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EMPLOYMENT PROSPECTS FOR KEYNES' GRANDCHILDREN :
SOME POPULAR FALLACIES

by

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upper limit for $\left[\frac{G + a}{G} \right]$. The highest Australian estimate of

(-w) for recent data is 2.51 (Tulpulé, 1978); this figure is well above the estimate of 1.82 obtained by Williams (1978) and the weight of the international evidence for a country like Australia (Lluch, Powell and Williams, 1977). The lowest recorded value of s since December 1972 is just under .14; a generous lower limit in present circumstances would be .09. Calculating n on the basis of these upper bounds, we obtain

$$n = -0.48 \times 0.91 \times 1.52 \times \left[1 - \frac{1}{2.51} \right] \\ = -0.40 .$$

EMPLOYMENT PROSPECTS FOR KEYNES' GRANDCHILDREN : SOME POPULAR FALLACIES

by

Alan A. Powell*

Preamble

The allusion made in the title of my talk is to an article by Keynes published in the Nation and Athenaeum for October 11th and October 18th, 1930. In that brief essay he discusses economic possibilities for the grandchildren of his generation. Many of those grandchildren are now adults. What is surprising (perhaps) is that the burning issues - - unemployment and especially technological unemployment - - don't seem to have changed. Moreover, the attempts of the grandchildren to deal with these problems have not been marked with spectacular success, notwithstanding instruction from their famous forbear.

In this talk I wish to examine four popular reactions to the current unacceptably high levels of unemployment. Research undertaken within the IMPACT Project is able to shed some light on each of these approaches to the restoration of full employment. The first two, namely,

I would not have been able to write this paper without the intellectual support and stimulus of my colleagues at IMPACT. Special thanks are due to Peter Dixon, David Vincent and Ashok Tulpulé; while Brian Parmenter's generous supply of feedback on draft material served as the anvil without which the paper could not have been forged. Richard Filmer and Tony Lawson kindly drew my attention to Keynes' 1930 paper. Residual errors remain my exclusive responsibility.

- (A) the idea that maintenance of real wages is an essential element to the restoration of full employment

and

- (B) the idea that unemployment can be exported to lower wage countries

are of a shorter term focus than the second pair; namely,

- (C) the idea that cutting the length of the working week will "share the available employment around"

and

- (D) the Luddite conviction that technical change must be resisted in order to preserve employment and the living standards of the working class.

In my remarks I will be using insights gained from three of the IMPACT models. In the case of (A) and (B) above, simulations with the ORANI multi-sectoral model of the Australian economy will support my remarks.

In the case of (C) I will also be using recent theoretical work in the theory of labour supply undertaken in conjunction with the development of the BACHUR00 model of the population and workforce. Finally, in my discussion of (D), I will be drawing on some simulations carried out with IMPACT's SNAPSHOT model which is designed to obtain insights into the long term effects of changing demography, trade patterns, and technology.

The structure of the balance of this talk is quite simple. The issues (A), (B), (C) and (D) are each discussed in turn. In a final section I offer my concluding remarks.

Appendix

It is assumed that the utility function of a typical worker is Klein-Rubin in broadly defined 'leisure' (i.e., time not at work) and an index of commodities consumed, and that he is not artificially constrained by administrative fiat as to the maximum or minimum number of hours he can work. By opting in or out of voluntary overtime, by changing jobs if necessary, and/or by moonlighting, the employed worker is assumed to be working the desired number of hours at the going conditions.

The influence of non-proportionality in the income tax scale is ignored. Net after tax earnings are assumed to rise proportionately with hours worked up to standard hours, and to increase more than proportionately with hours worked thereafter. Then the strongest 'backward bending' supply effect is encapsulated in the elasticity of hours supplied with respect to the basic hourly wage rate (Powell, Tulpulé and Filmer (1977), hereafter PTF). From PTF this elasticity is

$$\eta = -\beta_L [1 - s] \frac{[G + \alpha]}{G} [1 + 1/\omega],$$

in which β_L is the 'marginal leisure preference', s is the average savings ratio, G is disposable labour income, α is disposable non-labour income, and ω is the 'Frisch parameter'. The highest estimate obtained for β_L from Australian data is 0.48 (Tulpulé, 1978); as this is four times the corresponding U.S. estimate (Abbot and Ashenfelter, 1976), it seems reasonable to take it as an upper limit. The ratio of wages, salaries and supplements to total household income in 1976-77 was at a ten year low of approximately 66 per cent; it seems reasonable to take 1.52 as

that (Keynes, 1930) :

"The pace at which we can reach our destination ... will be governed by four things - our power to control population, our determination to avoid wars and civil dissensions, our willingness to entrust to science the direction of those matters which are properly the concern of science, and the rate of accumulation as fixed by the margin between our production and our consumption " (*italics in original*).

It is difficult to avoid choosing a 'determination to avoid civil dissension', and the energetic application of our intelligence towards means of achieving this goal, as the values whose primacy Keynes would have stressed for Australia in the nineteen eighties.

(A) The Real Wage Issue

In the last two years we have seen a debate in Australia on the question of whether or not a reduction in the level of real wages (or at least a slowing down in the rate of increase of real wages relative to productivity growth) is necessary for the restoration of full employment. In his presidential address to the Seventh Conference of Economists Max Corden (1978, 1979) gives the issues a very thorough going over. His conclusion that it is not viable to reflate an open economy by demand stimulation alone, seems (with one or two notable exceptions) to have been accepted by the Australian economics profession. The minority opinion has been forcefully put by Geoff Harcourt (1978) and by Peter Sheehan and his colleagues at the Institute of Applied Economic and Social Research (Sheehan *et al.* (1979)). As I interpret their position, the minority group's conclusions are at variance not only with Corden's analysis, but with the general thrust of the OECD's McCracken Report (1977) and with the views of Gruen (1978, 1979), Peter Jonson *et al.* (1977), Richard Snape (1977), Dixon, Powell and Parmenter (1979) and, at least implicitly, Perkins (1979). Corden and most of the authors supporting the majority opinion emphasize that, in the context of an open economy, one can no longer erase the budget constraint as in the Keynesian analysis of a closed economy. While the restoration of full employment at home requires an expansion of aggregate demand, the maintenance of external viability requires a matching reduction in costs. In the case of Perkins' proposals for demand stimulation matched by sales of bonds to the non-bank public, an essential ingredient is the cut in real costs which it is hoped would be secured by the package.

So the position is as follows. With the exceptions noted above, among the economists who have contributed publicly to the recent Australian

policy debate there is something approaching consensus that real wages are the key (or at least that they are important). In our report to the Crawford Study Group on Structural Adjustment (Dixon, Powell and Parmenter - - hereafter DPP - - (1979)) we use essentially the same theoretical framework as Corden but add two new dimensions to the analysis. Because we have worked with an explicit empirically based model, we have been able to supply some quantitative estimates of the aggregate effects of different approaches to the restoration of full employment. A more novel aspect of our contribution is the detail provided concerning the differential incidence across industries, occupations, and States, of different macro strategies. Briefly, our findings are :

- (1) A general expansion in aggregate demand - - that is, equal percentage increases in real private consumption and investment and in real government spending - - would significantly increase employment but would have two, related, undesirable side effects. First, it would aggravate the inflation problem and adversely affect both import-competing and exporting industries with a consequent unbalanced pattern of stimulation across industries, occupations and regions. Second, it would lead to increasing balance of payments difficulties.
- (2) A reduction in real wage costs would significantly increase economic activity and employment, but would also be uneven in its incidence across industries, occupations and regions. This is because import-competing and exporting industries receive a larger benefit than industries in the non-traded sector from a reduction in inflation.

the increase in the effective hourly wage rate implied by the proposals would cause a fall in employment demand, there is a good chance that their implementation would actually exacerbate the situation. A "sharing" of available employment will not be accomplished by administrative fiat. It will require the agreement by those already in employment to give something up in the interests of their less fortunate colleagues.

In the labour market area priority needs to be given to enhancing our understanding of the supply side at a detailed, disaggregated, level. Hopefully work under way at IMPACT will go some way towards bridging this gap. It cannot be closed, however, in a really adequate way unless radical improvements in the scope, timeliness, and quality of the data base are implemented (Mumme et al., 1978).

A half century ago Keynes foresaw that the technological revolution would carry us into an age of leisure. Technological unemployment was seen by him as a passing difficulty. Whilst I share his optimism, I would recommend that we direct more attention to the possible strains that this transition may place on the distributive mechanisms that operate in the economy. For example, we should be assembling a data base describing how the asset portfolios of households evolve over time, and why. In the meantime we should be starting to think of efficient ways to make the absorption of the new technology easier, especially for the more vulnerable members of the work force. Whatever the difficulties, we should not delude ourselves that a revival of the Luddite creed could be any more successful in solving problems today than it was a century and three quarters ago.

From the vantage point of 1930 Keynes believed that the age of leisure could be reached without cataclysm. A Great Depression and a World War have intervened between his vantage point and ours. He believed

In contemporary Australia acquiescence by employed labour in such a squeeze on real wages seems too much to hope for. Yet barring some lucky accident which leads to an autonomous increase in the full employment real wage, it is to such an acquiescence that our hopes must necessarily be pinned. For while the refusal of employed labour to tolerate a squeeze in real wages might not have been fatal to the Keynesian strategy in a closed economy, it must surely be so in the context of an open one. Reflation of an open economy requires not only an expansion of aggregate demand, but also a cut in real costs. A package based on these two elements is much less discriminatory among industries, occupations and States than either element taken singly (DPP, 1979).

In anything but the short run (less than two years, say), it is very unlikely that levels of protection afforded particular industry sectors have anything to do with the aggregate level of employment. Opinions to the contrary tend to ignore the fact that increased protection for some sectors imply increased costs for all sectors especially when wage rates are effectively indexed to domestic prices. Recent research (DPP, 1979) indicates that the adverse effects of cost increases on employment in other trading sectors is likely to offset any increases in employment generated in the protected sectors. Our research priorities in the trade area should be into identifying feasible approaches to liberalization involving manageable adjustment paths. I would agree with those who see it as our responsibility, and as in our own long term self interest, to give more weight to the needs of third world countries in these matters.

Current proposals to shorten the length of the working week are unlikely to help close the gap between the number of man hours which the work force is willing to supply and the volume of employment demand. Since

(3) The fact that the differential incidence of a general expansion in aggregate demand is in the opposite direction to the differential incidence of a cut in real wage costs suggests a two-pronged approach to the macro problem. A macroeconomic 'package' combining both approaches would provide balanced stimulation of industries, occupations and regions. Such a package, moreover, would reduce the rate of inflation.

With reference to point (1), the ORANI model projects that a 1 per cent increase in real aggregate demand (that is, a balanced increase in all components of real absorption) leads to a 0.6 per cent increase in aggregate employment, to an increase in consumer prices of 1.7 per cent and to a worsening of the balance of trade equivalent to about 3.9 per cent of total exports.

The conclusion in (2) above was based on a simulation in which real aggregate absorption was held fixed when real wages were squeezed. The essence of the Keynesian position, however, is that a strong link exists between the level of aggregate demand and wage payments. We have advanced a number of reasons for rejecting the relevance of this view to the contemporary Australian economy (DPP (1979), pp. 25-28). For reasons of time, I will not go into them in detail now. Suffice it here to mention:

- (a) the fact that asset income is no longer the sole preserve of a narrowly defined small group of 'capitalists';
- (b) that the average savings ratio does not seem to be independent of the inflation and unemployment rates and in fact increased dramatically over the recent period of high inflation and high unemployment;

- (c) most importantly, that governments have freedom to manipulate aggregate demand independently of real wage rates.

Recognition of the last of these points is, of course, essential to the viability of the package described above in (3).

I wish to turn now to the income distribution and welfare consequences of the push for higher real wages and of resistance to their downward flexibility. Many of the proponents of preserving or of increasing the level of real wages have argued that such is desirable in order to distribute the nation's product equitably (and especially to ensure that those whose only asset is their own labour receive a fair share in economic growth). Those favouring this position implicitly assume that the level of real wages does not affect the level of employment or of economic activity. Acceptance of the arguments of Corden (1978), DPP (1979) and others for the relevance of real wages in the determination of employment demand must lead to the abandonment of a welfare-motivated insistence on the desirability of downward inflexibility of real wages.

By insisting on higher real wages for the (reducing number of) employed, such advocates condemn the unemployed to remain that way. The late Harry Johnson (1975) and others have pointed to the inequity of the distribution of the burden of that human catastrophe known as the Great Depression. In fact, during the initial years of the Great Depression, the real value of wages for those who remained employed actually rose, while their colleagues were thrown into economic and social disaster. Contemporary advocates of artificially high real wages are contributing unnecessarily to the polarization of society into a class of lucky ones (those with jobs) and the

Research Perspectives and Concluding Remarks

The economic environment confronting Keynes in 1930 was one in which it was difficult to distinguish between unemployment of a cyclical nature and unemployment generated as part of the process of adjustment to technological change. A similar situation confronts us today. Four common reactions to the perplexing unemployment problem are that macroeconomic health can be restored by demand stimulation alone, that tariff protection sustains aggregate employment, that a cut in standard working hours will ease the employment problem in the short run and that resistance to technological change is an effective means of avoiding 'technological unemployment'. I have used various results from the IMPACT research programme to suggest that each of these reactions is ill founded.

Our fixation on the maintenance of real wages (rather than on the maintenance of real household expenditure) is particularly unfortunate. In the General Theory Keynes (1936, Ch. 20, section III) describes the expansion of effective aggregate demand in these terms :

"We have shown that when effective demand is deficient there is under-employment of labour in the sense that there are men unemployed who would be willing to work at less than the existing real wage. Consequently, as effective demand increases, employment increases, though at a real wage equal to or less than the existing one, until a point comes at which there is no surplus of labour available at the then existing real wage Up to this point the decreasing return from applying more labour to a given capital equipment has been offset by the acquiescence of labour in a diminishing real wage."

To conclude this section, I will reiterate the major dangers inherent in the adoption of the Luddite creed :

- (a) it is unlikely to solve the distributional problem and in fact may exacerbate the new class warfare between the employed and the unemployed because of the stagnation in the levels of real wages which a technological moratorium would produce ;
- (b) the cost in terms of higher material standards of living forgone would be excessive (roughly equivalent to an indefinite freeze on the standard of living at its current level); and
- (c) Australia could not unilaterally adopt the Luddite position without abandoning a large percentage of the benefits which at present flow from international trade.

As it was at the beginning of the nineteenth century, as it was in the crises of the nineteen thirties, the perspective of the Luddites remains too narrow. It ignores the fact that :

".... this is only a temporary phase of maladjustment.

All this means in the long run [is] that mankind is solving its economic problem. I would predict that the standard of life in progressive countries one hundred years hence will be between four and eight times as high as it is today. There would be nothing surprising in this even in the light of our present knowledge. It would not be foolish to contemplate the possibility of a far greater progress still." (*Italics in the original.*) (Keynes, 1930.)

remainder (those without jobs). I share Hugh Stretton's (1979) concern about the ugly nature of this trend (although I cannot agree with the degree of intervention involved in his proposed remedies).

When Keynes eliminated the budget constraint of neo-classical economics he was asserting that it was possible to get something for nothing. This was a rather optimistic view for a practitioner of the gloomy science. It was founded on the belief that, although money wages were sticky in the downwards direction, real wages could (if necessary) be squeezed by the inflation which would follow an expansion of aggregate demand as the economy neared full employment. Thus, if necessary, those currently holding jobs might be "tricked" into accepting real wages lower than they would otherwise have enjoyed. They would hence allow involuntary unemployment to be mopped up. Union leadership is undoubtedly more sophisticated than that of four decades ago. There seems little doubt that in the contemporary economy neither union leadership nor the public in general is subject to money illusion to any major extent.

All of this was in the context of a closed economy. In an open economy the number of economic agents who would need to be "tricked" by the governmental magician is larger. In particular, all those foreigners holding paper assets with yields denominated in Australian currency would need to believe that the expansion envisaged by a Keynesian minded government could in fact be achieved without bringing the Australian dollar under pressure. This latter group of agents (foreign investors), however, could hardly fail to understand that any governmental policy which brings the balance of payments under pressure is a risk from the point of view of the real value of the income stream represented by their Australian assets. If this is international money's perspective of the situation, then it is very likely that

Keynesian demand stimulation of the domestic economy will confront the government at very short notice with the unpalatable alternatives of raising large amounts of capital overseas on the one hand, or of a forced devaluation on the other. Given wage indexation and the apparent lack of money illusion on the part of union leadership, such a devaluation would be likely to feed straight through into domestic prices and costs.

It is theoretically possible that a stimulation of aggregate demand, although deleterious to the balance of trade, might not be deleterious to the balance of payments. If the demand stimulation were to generate investment opportunities of sufficient magnitude to stimulate capital inflow by an amount larger than the deterioration in the balance of trade, then the spectre of an inflationary round of devaluations might be staved off. This would require a consensus among the international investing community which in turn would require much better public explanation of Australian economic policies than has ever been given in the past. It might also require on the part of international institutional leaders behaviour very much at variance with their history of insisting that the sizes of domestic deficits are reduced as a precondition to baling out national currencies which are under pressure.

In summary, attempts to increase real wages are not likely to lead to a restoration of full employment. An expansion of real aggregate demand aimed at restoring internal balance will be incompatible with external balance unless real costs are squeezed. With the mobility of international capital it is impossible to squeeze the return on capital for anything but a very short period and so restraint in real wages becomes a necessary ingredient of a policy package designed to restore full employment. Moreover,

Our transition to the leisure plentiful society will not be achieved painlessly nor without the need to re-think the basis of our value systems and institutions. That the distributional problems associated with the leisure plentiful society are not insuperable can, however, be demonstrated by contemporary real world examples. Technological improvement represents a net increase in the potential wealth of a society. In that respect it is rather like acquiring the ownership of a mineral resource; e.g., oil or phosphate rock. Examples of economies which have successfully solved the distributional problems created by an embarrassment of mineral riches are Kuwait and Nauru. It seems to me not to matter greatly whether the citizens of such countries now, or the citizens of countries such as ours in the future, regard the cheque they receive in the mail as the dividend of a private company on the one hand, or as a governmental transfer payment on the other. What matters is that they establish title to a share in output. I remarked in Section (A) above that titles to income producing assets are much more diffusely spread throughout the Australian community of 1979 by comparison with, say, the same community in 1939. We know comparatively little about the details of this transition, but it seems likely that accelerating public investments in education have allowed individuals to develop their own human capital and subsequently to accumulate non-human assets out of savings from their (higher) income stream. Whatever the mechanism, research is needed to determine whether the distribution of non-human assets is on a path which can evolve, without cataclysm, toward an asset distribution consistent with the leisure abundant economy sketched above.

us to what is going on under the surface - to the true interpretation of the trend of things. [F]or the first time since his creation man will be faced with his real, his permanent problem - how to use his freedom from pressing economic cares, how to occupy the leisure which science ... will have won for him"

A decade ago I took up the same theme (Powell, 1969) :

"In 100 years' time (perhaps 50) the concept of 'working for a living' will be as dead as the dodo. The technological capacity of the world economy will make all but the most skilled labour redundant. The economies of the world, as well as our value and ethical systems, will be challenged in a way that has never seen equal. The typical 'worker' (who, by and large, will not work) will receive a cheque in the mail solely in order to give him the purchasing power needed to keep the wheels turning. Indeed, he may have to 'pay' to get a job - jobs will become as leisure, and leisure as jobs. All of our moral ideas about the value of 'good honest work' will suddenly be floundering in a sea of leisure."

Such radical changes are unlikely to surface in a country like Australia, at least not in the lifetime of this audience (although on this point there can be no certainty : the recent public pronouncements of the President of the A.C.T.U. (Hawke, 1979) suggest that the time for consideration of such radical measures is now).

expansion in real demand and a cut in real wage costs would provide a balanced stimulus with fairly even incidence across industries, occupations, and States. For these reasons such a balanced package has social as well as economic advantages. The link between real wage payments and real aggregate demand is now seen to be much weaker than the one assumed by many traditional Keynesians. Further, the maintenance of real wages in excess of their full employment level is socially divisive and threatens to lead to a dangerous polarization. Finally, it is unlikely that a government such as Australia's could expand domestic demand without leading to a flight of foreign capital followed by forced devaluations. The conclusion must be that real wage restraint is a necessary ingredient of any attempt to restore full employment.

(B) The Protection Issue

There has been a massive intellectual investment in Australia over the years in the theory and practice of measuring the effects of tariffs. One of the principal contributors to this body of research literature makes the following introductory remarks about the relationship between protection and employment :

"Practical men in many countries and, no doubt, many centuries have pointed out that tariffs increase employment in the protected industries. Economists, also in many countries, and for at least two centuries, have pointed out that the extra employment in the protected industries may be at the expense of employment in other industries, and hence does not necessarily provide an argument for protection." (Corden, 1974, p. 119.)

Before considering sets of circumstances in which the application of a tariff might lead to increased employment, Corden points out that an increase in absorption under conditions of rigid real wages will lead to a balance of payments deficit which cannot be eliminated by devaluation. This is a general theoretical point and it is, of course, reflected in the structure of the ORANI model and the results obtained from it. But Corden (1974, p. 116) does canvass the argument that tariffs might succeed where devaluation would fail. This proposition is not at the level of a logical theorem, but rather is an empirical proposition to be determined in the light of the structure of a particular economy. To attempt to assess its relevance to the Australian economy, an industry and trade model such as ORANI is needed. In ORANI simulations, a uniform increase in ad valorem tariff rates does very little

compensation principle and have been able to ensure that at least the current generation of workers threatened by displacement do not lose out. The accelerated retirement provisions obtained by the waterside workers upon the introduction of containerization is the outstanding example.

I do not want to minimize the adjustment difficulties which may be faced by some of the weaker sectors of the labour market. Displacement of typists, for instance, by electronic word processors will leave a poorly organized group within the workforce groping to find alternative employment for which its members are qualified. Such a group lacks the industrial muscle of the watersiders and is unlikely to be able to extract compensatory payments. Horizontal equity would demand that governments make generous provision for the retraining of those who, lacking cartel power, are unable to raise taxes privately (e.g., via higher shipping charges) in order to finance their costs of adjustment to the new technology.

Almost half a century ago Keynes (1930) wrote :

"We are suffering, not from the rheumatics of old age, but from the growing pains of over-rapid changes, from the painfulness of readjustment between one economic period and another. The increase of technical efficiency has been taking place faster than we can deal with the problem of labour absorption; the improvement in the standard of life has been a little too quick The prevailing world depression, the enormous anomaly of unemployment in a world full of wants, the disastrous mistakes we have made, blind

the deleterious effect on Australia's trading position of a unilateral freeze on technology. These trade effects would clearly reinforce our conclusions for the domestic economy (see also Johns, 1979, p. 12). Since the benefits of trade are two way, our major trading partners would also stand to lose.

It is true that distributional difficulties have been assumed away in the SNAPSHOT projections described above. The justification for the Luddite position, presumably, must be that these difficulties are insuperable. The long run historical perspective demonstrates that this is not necessarily true: neither the original Luddite premonitions nor their revival half a century ago (which led to the paper by Keynes which I have cited) in fact turned out to be fulfilled. Moreover, it is likely that the imposition of a moratorium on the new technology would generate distributional difficulties of its own. The SNAPSHOT projections indicate stagnating or declining full employment real wage levels. At the present time, organized labour is pressing for higher real wages and certainly seems to have been successful in resisting attempts to squeeze real wages to any extent since the real wage explosion of 1972-75. Given the adoption of the Luddite creed and the consequent stagnation in the full employment level of real wages, continued successful pressure for real wage increases by powerful sections of the labour force would result in substantial unemployment. This would surely fuel the new class warfare between the employed and the unemployed.

Although the absurdity of the Luddite position is now apparent, we must nevertheless give careful attention to the questions of adjustment and income distribution. In facing adjustment difficulties some of the more facile union leaderships have been clever enough to invoke the

to improve the balance of trade. In fact, it is estimated (DPP, 1979) that a 25 per cent across-the-board increase in tariffs would lead to an improvement in the balance of trade equivalent to about 0.3 of one per cent of the value of exports. This is because in these ORANI simulations, carried out under conditions of maintained aggregate demand and fixed real wages, the effect of higher prices for importables feeds through immediately into consumer prices (which rise by 1.6 per cent) and into costs generally. The export industries are poorly placed to pass on these additional costs. Consequently, although imports are curtailed, the value of exports drops by an almost matching amount. To avoid this conclusion one would have to believe that the elasticities of export demand facing Australian commodities are very much lower than the values used in the simulations (which we believe to reflect the best empirical evidence available - see Freebairn (1978)), and/or that the elasticities of export supply by Australia are extraordinarily low (i.e., much less than the values used in the ORANI simulations, which were approximately 0.08 for major agricultural exporting industries - see DPP, 1979, p. 79, footnote 9).

Corden does identify another set of circumstances in which a carefully designed set of tariffs might be employment creating. This would be the case in which the tariffs were specifically on items not in the typical budget of members of the class who supply labour. Thus the effect of the tariff would not be to increase any relevant measure of labour costs. Under such a scenario a contraction in exports (if any) could be much smaller than the value of the imports eliminated by the tariff. In such a rigid real wage economy an increase in absorption coupled with a tariff on goods purchased by the capitalist class but not by the working class might lead to the

restoration of full employment. Whatever the merits of such an argument in countries like Chile and Brazil, it is clearly irrelevant to a country with income and asset distribution like that of Australia.

The ORANI simulations indicate that, subject to the maintenance of a fixed level of real domestic absorption, uniform increases in tariffs have virtually no effect on aggregate employment under fixed real wages. Rather, the major impact of tariffs is to redistribute employment among industries, occupations and States. The key element in determining whether an industry, occupation or region gains from a uniform increase in protection measures is the closeness of the connection between that industry, occupation or region and the import competing sector. For example, the ranking among States of the benefits of a tariff increase (from biggest gainer to biggest loser) is as follows : 1, Victoria; 2, South Australia; 3, New South Wales; 4, Tasmania; 5, Western Australia; 6, Queensland. The relatively high percentage of the Victorian economy accounted for by the sheltered import competing sector and the relatively high proportion of the Queensland and Western Australian economies in the export sector are the main factors accounting for this result.

Increased protection may allow us to export some unemployment in footwear, clothing and textiles to third world countries, but only at the expense of also exporting some jobs from the less sheltered sectors of the rest of the economy. The effect of tariff increases is felt hardest by rural export industries where it leads to a loss of employment. Jobs which would otherwise have been available in Australian rural industries (and in industries which support them) are lost as our ability to export is squeezed. To the extent that the induced short-fall in our exports is taken up by our

Need these jobs actually disappear? After all, in the long run the descendants of the English craftsmen who resisted the introduction of textile machinery were employed as textile workers at a higher standard of living than their Luddite forebears. Whilst rapid technological change may put some stress on the income distributional mechanisms within society, the rewards for successfully digesting the technological changes are very high. Again, SNAPSHOT has been used to project the likely orders of magnitude for the potential gains. In the relevant simulations, the year 1990-91 was presented with two alternative technologies : the technology of the base year (1971-72) and the technology envisaged in the BIE technological scenarios. For shorthand, let us describe the latter economy in 1990-91 as the innovative economy, and the technologically stagnant economy of 1990-91 as the Luddite economy. The projections are made on the assumption that the distributional mechanisms in the economy are successful in maintaining approximately the same personal distribution of consumption expenditures in 1991 as in the base year. The workforce is exogenously projected to be 7.9 million and real wages are assumed sufficiently flexible to accommodate the full employment of this number. External trade is assumed to be balanced in the snapshot year, whilst the projection of export volumes is totally exogenous and that of imports largely so (Dixon and Vincent, 1979). Under these assumptions, between 1971-72 and the innovative economy of 1990-91 the real wage grows by approximately two per cent per annum. Between the same base year and the Luddite economy of 1990-91, however, there is no growth in real wages (in fact, they are projected to fall by 0.2 per cent per annum). These SNAPSHOT projections of the Luddite economy do not fully take into account

argument is fallacious. Successful innovations (that is, those which are actually adopted and survive) by definition make more productive use of primary factors as a whole (i.e., of labour plus capital). All successful innovations are cost cutting in this sense. Nor is it true to assert that innovations of times gone by always satisfied new needs. The work of Lancaster (1971) and Ironmonger (1972) on the definition of commodities in characteristics space clearly points up the idea that the relevant attributes of a product are the needs which it fulfils. Thus railways and automobiles satisfied the same basic human needs as the modes of transportation which they displaced. The important thing about innovation in, e.g., the transportation field, is that the same number of ton miles of transport services could be delivered with a lower composite input of labour and capital. Contemporary innovations are basically no different.

Some idea of the order of magnitude of the potential labour displacement problem can be gleaned from simulations recently carried out with the SNAPSHOT model (Dixon and Vincent, 1979). In these simulations we make use of technological scenarios developed by the Bureau of Industry Economics (Chapman and Wood, 1978, a, b, c) and augmented by the IMPACT team. The year of projection (or snapshot year) is 1990-91. The base year for the projections is 1971-72. An interesting hypothetical question to ask is what would have been the demand for labour in 1971-72 if the technology envisaged for 1990-91 had applied then? Actual employment in 1971-72 was of the order of 5.2 million. Using the 1990-91 technology the same final bill of goods and services could have been produced with a workforce of 3.6 million. In this sense, the technology envisaged for 1990-91 is "labour displacing" to the extent of 1.6 million jobs.

competitors in temperate zone agriculture, e.g., by Canada and the U.S., our actions in the field of tariff making have the net effect of improving employment prospects in the rich countries at the expense of employment prospects in poor ones. This obviously cannot help Australia's image in the region in which we are located.

We have pointed out that even in the absence of retaliation by our trading partners, attempts to export unemployment via increased protection will not work. Such attempts may, however, provoke retaliation among our trading partners and lead to a fall in the demand for our exports. Hence competitive attempts to export unemployment ultimately benefit no-one. Such an approach to the restoration of macroeconomic health is founded on a fallacy. In Australia's case it can lead only to a worsening of international relations and a demonstrably regressive redistribution of international income.

(C) Cutting Standard Hours

Some members of the union movement and some supporters of it (e.g., Catley, 1979) are recommending that standard working hours be shortened as a means of "sharing the available employment around". This suggestion is receiving serious consideration in some quarters, despite its lack of theoretical or empirical basis. For the proposal to work it would need to lead to a fall in labour supply (i.e., in the number of man hours that the population would choose to work at the going conditions), to a rise in labour demand (i.e., in the number of man hours of labour that employers would like to purchase at the given conditions), or to both. Because the proposals which get to first base with organized labour never involve a drop in weekly earnings for the shorter working week, they imply an effective increase in real wage costs to employers. Therefore it is likely that in fact labour demand would decrease. The success of the scheme must then depend on its leading to a fall in the labour supply of sufficient size to counteract the likely fall in labour demand, and over and above that to make a net contribution towards narrowing the gap between demand and supply.

One set of assumptions upon which faith in the scheme might be justified is as follows. Suppose that initially a majority of people in the workforce are compelled by labour market institutions to work standard hours when, if given the choice, they would work fewer hours. Cutting standard hours under these conditions might well lead to a sizeable drop in labour supply.

Another set of assumptions which superficially seems to have similar results involves non-wage rationing of labour demand among suppliers.

(D) The Latter Day Luddites

According to the 1976 edition of the Encyclopaedia Britannica's Micropaedia, the Luddites were

"organized bands of English handicraftsmen who rioted for the destruction of textile machinery that was displacing them. In 1812 a band of Luddites was shot down under the orders of a threatened employer (who was afterwards murdered in reprisal). The government instituted severe repressive measures which resulted in many hangings and transportations."

Given the date of the transportations, and the genealogy of Australia's population, it is possible that some of us at this gathering carry the genes of Luddite ancestors. Certainly some contemporary union leaders and other social critics are promoting the Luddite approach to the accommodation of technical innovations (namely, to attempt to defer or to delay indefinitely the adoption of new technology). Such a resistance to the introduction of new technology, we are told, will be necessary to avoid 'technological unemployment.' The latter term was defined by Keynes (1930) as "unemployment due to our discovery of means of economizing the use of labour outrunning the pace at which we can find new uses for labour."

It is often argued that whereas technical innovation in earlier times produced new products, contemporary technology is producing the same products at lower cost, and in particular with lower inputs of labour. From this it seems to be inferred that demand for factors is reduced, but nothing is done to stimulate demand for commodities. I think this whole

Against this upper limit on the reduction in labour supply likely to result from a five per cent reduction in standard hours must be set the contraction in employment demand which would result from the five per cent increase in the real hourly wage rate implied by the scheme. Simulations with the ORANI model under neo-classical assumptions (DPP, 1979, Ch. 3) indicate that such an increase in real wage costs would lead to a 2.6 per cent reduction in labour demand. Even under extreme neo-Keynesian conditions, ORANI projects that labour demand would fall by 1.4 per cent.

The above results suggest strongly that even under the most optimistic assumptions about the sensitivities of labour supply and demand, the proposed cut in standard hours with maintained real weekly wages could not make a significant contribution towards reducing involuntary unemployment. Indeed, under assumptions which seem plausible to me, the scheme could well exacerbate the imbalance in the labour market, and possibly by a significant amount.

Suppose that "cutting standard hours" is taken to mean that no one may opt to work more than the new standard; i.e., all overtime is banned. (I won't dwell on the administrative feasibility of such an approach.) Then some "sharing" of work might result, but at the expense of repressed labour supply (implying disguised unemployment). The fact that many employers choose overtime in preference to a larger work force indicates that it is less costly for them to operate in this way. The arbitrary proscription of overtime, therefore, would raise real wage costs and very likely lead to a drop in labour demand in addition to the fall induced by the higher hourly wage rate (which itself is a consequence of maintaining standard weekly earnings in the face of lower standard hours). As a partial offset to these effects it is possible that some less powerful firms which are currently involuntarily enmeshed in overtime arrangements solely in order to satisfy the preferences of a powerful union, would find the higher priced standard hourly wage rate more attractive than the old standard rate plus (from their viewpoint, compulsory) overtime.

On a more serious level we might suppose that initially those people who actually hold a job are, by and large, in approximate equilibrium with respect to the number of hours per week they work, given the terms of employment in the job which they currently hold and in any other jobs to which they probably could move. Could the proposal to shorten the standard working week and to increase the standard hourly wage rate lead to an increase in voluntary leisure which is sufficiently large to cause a worthwhile fall in labour supply? Might the celebrated "backward bending supply curve" for labour be harnessed to good effect?

In the traditional theory of labour supply, an increase in wages very probably leads to a desire on the part of workers to spend less time

in paid employment and more time in 'leisure' (i.e., time spent not working). In technical language this is because the income effect of the increase in labour income is sufficient to outweigh its substitution effect. The latter refers to the idea that, as real after tax wages rise, so does the shadow price of leisure. This shadow price can be measured by the after tax income that an employee would have obtained if he had chosen to work an additional hour at the going wage rate. The reason that the income effect outweighs the substitution effect and produces a "backward bending supply curve" is that the income effect of an increase in the hourly wage rate accrues over all hours worked (not just the marginal or last hour worked). Because of this fact, the income effect is relatively large and sufficient, usually, to outweigh the substitution effect.

If this standard frame of analysis is adopted in the case of a proposed cut in the number of hours in a standard working week, much the same result will apply. It is easy to see why. Maintaining fixed weekly wages and changing the length of the working week is simply equivalent to an increase in the average hourly wage. The results will thus be as above.

A weakness of the traditional analysis is its inadequate treatment of overtime penalty rates and the fact that many workers who are eligible for such rates actually choose to work overtime. They may do this by opting for overtime within the context of a given job situation, or by moving from a job in which overtime is not available to a job in which it is. For workers facing increasingly lucrative penalty rates for extended hours - - time and one half, followed by double and treble time - - the pattern of basic incentives is radically changed from that of the traditional

analysis. In particular, a reduction in the length of the standard working week might then push the worker onto a higher marginal wage rate, that is onto a position further up the scale of progressive penalty rates. Substitution effects are then stronger relative to income effects.

Recent research on the micro underpinnings of labour supply carried out in connection with IMPACT's BACHURROO model (Powell, Tulpulé and Filmer, 1977; Powell, 1979) leads to the conclusion that the proposed shorter working week would not necessarily cause those who currently work overtime to want to work lower hours. For some of these workers, it is very likely that the cut in standard hours would lead to their seeking higher, rather than lower hours of work. For others the traditional 'backward bending supply curve' would operate, and they would choose more leisure. Can an order of magnitude be put on the likely net effect?

An affirmative answer to the above question would be premature, as much empirical work remains to be done. At this stage it does seem, however, that an upper limit can be placed on the likely fall in the supply of man-hours which would result from a cut in standard hours. Suppose standard hours are cut by five per cent (40 hours to 38 hours, say), and that the basic hourly wage rate is increased by a matching percentage. For those who work standard hours before and after the change take home pay thus does not alter. Under extreme assumptions chosen to obtain as large a fall as possible in labour supply I am unable to put the reduction in man-hours of labour offered any higher than two per cent. (To this a qualification must be added; namely that the influence of the progressive income tax has not been reckoned in the figuring, and could lead to some modification of this result, but probably not to a major revision of it. For details of my calculation, see the Appendix.)