

Provisional evaluation of the effects of some development measures

The developments in the Manaus free trade zone

The institution of the free trade zone led immediately to a great increase in the import of all kinds of consumer goods, both from abroad and inside Brazil, because such goods could now be offered to the consumer considerably more cheaply than elsewhere and than hitherto. Trading activity increased greatly in a short time as appears from the fact that the number of registered trading undertakings rose from 458 in 1968 to 2600 at the end of 1974.²⁸ Numerous new shops were opened and the existing ones considerably expanded their activities or turned to the sale of other articles that were more in demand and more profitable. This often resulted in a blurring of the distinction between different classes of shop. Because of this expansion and reorientation of the retail sector, Manaus was generously provided with a variety of commodities from home and abroad, which altered the situation radically. Previously, the provisioning of the city had been inadequate in many respects, including that of essential food supplies.

In a short time, the commercially somewhat inert and sleepy Manaus was transformed into a dynamic urban centre. By mid-1973, the central area was dominated by modern shops where one could buy a great variety of goods, such as American canned foods, Swiss watches, Persian carpets and Japanese transistor radios.

Tourism increased. The possibility of acquiring cheap radio and television sets, record players and other electrical goods, in particular, exerted a strong attraction. Not only Brazilians, but also foreign tourists, used the opportunity to combine a visit to the unknown city of Manaus and the neighbouring tropical jungle with the purchase of a number of relatively cheap consumer goods. People who visited Manaus for business reasons also almost always used the opportunity to take away particular articles for themselves or for friends and acquaintances. Consequently, the customs officials were fully occupied in keeping the large flow of all kinds of cheaply purchased goods to other parts of the country as far as possible within the permitted limits. The modern airport was often so congested that it was best to arrive there well before departure time.

The establishment of the free trade zone, apart from the creation of employment, was not equally favourable for all layers of the population. The price reductions applied mainly to durable consumption goods, which only people from the higher income

28 Information supplied by SUFRAMA.

classes could afford. The clientele, therefore, largely consisted of the more prosperous inhabitants of Manaus and of the many, more well-to-do, Brazilians from other parts of the country, who almost always made use of a visit to Manaus to acquire luxury goods. Food prices and rents, on the other hand, fell hardly or not at all, so that the advantages for the lower income classes remained limited. It is therefore not surprising that there remained a large informal sector in Manaus.

A further unfavourable aspect was that the wide availability of all kinds of commodities tempted the local Brazilians to raise their level of consumption and to spend their money on goods that were far from essential. The purchasing power of the majority of the population was modest and many people did not have an immediate need for a great number of articles, such as television sets and electric shavers, but they were more or less tempted to buy through the abundance of such articles and the facilities for hire purchase.

Another negative side of the commercial revolution was that the retail sector expanded so much that there was heightened competition, with the shopkeepers often anxious to sell mainly those articles that were most profitable. Various poor and mediocre goods also found their way on to the market in the late 1960s, including clothing that was not suitable for the hot, humid climate (Martelli 1969, 14). The import of foreign canned goods and other foods also made difficult the disposal of small surpluses of certain agricultural products from the immediate neighbourhood, because they were of less interest to the shops of Manaus (Martelli 1969, 18).

Another less favourable development was the rapid increase in the population. The increased economic activity resulting from the free trade status of Manaus tempted many Brazilians to migrate from the surrounding countryside. During the period 1960–1970 the population of the Manaus municipality increased from 175 300 to 314 200.²⁹ Employment expanded considerably, especially since trade also stimulated other activities, such as construction, but did not keep pace with the population increase, so that many city dwellers led a poverty-stricken existence (Filha 1971a, 79 f.). For these poorer people, in particular, the generous supply of goods in the shops created a painful tension between needs and the possibility of satisfying them.

As a result of the revival of trade, industry and tourism, Manaus experienced a building boom. Skyscrapers began somewhat hesitantly to contribute to the appearance of the city. During the period 1967–1971 a rise of nearly 400% was recorded in the activities of the construction industry.³⁰

The aim of the free trade measures was not so much to encourage trade, consumption, and tourism, as to accelerate the pace of industrial development. Industrialisation had indeed begun partly as a result of the financial incentives offered by the SUDAM, from which the firms in Manaus were also able to benefit. A number of enterprises had already established themselves in and around Manaus or were intending to do so. In a few years the range of industries became more varied and extensive. Whereas, until a short time before, Manaus had been little more than a collection and distribution centre, it was now also becoming an industrial centre of regional significance. One of the most remarkable industrial projects of the 1960s was the establishment of an iron

29 Figures derived from *Sinopse estatística*.

30 The figures used in this section were largely derived from *Anuário Estatístico* (1974).

and steel complex.³¹ The building of a petrochemical complex was one of the plans of the mid-1970s still to be realised.

The “climate” for the establishment of industries was favourable in various respects. Apart from the financial facilities and the relatively cheap manpower, there were the good port facilities, the central location in the Amazon region, the relatively favourable communications (Manaus was becoming increasingly a nodal point of roads), the presence of some infrastructure, including a small refinery, the existence of a university and the occurrence of various industries which could function as suppliers or customers.³² The SUFRAMA (Superintendência da Zona Franca de Manaus) was trying to make the locational conditions still more favourable through the expansion and improvement of the infrastructure. Many Brazilians, therefore, looked forward to the industrial future of the largest urban centre of the state of Amazonas with some confidence.

During the period 1968–1974 the SUFRAMA approved a total of 138 industrial projects, 97 of which were in process of execution or already completed at the end of 1974, while 41 had not yet commenced. The total investment for all the projects was 2.229 billion cruzeiros. The number of jobs to be provided directly was 26 400 (*Projetos industriais aprovados 1968–1974*, 1975). The industrial development was taking place partly in a *distrito industrial* (which covered an area of 664 ha and was provided with the necessary infrastructure) and partly outside this industrial district.

Apart from a number of industries supplying local needs or processing regional raw materials (such as timber, jute, hides, precious stones and gold), the projects related largely to enterprises which had

- a) great interest in tax-free imports of raw materials from abroad, or in the exemption from value added tax (which was considerably higher in Brazil for luxury goods), and
- b) manufactured goods which could be transported over long distances because of a favourable weight-value ratio.³³

Important branches of industry, therefore, which were present in the free trade zone or would be established there, included textiles and clothing (mainly artificial fibres), electronics (radio and television sets and calculators) and other luxury goods, such as jewellery, watches, alarm clocks and optical products.

The firms specialising in these articles derived their raw materials or semi-manufactures largely or entirely from other parts of Brazil or from abroad, so that there were relatively few or no “backward linkages” with regional and local concerns. This meant that the “multiplier effect” was small as far as employment was concerned. According to Mahar (1976), the need for packaging materials had created “forward linkages,” but in general these also were limited. This was all the more so because the local

31 The plan for building the complex dates from before the institution of the free trade zone. It came into operation in March 1972 and had an annual capacity of 60 000 tons. Iron ore was drawn from the region of Jatapu on the Rio Negro. Various raw materials, such as lime and manganese also came from the Amazon Basin. The fuel was charcoal.

32 The refinery had been in operation since 1957 and used oil from Peru and Venezuela.

33 The following is partly derived from Mahar (1976).

commerce was concerned mainly with the sale of imported end-products and much less with the sale of locally produced manufactured goods. These were destined mainly for the markets in the Centro-Sul and abroad.

If one adds to this the fact that by no means all of the approved projects had been fully realised and that the majority of the industrial enterprises were owned or would be owned by firms or individuals from other parts of Brazil or from abroad, thus resulting in an outflow of profits, the conclusion appears justified that the effects of the industrial policy until the mid-1970s could not be judged to be wholly positive.³⁴

Since the free trade led to greater competition for home industry and the import of electrical equipment, in particular, proved to be disadvantageous for Brazilian industry, there was, in the mid 1970s, a great risk of a limitation of the free trade measures. This possibility was one of the reasons why various foreign firms, including Japanese ones, had decided to set up assembly plants for radios, colour television sets and other electrical products (*Amazonas, porta aberta para o futuro* 1972).

Partly because of the incipient industrialisation, imports and exports considerably increased in the late 1960s and early 1970s. In 1972, goods to the value of 1.4 billion cruzeiros were imported into the Zona Franca de Manaus, while the value of exports was 597 million cruzeiros. In 1968 the value of imports was still only 225 million, while exports amounted to 112 million cruzeiros in 1967. This meant that imports increased sixfold in a few years, while exports increased nearly fivefold.

Calculated by value, 60.5 % of the imported commodities originated from Brazil and 39.5 % from other countries. In 1974, about 60 % of the Brazilian goods came from São Paulo and Guanabara and only 13 % from the North. The relationship with the local economy was therefore weak. Apart from raw materials and semi-manufactures for the finishing and assembly industries, the imports consisted largely of durable consumer goods to be sold by the many traders of Manaus. They found a market because of the growth in incomes, the population growth, the rise of bargain tourism and the lack of adequate local industry. A considerable share was accounted for by goods regarded as luxury articles by the Brazilian government and so subject to high taxation outside the free trade zone.³⁵

62 % of the foreign goods came from the United States, Japan and Panama. Only 13 % of the outward movement of goods was to other countries; 36 % went to Western Amazônia and 51 % to the remainder of Brazil.³⁶

About 60 % of the outward movement of goods destined for the remainder of Brazil was intended for São Paulo and Guanabara. It consisted for a considerable part of goods from the primary sector, such as rubber and jute. The part played by manufactures in 1973 was still a modest one, although it was gaining in importance.

Foreign exports had increased partly as a result of the free trade facilities. They still included many primary products. Manufactures accounted for only a modest share in the early 1970s.

The value of the incoming goods considerably exceeded the value of those going out (1119 and 0.421 billion cruzeiros, respectively, in 1973). Mahar concludes from this that much of the extra income that was received in the free trade zone as a result of the

34 As elsewhere in Brazil, the enterprises there may not be more than 50 % foreign-owned.

35 See for more details Mahar (1976).

36 Figures derived from *Anuario estatístico* (1975).

growth in trade and industry drained away to São Paulo and Guanabara. Only when industry had become more developed in Manaus would there be a more favourable balance.

The figures given here naturally relate only to the officially registered trade movements. In addition, there was a good deal of smuggling in spite of government efforts to limit it. Tobacco, perfumes and alcoholic drinks were not exempted from import duties, but entered in fluctuating quantities as contraband. The legal requirements were also evaded in respect of the export of the dearer consumer goods. The great extent of the free trade zone (10 000 sq km) incidentally did not make easier the control on imports and exports.

The expansion of trade, industry, tourism, construction and related activities, such as banking, created fresh employment, but the population also greatly increased, mainly as a result of the increased migration from the rural areas to the city. Consequently, there was still a lack of adequately paid work. No figures are available of total employment, but there are some data relating to the industrial sector. In June 1968, 222 industrial enterprises employed only 6566 people (Williams 1971, 21), which was, of course, only a very modest proportion of a total work force estimated at from 90–100 000. The majority of the working population had therefore to find a living in the tertiary sector. In 1973 the number of industrial jobs probably totalled 10 000.

The 96 industrial projects approved by SUFRAMA up to 6 July 1973 were expected to create an estimated total of 16 759 jobs, but this would not be achieved until after several years, even if all the plans were fully realised (*Projetos industriais aprovados 1968–1974 1975*). Many projects still existed only on paper or were in the first stages of implementation. Since the commercial sector was already well-filled, the future growth in employment would be largely determined by the rate of expansion of industrial activity.

The largest employer would be the SIDERAMA iron and steel works, which employed 480 men in its initial phase, but was expected to provide 1132 jobs when operating fully. The second industry in terms of employment (situation in July 1973) was a jute processing factory, which would employ 1086 workers. Most enterprises employed, or would employ between a few dozen and a few hundred workers, which meant that the greater part of industry consisted of small to medium-sized firms, whose contribution to the ultimate expansion of employment was not very great (*Projetos industriais aprovados 1968–1974 1975*).

Apart from industrial expansion, an effort was also made to increase agricultural production in the vicinity of Manaus. The intention was for medium-sized and large holdings to practise livestock farming and commercial arable farming. It was expected that the arable holdings would produce not only commodities for the urban market, but also for the national market and for export (such as guarana, pepper, cocoa, rubber and fruit). The actual developments until 1974 were modest. Although a *distrito agropecuário*, 560 000 hectares in extent, had been defined near Manaus, very few holdings had been established there.

In the mid-1970s, the SUFRAMA had plans for allocating approximately 10 000 hectares for intensively farmed 100 ha. holdings, 150 000 hectares for commercial arable enterprises of between 500 and 3000 ha, 250 000 ha to livestock fazendas of between 3000 and 15 000 ha, and the remainder mainly to large forestry enterprises. These are only provisional figures, but they show clearly that the aim was to achieve modern, large-scale agriculture and forestry. The exploitation of the forests was to be directed, among other things, at the manufacture of cellulose and paper.

To summarise the foregoing, we may say that the developments in Manaus up to 1976 as a result of the free trade facilities had both positive and negative aspects. The following may be regarded as favourable consequences:

- the cost of living fell;
- incomes became higher;
- the urban market was better supplied with certain commodities;
- employment was expanded as a result of the growth of trade, tourism, the construction industry, manufacturing and banking;
- overt unemployment decreased.³⁷

Opposed to these positive effects, however, are a number of negative aspects, viz.

- the developments were rather artificial, i. e. they were mainly the result of an extensive import trade, involving high transport costs, built up to profit from a favourable fiscal climate;
- the economic growth in Manaus showed few signs of diffusion through the region as far as employment and distribution of incomes were concerned. It was a development in an enclave. There had even been an inflow of capital from the region into Manaus during recent years and a considerable loss of labour from the surrounding countryside as a result of rural-urban migration;
- the assembly plants which put together parts from abroad could form a threat to the Brazilian balance of payments, especially since it was not certain whether these industries would be able to compete on the world market;
- industrialisation was only slowly gaining momentum, so that its contribution to the development process was still small;
- the imports had resulted in greater competition for the industries of Manaus and the rest of Brazil;³⁸ A number of older firms in Manaus consequently had to close their doors (Rosenbaum and Tyler 1971, 423);
- the development of trade had resulted in the large-scale legal and partly illegal import of many luxury articles, which made an attack on the foreign currency reserves and catered mainly for the needs of the more well-to-do Brazilians;
- an increase in the wants of many residents and visitors to Manaus as a result of the confrontation with a large number of commodities, when these wants could by no means be satisfied. The lower income groups, in particular, were unable to benefit;
- the effects were in general much more limited for the lower income groups than the higher, bearing in mind the fall in the cost of living;
- a considerable share of the advantages of trade and industry was to the benefit of entrepreneurs from the South East;
- the great increase in migration from country to town, which led to the depopulation of some areas of the countryside and perpetuated the employment problem in Manaus.

37 It was mainly as a consequence of this that the population of Manaus increased from 175 300 to 396 667 during the period 1960–1974.

38 It was recently decided to revise various aspects of the free trade facilities (*Boletim Informativo*, 7) June 1976).

Mahar therefore pleaded for a development strategy which would encourage enterprises to make more use of local and regional raw materials. The effects on the regional economy would then be much stronger.

The results of the industrialisation policy

Table 3, which shows the distribution of the industrial projects approved by the SUDAM up to 1st January 1973, gives an impression of the regional differences in industrialisation. It appears from Figure 3 that the great majority of the industrial projects in the states of Pará and Amazonas had been or were being realised in Belém and Manaus, respectively, or in the near vicinity of these centres.

Table 3. The number of industrial projects (new establishments or extensions) approved by the SUDAM in Amazônia Legal up to 1st Jan 1973

State/Territory	No. of industrial projects approved	Total investment in cruzeiros x 1000	Expected no. of new jobs
Acre	1		97
Amapá	5		1405
Amazonas	36		9591
Goiás	7		830
Maranhão	23		3076
Mato Grosso	7		1422
Pará	83		18 344
Rondônia	5		660
Total	167	2 449 812	35 425

Source: Lopes (1973, 50).

By comparison with Manaus, Belém, the largest urban centre of the Amazon region, had a more favourable locational climate for industrial enterprises, despite the fact that it lacked the attraction of free trade regulations. It lies closer to the more developed and more densely populated parts of Brazil, which is an advantage for the supply of raw materials and the marketing of the finished products. The city itself had 776 000 inhabitants in 1974, while a considerable proportion of the population of the Amazon region (ca. 25 %) lived in the Belém-Bragança district. Consequently, there was a much greater market potential for industry on the spot and in the surrounding area than in Manaus. Lastly, we may refer to the better and more extensive infrastructure and to

the existence of road connections with the Centro-Sul region. As a result, Belém attracted more industries in the late 1960s and early 1970s than Manaus did.

Manaus was smaller than Belém and did not possess a densely populated hinterland, but, with its 397 000 inhabitants, it was the second population agglomeration within Amazônia Legal. Further, in comparison with the smaller centres of the Amazon region, Manaus possessed relatively good and extensive services. The wide range of free trade facilities had also considerably improved the locational climate since 1967.

The concentration of industrialisation noted here in and around the two largest cities is understandable, but a consequence was that the development of the principal urban centres was still further increased, so that the disparity with the surrounding countryside became in many respects greater rather than less. These increasing differences also intensified migration to the cities, at a time when the drift from the countryside was already largely directed towards the two centres.

The government tried to give greater stimulus to a few smaller centres in order to slow down the migration to Manaus and Belém, but the differences in the level of urban development were still so great that hardly any success had been achieved by 1975. Consequently, in spite of the industrialisation in both cities, there was still an unfavourable balance between employment and the demand for work and the poor quarters of the two places continued to grow.

During the period 1960–1970, the population of the municipality of Manaus grew from 175 300 to 314 200, an increase of 79.4%. The state of Amazonas, of which Manaus is the capital, increased in population from 721 200 to 960 900.³⁹ It may be deduced from this that the area not forming part of the capital grew at a much slower rate. There was a heavy migration from the rural areas and the small towns to Manaus. This was partly the result of the difficult situation in which the extractive economy found itself and the unattractive living and working environment in many places, but it was also the result of the increasing attraction of Manaus, which had been revitalised, *inter alia*, by industrialisation.

Between 1960 and 1970, Belém grew from 402 000 to 642 500, which is an increase of about 60%. The whole of the state of Pará increased in population from 1 551 000 to 2 197 000, which means that the area not forming part of the capital had a population increase of 405 700 (*Sinopse estatística do Brasil* 1971). In relative terms, this was also a less rapid growth than that which occurred in Belém.

A direct consequence of the heavy migration flow was that still greater pressure was placed on the already inadequate urban facilities. Like the SUDENE, the SUDAM also encouraged the improvement of water supply and sewerage systems etc., but it did not succeed in expanding and improving the infrastructure sufficiently to alleviate the residential environment of the population. Whatever was achieved was rapidly overtaken again by the population growth and large sections of the population continued to be deprived of basic amenities.

A look at the totals in Table 3 shows that the policy of encouraging industry by means of *incentivos fiscais* and various other measures had achieved only modest results by 1975. Industrialisation in Amazônia Legal was, in fact, still in its infancy, especially since many projects had not yet been realised or had been realised only in part. In the North East the SUDENE was forced to admit that, in spite of an active industrial-

39 Figures derived from *Sinopse estatística do Brasil* (1971).

sation policy, it had not been able to achieve an adequate expansion of employment. The SUDAM had likewise not been successful in Amazônia Legal. A radical change in this situation was definitely not expected in the short term, since the conditions for industrialisation were more unfavourable in the North than in the North East.

The slow expansion of industrial employment was incidentally not entirely the consequence of unfavourable locational factors. Another fact is that the policy of the Brazilian government was not calculated to create a big demand for industrial labour. The financial incentives were creating a favourable investment climate, while the other conditions remained relatively unfavourable to industrialisation. These included the lack of skills of much of the potential labour force. Consequently, capital-intensive industries were the most attractive. Such firms derived the maximum benefit from the tax facilities and were not greatly dependent on the scarce available skilled labour supply. This meant that Brazilian and foreign industrialists and other sectors of the population owning capital profited from the financial incentives, while there was only a modest improvement in the opportunities for the mass of the population of the North. An approved industrialisation project produced on average 212 jobs. It was expected that the 171 projects which had been approved up to 1976 (during a ten year period) would give rise to a direct increase in employment of 43 826 jobs, at least when all the projects had been fully realised, which was by no means the case.⁴⁰ The average investment required to achieve this result was no less than 69 154 cruzeiros per job.

In order to form a correct picture of the employment effects, it should incidentally be noted that the number of direct jobs mentioned here will have to be reduced by the number of jobs that disappeared as a result of the closing of less viable and often smaller enterprises, which were not able to compete. No research has ever been done on the magnitude of this effect. Nor were any reliable data available about the indirect employment which was to be expected or had already been created. There was probably relatively little of this, since many firms had only a few linkages with other industrial undertakings. This applied in any event to many new firms in Manaus and had also been observed among a lot of the firms established in the North East to benefit from fiscal advantages. The situation in Belém, Manaus and other places was therefore probably similar.

It may be concluded that the population of Amazônia Legal had so far experienced only modest advantages from the policy of encouraging industry. There had been no great improvement in urban employment.

A considerable part of the capital with which approved SUDAM projects had been or were being realised came from the Centro-Sul. In 1970 as much as nearly 81% of the applications for the benefits of the *incentivos fiscais* came from São Paulo, Guanabara, Rio Grande do Sul, Paraná and Minas Gerais. The amount of tax money involved represented more than 87% of the total applied for.⁴¹ The picture has not changed since then. This means that a considerable part of the profits to be earned by the industrial projects will benefit industrialists and other capital-owning population groups in the South East. Since part of the industry there was in foreign hands, part of the profits

40 An unknown proportion of the jobs is already included in the employment to be created by the 138 projects approved by the SUFRAMA, since the enterprises in Manaus are able to benefit from the facilities of both the SUDAM and the SUFRAMA.

41 The projects concerned include both industrial and others (Miranda 1973, 7).

additionally flowed to foreign countries. As far as industry was concerned, the North threatened to become increasingly a dependency of the South East.

This was all the more so since various industries which were established in the North through local initiative were threatening to fall into the hands of industrialists from the more developed South East or from the United States. The weekly paper *Opinião* pointed out at the time that a number of enterprises had already been sold or would shortly be taken over. Among the examples given were FASA (match industry), Parquet do Pará, SIDERAMA (iron and steel industry) and ESTANAVE (shipbuilding). The industries concerned were generally those on the verge of bankruptcy or, in any event, those which had financial problems as a result of unfavourable production circumstances, such as increasing competition from South-Eastern industry, the low purchasing power of the population and insufficiently skilled personnel. The paper also pointed out that the Banco da Amazônia was not unfavourable to such sales, since it did not find the continual advancing of credit to economically unhealthy enterprises attractive. It is not surprising, therefore, that the SUDAM also tried to encourage the merging of regional enterprises with larger and more modern concerns. The majority of the undertakings which had lost their independence by 1975 passed into the hands of industrialists from São Paulo.⁴²

The expansion of large-scale livestock farming

Examination of developments in the agricultural sector reveals that there was a considerable expansion of cattle farming in the late 1960s and early 1970s. Glaser pointed to the obtrusion of large-scale cattle farming near the Belém–Brasília highway and the road from Cuiabá to Porto Velho, among other places (Glaser 1971, 22–24). Figure 4 shows that the livestock farming projects of the SUDAM were concentrated predominantly on the southern and eastern fringe of Amazônia Legal (central Mato Grosso, northern Goiás and eastern Pará). These are areas which, although situated within Amazônia Legal, actually lie on its periphery. This means that the vegetation in many places is not as dense as in the more central part of the Amazon basin. It mostly consists of *cerrado*, *cerradão* and *mata fina*, i.e. of tree savannas and a tropical forest forming a transition to the *selva*. This southern peripheral zone is relatively favourably situated in relation to the more populated areas of Brazil, so that the transport of meat and animals was not too difficult and expensive. Besides relatively favourable communications with the consumer markets in the South East, North East and North (Belém), these regions possessed the advantage of being relatively easily accessible for the owners of the *fazendas*, who largely lived in South-East Brazil. Although they were absentee owners, they could nevertheless remain well-informed about the fortunes of their estates.

The new – or modernised – enterprises concentrated mainly on beef production. In most enterprises arable farming was either subsidiary or completely absent. The *fazendas* were planned on modern lines, as appears from such things as the purchase of highly productive breeds of cattle, the laying down of fenced “leys” and measures to combat disease. In this respect their management differed from that which had traditionally characterised livestock farming in the region (Pinto 1971, 14).

42 *Opinião*, 20 a 27 de agosto de 1973 pp. 8–9 (“O sul vai ao norte”).

During the 1960s circumstances had been generally favourable for the expansion of livestock farming in Brazil. There was a still increasing demand for meat, both on the home and the foreign market (Ramalho 1971, 41). This growing demand could be met through the intensification of livestock production on the existing grassland area, but in many instances it proved more advantageous not to intensify, but to expand the area of grazing land in those regions where land prices were still low. Since the land had been made still more accessible around 1970, an expansion of livestock farming became possible in a considerable part of the interior. Certain parts of the Amazon region now also belonged to the zones which were attractive for conversion to pasture lands.

Table 4. The number of farming projects approved by the SUDAM in Amazônia Legal up to January 1st, 1973

State/Territory	No. of projects	Total area in hectares	Investment in cruzeiros x 1000	Expected no. of jobs
Mato Grosso	184	5 049 000		9622
Goiás	25	1 599 000		1043
Pará	91	1 408 000		3515
Amazonas	12	115 000		436
Rondônia	1	30 000		60
Maranhão	5	73 000		139
Roraima	-	-		-
Amapá	-	-		-
Acre	-	-		-
Total	318	8 274 000	2 445 843	14 815

Source: Pinto (1971, 14).

For various reasons preference was given in many places, particularly in the Amazon region, to livestock farming over arable farming:

- the soils proved to remain productive for much longer when used for grazing rather than for arable farming;
- arable farming required more labour, which was still scarce in large parts of the region;
- cattle are mobile and could therefore be transported more easily to the centres of consumption than was the case with arable crops;
- certain other conditions also, such as the level of prices, made livestock production more rewarding than arable farming (Glaser 1971, 24).

It was indeed not only farmers who found cattle farming considerably more attractive than arable farming. It was also attractive to those who thought in terms of national security because, in its extensive form, it required large areas of grazing land. This made extensive livestock farming a source of livelihood that enabled considerable areas of land to be taken into use with relatively little effort. Just as the Portuguese were once able to occupy a large part of eastern Brazil by using it for extensive cattle farming, so now a part of the vast Amazon region could be integrated into the economy with relatively little manpower and thereby protected from possible foreign occupation.

As had often been the case in the past, the recent expansion of livestock farming was again concerned with an activity that was practised almost entirely on large or very large holdings. As long as land prices remained very low, extensive grazing was the most attractive practice. Livestock farming could also be managed more rationally on a large holding and business credits obtained more easily. In addition, certain measures that were necessary for modern farming practice in a tropical environment, such as the purchase of high-grade breeds of cattle and the combatting of cattle diseases, were an expensive matter, within the means of only financially strong entrepreneurs. Such people were also able to bear more easily the loss of cattle, which was still great in the humid tropical environment because of various diseases. The dominance of the large enterprises in *Amazônia*, however, was by no means only the result of economies of scale. The financial facilities of the SUDAM also greatly contributed in the early 1970s to making a more capital-intensive form of livestock farming attractive. The new agricultural holdings consequently had areas ranging from thousands to tens of thousands of hectares. They were owned by wealthy individuals or undertakings (often limited companies), which possessed the necessary technical knowledge to enable them to farm by modern, rational methods. The developments were therefore the same as those observed by Brücher in Colombia, where the expansion of the modern type of livestock farming was realised through the establishment of large, well-capitalised holdings.

It is incidentally not surprising that the favourable investment climate often resulted in over-hasty and ill-considered action. Insufficient study was made of possible difficulties, with the result that many of the projects had made insufficient progress. The SUDAM had not taken enough measures to prevent this.

The main beneficiaries of these large-scale ranching enterprises were the capitalists and large businesses of the *Centro-Sul*. It was mainly these people who had found in cattle ranching an attractive field of investment for their tax money, thanks to the fiscal facilities of the Brazilian government. Even many industries and banks which originally had nothing to do with cattle farming had begun to invest in ranching enterprises. Examples were Camargo Corrêa (a building firm), Liquigas, Nestlé, Goodyear, Eletrobras and Volkswagen do Brasil. Among the investors were many large concerns in which much foreign capital had also been invested. This meant that some of the profits from these projects would again flow abroad.

A few figures will illustrate the importance which the *incentivos fiscais* had for the development of livestock farming. According to Table 4, a total of 318 farming projects had been approved by the SUDAM up to 1st January 1973. In 1976 it had approved 335 projects. Detailed figures would show that nearly all of these were livestock farming projects. These involved a total investment of 7200 billion cruzeiros, of which 5500 bil-

lion (i. e. 73.64%) consisted of money owed in taxes.⁴³ The remainder was the applicants' own capital or could be obtained from other sources. These combined investments accounted for no less than 39% of the total investments involved in all the projects approved by the SUDAM up to January 24, 1973 (industrial projects, 38%) (Lopes 1973, 50). This shows clearly that livestock farming was one of the most attractive sectors in which to make capital productive in Amazônia Legal.

Livestock farming was, in fact, one of the most dynamic sectors of the Northern economy in the early 1970s. Various official Brazilian publications, therefore, stated that the SUDAM's *política de incentivos fiscais* was a great success, especially in the livestock farming sector. Thanks to the *incentivos fiscais*, in particular, and the way in which the SUDAM used these facilities, there was a spectacular expansion of livestock farming.

The total area of the 335 projects which had been approved by the SUDAM was no less than 7860 846 hectares, giving an average of 23 465 hectares per project. The average investment was 15 569 million cruzeiros. Condurú mentioned that some of the projects exceeded 30 000 hectares in area (Condurú 1973, 10). Some comprised an area of several hundreds of thousands of hectares. A well-known example in this connection was Ometto from São Paulo, a company which owned 678 000 hectares. Its cattle ranch (Fazenda Suiã Missu) had 30 000 cattle in the early 1970s, but an increase to 125 000 was anticipated (Wagley 1974, 9). Among the most powerful enterprises was the Companhia de Terras da Mata Geral, which was responsible for five large livestock farming projects. Another important group was that of São Paulo e Celso Garcia Cid, which had already purchased 800 000 hectares in the North at the end of the 1960s (SUDAM, *6º aniversario da SUDAM* 1972, 2).

Realisation of the 335 projects would make possible a cattle population of more than 6.2 million head. This expansion would better enable Brazil to meet the increasing home demand for meat and to develop as an exporter. Against this positive aspect it should be remembered that larger exports also meant a greater dependence on external markets.

Many *fazendeiros*, in laying down pastures, made use of arable farmers, with whom they concluded share-cropping contracts. They permitted the share-croppers to practise shifting cultivation for two or three years. After the land had been burnt over a few times it was suitable for the sowing of grass and was taken into use for grazing. In this way the *fazendeiros* came quite cheaply into the possession of grazing land, especially since they also obtained a large proportion of the harvest (mainly rice) within the terms of the share-cropping contract. The share-croppers, however, found work for only a limited period of time and, after a few harvests, had to seek a living again on another piece of land. The result of this situation was that arable farming provided work only temporarily and to a limited degree (Glaser 1971, 29).

Clearing sometimes took place in a different manner. On the King Ranch, about 300 miles south of Belém, about 180 000 acres were cleared of forest with the aid of heavy tractors, between which were stretched iron chains. Because the latter had heavy iron balls attached to them, they remained close to the ground as they were drawn forward by the tractors and uprooted a large number of trees in a short time

43 335 approved agricultural projects, concerned with the expanding of beef cattle, involved an investment of 5215 thousand million cruzeiros.

(Foland 1971, 72). In such cases the clearing of the land provided relatively little work for temporary labour.

Apart from machines, in order to speed up the work, use was also made of defoliants distributed by DOW Chemical and said to be derived from the stocks laid up by the Americans for the war in Vietnam, although differing somewhat in composition.

The maintenance of the pastures and the tending of the cattle was usually limited to what was strictly necessary, so that cattle farms of thousands of hectares gave employment to only a few men. Glaser states that it was not unusual to find 1 cowherd looking after 250 animals, and the C.E.A.S. report gives the example of a holding of 200 000 hectares with only 300 workers (Glaser 1971, 33; *Amazônia – integração e marginalização* 1973, vol. 1, 19).

Table 4 shows that the expansion of employment from the realisation of 318 projects was estimated at only 14 815 jobs, or one job per 560 hectares. It also has been calculated that the 335 projects approved up to 1975 since 1966 would provide direct employment for a total of only 16 851 people (if they are fully realised).⁴⁴ This gives an average of 50.3 jobs per project or 2.3 jobs per 1000 hectares. Labour requirements after the initial clearance phase were extremely low. This means that there was scarcely any reduction of population pressure as a result of the projects. They encouraged, moreover, the further expansion and consolidation of large estates.

It has been stated in defence of the labour-extensive land use that the labour supply was small in the thinly inhabited territories. This was certainly true in the 1960s and 1970s, but the reason is that the economic activity in the past consisted largely of extensive livestock farming, which provided hardly any employment. It prevented large-scale migration to the interior. The further expansion of labour-extensive types of farming that occurred in the 1960s and 1970s was, in fact, only consolidating the existing situation in the countryside. It could result in an intensification of land use being made more difficult in the more distant future, thereby preventing a rise in the absorption capacity of the agricultural sector. This expansion of labour-extensive land use constituted, in fact, one of the major negative aspects of the development at that time.

By the end of 1973, the large livestock holdings occupied only a modest proportion of the Amazon region, but more disturbing than the small proportion was perhaps the fact that the creation of extremely labour-extensive large-scale holdings (often on land suited to arable farming) seemed to be increasingly possible, and this in a country where the system of large estates had been a significant factor in the emergence of underdevelopment and where the prevention of the further expansion of such estates might be an important means of avoiding an accentuation of the underdevelopment.

Although there had been a less rapid expansion of livestock farming in Amazônia Legal during the two or three years before 1973, one may not conclude from this that the process of occupation would shortly afterwards no longer be largely dominated by livestock farming. It was probable that, in the following years, much forest land would still be converted into pasture and that this would often take place within the system of large-scale holdings. The following are the arguments, not necessarily in order of importance, for this expectation:

44 Data supplied by the SUDAM.

- The SUDAM was still creating through the incentivos fiscais an attractive investment climate, although certain recent provisions had made it somewhat less favourable than during the late 1960s.⁴⁵
- There would continue to be a good market for cattle products, both at home and abroad, during the following years, so that investments in livestock farming would certainly yield a return (Ramalho 1971, 41). In many instances, livestock farming would be more profitable than arable farming and involve fewer problems of realisation than industrialisation.
- The accessibility of the Amazon region would be considerably improved in the near future through the realisation of the great highway construction projects. The roads that had been completed until then had always resulted in a marked expansion of livestock farming.
- The experiences with the breeding of zebus and with crossings between zebus and “European” cattle races had until then been favourable and had created breeds that were well adapted to the humid tropical climate.
- It was also being increasingly realised in Brazil that many tropical forest soils were little suited, because of their poverty, to simple forms of arable farming (shifting cultivation), but that they lent themselves quite well to the practice of livestock farming. Glaser noted that the recently laid down pastures still showed no signs of exhaustion after several years despite a lack of the application of fertilisers, while arable fields did show such exhaustion. Experts of the IPEAN reached similar conclusions in respect of land that had been taken into use about ten years earlier. Their findings agreed with those of Brücher in Colombia. Glaser added the comment that the forest soils of the Amazon region were better suited to livestock farming than the savannah lands of western Brazil. This is why some cattle farmers had already sold their holdings in the latter region in order to start new, larger and more modern fazendas in the more northerly areas (Glaser 1971, 25–30).
- Part of the tropical forest lands had already come into private hands, so that large estates already existed in various places. Moreover, it was still possible to acquire large areas of land cheaply by legal and illegal means (*Bispo ataca marginalização...* 1971, 141 ff.).
- The Brazilian government supported a further expansion of the large livestock holding run on modern lines by skilled proprietors. As a result of such expansion large areas of land were occupied in a short time and Brazil was also able to develop into one of the world’s largest meat producers and exporters. In order to achieve this, the government was thinking both of an expansion of livestock farming in those parts of the Amazon region which were already occupied, as well as an expansion into regions where no modern livestock farming projects had previously been realised (including Acre and Roirama) (Tocantins 1973, 5).

Experts of the Banco da Amazônia had already begun mapping and survey work for the purpose of realising specific projects. Brazil also hoped to be able to carry out a programme of incentives with money from the International Bank for Reconstruction and Development. This would require a sum of about US\$ 500 million (*Boletim Informativo* 489, 14 August, 1973). It was by no means unlikely that, in the near future, foreign

45 For further details see “Conclusions: Looking back and looking ahead.”

capital would be called upon to a greater extent, since the desired expansion could be more speedily realised with the support of foreign investors and it might also be easier to gain export markets.

The expansion of large-scale livestock farming just described certainly did not occur wholly without conflict and social injustice. The rural population frequently experienced the disadvantages of the expansion of large estates encouraged by the policy of the government. Land was often bought up at low prices by aggressive real estate brokers, who resold large areas to interested capitalists. *Posseiros* (squatters), who settled in many places on uncleared land to make a living from a little subsistence agriculture, were often found to be a hindrance to the creation of large holdings or the exploitation of large estates. As a result they were expected to leave or to sign a declaration that they would leave the land within a short time. In favourable instances they received compensation, although little account is taken of the fact that the clearances of the *posseiros* considerably facilitated the creation of grazing land. In many instances, however, they simply had to disappear, willingly or otherwise. Many owners of large estates had no compunction in destroying the harvest, setting fire to the *posseiro's* homestead or using other forms of violence to make clear what was expected of the occupants. Generally *pistoleiros* were employed for the purpose. The police were often unaware of these cases, or heard of them too late or even turned a blind eye, choosing in so doing the side of the big landowner. The latter incidentally often also applied to other government functionaries, such as magistrates and governors.⁴⁶ Such conflicts between *fazendeiros* and squatters were expected to continue, especially where land was taken into use that was already accessible and could therefore easily be occupied by simple shifting cultivators.

The position of the shifting cultivators was scarcely more favourable than that of the squatters when they had the status of tenant farmers. Although the tenants did not run the risk of being driven from the land totally unexpectedly, they had to be satisfied with unfavourable tenancy terms. According to Alberto Tamer, many tenants had to give up one half of the rice harvest to the landowner, who had the advantage that, after a few years, he could use the land for grazing (Tamer 1971, 91 ff.).

It also appeared that the expansion of large-scale livestock farming led to a number of reprehensible practices in order to obtain labour for the necessary reclamation works. There was, in general, little enthusiasm to go and work in the interior of Brazil as a labourer, mainly as a result of the unfavourable working conditions. Consequently, manpower was scarce in many areas. Nevertheless, quite a large number of workers was sometimes required for a period of time, such as during the laying down of a cattle *fazenda*. This meant that the *fazendeiros* had no choice but to pay higher wages or resort to recruitment by trickery. They often chose the latter alternative. As a result, all kinds of inadmissible crimping practices occurred.⁴⁷

The crimps (*gatos*) often operated in common lodging houses, simple cafes and brothels in the small towns along the road from Belém to Brasília and in the larger and smaller centres of the North and North East. They usually recruited the necessary manpower by promising poor wretches who had little to lose high wages and other favourable working conditions. Sometimes they also repaid temporarily the debts of the prospective labourer. The *empreiteiros* carried the responsibility for this procedure,

46 See also Glaser (1971, 27 ff.).

47 A description of these practices to be found in the article by Coutinho and Barbosa (1973).

which meant that the landowners did not run the risk of serious trouble with the law if the means by which the workers were recruited were unexpectedly discovered.

Some labour contractors not only recruited the workers, but also saw to the transport to the area where they were required and took charge of the clearance work to be carried out. In such instances, the *empreiteiro* bore all the responsibility and this was often acceptable to the landowners. The latter had only to pay the contractor the agreed sum and they did not run the risk of coming into conflict with the law when it unexpectedly appeared that the workers had been recruited in a reprehensible manner. Other labour contractors, on the other hand, simply delivered workers to the *fazendeiro*, who then himself had to ensure that the necessary work was satisfactorily carried out.

Generally, the promised high wages were not paid and, in spite of promises to the contrary, deductions were usually made from earnings for meals and the cost of transport. In consequence many labourers received very little for their work. This was even more the case if they had also been compelled to buy their necessities at high prices in the *fazenda* shop. The undesired departure of workers was prevented by not paying the wages until the end of the term of employment or by the use of armed guards. Anyone who tried to flee ran the risk of being shot and finding a grave in the forest. The meals were often bad and monotonous. All kinds of basic facilities were lacking, such as medical treatment centres to deal with illnesses and injuries arising from the heavy work. Anyone complaining about his health was sometimes more likely to be injected with alcohol than to receive adequate treatment. Stated briefly, it often happened that all social laws were trodden underfoot. The police and legal authorities took insufficient action against these abuses of power by big landowners, *empreiteiros* and land speculators, while the SUDAM failed to check what happened in the projects it had approved. Consequently, there were frequent reports in the Brazilian press which showed that their reprehensible practices were by no means a thing of the past. That these were not at all isolated occurrences appeared, for example, from the fact that North Brazilian bishops felt it necessary to discuss in detail the behaviour of the *fazendeiros* and *empreiteiros* and to make a protest to the government.⁴⁸ They also considered what could be done about it by the church at the local level. The increasingly frequent defence of the poorer classes by the church had already caused difficulties for various bishops and led to the issuing of threats against several church dignitaries.

Valverde has observed with reference to these conditions that, in 1972, *nordestinos* and other poor Brazilians were still misused. In his view, conditions of slavery existed, as they had done during the rubber-gathering period. Apart from being noted by the geographers Valverde and Glaser, these abuses were incidentally also noted by Dom Pedro Casaldáliga, the bishop of São Felix (in N.E. Mato Grosso). As a result of the Brazilian government's *incentivos fiscais* many large livestock farming enterprises were being established in his diocese, but the local population experienced various serious disadvantages from them. The land was bought up at low prices by land agents, who resold it in large parcels to interested, wealthy individuals. As a result, the squatters were forced to leave the land, while those who were later able to come and work on the land as labourers were shamelessly exploited.

Many of those in search of work were aware that *gatos* operated on the labour market and sometimes already knew from first hand that the fine promises meant little,

48 Their discussions led to the appearance of the publication "Pastoral da Terra" (1976).

but use was still repeatedly made of the services of crimps. Other possibilities of finding work often scarcely existed.

It need hardly be said that in areas where an atmosphere of violence, aggression and exploitation surrounded the small farmers and workers, the Indigenous were also a much-threatened population group. They, too, were often driven off the land or were simply rounded up.

Valverde made the suggestion that the government should take charge of the recruitment of labour in the larger population centres. He also proposed that the *fazendeiros*, who were able to establish or modernise estates with taxation money as a result of the government facilities, should be compelled to recruit their workers exclusively through the official labour bureaux. A third suggestion of his was that the government should control the working conditions. Unfortunately, many practical difficulties stood in the way of the realisation of these suggestions, which probably partly explains why the abuses were not been firmly dealt with.⁴⁹

The expansion of tropical tree and shrub crops

The expansion of tropical tree and shrub crops which was considered possible was still at its very beginning in the mid-1970s. There had not been, in recent years, any noteworthy increase in the cultivation of oil palms, rubber, cocoa, pepper or other perennial crops, although steps were being taken to bring about such an increase.

As far as natural rubber was concerned, Brazil was trying to double production by 1980, so that imports would be unnecessary. In order to achieve this, a start was made in Belterra (area of the former Ford plantation) with making provision for the raising of 1 million young rubber trees. Apart from in the area near the road from Cuiabá to Santarém, it was the intention to encourage rubber cultivation in Acre. A start was also made near Altamira with the growing of 200 000 young pepper plants and cocoa trees were being raised near Altamira and Manaus, among other places. Preparations were also being made for a rapid expansion of the areas for coffee and sugar cane. The cultivation of oil palms was limited to experimental plots of a few thousand hectares at the time.⁵⁰ An effort was made to intensify the cultivation of babaçu palms within the context of an experimental project in the municipality of Governador Archer (10 000 hectares).

Special credit facilities had already been made available to encourage the commercial cultivation of these and other crops in future years.

49 The foregoing is derived mainly from the publications of Glaser (1971) and Valverde (1972), as well as from the anonymous article *Bispo ataca marginalização...* (1971).

50 Figures in this section derived from Ministério da Agricultura (1972a, 26 f.), and from *A Sudam e a cultura do dendê na Amazônia* (n. d., 7).

The development of forestry

In order to be able to exploit the forest more intensively in the future, the SUDAM began to make further studies of the forest resources. In so doing, it was studying particularly the potentialities for the use and regeneration of the tropical forest. It was also experimenting with reforestation. In addition, it began to train foresters and workers for the woodworking industry. Lastly, studies were also made of modern, mechanised extraction and processing techniques (*Industrialização de madeiras* 1970).

In the forestry sector, too, the development process was only at its beginning. Timber exploitation was still relatively modest. The North still provided only a small proportion of the total quantity of timber felled in Brazil, although an expansion of timber exploitation had been recorded in recent years.

It was not only in the livestock farming sector, but also in that of forestry that enterprises of tens of thousands of hectares had already been created. Here, too, a number of circumstances related to the nature of the environment had made the establishment of large enterprises advantageous. The industrial complexes mentioned earlier would certainly require more than 100 000 hectares in order to function properly. The encouragement of such undertakings had already been recommended by experts of the FAO, who had surveyed part of the Amazon Forest. In their view, enterprises with very large areas of forest at their disposal, permanently or for a very long period, such as a century, would be more interested in total utilisation and reforestation than would small enterprises with short-term exploitation rights (*Levantamentos florestais realizados pela missão FAO na Amazônia – 1956/1961*, 1974, 1, 10; Knowles 1971, 18 f.). The establishment of large enterprises was also encouraged by the financial facilities of the Brazilian government, which created an attractive climate for the large, capital-intensive enterprises.

Among the most important undertakings was that of Georgia Pacific (Companhia Amazônia de Laminados), which purchased 640 000 acres of forest in the municipality of Portel, mainly with the intention of starting the large-scale manufacture of veneers and plywood (Foland 1971, 72; Filha 1971b, 76).

Bruynzeel Madeiras S.A. (BRUMASA) owned about 200 000 hectares of forest on the island of Marajó and in Amapá and produced annually about 25 000 cubic metres of plywood, chipboard and other wood products (Panagides and Vande Lage 1973, 24).

These enterprises had purchased forest in parts of the Amazon region where surveys had already been carried out (by experts of the FAO and others). It was then demonstrated, *inter alia*, that the stands of forest on the island of Marajó were of great importance. According to Irene Garrido Filha, these enterprises knew very well, therefore, what they were buying (*Levantamentos florestais realizados pela missão FAO na Amazônia – 1956/1961* 1974, vol. 1, 10; Filha 1971b, 76).

A third great enterprise was *Jari, indústria e comércio*, forming part of the National Bulk Carriers group. It had bought 1.21 million ha. of land in the municipality of Almeirim (Pará), with various aims in view, including timber production. The firm was experimenting with the planting of *Gmelina arborea*, a tree that flourishes in the Amazon Basin, grows rapidly and is a suitable raw material for paper manufacture. Some 80 000 hectares were already reported to have been planted by 1969 (Martelli 1969, 136; Falesi *et al.* 1972a, 62).

In addition, there were various smaller enterprises, both Brazilian and foreign, which were exploiting the forests for the extraction of timber and the manufacture of wood products, thereby profiting from the Brazilian government's *incentivos fiscais*.

From August 1973, the export of round timber on a large scale was no longer possible. The timber had first to be processed before it could be exported. This measure could encourage the processing industry still further.

The developments in the mining sector

Since the end of the Second World War, the emphasis in the mining sector had been entirely on the exploitation of manganese and tin ore. Rich manganese deposits occurred near Serra do Navio, in Amapá. Their exploitation began in the 1950s after the construction of a railway between the deposits in the interior and the port of Macapá, and after the port facilities had been expanded. The first shipload of manganese ore left the port of Macapá in 1957. In 1969, the Brazilian–United States undertaking which owned the concession exported 1.4 million tons. At that time, manganese ore had been the North's most important export for some time and it accounted for 37.6% of the total value of exports from the region in 1970 (Kleinpenning 1973, 148; Panagides and Vande Lage 1973, 8).

A more recent development was the rise of tin mining of Rondônia. This was mainly the result of the opening of a road link between Porto Velho and São Paulo in 1965, which first made it possible to transport the ore by lorry to the processing plants in South-East Brazil (Volta Redonda). In 1960 Rondônia produced only 49 tons of tinstone. Rubber, Brazil nuts, hides and skins and a few kinds of vegetable oil were still the most important exports from the territory. In 1973, the first place was occupied by tin ore. Production in 1970 was estimated at 4000 tons. Mining would be expanded still further in later years and, in order to facilitate this, the army had already constructed a road to link Ariquemes with Guajará-Mirim. Consequently, it was no longer necessary to transport a large part of the ore in small aircraft to the collection centre at Ariquemes, but it could be loaded directly into lorries (Kleinpenning 1973, 148–149).

Various other roads had also been built in the years before 1973 to make the ore reserves more accessible.⁵¹ Moreover, as a result of extensive exploration, much more had become known of the mineral wealth of the Amazon basin. Up to 1973 the SUDAM had approved 20 private mining projects involving an investment of 700 million cruzeiros (SUDAM/Banco da Amazônia 1972, 19). Nevertheless, one could not yet speak of a spectacular expansion of mining. Government and private projects were still at the stage of further exploration and preparation. However, a considerable intensification of mining could be expected in the years to come.

It was expected that the exploitation of iron ore, in particular, would become of great importance. In order to facilitate the winning of the enormous reserves in the Serra dos Carajás, the Companhia Meridional de Mineração was established in 1970. 51% of the shares of this company were held by the Brazilian Companhia Vale do Rio Doce and 49% by the American concern United States Steel. The daughter company

51 The Transamazônica had already made it possible to transport workers and materials as far as Marabá, i. e. 150 km N.E. of the Serra dos Carajás.

carried out detailed exploration and also prepared the exploitation in other ways. Studies had already shown that the transport of the ore could be achieved most expeditiously by means of a railway line to the port of Itaqui, which is situated near São Luis, 970 km from the mining area. Construction of the railway began in 1974.⁵² At the time, 500 hectares of land near Itaqui had already been reserved for the construction of an ore port (*Boletim Informativo* 494, 30 August 1973). It was hoped to begin mining the iron ore in 1978 and to achieve a production of 40 million tons.

At first the greater part of the ore would be exported. The *Companhia Vale do Rio Doce* would be responsible for the export of the ore, but certain rights were reserved to United States Steel. It would have the option of purchasing up to one half of the production at a price adjusted to the market situation. In addition to export, there might also be some processing within Brazil. In any event, the idea had already been put forward of establishing one or more steelworks on the northern coast, such as near São Luis.

The effect of the development measures discussed above. Summary

In the preceding sections attention has been paid to a few developments closely related to the measures taken by the government to integrate the Amazon region more closely into the national economy.

As far as the free trade measures are concerned, it was observed that these had led to an increase in commercial activity in and around Manaus, to further industrialisation, to the growth of tourism and to expansion of the construction industry. The consequent expansion of employment, however, was relatively slight. The free trade facilities led to a strong migration from the country to the city and this, together with the natural population increase, meant that the demand for work in Manaus outstripped the growth in the number of jobs, so that many inhabitants still led a poverty-stricken existence. Other negative aspects of the recent developments were the loss of foreign exchange, the increased competition for the traditional retail sector and the increased competition for regional and national industries. It is not possible, therefore, to pass a purely favourable judgement on the developments that occurred in Manaus up to the early 1970s.

As far as the longer-term future was concerned, much depended upon the degree to which labour-intensive industries could be persuaded to establish themselves in the heart of the Amazon region, where the locational climate was still relatively unfavourable in spite of all the government facilities.

A second strongly growing municipality in the early 1970s was Belém, which was the main area where industrialisation was stimulated by the *política de incentivos fiscais*. As in Manaus, however, the growth in the number of industrial jobs could not keep pace with the increase in population, so that the employment situation still gave cause for concern. A considerable proportion of the active population had to find a living in the tertiary sector, which showed clear signs of overcrowding.

In the agricultural sector the *incentivos fiscais* led mainly to an increase in the number of large livestock holdings. A positive aspect of this development was that livestock farming was beginning to take on a more rational and modern character, with better

52 It was estimated that about 10 000 workers would be needed for this.

production techniques being introduced from the South East. The large cattle ranches established at the time, therefore, made a relatively big contribution to the increase in agricultural production. The other side of the picture, however, was that the large holdings created very little employment and, because of their extensive grazing methods, they appropriated large areas of land. By doing so they limited the opportunities of small farmers (squatters or tenants) to find a living in the agricultural sector. Labourers had to accept unfavourable working conditions.

In the forestry and mining sectors, too, the *incentivos fiscais* encouraged capital-intensive, large-scale enterprise and the expansion of employment in these branches of the economy was also still very modest. Part of reason for this, incidentally, was that the projects had not yet been realised or only partially so.

The effects of the financial incentive measures on employment, therefore, were limited. The 502 projects approved by the SUDAM up to 1st January 1973 would create an estimated total of only 53 110 jobs, but this number would only be achieved when all the projects were fully realised (Lopes 1973, 50).⁵³ The financial incentives did not help to improve the existence of large numbers of migrants from other parts of Brazil, such as the North East. Their contribution to the solution of the socio-economic problems of the North East was virtually non-existent.

The conclusion seems justified that the Brazilian government, in its policy for the Amazon region, has been guided little or if at all by social motives, i.e. by the wish at least to increase and improve the opportunities of livelihood for the least well-off sections of the population. In our view, it aimed primarily at economic growth, the advantages of which have so far largely benefited the business community and the moneyed classes from the Centro-Sul and abroad who found an attractive investment climate in the North. As a result, the Amazon Basin was drawn more firmly into the sphere of influence of the more-developed South East and became more dependent upon it. For the mass of the population little changed.

The business groups from the South East were naturally most interested in the development of those zones situated nearest to the South East and the other more populated parts of Brazil. Such zones are favourably located in relation to the markets and can be reached most easily and frequently by the entrepreneurs. It is understandable, therefore, that the expansion of livestock farming occurred mainly on the southern fringes of Amazônia Legal and along the major highways, such as that from Belém to Brasília. It is also understandable that industrialisation was strongly concentrated in and around Belém. As a result, the spatial contrasts increased in the North.

The measures discussed above were probably also taken in the expectation that, thanks to the effects of economic growth, the government's prestige would be increased at least among the elite, if not among all levels of the population. The government may also have considered that they would help to accelerate the occupation of the Amazon region. The cattle ranching projects, in particular, within the framework of which large areas are cleared, were by no means unimportant when viewed as part of a strategy for greater national security.

53 Apart from the 167 projects in the agricultural sector, this figure includes 17 projects for *serviço básico* (jobs provided: 2879).

The danger of an increasing dependence on foreign countries

One of the possible dangers of Brazil's development measures could be that the country will become unhealthily dependent upon foreign countries.

From the early 1970s foreign capitalists interested in forestry and livestock farming enjoyed attractive terms for investing in Brazil. They also obtained large areas of land with the intention of exploiting the forest or taking up livestock farming (Georgia Pacific, Bruynzeel).

Foreign companies were also greatly interested in the mineral wealth, particularly the North American firms, whose market is largely in the United States, which is relatively near northern Brazil. United States Steel had already assured itself of an important share in the exploitation of the vast iron ore reserves in the Serra dos Carajás. Bethlehem Steel had large interests in the Indústria e Comércio de Minérios S.A. (ICOMI), which had control of the manganese exploitation in Amapá. Billiton had already obtained various concessions in Rondônia for large-scale tin mining as soon as the international market situation made this desirable and the Brazilian government had found a solution for the problem that the better deposits were occupied by simple tin-washers. A start had already been made with mining on a modest scale (Kleinpenning 1973, 149; Foland 1971, 74). In the Valle de Trombetas, where important bauxite deposits occur, three foreign concerns had already begun exploitation, namely, ALCOA (the most powerful firm in the field of bauxite mining), ALCAN (another large firm) and National Bulk Carriers. The latter firm had purchased about 1.2 million hectares of land on the left bank of the Jarí. The other companies had also acquired large areas of land and, according to Irene Garrido Filha, they knew very well what they were buying. The presence of minerals was an established fact (Filha 1971b, 76).

It is not precisely known which part of the Amazon region had come into the hands of foreign owners as a result of this interest in forestry, livestock farming and mining, but a parliamentary investigation of 1968 showed that 11 million hectares were involved in Pará, Amazonas and Roraima alone (Martelli 1969, 136). In reality, the areas were probably much greater. The fear of some Brazilians that the greater part of the North would gradually fall into the hands of foreign interest groups was not completely unfounded, therefore.

Various provisions existed to limit and place conditions on the purchase of land by foreigners or foreign undertakings. For example, a foreigner who purchased land had to come and live in Brazil within three years and to exploit the land. A further provision was that foreigners or foreign firms were not permitted to own more than a quarter of the municipality in which the land was situated. Moreover, persons and undertakings of one nationality were not allowed to jointly own more than 40% of the land in a single municipality. In the past, however, such restrictive measures had been repeatedly evaded and it was by no means unlikely that they would be evaded again in future years ("Lei sobre venda de terras á estrangeiros" 1971, 110–114).

One may ask, therefore, whether the Brazilian government's development and integration policy, which had as one of its official aims the avoidance of too much foreign influence, would not in practice lead precisely to a greater dependence on foreign countries. In view of the large amounts of capital and know-how required for primary production along modern lines, and in view of the dependence on foreign markets for minerals, timber and livestock products, it would not be easy, in any event, for Brazil

to pursue a policy that would enable it to remain complete lord and master of the riches of the Amazon region.

A circumstance that could encourage still further the flow of foreign capital was the fact that extensive foreign investments also had an important political advantage. They made possible a further economic growth, but they did not lead to a proportionate increase in the power of the national business community. In the view of Tyler and Rosenbaum this could encourage the stability of political power relationships and such stability would not be unwelcome to the Brazilian rulers (Rosenbaum and Tyler 1971, 421).

The criticism of the road building plans

It has appeared from the above that there were reasons to doubt whether the various measures to stimulate the economy would lead to a reduction of the state of underdevelopment and of the economic dependency of Brazil. Serious doubts were also expressed both in Brazil and elsewhere as soon as it became known that the government had spectacular and expensive plans for opening up the Amazon Basin by means of a number of great highways. The proposed construction of the Transamazônica, in particular, gave rise to a great many negative reactions. In Brazil, Alberto Tamer and Roberto de Oliveira Campos, especially, expressed serious doubts.⁵⁴

We can summarise their criticism and that of various other Brazilians and foreigners point by point as follows:

- The decision to build the Transamazônica was taken before the plan had been fully studied. The project was not the result of a detailed cost-benefit analysis of various alternatives. Nor was it considered whether the plan should have a high priority in relation to other road building projects in Brazil.
- Consequently, there could be a great danger of the road building projects leading to an enormous waste of money. Even if this did not happen, very large investments would still be required, which would make very great demands on the country's resources, perhaps even too great demands.
- The building of roads was not necessary for a more intensive exploration of the mineral resources. Such exploration could be carried out much more quickly and completely with the aid of modern air photomapping methods. Nor were the roads necessary for transporting the ores. This could be done much more cheaply by rail or waterways.
- The construction of a road like the Transamazônica was certainly not necessary for strategic reasons. Other countries also had vast areas that were scarcely inhabited and not served by roads, but they were able to control them. Examples are the north of Canada and the Soviet Union. If the building of roads was nevertheless considered necessary for strategic reasons, it would probably have been more sensible to build north-south than east-west routes, since political and economic power were concentrated in the Centro-Sul region.

54 See their publications about the Transamazônica (Tamer 1971; Morais *et al.* 1970).

- The Transamazônica would connect a scarcely inhabited and economically undeveloped region with a poor, over-populated and economically weakly developed region (the North East), which would be of little advantage for the progress either of the North or the North East. Roberto de Oliveira Campos characterised the Transamazônica as the link between a deserto árido and a deserto úmido (Morais *et al.* 1970, 108). In his view, the Amazon region would have been much better served by connections with the South East of the country, from where ultimately the most important growth impulses had to come. The comparison that was made more than once, in official publications and elsewhere, between the Transamazônica and the Belém–Brasília highway and the conclusions which were drawn in respect of the future development of the Amazon region were highly disputable, since the Belém–Brasília highway connected totally different regions.
- If it was intended to create more employment for the North East in the public works sector by means of the Transamazônica, only small numbers of workers would be able to benefit, since the road-building operation was highly mechanised. It would have been much better to undertake reforestation, irrigation works, further road building projects and similar activities in the North East.

Although the criticisms noted above may be regarded as valid in several respects, we nevertheless do not wish to use them as a basis for deciding whether or not the road building projects were justified. It seems to us that the latter is determined primarily by the extent to which the Brazilian government has succeeded in later years in achieving an extensive and successful colonisation that could make a real contribution towards solving the existing socio-economic problems, particularly those of the North East. We consider, therefore, that we cannot give a judgement of the road building projects until after a more detailed study of the colonisation plans and of the activities that were realised. In the following chapters much attention is devoted to these subjects.

