

THE CRISIS OF EQUIPMENT INVESTMENT IN AUSTRALIA

PHIL TONER

INTRODUCTION

It is a central objective of the Federal Government's economic strategy to reduce the balance of payments constraint to growth partially by the development of an internationally competitive manufacturing sector. Clearly, this will require a substantial increase in private and complementary public investment. Unfortunately, such investment has not been forthcoming. Real private equipment investment as a share of GDP has declined for the last five years and during 1986/87 recorded its lowest point in the last three decades at 6.9%. Manufacturing investment in real terms has been flat over the past four years, with 1987/88 equipment investment forecast to fall by 11% over 1986/87 levels. The annual compound growth of manufacturing equipment net capital stock increased by 2% between 1980/81 and 1985-86 compared to 6.7% in the 1960s. The average age of manufacturing equipment capital stock between the mid 1960s and mid 1980s increased by nearly 30%.

This paper seeks to explain the present "crisis" by examining the determinants of private equipment investment and relating these findings to current Federal Government policies. First, the function of capital investment is discussed briefly. Second, a summary account of trends in Australian private capital investment over the last three decades is given. Third, some of the literature on investment determinants is reviewed. Lastly, the implications of this review for current government policy are discussed.

The literature review encompasses both domestic and international econometric studies of neoclassical and accelerator models of private investment determinants. In essence, the debate between these models can be reduced to the question of whether relative factor prices (focused on the cost of capital) or expected output and capacity utilisation rates (the accelerator principle) provides a sufficient explanation of the investment process. More sophisticated accelerator models also give prominence to the role of internally generated funds for investment. It is concluded that the accelerator variable is by far the dominant element in the process, with relative factor prices having a secondary and delayed effect.

However, the connection between demand and investment is by no means mechanistic. Furthermore, recent changes to the Australian economic environment, associated with financial deregulation, have contributed to an environment adverse to manufacturing investment. Such policies have

created uncertainty because of a volatile exchange rate, rising debt to equity, high interest rates and shift to short-term profit orientation and have resulted in a major shift from long-run capital formation to trading in existing assets and financial instruments. Further, there is evidence that high levels of foreign ownership in manufacturing is restricting investment as these firms are significantly less likely to engage in export activity following recent improvements to Australia's international competitiveness.

Contrary to the empirical evidence on the determinants of private equipment investment, the burden of the Federal Government's strategy to promote investment has emphasised supply-side measures. In particular the government has argued that real wage restraint and subsequent growth in Gross Profit share in National Income is a pre-condition to investment recovery. Moreover, the policy of severe public borrowing and expenditure cuts, it has been argued, will lower domestic interest rates and generally increase resources available for private use. Both of these measures have failed to produce the required results.

The government is engaged in an orthodox contractionary policy response to adverse balance of payments which involves restricting imports and attracting foreign capital through tight monetary and fiscal measures. Such policies will, however, not correct the underlying problem. Contractionary policies generate a disincentive to investment. Moreover, the expectation that surplus domestic capacity (engendered by low domestic demand) can be exported and that devaluation will promote significant increases in aggregate investment through import-replacement and exports is mistaken. Low investment



levels and stagnant capital stock have resulted in high capacity utilisation rates for manufacturing as a whole. Australia exports only about 12% of its manufacturing production and it would require a phenomenal growth in exports and export related investment to lift aggregate investment to levels necessary for further improvement in international competitiveness, import replacement and job growth.

Where the government has engaged in positive industry policy, such as R & D incentives and the various industry sector plans, these "micro-economic" measures have been contradicted by a macro-economic environment in which the risks associated with capital formation are much greater than the returns from trading in existing assets and financial instruments.

The fundamental problem for a balance of payments constrained economy such as Australia is that those measures (increasing demand) which would have

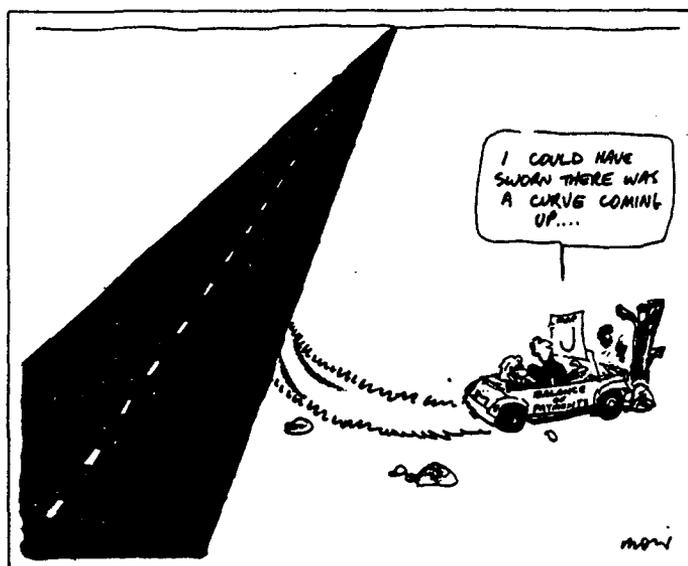
the most direct and immediate effect on its structural problems would worsen external balances due to an accelerated inflow of consumer and capital goods. In the light of this, and the evidence on the determinants of investment, it is suggested that targetted stimulatory policies for manufacturing be adopted. This would entail, for instance, an extension of existing industry plans, and reform of public and private sector purchasing policies. Also policies designed to significantly improve the attractiveness of equity over debt financing for industrial firms would create a more favourable environment for capital formation.

INVESTMENT AND ITS SIGNIFICANCE

Investment in its most general terms is the utilising of foregone consumption, embodied in savings, to increase productive capacity and/or productivity and enhance future income, consumption and investment. The pivotal role of investment is summed up by Eichner:

"Once the rate and composition of investment have been determined, the economy's dynamic growth path has been largely set. For the long-run rate of expansion, and with it the growth of output per worker, depends on the rate at which supply capacity - both business plant and equipment and social infrastructure - is being increased." (Eichner, 176)

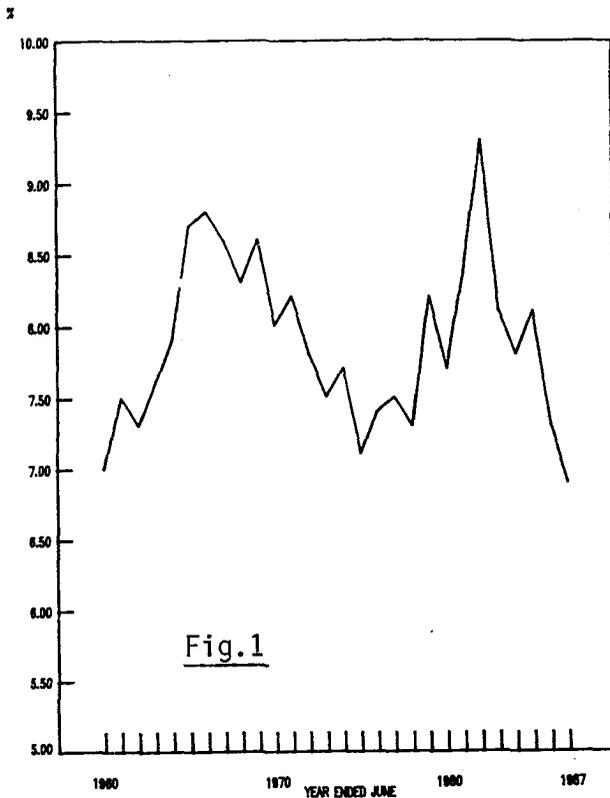
Since the early 1970s, private equipment investment as a share of GDP (apart from the years of the Resources Boom) has been declining steadily. Clearly, the long-run capacity of the economy to generate output and employment growth is diminishing. EPAC has observed that "the deceleration in the growth of the capital stock has significantly reduced the capacity of the Australian economy to fully employ the available labour force" (EPAC, 1986, 27). Moreover, a regulation of Australia's balance of payments difficulties is going to require substantial investment in new productive capacity. The principal cause of the difficulties is to be found in declining terms of trade, rapid growth in the export of domestic savings, rising foreign debt levels and devaluation which has significantly increased the A\$ value of this debt. The arguments regarding the deterioration in the merchandise trade component of the balance of payments are by now well-known. The commodity base of Australia's exports has adversely affected trade performance because world commodity trade in aggregate has been characterised in general by:



- i low income elasticity of demand;
- ii declining ratio of commodity inputs to output due to increasing manufacturing efficiency and declining ratio of inventories to output;
- iii a combination of low world growth and over-supply of many commodities resulting in intense price competition;
- iv increased self sufficiency, especially in agricultural commodities.

These factors largely account for the fact that the average annual growth in the volume (constant price) of Australian exports between 1970 and 1980 was 3.6%, compared to 5.6% for world exports (Dept. of Trade, 6).

**REAL PRIVATE GROSS FIXED EQUIPMENT
INVESTMENT AS A % OF REAL GDP.ABS 5206.0**



A major requirement in redressing Australia's current account deficit therefore, is a substantial lift in investment in high value-added manufacturing import-competing and export industries. Moreover, it is imperative to lift the degree of processing of Australia's commodity exports (ores, oil, fibres and cereals etc). This will also require substantial investment.

**TRENDS IN AUSTRALIAN
PRIVATE CAPITAL INVESTMENT**

Figure 1 and Table 1 demonstrate the long-term decline in equipment investment's share of Gross Domestic Product during the last three decades. The share increased substantially in the early 1980s (associated with the Resources Boom), when it peaked at 9.3% in 1980/81, though it has fallen steadily to a low point of 6.9% during 1986/87.

Table 1

**Annual Average Share of Real Equipment Investment in
Real G.D.P. Australia (ABS 5206.0)**

1960/61- 1969/70	1970/71- 1979/80	1980/81- 1988/87	1983/84- 1986/87
8.1%	7.6%	8.0%	7.5%

The deterioration in investment performance has been especially severe in manufacturing. There has been a marked reduction in the annual average compound growth of manufacturing capital stock since the early 1970s (Table 2). A direct result of this reduction has been a substantial rise in the average age of the capital stock (Table 3).

Table 2

Annual Compound Growth of Australian Net
Manufacturing Capital Stock (ABS 5221.0)

1959/60- 1969/70	1970/71- 1979/80	1980/81- 1985/86	1983/84- 1985/86	1959/60- 1985/86
5.88%	1.26%	1.31%	.48%	3.39%
<u>Annual Compound Growth of Australian Net Equipment Capital Stock</u>				
6.7%	1.74%	2.02%	.97%	4.05%

Table 3

Average Age of Manufacturing Gross Capital Stock (years)
(ABS 5221.0)

	Equipment	Non-Dwelling Construction	TOTAL
1966/67	7.8	13.1	9.6
1983/84	9.8	18.7	12.3

This lethargy in investment exists in striking contrast to the recent recovery in profits. The last ten years has witnessed a sustained recovery of Gross Profit share in National Income to levels of the 1960s and early 1970s (Figure 2) juxtaposed with a steady decline over the same period of the share going to private equipment investment. The 1986-87 ratio of Gross Operating Surplus of Trading Enterprises (excluding Government Enterprises) to Wages Salaries and Supplements of .75 is at its highest level since 1968-69. Supplementary evidence indicates that the increased share of gross operating surplus in G.D.P. has been accompanied by an increase in the rate of return on capital. Reserve Bank data indicate a sustained increase in total net profits since 1982-83, with notable performances from industrial and mining sectors (Table 4). The ratio of net profits to shareholders funds has also increased in these sectors; remarkable given that share prices have risen sharply during the period.

RELATIONSHIP OF GROSS PROFITS TO WAGES
& EQUIPMENT INVESTMENT AUST.ABS 5206.0

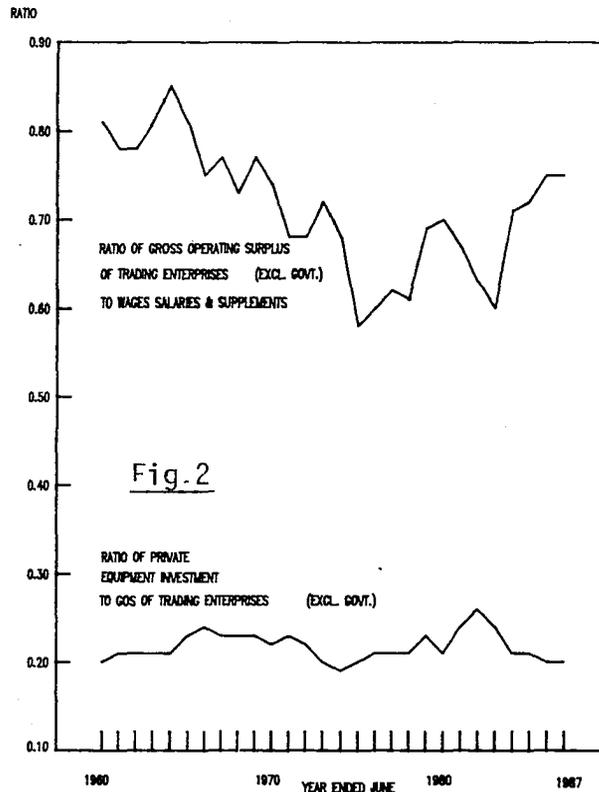


Table 4

NET PROFITS

(\$ million—percentage change in brackets)

	No. of Companies	1981/82	1982/83	1983/84	1984/85	1985/86
Industrial	182	2247 (-2)	2076 (-8)	2938 (41)	3585 (22)	4612 (29)
Mining	29	85 (-80)	324 (281)	415 (28)	422 (2)	570 (35)
Non- financial	211	2332 (-14)	2400 (3)	3353 (40)	4007 (20)	5182 (30)
Banks	5	556 (17)	567 (2)	737 (30)	927 (26)	1006 (9)
Other financial	21	137 (27)	142 (4)	183 (29)	211 (15)	270 (28)
Total financial	26	693 (19)	709 (2)	920 (30)	1138 (24)	1276 (12)
Total	237	3025 (-9)	3109 (3)	4273 (37)	5145 (20)	6458 (26)

Source: Reserve Bank Bulletin, January 1987.

THE DETERMINANTS OF PRIVATE INVESTMENT

As noted in the introduction, the debate on this topic can be reduced in essence to the question: does demand have the primary role or do relative factor prices dominate?

Relative Factor Prices

From the neo-classical perspective, investment in capital, plant and equipment, buildings and structures is a function of productivity/cost comparisons for each factor of production at the margin. Factors of production are combined by the firm so as to equate the productivity/cost ratio at the margin for each factor. Accordingly, the demand for capital and its substitution for other factors will increase as the marginal cost falls and/or marginal productivity of capital rises relative to that of other factors, and vice versa. There are numerous influences upon the cost of capital, including interest rates, price of equity raising, price of plant and equipment, corporate tax rates, government investment incentives and inflation.

A recent study by the Bureau of Industry Economics (BIE) examined the influence of relative factor prices via a review of international and domestic studies on the impact of government incentives directed at lowering the cost of capital and fostering investment. The report concluded that:

"The evidence gathered and analysed in this paper indicates that a 10% fall in the rental price of capital will lead to an increase in investment of anything between 1% and 20% depending on the model chosen. In light of the degree of variation it would be unwise to proffer any particular figure The evidence is inconclusive in regard to the length of time necessary for the full effect of capital cost changes to take hold. In any case, the relative slowness of this response indicates that investment incentives are unlikely to be effective instruments for short term fine tuning of investment." (BIE, 1985, 31-32)

It should be noted that government incentives directed at lowering the cost of capital in theory induce investment not just through capital/labour substitution. By lowering the cost of factor inputs, prices on outputs may be lowered which increases demand and so induces further expansion of capacity. Another author has concluded:

"different econometricians have come up with rather different responses to a change in the cost of capital depending on assumptions built into their models. The evidence suggests that a change in the cost of capital will affect investment activity but the strength of the response is more uncertain. Models which suggest a strong response either seem to be based on unrealistic assumptions or do not explain investment behaviour very well." (Ryan, 150)

The Industries Assistance Commission in its consideration of Federal Government investment allowances and depreciation provisions stated that whilst such initiatives have: "a positive effect on the level of investment.... The Commission is uncertain however, of the size and importance of this effect" (IAC, 1982, 180).

Studies cited have focused on the effectiveness of government incentives in promoting investment by lowering the cost of capital. Another view on the cost of capital is provided by a recent empirical analysis of the impact of current high real and nominal interest rates on private investment. As part of a larger study on private investment, the National Institute of Economic and Industry Research (NIEIR) surveyed 45 medium to large manufacturing enterprises who collectively undertook 25% of all manufacturing investment in 1985/86. Given the bias in the sample, the Institute noted that "the concerns of smaller manufacturers are likely to be quite different from that of the larger manufacturers who participated in the survey" (NIEIR, 31, 33).

Companies were asked "to assess the influence of recent record high real interest rates" on investment. It was found that "although 49% stated that they were a constraint on investment, nearly 80% of these respondents said they were a mild, not a strong constraint" (NIEIR, 4). This situation reflects in part the fact that larger manufacturers, operating in an oligopoly market may apply cost-plus pricing procedures allowing them to compensate for rising factor prices such as real interest rate increases. The survey also found that for "the larger companies, given that their real rates of return are higher than real interest rates, it is not surprising that the importance of interest rates to the direct investment decision is considered to be minor" (NIEIR, 4). However, the Institute does argue that high real and nominal interest rates do have an adverse effect on investment, but for reasons other than those identified in neo-classical writings. This will be addressed below.

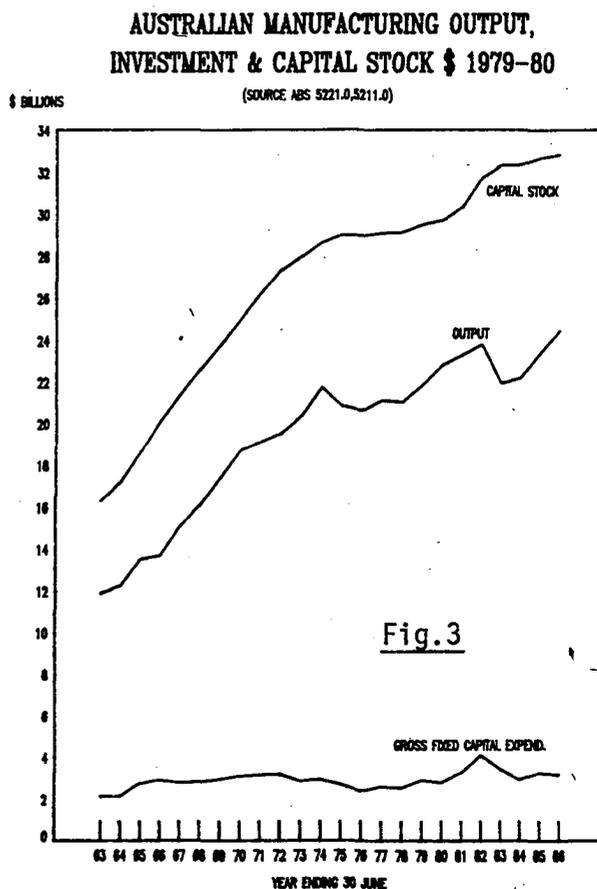
In general, it is central to the neo-classical argument that significant substitution of factors in production occur in response to movements in relative factor prices. The rate of substitution is given by the "elasticity of substitution", determined by the given technology of production, the ratio of various factor prices to their productivities, and the elasticity of supply of these factors.

A study of Australian manufacturing by Whiteman over the period 1939/40 to 1976/77 concluded that during the course of a year adjustment of capital/labour ratios was such that the "elasticity of substitution ... was not significantly different from zero" (Whiteman, 23). Brain's econometric work with the NIEIR's Institute Multi-Purpose Model (IMP) has also found quite modest rates of substitution in Australian manufacturing. A 10% change in the price of capital services produces a 1.04% change in the demand for labour in the short-run (after one year) and 1.18% in the long-run (at the end of five years) (Brain, 114). This is not to argue that relative factor price movements do not induce changes in the ratio of factor utilisation. Rather, the rate and magnitude of such adjustments are more consistent with alternative theories of investment. It is to one of these, the accelerator theory, that we now turn.

Output and Investment

A theory of investment broadly associated with the Keynesian school, the "accelerator" model, is based on the assumption that investment is adjusted to maintain a level of capital stock which is a constant proportion of output. However, because future demand for a firm's output is uncertain, investment decisions rely on expectations of future output (and is econometrically modelled on the basis of past output levels). Further, adjustment in the capital stock is not instantaneous, as lags in the production, supply or disposal of capital good occur and there may be a considerable time between the installation of plant and its eventual "coming onstream". These leads and lags in the adjustment of investment and the capital stock mean that the ratio of capital stock to output may vary considerably, with the capital stock being either above or below the 'desired' ratio. In other words, the "capacity utilisation" of the capital stock becomes a critical factor in the determination on investment.

Figure 3 demonstrates some of these fundamental relationships. Throughout the 1960s till the mid 1970s the capital stock was adjusted upwards in response to steady growth in manufacturing output. During the rest of the decade falling or at best static manufacturing output and excess capacity resulted in no real growth in the capital stock. Increased output associated with the late 1970s/early 1980s 'resources boom' again promoted a substantial lift in investment and capital stock, the latter with a substantial lag. Collapse of the 'resources boom' in 1982/83 induced a levelling-off in the capital stock which has continued through to 1987, given both flat output and investment. For all its inadequacies, the accelerator principle would appear to be supported, as over the longer-term there is a remarkable stability in the relationship between output and capital stock. Over the 24 years from 1962/63 to 1985/86 both output and capital stock increased by a little over 100%.



More sophisticated treatments of the accelerator place considerable importance on the determining role of strong cash flow and the inhibiting effect on fixed capital investment of debt. This relationship is based on a risk aversion by the firm to committed payments entailed in debt; and risk aversion on the part of lenders, as the supply price of debt rises, as the ratio of debt to cash flow increases (Fazzari & Mott, 174).

This factor is considered in some detail below.

Empirical Studies

In 1980 the OECD undertook a major evaluation of four single-equation investment models in predicting private non-residential investment. The study covered data for the U.S., Japan, Germany, France, Italy, Canada and the U.K. over the period 1960-1979. The study concluded that "expected output is by far the main determinant of productive investment" (OECD, 52). Indeed, the contribution of relative prices compared with other variables in explaining changes in investment did not exceed 6.2% and averaged 2.5% (OECD, 25). In addition, a recent econometric study of U.S. manufacturing firms from 1970 to 1982 attempted to test the principal investment hypotheses of Keynes and Kalecki. The "results reaffirm the common conclusion of other investment studies that sales, utilisation, or accelerator variables are significant in explaining investment through time" (Fazzari & Mott, 1984).

A number of Australian studies have come to broadly similar conclusions. The IAC has claimed that accelerator "models consistently predict a large variation in investment demand" (IAC, 1982, 242). In one of the most comprehensive reviews of investment undertaken in Australia, Higgins, Johnston and Coghlan tested five single-equation models of investment for Australian private non-dwelling fixed investment between 1963-75. The study concluded:

"The more refined measures of 'financial' influence - those based on supply price and user cost concepts - at best prove equal to, and generally noticeably inferior to, simpler formulations. Standard accelerator models with some more or less ad hoc modifications tend to dominate. Of all the 'financial' influences, only cash flow appears useful." (Higgins et.al, 11)

In an econometric analysis of private equipment stock by the NIEIR covering the period 1974-1986 it was found that "the most direct influence on investment is demand and capacity utilisation rates" (NIEIR, 83).

Finally, in a major review of Australian and overseas manufacturing investment studies the BIE found:

"The evidence from empirical studies of investment behaviour leaves little doubt about the major role of expected demand. Invariably, the output demand variable has the most significant and powerful influence on the decision to invest. The rental price of capital sometimes plays a significant role, though a lesser one than expectations of the demand for output." (BIE, 1987, 47)

Why is Demand the Dominant Variable?

The basic answer to this question is that, in general terms, the real world does not conform to the basic assumptions underlying neo-classical analysis.

This non-conformity arises in part from:

- i factor substitution is constrained by the presence of fixed factor coefficients; an existing set of capital goods embodying a particular technology is:

"designed to suit a particular capital-labour ratio and [with a change in relative prices] must ... be adapted to suit a completely different capital-labour ratio. In short, the neo-classical parable implies a conception of malleable capital which can be transferred costlessly and instantaneously from operation at one level of capital-labour ratio to any other" (Jones, 94).
- ii a variation on the fixed factor coefficient problem is that of indivisibility whereby a marginal shift in the industry demand curve will not induce a marginal shift in output or investment. In other words, the supply curve of the firm is not smooth and continuous differentiable. The classic case is that of a steel or large chemical plant running at full capacity. When confronted with a marginal increase in demand and/or price such a plant cannot provide a corresponding marginal increase in supply by making marginal additions to its capacity. Additions to supply may only be made by "lumpy" investments such as whole new plants, which may require a substantial shift in output and/or prices to be justified.
- iii if a firm is not operating at full capacity an increase in demand and/or prices may be met by increasing capacity utilisation rates and not necessarily by new investment.
- iv rather than being substitutes in production, factors may for various reasons be complementary, in that a change in demand for one factor will induce a like change in the demand for a second factor. The NIEIR has found "complementarity between factors to be fairly common" in the manufacturing sector (NIEIR, 119). Such complementarity clearly reduces the explanatory power of relative price movements in factor utilisation.
- v in an oligopoly or monopoly market structure, adjustment to a change in relative factor prices can occur through changes to producers' output and/or prices rather than a shift in the ratio of factor inputs in production. Such firms face relatively constant prime and direct costs over the relevant range of output. In other words, an increase in interest rates may not lead to an economising on capital.
- vi some Keynesians argue that for larger corporations retained earnings are an important source of investment funds (Eichner et.al., 1308). Moreover, the pervasive existence of scale economies with declining marginal costs of production leads to a "disproportionate increase in the firm's residual income as the level of demand rises". (Eichner et.al., 1306). Rising output produces an increasing rate of revenue growth, or internally generated potential investment funds. Conversely, diminished capacity utilisation will increase unit costs

and reduce disproportionately total revenue.

- vii finally, neo-classical analysis ultimately assumes perfect information and excludes genuine uncertainty about the future. However, as Keynes observed:

"Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation, whether moral or hedonistic or economic. Most probably, of our decision to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as a result of animals spirits - of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities." (Keynes, 161)



REASONS FOR RECENT INADEQUATE INVESTMENT IN AUSTRALIA

Recent Low Growth in Manufacturing Output

The real value of manufacturing output has remained depressed during the latest cyclical upswing. Between 1983/84 and 1986/87 the real value of Australian manufacturing production increased by 6.2% compared to a 12.1% increase in Gross Domestic Product. This flat performance in manufacturing output has also been accompanied by poor manufacturing investment. Apart from the short-lived recovery in 1985/86 (which reflected substantial expenditures in the Basic Metals Sector by BHP, and the end of the Investment Allowance which prompted many firms to bring forward plant acquisitions), it is clear that manufacturing equipment investment has been very uneven during the 1980s. Moreover, company expectations for 1987/88 indicate a further real reduction of over 11%.

By contrast, the real value of merchandise imports between 1983/1984 and 1986/87 increased by 12%, double the increase in the real value of domestic production. Currently, imports account for around 27% of domestic sales of manufactured goods; an increase of 50% from the late 1960s. Moreover, there is an increasing trend for these manufacturers to be non-competitive with local goods such that they "can be considered complements to local

production". As at 1981/82 the IAC estimated that 68% of all manufactured imports were non-competitive (IAC, 1985, 22). Because such a high level of imports have no domestic substitutes or are themselves capital goods or components used in local production, the scope for a rapid adjustment to significant import replacement is limited. Thus the significant and continued leakage of local demand into imports, itself a symptom of past inadequate investment and under-developed capacity, is a major factor in depressed investment levels.

Financial Deregulation

Recent changes to the economic environment, associated in part with financial deregulation, have contributed to an environment adverse to manufacturing investment. The NIEIR in particular has emphasised the adverse effects of the inter-play between the high gearing (debt equity) levels of many local companies, high interest rates, company take-overs and devaluation of the \$A. From a survey of 325 major listed public companies undertaken by the Sydney Stock Exchange Research Service (Statex), the Institute notes that between 1980 and 1985 the debt to equity ratio increased by 40%. "Correspondingly, the ratio of interest payments to gross cash flow in Australian-owned industrial companies rose by 39% between 1980 and 1985" (NIEIR, 5). The preference for debt possibly reflects a defensive strategy by companies to fend off take-overs by limiting equity issues so as to increase dividend payments per share and reduce the volume of scrip that may fall into hostile hands (NIEIR, 40). Tax deductibility of interest payments adds to the attraction of debt. Not surprisingly, the funding of takeovers has been primarily through debt.

Acceleration of take-over activity in the 1980s reflects in part a significantly increased competitive environment for investment funds. This was brought about by removal of exchange controls expediting the flow of domestic savings into off-shore investments, deregulation of the financial system which saw an expansion of financial intermediaries and increase in the variety of debt instruments, and government policy in defending the devalued \$A by high interest rates. The result of these changes is that institutional investors such as superannuation and insurance companies have:

"had to improve their own rates of return in order to remain competitive. The long-haul strategy of supporting the capitalisation of growing companies has been replaced with a strategy of maximising shorter yields. Portfolio investment increased [in the 1980s], and became more volatile, in the search for higher yields and from participation in take-overs which also had the effect of inflating share prices." (NIEIR, 6)

This type of analysis is not exclusive to the NIEIR, but has been supported by a number of commentators in the financial press (Australian Financial Review, April 1, 1986; Times on Sunday, Sept. 28, 1986).

The concurrence of high debt levels (aggravated by devaluation for those companies engaged in overseas borrowing) and historically high real and nominal interest rates has resulted in a significant increase in the risk

exposure of firms. In response, firms appear to have lifted their liquidity preference and "switch from fixed assets, or at least from investment in plant and equipment, to investment in established assets or financial assets" (NIEIR, 6). Between 1979/80 and 1984/85 the annual average ratio of increase in financial assets to gross fixed capital expenditure rose to double the ratio of 1960s (NIEIR, 26). This analysis is supported by the Statex survey which found debt levels and gross fixed capital expenditure levels in firms to have a strong inverse correlation (NIEIR, 5).

The findings of the NIEIR in Australia have been supported by a recent study of manufacturing in the U.S. The study not only confirmed the importance of "accelerator variables" (output and capacity utilisation), but also found there was a "strong, independent effect of internal finance" and that this is consistent with the "investment theories of Kalecki, Steindl, Minsky, and others" (Fazzari & Mott, p. 184). For Keynes and Kalecki "internally generated finance for firms ...[has]... a strong positive and independent influence on firm investment expenditure", and conversely "the larger the interest commitments of firms, ceteris paribus, the lower their investment" (Fazzari & Mott, 173). This relationship follows because "the firm ...[must]... generate sufficient cash flow to meet its ongoing commitments. Thus, with other things constant, high levels of committed cash flows (especially interest expenses) will constrain investment". The strength of the U.S. econometric results also reflects the "much greater financial turbulence" during the sample period (1970-82) in which "the risk of default is higher and the terms available for investment financing are less stable" (Fazzari & Mott, p. 182).

The BIE has also noted that "macro-economic policies designed to support the \$A and to restrain domestic demand have given rise to large increases in the opportunity cost of capital In such an unsure economic climate, a riskless yield in excess of 17% on investing profits short becomes distinctly more attractive relative to the long-term commitment of capital expenditure" (BIE, 1987, 43).

Devaluation

For the NIEIR, the impact of floating the \$A "has acted as a net negative influence on investment" (NIEIR, 12). This follows from the valuation effect of devaluation on overseas borrowings by industrial companies denominated in foreign currencies. Subsequent high interest rate policy to defend the \$A and restrict imports by lowering domestic demand also plays a part. Ironically, this view has been supported from within the merchant banking sector. Jeff Schubert, of Wardley's Australia, has claimed that "a floating exchange rate" may not be "consistent with the survival of a longer-term viable and efficient manufacturing sector" (Australian Financial Review, August 12, 1986).

Somewhat less pessimistically, the BIE, in a major survey of manufacturers and importers (mid 1986) found "depreciation appears to have only a modest incentive for firms to undertake new investment" (BIE, 1986a, XVII). This arises because of :

- i significantly increased cost of imported capital goods (over 80% of domestic sales of plant and equipment are imported);

- ii "the majority of firms did not consider exchange rate movements to be a major determinant of investment expenditures. While the depreciation may have enhanced the competitiveness of some firms, many tended to view this as a windfall gain because exchange rate variations are outside their control" (BIE, 1986(a), 129).

Foreign Ownership

The poor investment response of manufacturers to Australia's enhanced competitiveness also reflects the high degree of foreign ownership or control of Australian manufacturing enterprises, licences and technologies. Of the foreign owned companies in the NIEIR survey, 69% stated that "expected external demand was of no effect" to their investment plans. This is significantly higher than the 25% of Australian owned companies for whom growth in export markets is not a consideration. As such, the high degree of foreign ownership in manufacturing "represents an obstacle to the strength of ... adjustment" of exports and investment. This difference arises because many of the foreign owned firms "have low levels of autonomy" as their principal function is "to serve the domestic market only". However, if the improvement in Australian international competitiveness is sustained, the role of subsidiaries is almost certain to be reviewed by parent companies (NIEIR, 44). Similar results were recorded by the BIE in their survey of importers and manufacturers. For foreign owned companies "production levels and trade flows will probably be relatively less responsive to ... exchange rate changes in the short to medium run than for firms without overseas connections" (BIE, 1986(a), 142).

IMPLICATIONS FOR CURRENT GOVERNMENT POLICY

Current government policy designed to lift manufacturing investment has been directed through four channels - financial deregulation; policies anticipating manufacturing exports; reduction in both Public Sector Borrowing Requirement and public sector share of GDP; and specific industry policies.

It is clearly the government's expectation that deregulating the financial system, removing exchange controls and floating the \$A would assist manufacturing (or elements thereof) to become internationally competitive and that savings would flow into those industries which traditionally had difficulty attracting funds. However, the complex inter-play between deregulation, dominance of major institutional investors, high interest rates, shift to short-term profit orientation, take-overs, rising debt levels and exchange rate uncertainty has created an environment adverse to long-term manufacturing investment. Furthermore, the tight monetary and fiscal policies of the Federal Government and the necessity to defend the \$A by lowering imports and attracting net capital inflow from overseas have proven adverse to investment since they restrict the growth of domestic demand.

The strategy of relying on exports and import replacement to significantly lift output has not been effective. Whilst there has been a significant increase recently in manufactured exports, and particularly extensively transformed manufactures, this has not been sufficient to compensate for a fall in production for the domestic market. In spite of a substantial

rise in exports and enhanced competitiveness for import replacement, total manufacturing production actually fell marginally in real terms during 1986/87. This reduction in output no doubt reflects the low real rate of growth of GDP during 1986/87 at 2% (4.5% in 1985/86). It also highlights the relatively small share of Australian manufacturing which is exported, around 12% of total output. Although some increase in GDP is anticipated by Treasury in 1987/88 (to 2.75%) it is probable that the projected modest economic growth will not be a significant stimulus to manufacturing output and that exports will only contribute to the maintenance of output at present levels.



A central feature of the Federal Government's macro-economic policy has been the adoption of the neo-classical/monetarist "crowding out" hypothesis. It is explicit policy to reduce the Public Sector Borrowing Requirement and public sector expenditures as a share of GDP. The rationale for this is to increase private investment through lowering interest rates by lowering the public sector's demand for private savings. The second goal is somewhat more amorphous though it is usually implied that a smaller public sector will result in a more dynamic, faster growing and internationally competitive economy. This is not the place to enter into a detailed critique of financial "crowding out" arguments. It is sufficient to note that a range of econometric studies have found that the "relationship between [government] deficits and interest rates is a negative one" (Katsaitis, 475). Moreover, equipment investment is relatively inelastic with respect to interest rates. Thus even if the Federal Government were to engineer a reduction in the cost of capital by reducing the PSBR it would have a modest effect on equipment investment. Also, evidence for a positive correlation between economic performance and low public sector share of GDP has not been forthcoming. In a review of the long-term economic performance of 20-odd OECD nations EPAC found that:

"Broadly speaking, the evidence provides relatively little support for the view that the links between the size and growth of government and economic performance are simple and self-apparent." (EPAC, 1985, 11)

On the contrary, Nevile has noted that a consequence of the rapidly rising ratio of private sector borrowings to private fixed capital formation (the difference being a substantial rise in investment in financial assets) is that:

"even if public borrowing did crowd-out completely private borrowing, which is certainly not the case, the net effect of substituting public borrowing for

private borrowing would be to increase capital formation in Australia." (Nevile, 22)

Even without a reduction in the public sector share of GDP there has already occurred a significant shift of resources from Wages to Gross Operating Surplus over a sustained period. This has not been accompanied by the required adjustment in investment.

Finally, the Government has engaged in a variety of industry policies focussed on government purchasing, offsets, improvement of venture capital markets and research and development incentives. There have also been sectoral policies for the motor vehicle, steel, clothing, footwear and textiles industries based on a combination of guaranteed share of domestic market, bounties and government funds for investment and labour (re-) training (Budget Statements 1987-88), 228-237). The effectiveness of these sectoral policies to promote investment is clearly constrained by a macro-economic environment which is not conducive to the expansion of private plant and equipment. Such a situation:

"reflect(s) contradictions in public policy. On the one side ... subsidies, industry plans, and tax expenditures, tends to focus on traditional investment forms. On the other, policies of deregulation and the like tend to reinforce and possibly accelerate the tendencies to liquidate corporate assets, increase debt for equity and generally to trade in financial assets." (NIEIR, 75)

The fundamental problem for a balance of payments constrained economy such as Australia is that those measures (increasing demand) which would have the most direct and immediate effect on its structural problems (greater investment in the tradeable goods sector) would worsen external balances due to an accelerated influx of consumer and capital goods. Unless these structural problems are overcome Australia will continue to be locked in a cycle of unsustainable current account deficits, deflationary government policy followed by periods of growth, cut short by rising external deficits and deflationary responses.

REFERENCES

- Australia, Budget Statements 1987-88, Budget Paper No. 1.
- , Bureau of Industry Economics, Industry Investment and Taxation, unpublished, 1984.
- , Empirical Studies of Investment Behaviour-Abstracts, Working Paper No. 34, 1985. (a)
- , The Effectiveness of Investment Incentives, Working Paper No. 33, 1985. (b)
- , The Depreciation of the Australian Dollar: Its Impact on Importers and Manufacturers, Information Bulletin 9, 1986. (a)
- , Models of Investment Behaviour, Working Paper No. 32, 1986. (b)
- , Investment in the Manufacturing Sector 1959-60 to 1984-85, Occasional Paper 3, 1987.
- , Department of Trade, Australia's Export Performance in the 1970s, Internal Research Memo, No. 4, 1982.
- , Economic Planning Advisory Council, The Size of Government and Economic Performance - International Comparisons, Council Paper No. 4, 1985.

- , Business Investment and the Capital Stock, Council Paper No. 10, 1986.
- , Industries Assistance Commission, Certain Budgetary Assistance to Industry, AGPS, 1982.
- Brain, P.J. (1987), The Micro-Economic Structure of the Australian Economy, Longman Cheshire, Melbourne.
- Eichner, A.S. & Kregel, J.A. (1975), "An Essay on Post-Keynesian Theory: A New Paradigm in Economics", Journal of Economic Literature, XIII, 4.
- Eichner, A.S. (1979), A Guide to Post-Keynesian Economics, MacMillan, London.
- Fazzari, S.M. & Mott, T.H. (1987), "The Investment Theories of Kalecki and Keynes: An Empirical study of firm data, 1970-82", Journal of Post Keynesian Economics, IX, 2, Winter.
- Higgins, C.I., Johnston, H.N. & Coghlan, P.L. (1976), "Business Investment: The Recent Experience" in Conference in Applied Economic Research, Reserve Bank, Sydney.
- Jones, H. (1981), An Introduction to Modern Theories of Economic Growth, Thomas Nelson, Melbourne.
- Keynes, J.M. (1936), The General Theory of Employment, Interest and Money, Macmillan, London.
- Katsaitis, O. (1987), "The Crowding Out Debate", Journal of Post Keynesian Economics, IX, 3, Spring.
- National Institute of Economic and Industry Research (1986), The Determinants of Private Investment in Australia, prepared for the ACTU, unpublished.
- Nevile, J.W. (1987), The Macro-Economic Effects of Public Investment, Centre for Applied Economic Research, University of New South Wales.
- Organisation for Economic Cooperation and Development (1980), Investment Determinants and Investment Incentives, Economic Policy Committee.
- Ryan, J. (1985), "The Implications of Taxation Incentives for Investment" in D. J. Collins (ed), Reform of Business Taxation, Australia Tax Research Foundation Conference Series No. 4.
- Whiteman, J. (1982), "Biased Efficiency Growth and Capital-Labour Substitution in Australian Manufacturing Industry: 1939/40 to 1976/77", Bureau of Industry Economics, unpublished.



Copyright of Full Text rests with the original copyright owner and, except as permitted under the Copyright Act 1968, copying this copyright material is prohibited without the permission of the owner or its exclusive licensee or agent or by way of a license from Copyright Agency Limited. For information about such licences contact Copyright Agency Limited on (02) 93947600 (ph) or (02) 93947601 (fax)