ON DEMAND AND SUPPLY SIDE POLICIES
IN AN OPEN ECONOMY, 1960 - 2000

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I. INTRODUCTION

Outside Ireland, Keynesian-type demand management policies, designed to steer the economy along a stable full employment growth path, were at the peak of academic and political popularity in the 1950s and 1960s. The prevailing textbook models typically assumed a closed economy (or added openness merely as an afterthought) and largely ignored the question of the incentives of firms to produce, and hence the supply side of the economy. Popular textbook expositions of macroeconomics often seemed to assume that firms did not care about profits (or that aggregate supply was infinitely elastic), a topic which in any case was covered in the then alien discipline of microeconomic theory. Often forgetting that Ireland was in fact an open economy in which supply side incentives do matter, and with the usual long lags which applied in Ireland in those more leisurely days, lectures adopting the approach of such textbooks (which had been written for consumption in the education markets of less open economies) began to be offered in the Republic’s universities in the late 1960s. And with a further lag -- as time enabled such thinking to filter up to the top of the civil service -- Irish governments began to implement demand management policies (largely based on the aforementioned thinking) in the early 1970s. Given what I have just stated, it is not surprising that the policies adopted were not quite appropriate.
As was emphasized by early postwar deviants such as Milton Friedman and William Baumol -- long before the rational expectations straw man was born in a stable near Chicago -- apparently sensible interventionist macro policies may tend to make economic prospects worse rather than better. The main problems which concerned such economists pertained to the recognition, decision, implementation and effect lags in discretionary demand-management policy. These problems were accentuated in the open economy of Ireland in the early 1970s because a wrong basic model was being used to formulate and guide policy -- a model more appropriate to a relatively closed economy with plenty of excess capacity.

By the time that emphasis on demand management was at its peak in Irish policy circles -- in the middle and late 1970s -- a number of younger and mainly academic economists had begun to argue that Ireland was in fact a highly open economy in which supply-side incentives did matter, that it should be modelled as such, and that policymakers should incorporate such a model in their thinking. At first those authors were regarded as academic cranks and as nettles to the inept political parties of the day, but ultimately their ideas did filter through to policy circles, gradually in the late 1970s and more completely in the 1980s. Today, policy formation in Ireland is much more openly supply-side oriented, and that fact is reflected in the government's recent Programme for Economic and Social Progress (PESP).

The above remarks should remind us of a famous passage from Keynes in 1936:

"The ideas of economists ..., both when they are right and when they are wrong, are more powerful than is commonly understood.... Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared to the gradual encroachment of ideas. Not, indeed, immediately, but after a certain interval; ... so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest.


2 See for example Part Three of my textbook, Economic Analysis for an Open Economy: Ireland, Irish Management Institute, 1980, and some references to earlier research by others and by the author cited there.

But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil.

Although perhaps oversimplifications, and in full awareness that dead men cannot reply while old men may be too serene to do so, the main points to be inferred from the foregoing are as follows:

(i) Formal training in macroeconomics in Ireland lagged behind that in other developed countries. This may have reflected the more relaxed and easy-going environment which then prevailed in our universities, as elsewhere in Ireland.

(ii) When, in the late 1960s, formally-structured macroeconomics did become a subject of university lectures in Ireland, the assumptions made were typically more appropriate for the underemployed, more closed, economies of the 1930s. Thus, the overwhelming focus was on aggregate demand as the policy variable.

(iii) Policymakers found the (for Ireland misspecified) model of aggregate demand in the early 1970s. But they applied such new-found ideas with the over-enthusiasm of a novice and (as in most of the early textbooks written for more closed economies upon which many university lectures were based in the late 1960s) they discounted the role of openness and supply-side incentives.

(iv) Some academic economists in Ireland did begin to emphasise the importance of openness and the supply side in the mid-1970s, but they were young people and their expositions were at first treated as troublemaking perversions. However, with the usual (but then shortening) time lags as the quality of the civil service and other decisionmaking bodies improved, policy gradually switched to the macroeconomic implications of openness and began to emphasise supply-side considerations more explicitly.

(v) Now that the quality of economic expertise in this country has greatly improved on a broad front, we should be able to avoid some of the policy pitfalls of the past. Furthermore, given our present intellectual endowments, we should be able to design sensible economic strategies throughout the nineties -- regardless of the (as yet unknown) constraints which may emerge for us in the (for Ireland) uncontrollable external environment. It is in those contexts that I will now try to draw light from our past experiences in the hope that we can steer more sensibly in the future.
II. SUPPLY-SIDE POLICIES ARE DOMINANT

Exports plus imports of goods and services represent about 150% of Ireland's net domestic product (at factor cost). As the PESP recognises, this reflects the fact that Ireland is one of the most open economies in Europe.

In a much more definite sense than ever before in the history of the State, policy in the 1960s looked to export markets as a source of demand. Aided by growth in the world economy, and by relaxation of balance of payments constraints which new outward-looking policies greatly facilitated, domestic fiscal (demand) policy was expansionary for most of the period. Real living standards in Ireland increased by about 50% over the decade. A long time ago, using a small econometric model, I estimated that close to one half of the growth in the economy in those years was in some sense attributable to the cumulative short-run effects of the expansionary fiscal policies. However, although the methodology of that piece of research was very heavily demand-oriented, I did refer to the role of fiscal incentives in stimulating export supply in the medium-run, and emphasized that the fiscally-assisted growth would have foundered on balance of payments grounds if policy had not simultaneously relaxed external sector constraints on domestic demand expansion4. It should be noted that in those years, the government never sought to boost domestic demand by planning for current budget deficits. The current budget of 1972 was the first of many which attempted to boost domestic output and employment by planning for a deficit. Increased emphasis was placed on deficit financing in subsequent budgets. Given the supply-side shocks which the economy incurred in 1973-4 and subsequently, it is easy to see that such policies were doomed to failure. In order to assist our thinking it is appropriate at this stage to sketch a simple model of a small open economy (SOE) such as Ireland.

Consider a SOE with a fixed exchange rate (equals domestic-currency price of foreign currency) with its principal trading partners. Because the SOE does not determine prices abroad, we may take such prices as given. Also, because the SOE is just a fairly minor component of a much larger market, the

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4 The econometric model and the qualitative qualifications can be found in my paper "Estimation of the Short-run Effects of Fiscal Policy in Ireland, 1960-1970", Economic and Social Review. April 1975.
SOE's price level must approximate the foreign price level multiplied by the exchange rate. Thus, recognizing that markets do exist, the SOE is close to being a price-taker rather than a price-maker. It cannot react independently to demands for higher wages at home by marking up its prices, which are externally determined for the most part. Thus, insofar as output prices are concerned, it is like County Galway vis-à-vis the rest of Ireland.

(Before proceeding, it may be worthwhile to point out that provided people do not persistently suffer from money illusion -- provided, that is, they do not continue to confuse changes in nominal prices (wages) with changes in real prices (wages) -- the key features of most of what follows will still be valid even in the face of an externally-determined inflation under a fixed exchange rate, and even if the exchange rate is floating rather than fixed).

The economy is depicted in Figure 1, where $Y_0$ denotes the initial equilibrium level of output.

The aggregate demand for domestic output is denoted by $AD$, the rather flat slope of which reflects the high degree of sensitivity of the SOE's net exports (exports minus imports) to changes in the domestic price level, given the foreign price level. (Note that if all output markets were perfectly competitive, $AD$ would be perfectly flat). The level of $AD$ reflects the strength of autonomous demand -- all those components of the demand for domestic output which in the short-run do not depend on the variables on either axis of the diagram, eg. the level of government expenditure on goods and services.

Ignoring so-called 'crowding out' in money markets, an increase in autonomous demand -- say $dG$ -- would cause the $AD$ curve to shift to the right by a horizontal distance equal to (the multiplier) times ($dG$). Because textbook national income multipliers in Ireland could not be much greater than unity due to our high marginal propensity to import\(^5\) this shift would probably approximate in size $dG$ itself. Even then, ordinary multiplier theory predicts that output would increase to $Y_1$, and that there would be a correspondingly large increase in employment. However, when the supply-side response is taken into account,

output rises by a smaller amount, to a level implied by point F in the diagram.

The aggregate supply of domestic output is denoted by AS in Figure 1. The complete AS function can be written as

$$\text{AS} = \text{AS}(P_{\text{SOE}}, W, P_{\text{MRM}}, T),$$

where $P_{\text{SOE}}$ denotes the domestic price level (determined largely abroad); $W$, an index of the domestic wage rate, is meant to proxy domestic production costs, a procedure which is well justified in view of the fact that employee remuneration accounts for the bulk of value added in Irish industry; $P_{\text{MRM}}$ denotes the externally-determined prices of imported inputs; $T$ represents the level of primary factor endowments in the economy and the state of technology. Phrased otherwise, it denotes all those things which determine potential output. I will refer to $T$ in a very loose sense: Thus, I will say that $T$ increases if the productivity of inputs rises. This may be due to either an improvement in 'the state of the industrial arts' (technical change in the narrow sense) or to greater efficiency in the use of existing inputs, given technical knowledge (less featherbedding/dossing by the workforce, reduction in restrictive practices, etc).

Increases in $W$ or in $P_{\text{MRM}}$ have the same basic effects; they cause AS in the diagrams to shift to the left, and therefore they reduce national output. A rise in $T$, by contrast, shifts AS (including its vertical asymptote) to the right, thereby increasing national output.

Figure 2 repeats the central features of the preceding diagram, but we will now use it to contrast some features of demand-side and supply-side policies. Starting at point E, it is easy to see that anything which causes the AS curve to shift any given distance to the right (such as a wage reduction) will tend to have a much greater impact, on output and employment, than something which causes the AD curve to shift the same horizontal distance to the right (such as an increase in government spending or a policy-induced export tourism boom). Thus, supply-side policy is likely to be more effective than one which manipulates aggregate demand. Also, an improvement in $T$ (which causes the entire AS curve to shift to the right) is better than a wage reduction (which causes the AS curve to swivel rightwards but brings no change in its asymptote). Given $W$, a rise in $T$ increases the potential output of the economy (as repre-
sented by a shift to the right in the asymptote of the AS curve) and causes the economy to move down along the AD curve as it increases its share of world markets. Thus, defensive strategies by workers in individual industries attempting to prevent the implementation of technical change, and restrictive practices by owners/employers/professions, are likely to impede growth in output and employment in the long run. Indeed, it is precisely those economies which have maximized the pace of technical change, and where competition (possibly backed by the law) has swept aside restrictive practices, that have increased their shares of world markets and grown the fastest.

Note that a situation in which the economy is a perfect price-taker in output markets would be a limiting extreme case of the SOE model. The AD curve would then have a slope of zero, implying that a 'shift to the right' of the demand curve (due, say, to increased government expenditure at home) would be an illusory 'shift' on top of itself. In that case output and employment would be entirely supply-determined, primarily by wage rates, by the terms of international trade as represented by $P^\text{MRM}$ relative to $P^\text{SOE}$, and by technology. However, we do not need to invoke this limiting case to illustrate the dominance of supply side variables in a SOE such as Ireland.

Consider now the demand-side policies of the 1970s. In Ireland, 1972 was the first in which we deliberately planned current budget deficits in order to shift AD to the right. By the standards of subsequent years the projected deficit was a small one only. But the timing of the switch to more explicit interventionist demand management policies turned out to be very unfortunate. In fact, two kinds of boost caused the AD curve to shift rightwards in 1972/3: fiscal policy through deficit financing and an unexpected upswing in the world economy (a matter which is entirely beyond the control of the SOE). Thus, the fiscal injections inadvertently added to pressure on capacity. (Recall the warnings re. pitfalls in countercyclical policy, due to various kinds of lags, mentioned earlier in the present paper). But much worse was to follow: In 1973/4, also due to factors entirely beyond our control, we experienced sharp supply-side shocks in the form of severe adverse movement in the terms of trade (a collapse in our export/import price ratio) due to unprecedented increases in the price of imported energy, upon which we were and still are heavily dependent.
Given the new-found obsession with aggregate demand at policy levels, the macroeconomic implications of the terms of trade shocks were not understood. I strongly suspect that they still are not widely understood in Ireland. And because there appear to be high probabilities that we will experience some further adverse terms of trade shocks in the 1990s, some examination of the mismanagement of the mid-seventies is surely worthwhile.

We can illustrate the core of the problem both arithmetically and graphically. First, an arithmetic illustration in which I will resort to extremes in order to highlight the central issues. Consider a hypothetical SOE which produces 100 units of a single commodity (nothing else being produced), say beef, the entire output of which is exported in exchange for, say, 100 units of oil, which is the only thing it consumes. Let the initial terms of trade index (export/import price ratio index) be 1. Next, suppose that import prices suddenly double, due say, to an OPEC-type organisation. The terms of trade index has fallen to 1/2, and the SOE now gets (and can therefore consume) only 50 units of oil for the 100 units of beef which it produces. In the absence of (a) a doubling of the rate of domestic production or (b) annual foreign borrowing by the SOE (or annual decumulation of assets held abroad by residents of the SOE) equal in amount to the initial volume of domestic production or (c) specific combinations of (a) and (b), living standards in the SOE must collapse. This was the kind of policy problem which Ireland faced following the 1973/4 oil crisis. In its demand-sided double-think, the government failed to focus on serious supply-side measures in order to induce increased output. Although some politicians called for wage restraint and belt-tightening (often phrased in an amazing fashion, as though such restraints would cure an externally-determined inflation, rather than directly reducing unemployment via a shift to the right of the AS curve), it was decided to maintain living standards by borrowing abroad. Fiscal deficits, designed to neutralise the supply-side shocks as well as being effects of the recession induced by those shocks, were themselves financed abroad. For several years, competition for votes by the political parties postponed supply-side action to redress what had been a supply-side shock. In the meantime the public was encouraged to live through a dream and to forget about tomorrow. The situation was like one in which drunken politicians, in some cases quite innocent of much knowledge of macroeconomics and in any case appar-
ently incapable of thinking logically in the national interest -- but quite capable of fighting amongst themselves for popularity and hence votes -- encouraged the voting public also to act like dazed drunks, mortgaging the future in order to maintain an artificial living standard without awareness of the debts which some day would have to be paid or of the interest on such debt which was accumulating. Competent economists did warn of the consequences. But too few wanted to understand and too few were encouraged to listen. In fact, some politicians dismissed the criticisms as those of repetitious bores, of publicity-seeking cranks, or of partisan and ill-tempered wasps. Therein lies much of the genesis of the fiscal crises of the 1980s, some effects of which have been inherited into the 1990s. Like the drunk who finally responds to observations by others on the consequences of persistent exhilaration as a routine, it may have been a combination of the ultimate power of ideas (recall the quote from Keynes early in this paper), and blatant necessity, that led our political leaders ultimately to focus on supply-side incentives.

Much of the foregoing can be illustrated using an AS/AD framework. Point E in Figure 3 represents macroeconomic equilibrium in 1973 just before the oil crisis. The terms of trade shock -- a rise in P_M to the left; thus it was inflationary in getting prices up but deflationary in getting output and employment down, to, say, those represented by point F in 1974. The response of the prevailing and subsequent governments was to increase aggregate demand, using deficit financing. Thus, new equilibria, like that at point G in Figure 3, were attained for years in the middle and later seventies. It is clear from the diagram that it was unlikely that demand-side policies could quickly get the economy back to the level of output which prevailed at E or to the right of E. In the meantime debts were being persistently incurred artificially to sustain the level of demand. It was inevitable that the longer this scenario was allowed to continue, the moreo would the need to pay interest (and principal) have further adverse effects on aggregate supply: the corresponding increases in the tax burden tended in themselves to cause further shifts to the left of the aggregate supply curve, through their effects on the incentives to work (in fully legal forms) and through their effects on (after-tax) real wage bargaining, and therefore on costs.
It should be fairly clear from Figure 3 that what was needed after 1973/4 was a portfolio of policies to shift $AS$ continuously to the right. This could have included wage restraint, possibly through legal enforcement but preferably by education in regard to the central macroeconomic implications of a major terms of trade change. Such an approach could have been supplemented by policies designed to maximize the pace of technical change -- to increase $T$ in the $AS$ function in the general sense which I have explained earlier. In the out-turn, the Irish people were forced to incur some years of retribution for the macroeconomic policies which they allowed to be implemented on their behalf in the 1970s and early 1980s.

Hopefully we are now getting our house in order. Thus, following progress made in the 1980’s, the PESP (p. 8) states that ‘we can now aspire to a further significant reduction in the national debt to GNP ratio ... to 75% of GNP or below by the year 2000.... A lower relative debt burden will enable resources now devoted to debt service to be used for further economic and social development and taxation reform’.

Tax reform, already initiated insofar as high rates of levy on incomes are concerned, may be expected to stimulate supply-side incentives. But it is likely that we will experience some adverse terms of trade movements during the decade of the nineties. As already indicated, I am not sure that an adequate awareness exists in regard to their macroeconomic implications. It is easy enough to allow living standards to improve when the aggregate supply curve shifts to the right due to favourable terms of trade movements. Indeed, the potential gains in output and employment may be nullified in such circumstances if there is also a weakening in resistance to nominal wage demands. (In that case, reduction in one kind of cost relative to output price would be offset by an increase in the other principal kind of cost.) But, due to contracts, to other forms of ratchet, to political ineptitude, etc., it may prove difficult to depress living standards (through real wage reductions) when the terms of trade move adversely. If that is the case, supply-side measures aimed at improving productivity will be all the more important. Indeed, for any given terms of trade ratio, it is only through steady increases in productivity that we can expect to experience simultaneous increases in employment and in living standards.
It is likely that we will experience one of two adverse (supply-side) terms of trade shocks in the 1990s: (i) In real terms, the price of agricultural produce, which still ranks heavily in the structure of our exports, may be on a declining trend. In terms of the AS function to which I earlier referred, a fall in output price relative to $W$ and $P_{M^R}$ would have effects in many respects similar to those of a rise in $P_{M^R}$ (or in $W$), given output prices. (ii) It is hard to envisage a situation in which the real price of imported energy will not move on an upward trend between now and the year 2000. In themselves, eventualities (i) or (ii) -- both of them almost surely beyond our control -- would shift the AS curve to the left. It is therefore of paramount importance that flexible supply-side policies involving the structure of taxation, wage bargaining, work practices and competition among firms, continue to be developed.

In the context of wage bargaining and changes in the terms of trade, I think that effective education -- of both politicians and trade union leaders -- has a very major role to play. I am here reminded of the reasoning of a trade union leader on national television perhaps ten years ago. Stating his case against wage restraint, he argued that a general increase in wage payments would be good for jobs because it would increase the demand for housing (which in this country is not usually imported). It is true that increased wage payments might (by redistribution of purchasing power) increase the effective demand for domestic output by those persons who remained in employment. But by reducing supply incentives and thereby shifting AS to the left at a given level of productivity ($T$), they would surely have resulted in fewer persons in employment. Such are the pitfalls in wearing spectacles one lens of which enables the possessor to see demand while, due perhaps to an external impulse or shock, the other lens is defective and does not permit perception of supply.

III. NONTRADED SERVICES ARE IMPORTANT FOR COMPETITIVENESS

The preceding more lengthy (than this) section placed some emphasis on abolition of restrictive practices -- by employers as well as employees -- in generating productivity growth. The case may be fairly obvious in agriculture and manufacturing industry, the two principal (internationally) traded sectors of the
economy. But what about the services sector, the output of which is mainly nontraded internationally, but which now directly accounts for the bulk of employment in Ireland?

For the record, in 1987 -- the latest year for which relevant statistical estimates are at hand -- sectoral employment shares within the State were as follows: Agriculture, 15%; Industry, 28%; Total Services, 57%; Marketed Services, 38% and Non-marketed Services (such as Public Administration, Defence, etc.), 19%. Thus, the marketed services sector is the most important source of employment in Ireland, and its share of the total has been rising over time. Figure 4 provides a partial bird's eye view of the general international experience.

In 1984 I made the following observations:

'Ireland has articulated policies for agriculture, manufacturing industry and the public sector, but it has had no clear and sustained policy for the marketed services sector. That has been an anomaly, especially in view of the increased relative importance of marketed services and of producer services in particular. Perhaps it reflected the mistaken view that services sector outputs are mainly nontradeable internationally and hence -- and this is the error -- that the competitiveness of the economy is little dependent on the efficiency of the marketed services sector. Because marketed services do influence the competitiveness of the internationally traded goods sectors -- indeed, increasingly so -- it would seem desirable that Ireland articulate a clear and sustained policy for private sector services.'

In the same survey I noted that in Ireland since around 1975, in accordance with the experience of other economies, and contrary to notions widely held, the bulk of the output of marketed services has been as inputs to the productive system, rather than as flows into consumption demand. Hence, even though most of the marketed services subsectors are sheltered in the sense that they do not directly compete in international trade, inefficiencies in the provision of such services can undermine the competitiveness of the more exposed trading sectors of the economy.

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7 'Public Policy for Private Sector Services', Journal of Irish Business and Administrative Research, October 1984, 85.
It follows that the remarks earlier in this paper about the importance of efficiency and productivity growth apply with force to the services sectors, as elsewhere in the economy. I can therefore only note with approval the statement under 'Competition Policy' in the PESP (p. 86) that new legislation will be enforced 'so that the traded sectors will not have to bear the costs imposed by anti-competitive practices in the more sheltered local businesses'.

Rather than resorting to, or maintaining, restrictive practices to defend jobs in the face of competition or technical change at microeconomic levels, the defences of vested interests will have to be dismantled in a strategy for national progress. The foregoing statements are in full accord with my views set out (on p. 100 of the reference cited in footnote 7 above; italics in the original) in 1984, as follows:

_The central feature of general policy towards private sector services should be emphasis on competition and the dismantling of restrictive practices and price maintenance._ That would not only benefit the Irish consumer directly; it would also increase the competitiveness of tradeable goods and hence, in the long run, it would promote job creation. It would be folly for policy to put a break on the pace of technical change in private sector services with a view to saving jobs in the short run... In a world of rapid technical change it is precisely those countries which innovate the fastest which are likely to increase their shares of world markets by most: in a sense, standing still would be moving backwards.'

IV. CONCLUSIONS

1. Ireland did not actively try to use the current budget as a countercyclical device until 1972, which was the first year in which current budget deficits were planned. The timing of the switch to actively interventionist demand-side policies reflected a number of lags, first in the acquisition and dissemination of knowledge in the universities, and with a further lag, in the civil service and among policymakers.

2. For some years after 1972, policymakers applied demand-side measures with the over-enthusiasm of most novices. The new-found emphasis on aggregate demand distorted attention away from the importance of stimulation of the incentives to supply.
3. Around the time that focus on demand management was at its peak among policymakers in Ireland, some mainly younger economists began to point out that a wrong model was being used -- one more suited to the underemployed and relatively closed economies of the 1930s. They argued that Ireland was a small open economy (SOE) in which supply incentives were crucial, and that it should be modelled as such in policy formulation.

4. In a SOE, policies -- pertaining mainly to wage formation and productive efficiency -- which shift the aggregate supply curve are likely to be more potent than those which shift the aggregate demand curve. This is easy to see using a very simple diagram, exploited in various contexts in the text.

5. The deficit-financed demand expansions of the 1970s probably had some success in boosting output and employment in the short run. But in the long run the need to raise more in taxation to finance the consequentially increased national debt had adverse effects on aggregate supply, and hence on output and employment.

6. The terms of trade impulse of 1973/4 was a supply-side shock which had consequences over several years. Instead of responding to that supply shock by measures on aggregate demand, the government should have sought to neutralise that shock by policy-induced shifts in aggregate supply itself. Similar remarks probably apply to the 1980 oil price shock also.

7. Although there was gradual movement toward supply-side measures in the later 1980s, to a considerable extent the hands of policymakers have been tied by virtue of the debt overhang inherited from the era of interventionist demand-side management via deficit financing.

8. The government's recent *Programme for Economic and Social Progress (PESP)* is in accord with the central features of SOE macroeconomic theory. Its emphasis on supply-side measures therefore makes good sense.

9. The marketed services sector is now the main direct source of employment in Ireland. Even though most of the marketed services subsectors do not immediately face competition through international trade,
the fact that the bulk of their output consists of producer services (i.e. inputs to the productive system) rather than consumer services means that efficiency in services -- as also in the traded sectors themselves -- is crucial to overall prosperity. Policy should foster technical change, in a broad sense, in all sectors of this very open economy. It is those countries which have the fastest rates of technical change that have increased their shares of world markets. Rather than ensuring protection of existing jobs, toleration of vested interests and illusory defensive resistance to technical change at the microeconomic level, will reduce employment and living standards in the long run. The PESP seems to be in accord with these views.

10. It is probable that the macroeconomic implications of terms of trade changes -- which are supply-side shocks -- are still not widely understood in Ireland. In this context, further education of trade union leaders and other policymakers may turn out to be very important. The paper mentions two specific kinds of terms of trade shock which could occur, with a worrying degree of probability, over the decade of the nineties. Because of our high degree of openness (which implies that changes in many of the variables affecting our economic success are beyond our direct control), and because of the potential gravity of such shocks in both the short and long runs, it is important that flexible (rather than rigid and predetermined) strategies be devised, and implemented as the need may arise. If the two specific terms of trade shocks mentioned in the text were to occur simultaneously, their pincer effects on Irish agriculture could be disastrous -- in the absence of an appropriate, probably for the most part supply-side, strategy.

See pages A1, A2, A3 for diagrams.
Figure 1

Figure 2
Figure 3
Figure 4: Relationship between sector employment shares and per capita income (summary of the international experience)
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