

# INVESTMENT AND THE CAPITALIST DYNAMIC: THE US IN WORLD WAR II

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It is not uncommon to hear that Australia's current economic problems derive from a lack of productive investment on the part of the private sector. This sluggishness on the part of private sector investment has been attributed either to 'big government' or to a lack of savings. Australians are presumed to be spending beyond their means, resulting both in an increase in the level of imports and savings having to be drawn from overseas. Workers and the government are considered the villains: the workers are insufficiently thrifty, and the government pushes up interest rates by borrowing, drawing resources away from the private sector. This simple story has been the basis for policies aimed at reducing real living standards through reductions in real wages and cutbacks in government spending across the board.

It is questionable whether such policies will generate the savings that are regarded as a necessary precondition to productive investment. Cutbacks in spending lead to a lower level of sales and a lower level of sales lead to a lower income. Following Keynes (1936), it is now generally accepted that savings are a function of income, so it is difficult to see how a lower level of income can be associated with an increase in savings available for investment. Even if the savings did appear, one may ask why businesses can be expected to continue investing in conditions of declining demand. What alternative is possible to the usual austerity programme as a means of generating investment? To understand the issues involved and the possibilities available, it is useful to look at an extreme case of sluggishness on the part of private sector investment. Such an extreme case is provided by the United States during the Second World War.

The story is simple. The Government, faced with the pressing need to prosecute the war with all available resources, found the private sector reluctant to undertake fixed investment in order to expand productive capacity. This was due not to the lack of resources but rather a failure of

effective demand. It may seem paradoxical to talk about the war period as one where effective demand was inadequate, but effective demand depends on expectations. Current demand may be high, but if this is not expected to continue into the future, the private sector may not respond to it. Indeed, it was expected by the private sector that when World War II ended there would be a return to depression. These pessimistic expectations about demand in the future made them reluctant to expand capacity.

The Federal Government had to act in order to overcome this reluctance to invest. Its solution was direct, simple and effective: socialized investment. The Government built factories and installed equipment which it then sold or leased back to the private sector at extremely low rates. This increase in autonomous investment expenditure then generated an increase in savings in the form of higher profits. The Government was able to draw on these business savings through an excessive profits tax in order to finance the original expenditure. In effect, it played the role of an investment agent for the private sector.

## The Post-Keynesian Theory of Investment

Before going into the detail of investment during the war it is important to provide a theoretical framework for such an analysis. The outline of the war economy given above accords very closely to the post-Keynesian theory of investment as outlined by Nell (1988:ch.5). Nell argues that:

virtually all features of the economy are relevant to investment decisions, but one thing stands out as *sine qua non*: no decision to build new productive capacity will be made unless the firm thinks its market is going to expand, or can be expanded ... Overall, then, the growth of capacity will be very likely to follow closely on the path of the expected growth of markets ... (1988:93)

Depending on the prospective growth in markets, investment decisions will then be broken down into short-term and long-term factors. Long-term factors determine the nature of the expansion such as the kind of products to produce, the nature of technology to be employed, and where factories will be built. These long-term factors relate to the very transformation of industrial society itself, such as the development of urbanization, the introduction of epoch-making technology, and the shift from manufacturing to services: a process Nell labels transformational growth. Short-term factors on the other hand, affect the pace at which the long-

term decisions are brought on line. These factors include primarily the cost of finance and the current level of profits.

Having settled on a type and rate of investment, firms will then determine their current level of output with reference to current demand. This is achieved primarily by varying the rate of capacity utilization. Each firm has a utilization function which relates the level of output with a particular level of capacity utilization. Output is flexible to accommodate a change in the level of demand which is not regarded as sufficient to warrant a change in investment decisions.

In this model, savings follow passively (in the form of higher profits) from an increase in investment spending. Nell argues that the mark-up - the share of capital in income - determines the value of the income multiplier so that aggregate output varies in order to generate the profits to match the level of investment. Hence, attempts to increase national savings through austerity are bound to fail, and may even be self-defeating if it causes investment spending to decline.

### **Private Sector Investment in the War**

The data available on private war-time fixed investment shows that investment in long term projects failed to respond to the war-time stimulus. Indeed, an overview of the general pattern of investment between 1939 and 1945<sup>1</sup> suggests a depression rather than the most rapid growth of output in history. Gross Private Domestic Investment in 1945 was only \$11.3 billion (5.3 per cent of GDP), whereas in 1929 it was \$16.7 billion (16.2 per cent of GDP). Table 1 provides a more detailed picture.

The picture is complicated slightly by the sharp surge in investment in 1940-41, especially in Durable Equipment. However, this picture follows closely that which would be expected on the basis of Nell's theory described above. In the initial years of the War, the rate at which investment projects were brought on line increased rapidly to take advantage of the growth in demand.

1 Although The U.S. did not formally enter the war until late December 1941, its economy was involved almost from the start of the European hostilities, first through the Cash and Carry Program and then through Lend Lease.

**Table 1: Net Private Domestic Investment, 1939-1945**

Constant 1982 Dollars (billion)			
Year	Total Fixed Investment	Structures	Producers' Durable Equipment
1939	-2.3	-12.0	1.9
1940	12.5	-8.5	10.0
1941	24.7	-3.5	15.6
1942	-22.1	-15.9	-1.6
1943	-36.0	-20.7	-3.8
1944	-23.3	-15.2	4.7
1945	-0.5	-8.3	18.8

Department of Commerce, 1988.

However, the dramatic reversal in investment decisions from 1942 shows that the level of long term investment decisions did not respond to the war time stimulus. The war years provide the only instances since 1939 in which all major categories of net private investment were negative. The real net value of capital assets in manufacturing barely rose during the entire 1939-45 period, rising from \$30.7 billion to \$31.7 billion (in constant 1958 dollars), a figure roughly the same as that for 1934 (Department of Commerce, 1975:683). The initial years of positive net investment also occurred during the course of a normal business cycle upturn after the particularly severe trough of mid-1938, and during the years in which the U.S. was not directly involved in the War. In other words, there was some incentive to bring the implementation of investment plans forward, but not to alter the basic level of these plans.

The decline in investment is even more striking when one considers the usual factors which are regarded as encouraging investment. Throughout the period output grew rapidly: between 1940 and 1943 GNP grew in real terms in the order of 18-19% (Department of Commerce, 1988). Interest rates were also at their lowest point in history, with the Federal Reserve

Board's discount rate fixed at 1%, and a preferential rate of 0.5% in effect for some advances. The rate of profit peaked during the latter period of the war at over 50 per cent, a rate that has only ever been exceeded during the boom of the 1870's (Dumenil, Glick & Levy, 1989:3).

This general picture of sluggish investment can be supplemented by looking at the situation in individual industries, such as transportation. With U.S. entry in the war, its merchant marine became the subject of German submarine attacks which made transportation by sea a treacherous affair. This was crucial for the transportation of important resources such as oil. The usual tanker route from the Gulf Coast to the refineries in the North East was virtually cut off, and the tankers were being converted to meet more immediate war needs. The result was an enforced shift to other modes of transport, particularly rail.

This shift in transportation use led to a rapid rate of growth in the use of existing rail facilities: the monthly movement of freight grew from 23 to 62 billion ton-miles<sup>2</sup> between 1938 and 1943 (Hultgren, 1944). In 1940 railroads carried 412 billion ton-miles, rising to 736 billion by 1945 (Department of Commerce, 1959:565). Between September 1938 and August 1943 passenger-miles increased by 367 per cent.

This phenomenal growth in current demand was not matched by expansion in capacity. Between December 1937 and December 1942, gross capital expenditures in the industry grew by only 7.9 per cent. There were only 6.4 per cent more freight cars and 5.7 per cent more switching locomotives than in 1938, whilst the absolute number of freight and passenger locomotives, rail motor cars, and passenger cars actually declined by August 1943. The trend continued in the remaining years of the war. "The railroads in 1944 carried 785.5 million ton-miles of freight. This was double the freight carried in 1939 and was accomplished with only 20 per cent more freight cars and 10 per cent more locomotives" (War Production Board, 1945b:24).

The difference between output and the lack of investment was the increase in capacity utilization. The increase in capacity utilization was matched by the growth in hours worked by rail employees. Between 1940 and 1945 the number of employees in the railroads increased by 38 per cent and

2 A ton-mile is the movement of one ton of freight for the distance of one mile.

average hours per employee rose by 10 per cent (Department of Commerce, 1959:571).

Foster (1984:205) provides a similar picture for the economy as a whole (Table 2).

**Table 2: Capacity Utilisation and Gross Plant & Equipment Expenditures in Manufacturing, 1939-45**

**Billions of 1958 dollars**

	<b>Capacity Utilization</b>	<b>Gross Expenditure</b>
<b>1939</b>	<b>68</b>	<b>3.5</b>
<b>1940</b>	<b>79</b>	<b>4.7</b>
<b>1941</b>	<b>93</b>	<b>6.0</b>
<b>1942</b>	<b>108</b>	<b>3.3</b>
<b>1943</b>	<b>131</b>	<b>2.5</b>
<b>1944</b>	<b>137</b>	<b>3.2</b>
<b>1945</b>	<b>126</b>	<b>5.5</b>

It is clear that conventional notions of full capacity are inappropriate when industry can operate for three years at substantially more than 100% of rated capacity. The flexibility in capacity utilization allowed private industry to accommodate a growth in demand without having to increase capacity itself. Either pre-war estimates of full capacity were too pessimistic or else the notion of full capacity is itself so flexible that it ceases to have any operational meaning.

### **The Reasons for the Lack of Private Investment**

Why was the private sector so reluctant to expand capacity, preferring instead to utilize existing capacity at phenomenal rates? An orthodox response would be that private investment was supply constrained. In

particular, the expansion of Government purchases, rising from 15 per cent of GNP in 1939 to 46 per cent in 1944 (Department of Commerce, 1988:Table B-1) could be used to justify a 'crowding out' argument.

While it is true that the decline in private investment was associated with a rise in Government purchases, attempting to turn this into a causal relationship running from the latter to the former goes against the historical record. All accounts of Government-business relations during the war period stress that the private sector steadfastly refused to respond to the Government's desire for it to expand capacity. Rather, Government expenditure represented a substitute for the lack of private activity. The preferred private sector alternative was to run excess capacity to meet this new and 'temporary' demand. Where this was not possible, either due to shortages or under Government duress, the private sector cut back civilian production in favor of military output rather than expanding capacity so as to accommodate both.<sup>3</sup>

The factors governing private sector decision-making emerged during the course of the Senate Special Committee to Investigate the National Defense Program (Truman Committee). This Committee had been set up in order to investigate the problems the government had in moving the economy onto a war-time footing. The following exchanges during the Truman Committee's Hearings (Part 17: 6918-19) highlight the nature of these problems:

Secretary Ickes: I would like to say one thing, however, I think there are certain gentlemen in the oil industry who are thinking of the competitive position after the war.

The Chairman: That is what we are afraid of, Mr Secretary.

Senator Moore: Can't we also, while we are winning the war, look beyond the war to see what the situation will be with reference to -

Secretary Ickes: (interjecting) That is what the automobile industry tried to do, Senator. It wouldn't convert because it was more interested in what would happen after the war. That is what

3 After the war the relationship between the Government and business was more conducive to an expansion of capacity to meet military needs. But this only occurred when a short hot war was replaced by a long cold war, thereby assuring the private sector that markets for their military output would be available well into the future.

the steel industry did, Senator, when it said we didn't need any more steel capacity, and we are paying the price now ...

Senator Moore: I think you will find that those of us who do look beyond the war and to the economic situation beyond the war are as much interested now in winning the war as anybody else is, but we must look to the situation developing now that may result in the unnecessary destruction of [capacity].

The Truman Committee Hearings provided the main arena in which this struggle by the government to induce private sector investment was aired. It analyzed the response of the major industries, particularly aluminium, steel, copper, magnesium, shipbuilding, rubber, chemicals and pipelines to war demand. It generally found what it termed a 'business as usual' mentality:

...there was a most decided reluctance on the part of large producers of strategic materials to increase their facilities beyond the point they thought would be used by the civilian economy after the emergency... The committee believes that plans for increasing the production of such strategic materials ought to have been made much sooner and they should have been carried out expeditiously by insistence upon giving paramount consideration to the needs of the country instead of to the desires of the producers of such materials to maintain and protect what they regarded as their vested rights in the industry (Part 3: 4)

It is only natural that such men should believe ... that the producers of strategic materials should not be expected or required to increase their capacities, even at Government expense, where that might result in excess capacity after the war and adversely affect their post-war profits ... and, at the same time, to have additional plants directly and indirectly paid for by the Government, which they can operate profitably on terms dictated by themselves (Part 5:9).

A classic case of private sector pessimism was the aluminium industry. As soon as Roosevelt announced in May 1940 that airplane production had to be boosted it became clear that aluminium would have to expand with it. Aluminium constituted between 54 and 80 per cent of the weight of airplanes, including the motor, and an even greater percentage when the motor is excluded (Truman Committee, Hearings Part 3:713). The increase in the production of airplanes therefore required the construction of new facilities to turn bauxite into alumina, to turn alumina into aluminium, the construction of rolling mills and fabrication plants for the finished aluminium, and the construction of power facilities to provide

the large amounts of electricity which is fundamental to the extraction process.

The problem was that the aluminium industry at the start of the war was controlled by a monopoly: the Aluminium Company of America - Alcoa - and Alcoa followed a typical monopolist's investment strategy:

Alcoa had long followed a policy of maintaining high prices and building new capacity only when certain that it could sell at its fixed prices all that would be produced (Report 480, Part 1:202).

In 1939, Alcoa had been producing at full capacity of 300 million pounds of aluminium and increased its capacity in that year by 50 million (Hearings, Part 3:783-784). However, it was reluctant to go further without government assistance, as the following exchange between Chief Counsel Fulton and G.R.Gibbons, Senior Vice President of Alcoa, makes clear (Hearings, Part 3:794-795):

Mr Fulton: ...does it not follow that unless you got what you term 'juice' from the Government, or from some other source, you wouldn't be prepared to produce one-third of the aluminium that the O.P.M. (Office of Production Management) believes will be necessary for this country?

Mr Gibbon: That is correct.

Further evidence that the private sector was reluctant to expand capacity in order to meet war-time demand emerges from various personal accounts by those directly involved in the administration. Jesse Jones, Federal Loan Administrator and head of the Reconstruction Finance Corporation, was charged with the responsibility of negotiating with private industry the terms under which they were to expand production to meet the government's war needs. He makes the following general comment regarding private sector expectations:

In the beginning most of our industrialists were rather cautious about having their companies undertake war work. They didn't want to invest a lot of their own funds in equipment to manufacture things they believed would not be in demand after the shooting ceased (1951: 320).

Jones then proceeds to detail the negotiations that were undertaken in each industry in order to expand capacity.

when we first approached the steel companies with our propositions (for expansion) ... they were reluctant to undertake extensive enlargements. Most steel executives felt the country did not

need any more capacity in their line. They had a natural fear that abnormal expansion would plague them once the emergency ended (1951:317);

In magnesium as in aluminum, private enterprise was reluctant to make large expansions because of a probable lack of postwar uses for the increased capacity (1951:331).

This reluctance made itself manifest in explicit terms. In most of the contracts which involved the Government installing its own plant and machinery into existing private plants (so-called *scrambled* facilities) it was normal to have included a clause which obliged the Government, at its own cost, to remove these facilities when they became excess capacity. As it turned out, the private sector was able to purchase these facilities at bargain rates when the War ceased since demand did not slacken as expected. (Jones, 1951:320).

That the private sector was not squeezed out of investment by the Government is reinforced by studies of the peacetime uses of the private sector investment which did take place during the war. The WPB (1945b:29), Deming and Stern (cited in Gordon, 1969:224), and Creamer (1960) found that the little private expansion which did take place during the war was closely related to normal operation rather than specifically war time needs. It was as if the war was not taking place, and fixed investment was simply that which would have occurred anyway. This partly explains the surprising rapidity with which the economy was able to reconvert to peacetime production after 1945: the private sector had not really geared up to meet the war in the first place. It was left to the Government to meet this extraordinary need. Decisions about future economic conditions are themselves rooted in actual experience, and this was no less the case during WWII. One of the most important factors affecting the formation of expectations was the memory of the First World War. When the First World War had finished, a great deal of plant and equipment was physically destroyed because it constituted capacity in excess of that required to operate at 'normal' levels. Bethlehem Steel destroyed much of its WWI expansions, while other firms destroyed their airplane construction, munitions, and shipbuilding facilities. In the crucial industry of machine tools, the threat of over-capacity was a visible presence for one of the largest operators, Warner and Swasey of Cleveland. As late as 1940 they had adjacent to their offices a five story plant that had been shutdown since World War I and which they had dubbed the 'World War folly' (White, 1980:84).

Another reason for the pessimism on the part of the private sector relates to the structural changes that had been occurring throughout the inter-war period. It was those sectors which were facing a secular decline in their importance or a major restructuring which were most needed during the war, particularly steel, automobiles, and machine tools (Bernstein 1987). The industrial restructuring needed to fight the war meant going against the secular growth patterns of different sectors of the economy. Hence, there were very real bases for the private sector's pessimistic outlook.

### Profitability and Taxation in the War

I suspect that we will find that a good many of these ships and other things are going to be done at a cost less than we estimated. Happily, if that happens to be true, the undue profits that might result from such a situation are taken care of by the limitation of profits under the excess-profits tax. Frank Knox, Secretary of War (Hearings, Part 1:87-88)

The effect of high capacity utilization was a massive growth in profitability. Corporate profitability during the period showed a remarkable increase: in 1939 pre-tax corporate profits were \$5.5 billion whilst in 1945 they were \$19.7 billion. This increase in profitability was the result of the increase in autonomous demand generated by Government spending. It represented the increase in savings needed to match the growth in total expenditure as corporate profits are the most significant form of savings in the economy. Where did this flow of savings go? There are a number of alternatives for companies' surplus and only one of these is productive investment. It can be distributed to shareholders through dividend payments, to pay back existing debt, to purchase financial assets or real estate, to fund merger activity, or to finance investment overseas.

However, the Government intervened at this point. The Government was able to generate private profits through its demand creation and associated multiplier effects, and then absorbed a large part of these private profits through taxation. These funds were able to fund the original increases in state expenditures. The introduction of an excess profits tax meant that the major portion of the growth in profits actually accrued to the government, whilst still allowing after-tax profits to show a healthy improvement over their pre-war levels (Table 3)

**TABLE 3: Corporate Profits, 1939-1945**

Billions of Dollars			
	Total Profits	Tax Liability	After-tax Profits
1939	5.5	1.4	4.0
1940	8.8	2.8	5.9
1941	14.3	7.6	6.7
1942	19.7	11.4	8.3
1943	24.0	14.1	9.9
1944	24.2	12.9	11.2
1945	19.7	10.7	9.0
<b>Total</b>	<b>116.2</b>	<b>60.9</b>	<b>55.0</b>

*Economic Report of the President, 1988*

## Public sector Investment in the War

There are various ways in which governments can influence the level of productive capacity in the economy. During the war, to an unprecedented degree for a capitalist economy, this intervention took the form of direct public investment. The Government, through one means or another, was involved in practically all investments which did take place, even those which were ostensibly private. The government was almost invariably involved through the provision of cheap credit, R&D subsidies, and tax breaks. For example, before the Truman Committee, the President of Douglas Aircraft Co. described the following arrangement for expanding capacity:

Our Long Beach plant, which is the emergency plant, was built entirely of Government funds, in a roundabout way, of course. That was built under the emergency plant facilities affair, wherein the banks loaned a holding company the money to build the plant; then the Government, in turn, contracted with that holding company to pay off that plant in 60 monthly installments. In effect, however, it is a Government plant (Hearings, Part 6:1856).

Of particular importance were the tax provisions for the cost of new investment. Before the U.S. had formally entered the War, it had become clear that substantial incentives had to be offered for private capital to expand capacity. Congress put in place a tax amortization law which allowed firms to depreciate the cost of war plants and facilities against their income tax over a five year period. This effectively meant that the entire cost of 'private' capital expansion could be passed on to the Government, even though legal title remained in private hands. For example, in relation to the power facilities required for the expansion of the aluminium industry, the Truman Committee noted in 1941 that the "government will be furnishing 70 per of the power capacity required ... To the extent that funds invested by private capital are permitted to be amortized over 5 years against income for tax purposes, as provided for law, the Government will, in the final analysis, also provide the funds for the private facilities" (Report 480, Part 1:206). The provision of electric power by the government then had a complementary effect on the level of private investment in the aluminium reduction industry. Hence, even the private investment which did take place was the result of substantial state intervention.

**Table 4: Government Owned Privately Operated Capital in Manufacturing 1940-45**

Year	Real net value of assets In 1958 Dollars (billion)
1945	22.8
1944	23.5
1943	22.2
1942	16.0
1941	5.0
1940	1.0

However, the most spectacular form of state intervention with respect to productive capacity was that which involved direct public investment. Gordon (1969) has shown that all previous estimates of the capital stock were inadequate because they failed to incorporate the element that is now referred to as Government Owned Privately Operated capital. This represents the expansion undertaken by the Government but effectively placed back in private hands through some leasing or sale arrangement.

Gordon estimates that the value of Government-owned assets operated by the private sector during the War was around \$20 billion in original cost (1969:227). In 1945 the Government effectively owned over one-fifth of America's manufacturing capacity (WPB, 1945c:30) (Table 4)

The War Production Board (1945:48) for example, which after 1942 was the main agency supervising the mobilization of the American economy for war, catalogued in the expenditure on Government-owned facilities in 1944 (in millions of current dollars) as follows:

**Table 5: Expenditure on Government Owned Facilities, 1944**

Expenditure Type	Amount
Aircraft	3,350
Shipways	2,195
Ordnance	5,195
Iron & Steel	1,352
Nonferrous Metal	1,200
Machinery & Machine	
Tools	803
Chemicals	768
Synthetic Rubber	692
100-Octane Gasoline	203
Other Industrial Plants	356

Ownership of these facilities rested with three different centres of the Government. The first was the service departments. This was mainly concentrated in ordnance, camp facilities, and naval ships. The second was the Maritime Commission which was responsible for enlarging the merchant marine fleet. The third and most significant was the Reconstruc-

tion Finance Corporation (RFC) through its subsidiary, the Defense Plant Corporation (DPC).

The terms and conditions under which the DPC signed contracts with private producers varied according to specific needs, such as whether it was installing new plant into existing operations or building entirely new facilities. For new facilities the normal arrangement was for the Government to pay the cost of building and operation with the private firm paying a nominal \$1 a year lease to operate it. Alternatively contracts were sometimes based on volume of production, or percentage of sales, or percentage of profits.

Where the Government installed 'scrambled' facilities into plants the contract carried options of purchase by the plant owner (Jones, 1951:323). All such contracts also carried terms whereby the Government had to remove scrambled facilities and restore property to its original condition if the operator did not want to purchase it.

Through such arrangements the total number of projects which the RFC engaged in was over 2,300 (Jones, 1951: 315). In total the Government owned 708,000 items of industrial equipment and over 1,700 industrial plants and other facilities (WPB, 1945d: 28). Over seventy per cent of this Government investment was in units which cost over \$10,000,000 (WPB, 1945a:50). The net result of its activities was to make the RFC the largest and most diversified corporation in America, with an interest in over ten per cent of U.S. industrial capacity, and the largest financial institution in the world. Overall it authorized \$9.8 billion for industrial expansion of which \$7.8 was actually disbursed.

The effect of these diverse investments was to give the various government agencies involved a large market share in a number of key industries. At the end of the War the Defense Plant Corporation owned 96 per cent of the nation's synthetic rubber capacity, 90 per cent in magnesium metal, 71 per cent in the manufacture of aircraft and their engines, 58 per cent in aluminium metal, and nearly 50 per cent of the facilities for fabricating aluminium (Jones, 1951: 316).

The effect of all this on industrial capacity was dramatic. For example, the total mix of private and public investment led to a massive increase in the total production of aluminium. At peak production in October 1943 the annual rate of primary aluminium output was around 2.3 billion pounds, which proved to be even in excess of war-time needs, as compared to a pre-war average of 350,000 pounds (Truman Committee, Report 480

Part 1:202; White, 1980:73). The distribution of this output was roughly equal between DPC-owned and private operations. This level of DPC involvement continued into the fabrication stage of production, particularly in relation to parts for airplanes. "By the end of the war, DPC had expanded capacity in aluminium extrusions by 30 per cent; in castings by 25 per cent; in forgings by 45 per cent; in tubing by 40 per cent. The DPC investments in this phase totalled more than \$400 million" (White, 1980:73).

In addition to these facilities an expansion of electric power capacity was required. At the time it was estimated that one kilowatt of installed capacity was required for the production of 1,000 pounds of aluminium per year (Truman Committee, Report 480, Part 1:203). For the 1941 estimated aluminium capacity of 1.5 billion pounds annually the government was expanding power capacity to meet over two-thirds of the 1.5 million kilowatts of power this required. This is despite the fact that Alcoa had been accumulating power sites since 1913, but they were reluctant to develop them because market conditions were not 'appropriate' (Truman Committee, Report 480 Part 1:204).

In transportation there was a similar story. In order to overcome the oil transportation problem the Government built two new pipelines running from Texas to the East Coast. These expansions substantially increased the volume of trade. In 1939 oil pipelines carried 56 billion ton-miles. When the new lines came on stream in 1944, volume of traffic had risen to 133 billion ton-miles. The new lines were able to deliver daily over 550,000 barrels of petroleum and associated products, 'which was about one-third the average delivery to the east coast by all methods in the year 1941' (Jones, 1951:343).

Between 1939 and 1946 the Federal Maritime Commission built more than 5,600 ships. Under the Ship Sales Act of 1946 the Government sold many of these at a fraction of their cost. Of the remaining, those that were not used for military purposes were chartered at low rates to the private sector (Wilcox, 1955:736). This expansion gave the U.S. a larger maritime marine than the rest of the world combined. By 1946 the American maritime fleet constituted 60 per cent of the world deadweight tonnage, as compared to 14.5 per cent in September 1939 (Perry, 1946:521). Added to this was the \$96 million investment in tugs, towboats and barges which the Government undertook to further ease the oil transport problem (Jones, 1951:344).

To give some indication of the bargain prices at which the Government sold or leased its plant equipment to the private sector, the WPB noted that by mid-1946, 524 plants costing \$1,317 million had been sold for \$593 million (1946:69). The synthetic rubber plants which the Government built, on the other hand, were operated by oil and rubber companies for a nominal fee of \$1 a year plus costs until 1955. This gave the fledgling industry breathing space, since by this time the price of synthetic rubber had fallen to a level at which it was more than competitive with natural rubber.<sup>4</sup>

## Conclusion

I expect to see the State, which is in a position to calculate the marginal efficiency of capital-goods on long views and on the basis of the general social advantage, taking an ever greater responsibility for organizing investment; since it seems likely that fluctuations in the market estimation of the marginal efficiency of different types of capital, calculated on the [basis of expectations], will be too great to be offset by any practicable changes in the rate of interest Keynes (1936:164).

Apart from historical curiosity, what does this analysis of investment behaviour during World War II tell us which may be useful in the present period? The possibilities open to governments during war-time are certainly not politically feasible during peace. It would be impossible to consider public investment or profits-taxation on the scale that took place during the war as a viable policy proposal. However, as with laboratory experiments, even extreme cases can be informative.

The war experience highlights the inadequacy of text-book 'Keynesian' fine-tuning policies. The environment generated by macroeconomic demand management is not sufficient to stimulate investment. Investment depends on a more complex set of factors relating to the growth in expected markets over a long period of time. Governments may fiddle with any of the usual policy 'handles', such as interest rates, tax rates, and welfare payments, but this will have negligible effect if structural changes

4 This formula of charging a nominal fixed fee plus costs seemed to be the main way by which the Government handed back the capacity it had built to the private sector.

in the economy are not propelling markets forward. With capacity utilization being such a flexible variable, any short term fluctuations in demand which governments may generate can be easily accommodated without an increase in capacity itself.

It is also clear that a more significant type of government 'intervention' is needed; one that ensures growth in a much more direct and continuous manner. It is clear that public expenditure need not compete with private expenditure for limited resources, but can in fact 'crowd-in' investment. While it may be difficult in the present climate to justify a large increase in public capital spending, one must have strong reservations about current proposals to sell off assets in which the state has already invested large sums. The existence of state companies can act as an effective counterweight to sluggishness in private activity, whereas a sell-off would substantially erode the level of direct intervention of which governments are capable.

This story of the fundamental role of the State was repeated, albeit varying in detail, in Great Britain and Australia. The experience highlights how brittle are the conditions which ensure sustained optimism necessary for private sector health. It consequently highlights how tenuous are the conditions under which the pursuit of profit can be expected to work for the 'public benefit'. At the time of the greatest threat to social cohesion, corporate self-interest reigned supreme.

The experience also highlights how deceptive is the current ideological environment in the English-speaking capitalist world, involving claims of a purely dysfunctional role for the public sector. The historical experience of the capitalist imperative during war indicates that the current libertarian ideological environment is itself dysfunctional to capitalist reconstruction.

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