AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY
Batch 39

1. SUBJECT CLASSIFICATION
A. PRIMARY
TEMPORARY
B. SECONDARY

2. TITLE AND SUBTITLE
Problems of Industrialization in Chile: some preliminary observations

3. AUTHOR(S)
Johnson, L.L.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1965	39p.	ARC CL338.0983.R186

7. REFERENCE ORGANIZATION NAME AND ADDRESS
Rand

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)
(In Memorandum RM-4794-AID)

9. ABSTRACT

(INDUSTRIALIZATION R & D)

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-AAC-467	
12. DESCRIPTORS	13. PROJECT NUMBER
	14. CONTRACT NUMBER PASA RA-10-00 Res.
	15. TYPE OF DOCUMENT

AID 590-1 (4-74)

MEMORANDUM

RM-4794-AID

DECEMBER 1965

PROBLEMS OF INDUSTRIALIZATION IN CHILE: SOME PRELIMINARY OBSERVATIONS

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This research is sponsored by the Agency for International Development. Department of State, under contract No. AF 49(638)-1293. Views or conclusions contained in this Memorandum should not be interpreted as representing the official opinion or policy of the Agency for International Development.

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PREFACE

This RAND Memorandum was prepared for the Agency for International Development as part of The RAND Corporation's continuing research program on topics relevant to foreign assistance. This study, consisting mostly of personal observations of the author based upon interviews with Chilean industrialists and government officials, is focused on the effects that specific Chilean development policies, inflation, monetary policy, and foreign exchange control have on the process of industrialization. These interviews were conducted in mid-1965 while the author was temporarily residing in Santiago. Because of the limited time available during that period, the work to date includes detailed treatment of only the automobile industry, and a scattering of evidence drawn from a number of other industries. Despite its restricted coverage, the study treats several important facets of Chile's economic environment within which AID must operate; hopefully, it will elicit from the reader comments and reactions useful in planning future RAND research on development problems in Chile and elsewhere in Latin America.

The author is indebted to RAND colleagues John Enos and George Rosen for valuable comments on an earlier draft.

SUMMARY

This RAND Memorandum is in essence a progress report on a number of issues about the effects of government development policy, inflation, and exchange control on industrialization in Chile. Focused upon the automobile assembly industry, this study examines difficulties experienced by Chile in seeking to combine economic and political objectives through stimulating the growth of a domestic automobile industry. Hoping to accelerate the economic growth of the politically unstable northern region of Chile, the government has forced automobile assemblers to locate in Arica, 1000 miles north of Santiago. But much of the expected economic benefits to the region have been lost because of a highly seasonal labor employment pattern, in which plants are idle for six months or so per year, which is a side effect of government development policies designed to increase the value of Chilean-manufactured components.

The study suggests that the survival of particular firms rests not primarily on a reasonable market test but largely on their ability to obtain foreign currency from the Central Bank for their import requirements. Under Chile's complicated foreign exchange control system, even quite inefficiently operated firms can remain in business with high costs and profit margins passed on to the consumer.

The interest rate is not an effective rationing device in Chile because inflation combined with a ceiling on nominal rates has caused the real rate of interest to fall below zero. The demand for credit far exceeds the supply, with commercial banks forced into the position of frequently restricting credit to their favored customers. Despite protestations in Chile about the evils of inflation, the Central Bank has been under enormous pressure to continue an expansionary monetary policy.

Finally, the Memorandum suggests that excess industrial capacity in Chile arises in part from gross imperfections in the capital market caused in turn by inflationary monetary policy, frozen nominal interest

rates, and exchange controls. In the case of firms with good connections these factors together tend to drive the cost of capital to below its social cost, and this encourages these firms to employ capital wastefully.

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I. INTRODUCTION

In many of its country programs, AID is placing increasing emphasis upon linking its assistance levels to improved performance by recipient countries. For example, in December 1964 AID signed a loan agreement with Brazil under which $150 million is being provided to help support Brazil's program of stabilization and reform. Brazil, in turn, agreed to undertake a wide range of measures such as (1) restricting the increases in the money supply and restricting government deficits in order to combat inflation, (2) replacing a cumbersome foreign exchange system with a simplified one embodying a flexible exchange rate in order to strengthen its balance of payments position, and (3) designing a comprehensive program of effective industrial and agricultural development. In the case of Chile, an $80 million loan is being disbursed in 1965 under an arrangement in which, among other things, the Chilean government agreed to restrict the increase in the money supply during 1965 to no more than 30 per cent (as an attempt to keep prices from rising beyond 25 per cent), and to adopt a flexible exchange rate policy in which the exchange rate was to reflect changes in internal price levels.

A major problem in implementing and enforcing these kinds of agreements arises from the fact that typically one could set forth a wide range of reforms, controls, and policies that a recipient government "should" undertake in the interests of "sound" development.* We lack much of the basic knowledge of these economies to specify with confidence the importance of each reform or the tradeoffs that exist among them when appraising the recipients' overall performance. As a case in point, by October 1965, the increase in money supply in Chile

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*For example, in the case of Chile, a "letter of intent" setting forth the plans and commitments of the new Frei government included twenty or so separate items including such things as restrictions on money and credit, banking reform, exchange rate reform, customs simplification, measures to increase agricultural production, stimulation of the private sector, priority to the more productive types of government investment, reductions in the deficits of the decentralized agencies, and income tax reform.

had already exceeded the 30 per cent ceiling, while the cost of living index was rapidly approaching the 25 per cent ceiling set for the entire calendar year 1965. Moreover, during the past year the government of Chile has failed to devalue its local currency, the escudo, in proportion to the rise of internal prices. At the same time, Chile is making some progress in other areas where reform is badly needed.

Therefore, one immediately faces the question as to the importance of such things as the rate of inflation and foreign exchange policy relative to other factors. Some would argue that without price stabilization the whole development program is in serious jeapardy if not doomed from the start. Others would assert that a country can more or less live with a chronic inflationary situation so long as it is not of the explosive, runaway type (which is fairly rare), and that some degree of inflation is inevitable during the development process. But beyond the concensus that too much inflation is a bad thing, economists have only a hazy notion of the relationship between inflation and economic development in particular country situations. It is generally felt that inflation tends to stimulate consumption at the expense of savings and investment while tending to channel investment into speculative, relatively unproductive activities. But we need to understand how these factors actually operate in specific situations. For example, how is the behavior of businessmen affected, in terms of such things as their demand for bank credit, the utilization of their physical plant, and their inventory holdings, as a consequence of continuing price rise? How is credit rationed by the banking system if the demand for credit exceeds the supply, given the artificially low or negative real interest rates induced by price inflation?

Similarly, foreign exchange policies involving an "overvalued" exchange rate and numerous exchange controls are generally considered to be detrimental to economic development. But formulating an assistance program tied to country performance requires more knowledge than is now available about the allocation of foreign exchange and its economic effects in recipient countries where the exchange rate is not permitted to serve as a rationing device.

It is undoubtedly true that a government's development policies are frequently poorly designed and are responsible for serious distortions in the allocation of domestic resources. But again it is necessary to identify specific policies pursued by recipient governments and to trace their economic effects.*

As one step toward improving our knowledge of these relationships, the present study presents evidence from Chilean experience about the effects of general price inflation, monetary policy, foreign exchange controls, and specific government development policies upon the allocation of resources and the efficiency with which they are employed. This is by no means a final study; for it includes a detailed analysis of only the automobile industry in Chile, plus some observations drawn from scattered personal interviews in a few other industries located in the Santiago area. It is in essence a progress report on the research accomplished to date.

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*At this point, RAND colleague John Enos observed that when considering national goals the American focuses on the economy, the Chilean on the society; when restricted to economic objectives, the American focuses on the total level of output, the Chilean on its distribution; when forced to choose some rationale for the distribution of the goods and services that society produces, the American takes economic performance and tempers it with egalitarianism, the Chilean takes social status and political power and tempers it with sympathy. These are exaggerations, of course, particularly in light of recent events, and the true positions are much less antithetic than are drawn here. But the point is that by American standards what is a "poorly designed government policy" may by Chilean standards be just the opposite, with the definition of "efficiency" varying with the social context.

II. THE AUTOMOBILE INDUSTRY

This investigation, undertaken in mid-1965, involved interviewing representatives of automobile companies in Santiago and visiting eight automobile assembly plants in Arica, a city 1000 miles north of Santiago, where all of Chile's automobile assembly operations are located.* Among other things, the results of the investigation suggest that in terms of the efficient use of capital, Chile has done rather badly in attempting to stimulate the growth of a domestic automobile industry. This is a result of (1) a poorly designed government policy attempting to combine political and economic objectives in a manner that has essentially defeated both, (2) a cumbersome system employed by the Central Bank of Chile to provide foreign exchange to domestic assemblers for imported automobile components, and (3) a chronic inflationary situation in Chile that creates a demand for credit along uneconomic lines.

STRUCTURE OF THE INDUSTRY

As in the case of so many less developed countries, Chile has emphasized import substitution as a means of conserving foreign exchange during the growth process. By placing high duties on a wide variety of imports to protect domestic production, Chile has achieved a high level of self-sufficiency in the semifabrication and assembly of consumer durables and some capital goods, manufacture of pharmaceuticals, production of basic metals, textiles, and other items.

In the case of automobiles, the Chilean government decided a few years ago to prohibit the continued import of fully assembled units for ordinary domestic use. By forcing firms to import only components and assemble them in Chile, the government anticipated that the domestic value added to production would rise, with a concomitant reduction in foreign exchange cost per completed unit. And to increase further the domestic value added, the government stipulated that the companies

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*The term "automobile" is used here to include pick-up trucks, a few of which are also assembled in Arica.

would be obliged to use in each successive year an increasingly large proportion of Chilean-fabricated "national" components as a substitute for imports in their assembly operations. This program of so-called "national integration" specified that in 1964 a minimum of about 27 per cent of the value of the vehicle had to be represented by the value of components fabricated in Chile; in 1965 the minimum percentage rose to about 32 per cent, and in 1966 it is scheduled to rise to about 45 per cent.*

In addition, automobile assemblers were not free to locate their plants wherever they chose. They were legally required to build in Arica, situated on the Pacific Coast 1000 miles north of Santiago and only a few miles south of the Peruvian border. No assembler would have picked Arica of his own free will, but would obviously have picked a spot in or near Santiago -- the area constituting both the primary market for automobiles and the primary source of locally fabricated components in the integration program. Assembly operations in Arica face the double handicap of requiring that national components be brought up from Santiago and the assembled units sent down again. Furthermore, Arica had little in the way of a skilled labor pool, or an industrial infrastructure upon which the automobile industry could draw. Everything had to be started from scratch.

The selection of Arica for the industry was based on a mixture of political and economic considerations. The city and the surrounding region belonged to Peru before the War of the Pacific, involving Chile against Peru and Bolivia. When Chile emerged victorious from the struggle in 1884, both Peru and Bolivia ceded territory to Chile in the Arica-Antofagasta region. But the subsequent loyalty, or the lack

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*The values on which the percentage is based are the relative prices of the components in the country of primary manufacture. That is, if the radiator of a Chevy II represents one per cent of the value of the car in the United States, the Chilean assembler of Chevy IIs would obtain a one per cent credit against his minimum integration requirement if he purchases locally fabricated radiators. He would not receive additional credit on the strength of the fact that locally produced radiators, costing perhaps four or five times as much as those in the United States, would constitute more than one per cent of the value of the car in Chile.

of it, of Arica to Chile has subsequently posed a nagging problem. Inhabitants in the relatively isolated area have frequently charged that their interests and welfare are neglected by the central government, located so far away in Santiago, and they have from time to time threatened to secede and join Peru. The strong Peruvian cultural influence existing to this day in Arica has added credibility to this threat.* The situation is complicated by continuing claims of Bolivia to sovereignty over the area.

Moreover, the area has been a center of extreme left wing political agitation in Chile. In the 1958 presidential election, the communist-backed candidate Salvador Allende, one of five contenders to the presidency, captured 40 per cent of the vote in Tarapacá Province (where Arica is the principal city), although he obtained less than 29 per cent of Chile's total vote. In the 1964 presidential race, Allende received 47 per cent of Tarapacá's votes as compared with the 39 per cent he received for Chile as a whole.

The loyalty problem has been all the more urgent due to a general economic decline in northern Chile. The region, which contains one of the most barren deserts on earth, was strongly supported in the late 1800s by the booming nitrate mining industry. At that time, Chile was the major world source of nitrogen, essential to plant life and the manufacture of explosives. But the discovery by Germany during World War I of a method of manufacturing synthetic nitrate caused a steady decline in Chile's share of world nitrogen output -- from 67 per cent at the beginning of the century to about 2 per cent at present.

In recent decades, Arica's commercial life has revolved around transit trade with Peru and Bolivia, serving as a source of supply to small agricultural valleys and providing the base for a local fishing industry. In the face of continuing migration from the countryside into Arica, these elements were not enough to prevent unemployment and deplorably low living standards.

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*The population of Arica contains a much stronger Indian element than exists in Santiago, with many on the streets in traditional Peruvian dress. I have been told that movement within the Arica-Tacna area is facilitated by issuance of 48-hour border passes obtainable without much difficulty. Permanent passes are also issued on an easier basis than regular passports.

Seeking to stimulate Arica's development during the mid-1950s, the Chilean government hit upon the idea of making the city a "free port." In contrast to the high duties levied on many imports at other Chilean ports of entry, a list of privileged goods was to be permitted free entry into Arica. As an export center for the rest of Chile, the city would have a substantial commercial advantage.

Arica did enjoy a measure of prosperity during its early years as a duty-free port. However, there were so many abuses of free import privileges that the list of commodities eligible for special entry privileges has been progressively shortened; by this time, Arica's free port status has nearly vanished.

Facing difficulties with the free port mechanism, the government decided to directly stimulate industry -- especially automobile assembly. By prohibiting assembly operations elsewhere, granting special tax benefits and permitting the duty-free import of plant equipment and automobile components, the government expected substantial economic benefits to accrue to the area.* About 20 automobile firms have been attracted to the city; as shown in Table 1 each produced a handful of cars in 1963 and 1964.

These firms import fully knocked-down body parts, and fully assembled engines and drive train components. National parts, usually coming from Santiago, typically consist of glass, tires, batteries, bumpers, upholstery, seats, hubcaps, and simple sheet metal items. Assembly operations include welding the basic body parts together, installing the other parts along an assembly line, and running the cars through a paint shop and inspection. After sitting in the yard for a

*The finished automobiles are, however, subject to a duty (in excess of 100 per cent of the value of imported parts) when they leave Arica for the rest of the country. Arica remains, in a sense, one big customshouse for certain privileged imports -- reminiscent of its earlier days as a free port.

Table 1

AUTOMOBILE ASSEMBLY PLANTS IN ARICA

Name of Company	Make	Number of Units Produced 1963	1964
Citroén Chilena S.A.	Citroén	1937	1533
Fíat Automóviles Arica S.A.	Fíat	1538	600
Equipos Mecánicos Salfa-Siam S.A.	Chevrolet	84	168
	Austin	267	332
	Morris	-	36
Sociedad Industrial Constructor Automóviles Ltda.	Peugeot	156	288
Importadora Fisk S.A.C.	Land Rover	144	78
Importadora Wal S.A.I.C.	General Motors	-	96
A. Avayu & Cía. S.A.I.C.	Chevrolet	412	412
	Opel	400	384
Nissán Motor (Chile) Ltda.	Datsun	-	577
Sociedad Importadora Willys Ltda.	Willys	24	6
Javier Echeverría A.	Triumph	23	-
	Standard	-	72
Industria Anglo Americanas Ltda.	Chevrolet	144	140
Socovem Ltda.	Simca 1300	263	229
H. Frederic Y Cía. Ltda.	NSU	338	387
Industria Studebaker Bolocco S.A.	Studebaker	432	48
	Hillman	-	204
	International	316	216
Industria Vehículos Tecna Ltda.	Chevrolet (Acadian)	200	-
	Vauxhall	172	216
Importacion y Comercio S.A.	Skoda	24	60
Nun & German S.A.C. S.A. Importsur one plant	Simca 1000	744	940
	Volvo	288	288
Sociedad Automotrices Unidas Ltda.	Renault	-	200
	Rambler	-	48
Ford Motor Company	Ford (pick-up trucks)	274	-
Total		8180	7558

Source:

American Embassy, Santiago, Chile.

number of weeks or months, the completed cars are sent by truck or, in some cases, by cargo plane to Santiago.*

THE SEASONALITY OF PRODUCTION

During the visit I was struck by a number of curious phenomena. For one thing, assembling cars in Chile -- like growing carrots -- is a seasonal business. Many of the firms produce no cars in the first four or five months of the calendar year. Production accelerates during the second half of the year, reaching its peak in December. Four of the eight firms I visited were just getting ready to produce in early June. Others were assembling only a small fraction of the total they hope to produce this year. One plant was running at four or five units a day but the plant manager, with obvious pride, told me that last December the plant reached a peak of 18 in a single day. Another, not producing anything prior to early June, may assemble 800 units before the end of the year.

On several counts, this behavior is cause for concern. In view of Arica's unstable political environment (which provided a good share of the rationale for locating the automobile industry there in the first place) it would seem the height of folly to establish an industry that hires and fires labor on a seasonal basis. Yet this is what happens. One manager told me that he employs about 200 workers during the peak in December, and tries to retain about 30 per cent of the force during the slack season (he was currently employing about 60 or 70). Another plant

*It is surprising at first glance that air cargo is employed at all, given the generally fair to good ground transportation facilities between Santiago and Arica. Some of the plant managers maintained that there is little difference in cost between truck and airplane. The air cargo charge for an NSU Prinz runs to the equivalent of about $150 dollars. But this raises the nagging economic problem of the meaninglessness of such cost figures as a measure of social cost. I was told that aircraft and their associated repair and support equipment enter Chile under a special arrangement whereby they pay little duty. The rationale for this treatment stems from Chile's desire to stimulate the growth of domestic aviation. This includes private flying, too, with the consequence that the sport is no more expensive, even with its high foreign exchange cost, than in the United States.

had 20 workers in early June 1965, and planned to have 80 when production got well underway later in the year. A third was maintaining a skeleton force for all sorts of things -- rearranging the plant, painting, maintenance, landscape gardening -- until production started. Of the two plants having the least severe seasonal problem, one employs on the average about 150 workers and tries to keep the level within plus or minus 30; the other employs about 200, plus or minus 50.*

The laborers dismissed are typically the less skilled. Each plant seeks to maintain a skilled nucleus during the slack season to serve as the basis for the subsequent expansion. Surprisingly, none of the managers listed the difficulty of obtaining skilled labor in Arica as among their most serious headaches.** They seem to do a fair amount of in-house training, sometimes phased in during the slack season, and try to keep the best trained workers. Moreover, much of the work in assembly operations requires little training, for example, opening crates, washing cars prior to painting, and keeping the plant clean and orderly.

The people I talked with seemed aware of the severe social and political problems in Arica, but their response was frequently "after all what can I do?" Some workers they dismiss leave the area and are not seen again; others return to the plant during the expansion period. A few managers complained that some of the better workers, trained at company expense, eventually are lost to the superior attractions of other industries in Santiago. In general, the managers have no idea of what happens to the workers after they are dismissed. And at least one professed that he didn't care. No mention was made of any

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*It has frequently been noted that in many cases firms have difficulty in dismissing workers once they have been hired, due to restrictive labor law and labor union constraints especially severe in the less developed countries. However, this seems not to be the case in Arica. None of the managers mentioned any particular difficulty in laying off workers, nor did any complain of being unduly hampered by labor union activities.

**The labor force is typically drawn from the immediate area around Arica, supplemented by some immigration from Peru and Bolivia.

special unemployment benefits or work relief programs to tide the workers over the slack season.

Aside from employment problems, the seasonal nature of the business contributes to large inventories of both completed cars and imported components. This practice not only ties up a good deal of scarce foreign exchange and domestic value added, but the cars frequently suffer deterioration during lengthy storage. Since so many cars are produced late in the calendar year, and since consumer demand is not seasonal, these firms typically are left with huge inventories (relative to the level of annual production) on January 1. The inventories are gradually worked down during the slack season the following year to maintain a more or less constant level of monthly sales in Santiago. These inventories are held in Arica, with a few units released each day for Santiago, in order to postpone as long as possible payment of customs duties on the imported parts.*

At one plant I saw about 500 completed automobiles sitting in a large lot -- about 50 per cent of the total 1964 production of that automobile. (Each of these cars retails for about $6,000 in Santiago.) The manager stated that in January 1965 the inventory was approximately 800, and that about 300 had been worked off by the end of May. At a second plant I saw over a hundred completed cars from the 1964 run, about 30 per cent of the total produced. Moreover, crates in the yard contained the imported parts for 220 of the 400 or so units the plant is scheduled to complete in 1965. A third plant was carrying an inventory of roughly 200 completed units or about 15 per cent of 1964 production. A fourth plant had 100 or so completed units on hand. One plant had completely exhausted its inventory of finished cars; but it had on hand enough imported components to produce about 500 during the second half of 1964 (as compared with a production run of about 300 units during 1964).

Some managers complained that because their finished cars sit out in the open for weeks or months, paint and chrome deteriorate in the

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*See footnote, page 7.

harsh sunny and windy climate of Arica. One plant official showed me two cars side by side. One had been newly painted; the other had been standing in the sun for a few months. The difference was appalling. He mentioned that he uses tarpaulines to protect some of the cars (about half of the cars in the yard were so covered), but this doesn't help much. During the violent summer windstorms the tarps whip around the cars, causing abrasive damage. He went on to say that many of the cars in the yard would have to be repolished or repainted before they are sent to Santiago.

At this point, the crucial question is why in the world do the plants operate on this seasonal basis? One hypothesis that immediately came to mind is that perhaps due to economies of scale, or the lack of them, it may be less expensive on a unit cost basis to assemble a given total number of units within a few months, rather than to dribble out production over the full year. However, the response among the managers was that this is not the case. They would prefer continuous production. The costs of hiring and firing employees, training and retraining, organizational problems, and the deterioration of inventories involved in seasonal production appear to outweigh other advantages seasonal production may have. Rather, there are several interacting causes for the seasonal pattern: the enormous difficulty of getting enough nationally fabricated components to comply with government regulations, the uncertainty about the future of Arica, and the problem of obtaining foreign exchange from the Central Bank for imports. Each of these is discussed below.

CHILE'S POLICY OF NATIONAL INTEGRATION

As mentioned previously, each assembly plant is permitted to remain in business only if it uses an increasingly large proportion of nationally fabricated parts each year. In 1964 the required minimum percentage was about 27 per cent, in 1965 it rose to 32 per cent, and in 1966 it will run to about 45 per cent.

One problem mentioned by all the managers was the great difficulty and cost of meeting these integration requirements. To go from 27 per

cent to 32 per cent and then 45 per cent generates no end of problems because the plants have to procure from Chilean sources progressively more kinds of items that are difficult to fabricate. It is easy enough to start out with tires and batteries because these are fairly simple in technology and lend themselves to reasonably small scale production; but to go on to glass and small fittings is more troublesome largely because of quality control problems, and to proceed to sheet metal work strains even more the capabilities of Chilean industry.

I found many striking examples of this problem. One plant manager obtains the front doors for his automobiles from Santiago but imports the back doors from Europe (he is expecting to add the back doors to local procurement next year in order to meet the higher integration requirements). He complained that his plant has had to rework every single door that has been delivered from Santiago. And, sure enough, as he was taking me through the plant he pointed out a laborer with a cutting torch in hand working over a pile of doors in one corner of the shop. He also stated that he used to purchase the front seat frames, consisting of bent-steel tubing, from Santiago but has simply given up because "no two came out the same." So now he is fabricating the frame directly in the plant. He called my attention to another laborer who, with a simple bending jig and series of levers, was forming the tubing into shape.

A second plant manager noted similar examples. He showed me a quality control test report on a batch of Chilean-fabricated coil springs. The report disclosed that when the springs were fresh most of them were within the tolerance levels of overall height. But after they had been sprung up and down a specified number of times under a given weight, their heights varied over an intolerably wide range. The manager concluded from the report that he would not be able to accept more than 20 to 30 per cent of the springs being delivered.

Another official went into some detail about the high costs of the Chilean fabricated components relative to the costs of the same imported item. It was not unusual to get local cost quotations of four, eight, or even ten times the cost of the imported item. In the case of curved

glass windshields for his make of automobile, the differential cost factor was fourteen. (Faced with that difference, he is continuing, at least for the time, to import windshields.)

There was abundant evidence of the delays resulting from the lack of parts ordered from Chilean sources. In one plant there were about 20 automobile bodies that could not be completed because they lacked Chilean-produced fenders (the manager, with a trace of bitterness in his voice, said he thought he now had the problem solved and the fenders should arrive soon). The same plant has experienced delays in starting assembly of 100 units of another make of automobile because it had not been able to get enough components of acceptable quality to meet this year's integration requirements. In another plant a number of completed units had front ends drooping because they lacked front suspension parts that were supposed to have been delivered long ago. In other cases, completed cars were sitting out in the open, with a few minor parts missing here and there.

It is partially because of these problems with national components that new automobiles are so expensive in Chile. I have not been able to get a reliable, detailed cost breakdown for any automobile (Chilean businessmen are as reluctant about discussing costs as those in the United States) but a rough listing for an "economy" compact-size unit such as a Rambler or Chevy II follows:

$1200	imported parts
1800	customs duties and taxes
5000	assembly costs, local parts, dealer markup
$8000	approximate retail price*

One manager pointed out that national fabricators refuse to handle machined engine and drive train parts, and large forgings and castings. It is difficult enough to get fenders, glass, radiators, and so forth

*The wholesale price of a fully assembled compact delivered in Chile would run to about $2200 compared to the $1200 cost of imported components. If we presume that $2000 of the $5000 figure above is the retail dealer's markup, serious question arises as to whether Chile is well advised to spend $3000 worth of local resources in order to save $1000 of foreign exchange.

from local sources, but to proceed to fabrication requiring high levels of precision is quite beyond Chile's present-day capabilities. For these reasons, he said, the cars having the easiest time meeting the integration requirements are the relatively luxurious vehicles with lots of upholstery, big seats, and large expanses of glass.

These difficulties with local parts are largely responsible for the seasonality of production. According to Chilean law, any car sold by the plant to meet the integration requirement of a given year must be completed before the end of that year. For example, the integration requirement for 1965 is about 32 per cent. All cars delivered by the plants with 32 per cent local parts must be completed by December 31, 1965. Any cars left over must then bear the higher 45 per cent requirement for 1966. And to enforce this law, government inspectors visit each plant at the end of the year to certify which cars have and which have not been assembled.

It is in the interest of each plant to finish as many cars as possible before the end of the year, since the larger integration percentage requirement of the following year imposes a very high additional cost, in terms of both money and time, on delayed assembly. After the end of the year the plants simply do not have the additional kinds of components necessary to meet the new integration requirements. It takes months to build up a supply of these components before full scale assembly can get underway. So it is not until June or July that the plants are producing again at anything like normal levels. Subsequently, they accelerate production and have another splurge the following December.

One factor may mitigate this problem in the future for some of the plants: under an agreement within the Latin American Free Trade Association, Chilean plants may import components from Argentina and Brazil and these will count as "national" parts in fulfilling the integration requirements. A major stumbling block, however, is that these plants must export an equivalent value of other automotive components to their partners in other Latin American countries as a straight barter deal. And Chilean plants now have a comparative advantage in exporting only

a few automotive components under such an arrangement. One manager pointed out a few small parts on the assembly line now being imported from the plant producing the same automobile in Argentina. He is experimenting with the fabrication of hubcaps in Arica, hoping that they will be of sufficiently high quality to provide additional exports so that more Argentine components can be procured. One of the eight plants I visited seems to have progressed quite far in this direction. In early June it was just getting ready for assembly operations after having produced only a few dozen automobiles in the last 12 months. But the plant has arranged barter deals with other Latin American plants producing the same automobile; the manager is confident that he will be able to produce 1000 units this year and will be able to maintain production in the early part of next year by being able to comply immediately with next year's integration requirements. The attitudes of the other managers ranged from guardedly optimistic to pessimistic about the future of such arrangements. Some hope to import a few parts from Argentina and Brazil, but are hard pressed to figure out what to send back in return. Managers of the few plants that do not have strong potential trading partners in the other countries expressed little hope.

One question that arose repeatedly was why the plants had such problems in obtaining local components. A major difficulty is that components are ordered in such small quantities that Santiago suppliers have no great interest in building up a dependable capability that would involve importing new machinery and training workers for miniscule production runs. Some managers complained of communications problems with suppliers. This is partly due to the long distance between Arica and Santiago (connected by radiotelephone), but it is also due to basic difficulties in getting suppliers to understand precisely what is needed and when, and to get the suppliers to comply. The complaint was voiced time and time again that suppliers would promise a given quantity by a certain date, but the goods would simply not arrive on time, or there would be shortages or many defective items in the shipment

when it finally did arrive.* In addition, many suppliers are reluctant to take seriously any orders from automobile plants because the whole future of Arica is subject to great uncertainty -- a point treated below. Actually, these observations raise more questions than they answer. One could well make a study in depth of the problems only briefly noted here.

ANTICIPATING FUTURE NEEDS

Why are these plants not able to anticipate their local parts requirements well in advance, and order them early so that they would not face the slack season during the first few months of the new year? They know now that national integration for 1966 will run to about 45 per cent; why then didn't they make plans long ago so that the parts would be on hand at the end of 1965 and thereby assure full production? There are several reasons: First, some managers mentioned that they are so preoccupied about solving this year's problems that they simply do not have the time to plan far into the future. The present day integration requirements already so strain the managerial capabilities of the industry that it simply cannot adopt plans any faster.

A second reason is that the cost penalties of seasonal production are less than what one might imagine at first glance. When one sees the large inventories of finished cars and inventories in some of Arica's plants the question comes to mind as to why any rational businessman would be willing to hold such large stocks. After all,

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*Fabrication of automobile components in Chile is performed by a wide variety of machine shops, textile mills, plastics fabricators, and so on, most of which are located in the Santiago area. For example the plastic seat upholstery for one automobile is cut and sewn in a converted shirt factory owned by a co-investor of an Arica assembly plant. The plastic itself is made by the Chilean firm, General INSA. During my subsequent visit to a home appliance factory in Santiago, the manager mentioned that he had been approached by automobile companies to supply some of their parts requirements, but he did not want to have anything to do with it.

there is an interest cost associated with stockholding and, as we would expect on the basis of economic theory, businessmen would ordinarily tend to keep inventories at some reasonable level relative to annual output. But in Chile the real rate of interest happens to be negative for those firms having access to bank credit. For the legal maximum the nominal rate of interest is about 18 per cent. Since the cost of living index, and the wholesale price index rose by about 38 per cent and 45 per cent respectively during 1964 (as part of Chile's chronic inflation), the real rate of interest is strongly negative. To the extent that these firms obtain bank credit to finance their inventories they have little incentive to keep inventories low. Because the price of cars moves roughly in accordance with overall prices, investing in these inventories is probably as good a hedge against inflation as anything. And given the negative interest rates, these companies can make a little extra as well. Of course, the demand for credit, given negative interest rates, far exceeds the supply. How credit is, in fact, rationed, and who bears the cost of negative interest rates would take us afield into a discussion of Chilean monetary policy and problems of banking reform; a few words will be devoted to this subject later. For now, the important point to keep in mind is that inflation, combined with a ceiling on interest rates, encourages businessmen to hold uneconomically large inventories, and in the case of the automobile industry it dulls the incentive to avoid seasonal production.

The third reason for not anticipating future requirements is the uncertainty surrounding the whole future of Arica. The managers I contacted are all very concerned that the policy of the Chilean Government towards the industry is going to change radically. Everybody knows operations in Arica are "artificial" (to use the word repeated in several conversations), and the future character of the industry is unclear. In mid-1965 the government was negotiating with Kaiser Industries to set up a plant in Los Andes, a city about 50 miles north of Santiago conveniently located on the main railroad to Argentina. Under this agreement Kaiser would bring in a large volume

of Argentine parts on an expanded arrangement in the Latin American Free Trade Association.* Negotiations were also underway at the same time with Volkswagen to establish a plant in the Santiago area. Now this sort of thing terrifies the people in Arica, for they realize that they would be at a severe competitive disadvantage being located so far from Santiago. Furthermore, there are already too many automobile firms in Chile, operating at high cost and low levels of production. To add more firms would make life that much more difficult. Therefore, the companies cannot commit themselves very far ahead of time in orders to Santiago suppliers; rather they operate more or less from month to month. And the suppliers, too, are reluctant to invest in specialized equipment and labor force to fill orders of an industry with such a dubious future.**

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*Details of this arrangement are not yet available.

**Even with the uncertain future, however, the Ford Motor Company has recently joined with Bolocco and Company, one of the firms listed in Table 1, to assemble F-100 pick-up trucks and Ford Falcons. According to public announcement the new enterprise expects to produce about 400 trucks this year and 1800 to 2000 trucks and Falcons in 1966 -- a large volume relative to Arica's past total outputs.

III. FOREIGN EXCHANGE PROBLEMS

One aspect that all those interviewed complained about, some more vociferously than even with respect to the integration problem, was the difficulty of obtaining foreign exchange for imports of components. Foreign exchange is provided by the Central Bank only for imports approved by the Bank. The exchange rate is not allowed to fluctuate to reflect conditions of supply and demand. Rather, by rationing foreign exchange the Bank is able to maintain an overvalued exchange rate for the Chilean escudo, judged in terms of free market forces.* Consequently, the demand for foreign exchange far exceeds the supply at the overvalued rate. The interviewees complained that they never know more than a few months ahead of time how many dollars they will have. They cannot plan carefully for this year's production, let alone next year's, since their total output is subject to great uncertainty. One manager said that he has "authorization" for 460 vehicles this year but he hopes to get an increase to 800 before the year is out. Another said he had "put in" for 400 but thinks it likely that he will get authorization for no more than 200. ("You always put in for more than you think you will get," he said.) Another said he "hoped" for 400 but was not sure. Not a single manager was able to provide a firm estimate of this year's production. Most said that they could easily increase sales if only they could get more foreign exchange.

This situation is disturbing: The Bank apparently dribbles out a little foreign exchange to any producer able to meet the integration requirements. The relatively efficient producers are not able to drive the less efficient out of the market, as an aspect of normal competitive behavior, because the level of each producer's sales is ultimately determined by the foreign exchange provided by the Bank, not by any market test. The total amount of foreign exchange allocated to the industry is low (relative to the demand for new automobiles) but since it is provided at a favorable rate of exchange (relative to what

*In mid-1965 the exchange rate that covered approved imports was about three escudos per dollar compared to a black market rate of roughly five to one.

the companies would pay in the black market), a company can remain in business with a good profit even if it is notoriously mismanaged and inefficient.* The demand for new cars pushes retail prices up, the overvalued exchange rate keeps import costs down, and a comfortable margin remains to be divided among the assembler, parts suppliers, and retail dealer. Small wonder, then, that each assembler would like more dollars than he is getting! The upshot is that the industry has all the disadvantages of competition, without any of the advantages, and with the high cost borne by the consumer. I have been told that when the assembly industry was first started in the early 1960s, the government considered restricting entry to only a few firms so that each could operate at higher, more economic levels of output. But the government was not able to formulate acceptable criteria by which companies could initially be weeded out. The decision was therefore made to let any firm enter so long as it was willing and able to meet the general conditions of operation imposed by the government. Since these conditions were made progressively more stringent through time, some observers hoped that in the struggle of survival many firms would eventually be forced to close, leaving the field to a few of the strongest. However, given the circumstances noted above, this weeding out process has so far not taken place.

At this point the crucial question is How does the Bank in fact go about allocating dollars to the industry and to individual firms? A committee of Bank members meets periodically to consider applications for foreign exchange. The process by which the committee decides how many dollars the automobile industry, or any other industry, ought to receive is apparently quite unclear. All that one Central Bank official was able to tell me during an interview was that the committee decides what is a "reasonable" and an "unreasonable" request in the light of Chile's "priorities" (however these are determined).

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*It is significant that given all the problems mentioned by the managers not a single one complained that his profits were too low. And in subsequent interviews in Santiago in other industries, no complaints of unreasonably low profits were encountered. In fact, a few interviewees have been candid in saying that they are doing quite well.

I mentioned to the official that for a given total production it would seem desirable to have fewer plants in Arica than now exist with each producing at a higher, more economic level of output for which at least some of the economies of scale could be exploited. I then asked if it would be possible for plants in Arica to consolidate or merge and thereby receive a larger total quota of foreign exchange than each would have received in isolation. No, he thought this would not be possible, Rather, the committee would treat the consolidated firm the same as an individual one.

This banker went on to explain a new law passed early in 1965. It specifies that if the total value of foreign exchange requests in a given industry (or more precisely in a given import "category") in a given month does not exceed by more than 5 per cent the average monthly value of the foreign exchange actually granted to that industry during the preceding 12 months, then the Bank must approve all of the requests of the individual firms in that industry. On the other hand, if the total value requested exceeds by more than 5 per cent the preceding 12-month average of approved requests, the Bank may either reject or approve all the requests in that category. In any event the Bank must either accept or reject all requests in the given category. It cannot accept those of some firms and reject those of others.

Now this is a very peculiar law. For it means that if a firm submits an unreasonably high request for dollars and happens to hit the right month, the request must be approved. If it hits the wrong month the request may be rejected however meritorious it may be. We would expect that some firms would, therefore, have access to large sums of dollars, while others would have serious shortages. This may be the reason for some of the large inventories of imported components I saw in Arica. These firms were simply lucky in filing their requests at the right time.

The Central Bank official mentioned that this law was not popular in the Bank and attempts were being made to change it. The only rationale for the law in the first place appears to be the Bank's

reluctance to accept the requests of some firms and simultaneously reject the applications of competitive firms, thereby possibly exposing itself to accusations of favoritism.

However, it would seem that in seeking to avoid favoritism the Bank appears essentially to be giving up public control of the allocation of dollars within any given industry. If the law is to work at all, many firms almost certainly must get together and agree among themselves to submit a total request within the 5 per cent limit, and to decide among themselves how much each will receive. Otherwise all firms would have an incentive to submit inflated requests and the total value of all requests would be likely to exceed the 5 per cent limit every month.* But to encourage the firms to get together to make these kinds of decisions would be to encourage them also to agree about prices, outputs, and other things that in the United States would be considered gross violations of the anti-trust laws.

Even apart from this particular law, the allocation of foreign exchange by committee has many undesirable features. One would imagine that the committee is subjected to enormous pressures to reject or accept certain categories of requests. Moreover, the uncertainty that each firm has with respect to its future foreign exchange supply, combined with its artificially low price (with the overvalued escudo exchange rate), gives these firms the incentive to keep larger inventories of imported items than would otherwise be the case. In the industries investigated in Santiago, several managers admitted that they try to keep large inventories of imported items because "we never know when we will get more dollars." They do this by submitting inflated requests repeatedly (some of course are rejected) but over the long pull they

*How the Bank arrived at the 5 per cent figure is also unclear. There is little economic justification in a procedure that in effect "guarantees" that monthly imports in any given category will rise by 5 per cent over the preceding 12-month average so long as the total requests in that category do not exceed the 5 per cent figure. Such a procedure penalizes rapidly growing industries, and serves to protect existing inefficiently operating firms.

have been able to get enough requests accepted by the Bank to enable them to build up large inventories.*

Finally, I inquired as to why the Bank did not let the automobile companies, as well as other industries, bid for the available foreign exchange; in other words, provide a freely fluctuating exchange rate for some or all categories. The Bank official had a ready answer: If firms were to bid for foreign exchange, the escudo costs of imported goods would rise, prices would rise, and this would defeat the attempt of the government to fight inflation. The rationale of maintaining a controlled, overvalued rate is to keep the price of imported goods relatively low. This is one of the basic means of reducing inflation below the 38 to 50 per cent annual rates that Chile has experienced in recent years. The trouble with this approach, however, is that it views inflation as entirely a cost-push rather than a demand-pull phenomenon. To the extent that demand pressure causes prices to rise, the result of this exchange rate policy may largely be to provide relatively large profits to a favored few, along the lines described above.

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*A manager of the metal working plant in Santiago told me that he keeps about a one-year supply of imported raw materials and parts as a hedge against not getting enough foreign exchange in the future. While taking me through the plant he pointed out a pile of imported grinding wheels whose total value amounted to about $2000. Without the dollar problem, he said he would be getting along with perhaps $200 to $300 worth.

IV. CHILEAN MONETARY POLICY

All the Chilean industrialists I contacted, both in the automobile industry and elsewhere, complained that they are short of working capital because they are not able to borrow as much from the commercial banks as they would like. This is hardly surprising since the rate of interest is negative on bank loans. As mentioned earlier, the 18 per cent ceiling on the nominal rate of interest has pushed the real rate below zero in the face of present-day inflationary pressures. As we would expect, the demand for funds at such attractive interest rates far exceeds the supply.

At the retail level, Chile has a highly developed credit system with a very large percentage of consumer durables purchased on 6 to 18 month contracts.* This is also not surprising, since the real rate of interest on retail sales ranges in the neighborhood of zero, depending on the length of contract, the type of merchandise, and the particular dealer. In a brief survey of credit terms in retail stores I found the nominal rates of interest run from about 34 per cent to 45 per cent on a range of appliances including radios, washing machines, stoves, and so forth, and 31 per cent on a new automobile. Given the 38 per cent rise in the cost of living index in 1964, these represent roughly zero or slightly negative real rates (as compared with 12 to 18 per cent real rates in the United States).

Momentarily puzzled by this phenomenon, I interviewed a commercial bank official in Santiago to determine why anyone would lend at such low real rates, especially in view of the fact that the risk of debtor default is surely no lower (and is probably higher) than it is in the United States. The answer was quick in coming: He would prefer to earn a nominal rate of 18 per cent to one of zero, for he is lending against his demand deposits which otherwise would sit idle. So long as the banks meet the fractional reserve requirements of Chilean Banking law, they have an incentive to lend at any positive nominal rate.

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*Perhaps even more frequently than in the United States, one sees in Santiago stores the prices of merchandise expressed in terms of only the monthly payment.

Retail dealers, then, can easily afford to extend consumer credit at a zero real rate, for they merely discount their paper directly through the bank, or via their distributors, and pay the 18 per cent legal nominal rate. Industrial enterprises typically borrow directly at 18 per cent. To be sure, these loans are generally short term, that is, about one year, with the requirement that 25 per cent of the principle be repaid every three months. In fact, these companies are usually able to refinance their indebtedness on a continuous basis so that, in effect, they are able to maintain a continuous, long term credit position.

In response to a question about how the banks ration credit availabilities in the face of the excess demand for loans, this official replied that this was not easy, but that his bank did give preference to its old "good" customers. He was candid in saying that the bank helps the clients that help the bank. That is, if the client channels his foreign exchange business through his bank (a lucrative source of fees), the bank would view more favorably the request for credit than would otherwise be the case.

Despite all the talk in Chile about the evils of continuous rises in prices and the necessity to "wage war" on inflation, Chilean monetary policy continues to be expansionary. The ceiling on credit imposed by legal reserve requirements has not been notably effective in restricting credit to reduce inflationary demand pressures in the economy. Bank reserves tend to rise rapidly through time, as a consequence of deficits in the government budget, thereby permitting a multiple expansion in additional credit. The Central Bank has compounded the problem by standing ready to rediscount paper of the commercial banks when they are caught short of reserves up to a "quota" fixed each month by the Central Bank. Moreover the commercial banks have been able to borrow directly from the Central Bank (at a nominal interest rate <u>below</u> the legal maximum) as another way to make up for deficiencies in reserves. Until June 1965 the Central Bank followed the practice of extending credit to any bank suffering a deficiency of reserves, so long as that bank had not increased its own loans to the public by more than 2 per

cent in excess of its loans for the preceding month. Since those banks enjoying excess reserves could continue to lend up to whatever maximum was permitted by their reserve position, this policy in effect put a 2 per cent per month floor on the expansion of commercial bank credit.

After June 1, 1965, the Central Bank attempted to tighten up, but only by modest proportions. At least through August of this year it continued to extend credit to those banks suffering deficiencies in reserves in cases where the banks had not extended credit above their ceilings of May of this year. Those banks gaining reserves were able to continue to expand credit as before. Moreover, the Central Bank continued to stand ready to rediscount paper of the commercial banks on the basis of monthly quotas.

Questions immediately arise as to why the Bank has not tightened up more rapidly, given all the protestations in Chile about the evils of inflation. The answer seems to be that the Central Bank is under enormous pressure from business interests to continue an expansionary policy; the economy is geared to inflation and a readjustment at this point would be terribly painful. Consumers would suddenly find themselves unable to pay off old installment credit contracts without the large annual increases in their money wages and salaries that they are accustomed to. Business would suddenly find the real interest rate less negative or even positive. It may be true that many firms literally could not survive without negative interest rates.

Moreover, the business community can effectively exert pressure upon the Central Bank because it is heavily represented on the Bank's Board of Directors (of the 11 members, 7 are from the private sector). As part of its "Banking Reform" program, the Frei government is attempting to place control of Central Bank policies in the hands of a small "junta" composed only of government officials. Representatives of the business community would be relegated to a "committee" that would serve only in a consultative role. As this is being written, the necessary legislation has yet to be passed by the Chilean Congress, but the prognosis seems reasonably favorable.

These policies place an enormous burden on firms to cultivate the right people in the right places, both to obtain working capital (since there is no free market with an equilibrating interest rate), and to obtain foreign exchange (since there is no legally accessible free market with an equilibrating exchange rate). Among other things, it helps to have bankers, along with politicians, on one's board of directors. In this system the banks have great power to make and break particular enterprises and to concentrate wealth. Those who own the banks are free to invest in local enterprises (feeding them ample credit at negative interest rates) while denying credit to others.

Many of those interviewed complained of such problems. One said that it is necessary "to knock on many doors" in doing business in Chile. Another complained that there are so many "outside" problems in his business, such as doing all the things one has to do to get dollars and working capital, that he doesn't have time for the "inside" things, such as organizing production efficiently.

The result of Chile's inflation is to transfer wealth <u>from</u> those who hold cash balances, and others who cannot fully protect themselves from the inflation (such as poor people whose money incomes do not keep up with prices and whose positions are so precarious that they are not good credit risks). The wealth is transferred <u>to</u> those who are able to buy on credit, such as for purchases of consumer durables by the middle class, and the holding of inventories and investment in plants by business interests. The net effect of inflation may or may not be to increase net investment in the economy: the stimulus to consumer purchases on credit at low real interest rates may or may not thwart the attempts of businessmen to increase investment.* But, as discussed in more detail in the next section, even if the net effect <u>is</u> to increase net investment, the <u>composition</u> of investment may not be desirable from the standpoint of economic growth.

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*In this Memorandum I exclude consideration of the effects of inflation and low interest rates on the <u>government</u> investment budget.

V. EXCESS INDUSTRIAL CAPACITY

If the cost of capital is high relative to labor costs, as is commonly believed to be the case in less developed countries, then we would expect that firms would (1) seek to use labor-intensive technology to conserve the use of capital, (2) use the existing capital stock relatively intensely as by using two or three shifts of labor per day and working close to capacity in each shift. If the real and nominal rate of interest is high, and if depreciation of capital is a function of time as well as use, the output per unit of capital could be increased (along with increasing the rate of capital turnover) by using it more intensively, as by running the plant on a multi-shift basis.*

I suspect, however, that in Chile capital is in general used no more intensively, if as much so, as in the United States. The possibility exists that the "signals" perceived by "successful" firms in Chile are such that they view the relative prices of capital and labor as not significantly different from those in the United States, even though the relative social cost of capital may be far higher.

To elaborate, one of the striking features of automobile assembly is the large amount of overcapacity in plant. Now granted that "capacity" is an imprecise concept; for there is generally no uniquely defined point at which a plant is operating at capacity. Nevertheless, the apparent inefficient use of the plant in Arica is shocking.** Aside from the seasonality problem, each plant I visited could easily produce many more vehicles than it does produce. Even in the December peak season most plants are able to take care of production on a one-shift basis plus some overtime. One manager, hoping to produce 400 vehicles this year, said he could easily produce 1000. Another, hoping for 810,

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*Only if the interest rate were zero and depreciation of capital a function only of capital use would the firm be indifferent about the rate of capital turnover. Under these circumstances, using capital more intensely would not affect the capital-output ratio.

**Let us be contented here with viewing capacity as that point where for a given plant size, average variable cost rises sharply.

said he could assemble 3000. I estimate that three or four of the largest plants in Arica could take care of the total output of the 20 or so existing plants, and even that on a more or less one-shift basis.

Of course one might argue that because of lumpiness of capital, any plant is going to have a large capacity relative to the small outputs characteristic of Arica. This argument sounds plausible enough except that the plants in Arica vary greatly in their physical size and capacity. Several of the largest are impressively modern, with well designed assembly lines employing quite a bit of machinery. At the other extreme, one consists mostly of a couple of dozen stalls built around a medium sized parking lot, giving the impression of essentially a wrench and screwdriver type operation. Thus, there does seem to be a fair amount of flexibility in plant investment.

One might also argue that the effect of a high cost of capital relative to labor is to move the firm more in the direction of using labor-intensive technology rather than in using existing capital more intensely. In this case the firm would use a large quantity of labor, with relatively little machinery, but then use the machinery on only a one-shift basis. This hypothesis is hard to test because the technology that the firm selects may be dependent not only on the relative price of capital and labor, but also on the scale of operation. To illustrate, the laborer (mentioned on p. 13) who was using the bending jig to form the steel tubing for the automobile front seat, was using a labor-intensive technology. But it seems likely that if the same small output was being produced in the United States, the same technology might be employed.

Aside from the automobile industry, the degree of capital utilization appears to vary a good deal from industry to industry. A study has been done at the University of Chile on the use of capacity in 42 firms in a wide variety of industries covering 108 "lines" of production. Among other things, the firms were asked what percentage of capacity they are currently using (on a one-shift basis) and how many shifts they employ. The responses are arrayed in Table 2. Over 50

Table 2

PRINCIPLE LINES OF PRODUCTION ACCORDING TO PERCENTAGE OF UTILIZATION AND NUMBER OF SHIFTS

(first half of 1961)

Per Cent of Utilization Installed Capacity	Shifts			Hours[a]			Total Lines
	One	Two	Three	12	18	20	
90-100	11		7	2			20
80-89	5	2	10			1	18
70-79	12	5	1		1		19
60-69	10	2	3		1		16
50-59	7	1	1	2			11
40-49	6	1					7
30-39	8		4				12
20-29	1		3				4
10-19	1	—	—	—	—	—	1
Total lines	61	11	29	4	2	1	108

Note:

[a]Some firms indicated the total number of daily hours of work rather than the number of shifts.

Source:

Instituto de Economía, Universidad de Chile, "Utilización de la Capacidad Instalada en 42 Empresas Industriales," Santiago, Chile, 1963, p. 14.

per cent employ only one shift and the average use of capacity seems to be in the range of 60 to 70 per cent. Two points should be made about the table: (1) a similar survey in the United States might very likely disclose much the same pattern, (2) the table is not very useful because the relative importance of the various lines in terms of value of output is not known. That is, we do not know whether the firms operating on one shift are large or small relative to the others.

In addition to the automobile industry, my personal interviews in Santiago covered about ten industrial enterprises operating in steel making, metalworking, textiles, pharmaceuticals, rubber and plastics, and manufacture of household appliances. These disclosed, too, that the intensity of capital use varies considerably from industry to industry. Some plants (especially in steel making and textiles) work three shifts a day at nearly full capacity. The manager of a large textile mill mentioned that despite working around the clock, his firm was six months behind in orders. Other firms I visited could easily have increased their output by adding shifts or a few machines in bottleneck areas.

An interview with one pharmaceutical manufacturer was especially interesting. The plant works only one shift and produces at perhaps 60 per cent of plant capacity for that shift. I asked the manager how he would go about increasing production if his sales were to rise 200 or 300 per cent to a new permanent level. He replied that he would probably bring in new machinery of greater capacity to meet the higher demand (he mentioned such things as chemical mixing machines with larger vats, and "24-punch" machines instead of "16-punch"). He would not go to a second or third shift of labor because a second or third shift is "hard to manage" and the workers "don't like to work at night."* In response to a question about how the plant would finance the new investment, he stated that the parent company in the United States

*To the extent that these factors of management difficulties and laborer preferences are important, the true cost of labor is increased relative to the cost of capital.

would probably be willing to provide funds to meet such a rise in sales and he would seek additional credit from the local banks for new working capital. The fact that his present plant was working at only 60 per cent or so of a one shift capacity did not seem to bother him. He would gladly expand the size of the plant to meet a large increase in sales.

These phenomena may be partially explained by the following hypothesis: for successful firms, gross imperfections in the capital market, brought about in part by inflationary monetary policy, frozen maximum nominal interest rates, and foreign exchange controls mentioned earlier, reduce the cost of capital below its "social" cost. Firms that have access to bank credit at negative rates of interest have an incentive to invest in larger inventories and plants than would otherwise be the case. (Even if bank credit is technically of a short term character for working capital purposes, it may release other funds available to the firm for longer term investment in plants.) Second, with continued expectation of general price rises, firms with excess funds may find the holding of inventory and plant a good hedge against inflation.* Third, those firms that are able to obtain foreign exchange for importation of plant and equipment are able to do so at controlled rates of exchange that do not reflect social cost. At the same time, in other cases the cost of capital can be very high -- so high in fact that the firms do not exist. The trouble with interview techniques is that one tends to contact the successful firms, that is, the ones that are prominent, the ones that are large, the ones that have the right political connections. It is impossible to visit the firms that did not get started because they failed to get past the "committee." The problem of misallocation is all the more severe when the government follows industrial development policies, as in automobiles, that force seasonal production and duplication of a large number of small-scale, essentially noncompeting enterprises.

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*Economists have long argued that inflation causes a diversion of saving into "unproductive" real estate construction as a hedge against continued price rises. The argument here is that it may also encourage excess investment in "productive" activities as well.