organisation has often been a neglected field among applied Irish economists. This may be partly because economists assume that the Harberger triangles involved are trivial alongside our macroeconomic problems. But in an economy as distorted as this one, microeconomic policy can have a profound impact on employment levels and economic welfare.

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Table 1. Share of labour force in industry and services
19 OECD countries, 1965-1980

Country	% in industry		% in services	
	1965	1980	1965	1980
Spain	35	37	32	46
Italy	42	41	34	48
Austria	45	41	36	50
Sweden	43	33	46	62
Switzerland	50	39	41	55
Japan	32	34	42	55
France	39	35	43	56
Finland	36	35	41	53
Norway	37	29	48	62
Belgium	46	36	48	61
Netherlands	41	32	50	63
Denmark	37	32	49	61
Germany	48	44	42	50
United Kingdom	47	38	50	59
Australia	38	32	52	61
Ireland	28	34	41	48
Canada	33	29	57	65
United States	35	31	60	66
New Zealand	36	33	51	56

Source: Baumol et al. (1989), Table 6.1, p. 120.

Table 2. CGE results

	UTIL	DI50	DI25	DI10	TC50	TC25	TC10	ALL	ALLTL
AG	0.00	0.20	0.10	0.10	0.10	0.00	0.00	0.20	0.7
TR	1.40	20.40	10.30	4.10	6.70	3.40	1.40	15.20	35.2
FP	0.40	4.60	2.60	1.10	1.60	0.80	0.30	3.70	5.7
HT	2.30	10.70	5.80	2.40	4.50	2.30	0.90	10.30	30.7
U	1.50	5.10	2.60	1.00	2.20	1.10	0.40	5.30	9.5
B	1.80	-1.60	-0.80	-0.30	-2.20	-1.10	-0.40	-0.10	11.7
DI	1.10	-45.10	-22.20	-8.80	0.40	0.20	0.10	-21.20	-15.7
TC	0.90	0.10	0.10	0.00	-49.90	-25.10	-10.10	-24.20	-19.4
OMS	0.80	-0.30	-0.10	0.00	1.40	0.70	0.30	1.40	7.6
NMS	0.30	1.20	0.60	0.30	0.60	0.30	0.10	1.20	3.4
TS	0.60	60.30	28.70	11.10	23.00	11.40	4.50	41.70	43.9
UE	17.30	16.60	17.40	17.90	17.70	18.00	18.10	16.20	6.6
IMMIG	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.2
EMIG	0.00	0.01	0.01	0.01	0.03	0.01	0.01	0.00	0.0
DFI	2.34	10.68	5.75	2.41	4.48	2.32	0.95	10.30	30.6

Variables:
AG,TR,FP,HT,U,B,DI,TC,OMS,NMS,TS: percentage changes in outputs

AG agriculture
TR traditional manufacturing
FP food processing
HT high-tech manufacturing
U utilities
B building and construction
DI distribution
TC transport and communication
OMS other market services
NMS non-market services
TS traded services

UE percentage unemployment rate (benchmark rate = 18.2%)
IMMIG immigration as percentage of benchmark labour force
EMIG emigration as percentage of benchmark labour force
DFI percentage change in investment in high-tech sector

Scenarios:
UTIL 10% fall in price of foreign utilities

DI50,DI25,DI10
introduce imports of distribution services with initial market shares of 50%, 25% and 10%

TC50,TC25,TC10
introduce imports of transport and communication services with initial market shares of 50%, 25% and 10%

ALL all three shocks (assuming 25% initial market shares)
ALLTL all three shocks (assuming 25% initial market shares) with endogenous employment taxes

Figure 1