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THE ECONOMIC AND  
SOCIAL DEVELOPMENT  
OF  
BRAZIL  
(In eight volumes)

VOLUME V  
EMPLOYMENT AND EDUCATION IN THE NORTHEAST

March 12, 1973

America and the Caribbean Department

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## CURRENCY EQUIVALENT

Currency Unit: Cruzeiro. (Prior to May 15, 1970, the currency unit was called the "Cruzeiro Novo" or "New Cruzeiro", the adjective was dropped in May 1970, without any change involved.)

### Exchange Rates Effective December 15, 1972

Selling Rate: US\$1.00 = Cr\$6,215  
Buying Rate: US\$1.00 = Cr\$6,165

### Average Exchange Rates

US\$1.00	=	Cr\$4.594	Cr\$5.285
US\$1 million	=	Cr\$4,594,000	Cr\$5,285,000
Cr\$1 million	=	US\$217,675	US\$189,215

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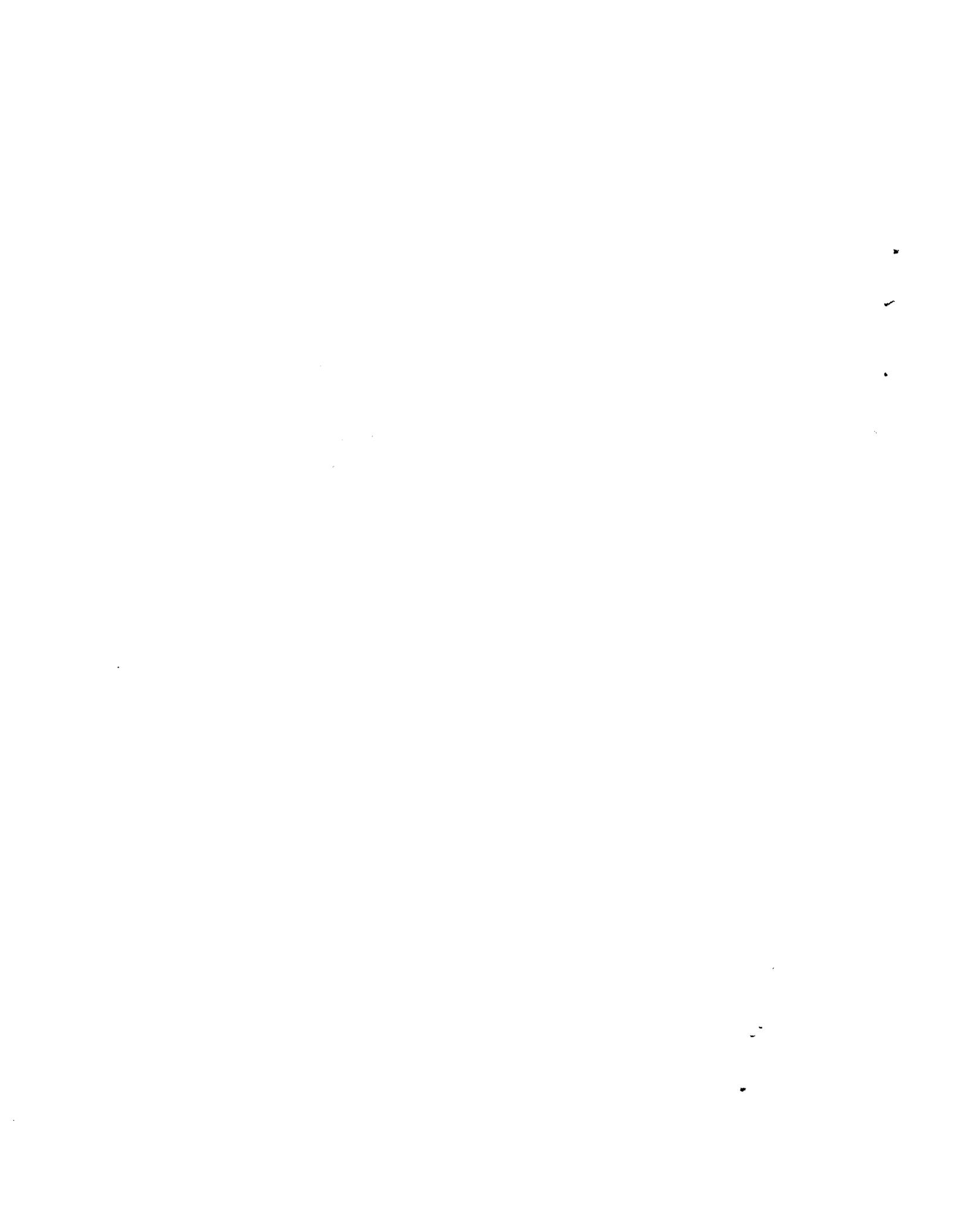
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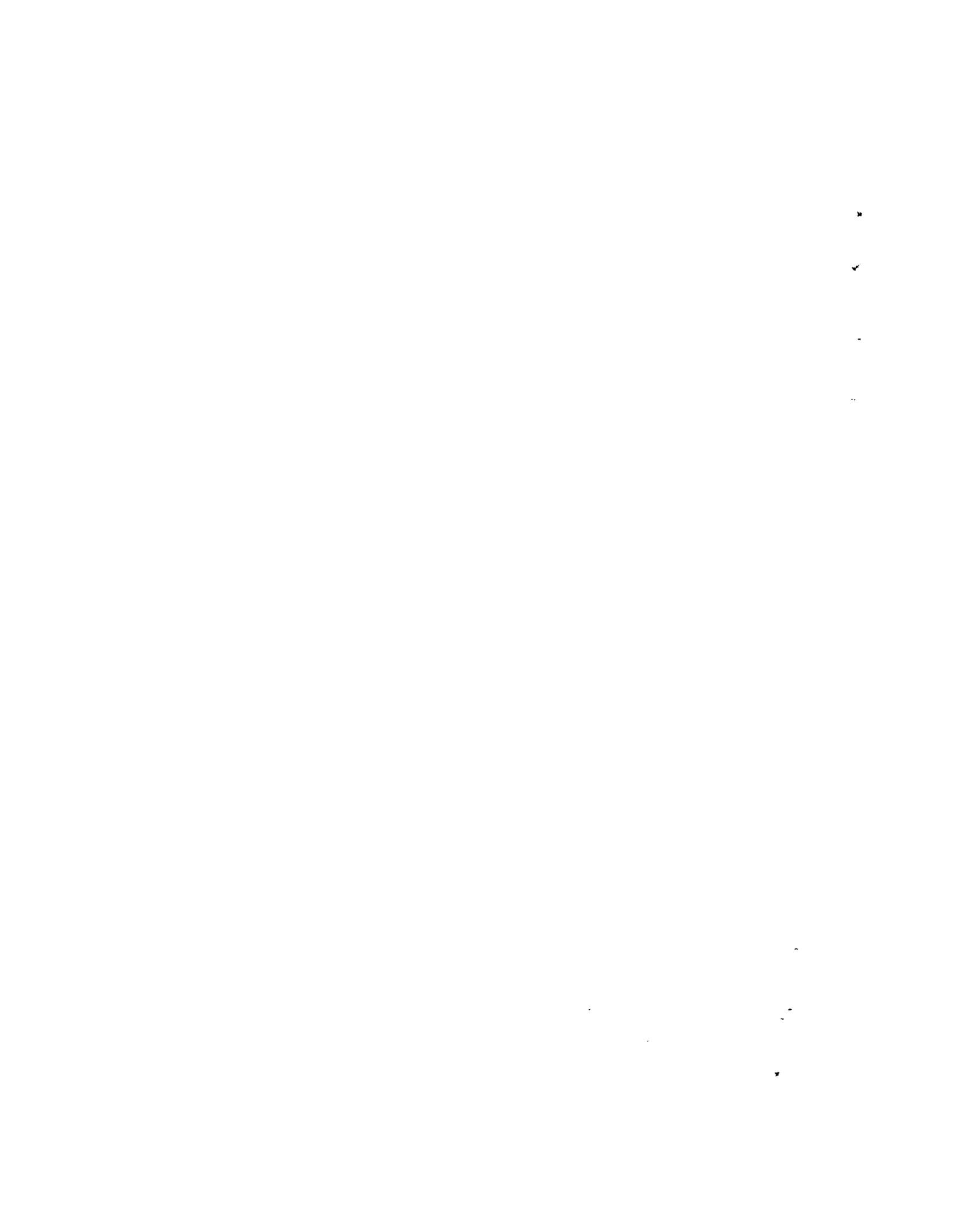


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## SUMMARY AND CONCLUSIONS

1. Conditions exhibited in the Northeast in recent years give a limit of progress which suggests that an era of transformation may, all else equal, be on the way. Progress, however, will inevitably be slow. Although employment growth rates recorded in recent years have increased compared to earlier periods, the impact of these increases on incomes is difficult to identify. Since unorganized urban employment has grown about as rapidly as organized employment, the transformation of labor out of agriculture has not automatically implied much higher incomes. Income growth in agriculture, moreover, appears to have been relatively stagnant compared to average income growth in the urban sectors, a fact which has implied some slight deterioration of income inequality. Although the region's overall production and employment growth have increased, it is nevertheless still only the continuing heavy outmigration of people which gives the region a slight lead in income growth, in per capita terms over Brazil as a whole. Some of the major findings, conclusions and recommendations on these issues are the following:
2. Population and Migration. A rate of natural increase of 3.0 percent for the region has been reduced by the outmigration to give a total population growth of about 2.5 percent per annum through the sixties. Although this is slower than for Brazil it implies a relatively greater pressure on resources on account of the much lower income levels in the Northeast.
3. Fertility declines appear to have begun in the region (the crude birth rate fell from 47 to 42 per 1000, 1960-70), although these are still less than those recorded by Brazil. Recent changes in official attitudes to family planning are discernible and this may signal a greater scope for this type of activity in the future. With infant mortality rates still in the range of 150/1000 and overall mortality rates still relatively high, the need for fertility declines is greater in the Northeast if population growth is not to exceed the national average.
4. The fact that 1.7 million people migrated out of the Northeast during the sixties implies that both absolutely and in terms of a migration rate (6.0 percent in the sixties, 4.6 percent in the fifties) outmigration has increased in recent years. This is surprising in a decade so untroubled by drought. The drought of 1970, however, could have been responsible for part of the increase.
5. Employment, Unemployment and Underemployment. The 1970 census records urban sector employment increases of 3.9 percent per annum in the inter-censal period as against a rate less than 3.0 percent for the previous decade. Industrial growth was largely responsible for this increase although the services sector still accounted for about two-thirds of all the new employment created through the sixties.
6. Alongside this growth in employment, there have been slight declines in both unemployment and underemployment recorded by the PNAD surveys. In 1970 the latter show unemployment at 2.0 percent and underemployment overall at about 21 percent, having declined respectively from

2.3 percent and 25 percent in 1968. Too great a significance, however, should not be placed on these declines. They may simply be cyclical.

7. Although industrial employment generation grew much more rapidly during the sixties (manufacturing grew by 3.1 percent as against a decline in employment in the fifties), this sector still provides only less than 11 percent of all employment. Further, about half of the employment growth in manufacturing may have been in traditional sector unorganized activities where incomes and productivity are low. Efforts to expand the capacity of modern sector manufacturing to absorb labor are therefore still a priority need.

8. Although SUDENE has a pipeline of 34/18-funded projects which, if implemented in the current decade, should create about 250,000 modern sector manufacturing jobs thus doubling the size of this sector, it is not clear whether the branch mix of projects represents the best allocation of 34/18 funds. Although SUDENE has concentrated on encouraging the so-called "dynamic" branches (those producing intermediate and capital goods), the cost per job in many traditional branches is much lower. Since some (admittedly fairly superficial) evidence suggests that output yields per investment unit is also higher in the traditional than in some of the dynamic branches, there may be a case for examining (a) why this is so and (b) whether a different allocation mix would not result in both more output and employment. As a general point, it is not clear whether the current "points" system may not be best substituted by an allocation procedure based on economic pricing rather than arbitrary point ratings.

9. Income Distribution. By all accounts, some of which are conflicting in some respects, the overall concentration of personal incomes within the Northeast has shown only slight changes during the decade of the sixties. Within this overall result, however, the evidence is that the income differential between agriculture and the urban economy has widened, to some degree, while in the industrial sector inequality appears to have increased quite markedly. In the services sector, although there was little change in concentration during the decade, the degree of inequality is still much greater than in the other sectors. These findings suggested the following broad policy conclusions:

- i. Increased efforts should be made to stimulate the growth of productivity and output in agriculture. In this respect the government programs to modernize and improve the efficiency in Northeast agriculture should be pressed ahead.
- ii. In industry, where part of the deterioration in equality has been due to a pattern of growth favoring relatively capital intensive operations, offering relatively high incomes to a minority of workers, the possibilities could be examined of encouraging a growth pattern favoring a broader spread of employment and incomes. A better set of effective relative prices for capital and labor may assist in this.

iii. In the services sector (no less than in industry) much too little is known about the nature of work activities in the branches in which the poorest groups are occupied. Nor is it known which groups, precisely, are involved. Even less is known about how the organized sections of this sector grow in relation to the rest of the economy. Research into these issues is a first priority.

10. From the estimates of the distribution of income within the region, it is in principle possible to assess the growth in income of the poorest groups in absolute terms. However, given the nature of the data available in this case, it is not possible to make estimates for the very poorest groups, but only the poorest 60 percent. For what they are worth the estimates show that incomes in this group grew at no more, on average, than 1.9 percent p.a. in real terms through the sixties, against a regional average of 3.3 percent. The figure of 1.9 percent, applying as it does to such a large section of the population, appears to suggest that some groups within the poorest 60 percent have incomes which probably grew very little, if at all, during this period.

11. Employment Policy. There is no very well-defined employment policy as such, neither in the Northeast nor in Brazil. There are, however, a number of important policy programs, including the various regional development and colonization programs which the Government has implemented which could equally be defined as employment programs as programs to utilize other kinds of resources in the country. In addition, there are specific labor-oriented policies such as that to redistribute the flow of migrants out of the Northeast (or at least to supplement traditional flows towards the Center-South with new avenues to the North and West); the education and literacy programs are also essentially related to employment.

12. The Government also has a well-defined wages policy, incumbent on the need to set fairly rigid guidelines on account of inflationary tendencies in the economy. Part of the policy, however, aims to gradually eliminate inter-regional wage differentials by progressive adjustments in the minimum wage of lagging regions, in excess of the amount warranted by inflation. There are some dangers in this course. Possibly productivity growth in all regions should be used as the guide for real wage increases.

13. Other needs in an employment policy relate to the need for a more developed urban labor market and for more research on the whole gamut of employment issues. Current proposals of various research institutions in Brazil are reasonably encouraging in the latter case.

14. Future Prospects. The expected growth rates in sectoral production found in the SUDENE plan for the Northeast imply on reasonable assumptions about employment-output elasticities, that the current decade could witness a transformation of the region's economy such that by 1980 less than 52 percent of its population will be in agriculture. This result, however, depends upon the outmigration of about 700,000 workers, i.e., a number roughly equal to the outflow during the sixties. Further, it takes no account of the

xisting backlog of underemployment. The extent to which underemployment will be reduced during this process of transformation will depend in the main on whether it is organized or unorganized activities which expand in the urban sectors. Per capita income growth overall, of course, will by definition also reduce some underemployment. However, per capita income growth of the order of 7.5 percent per annum as specified in the SUDENE plan, seem far too optimistic. Actual achievements are likely to be much more modest.

## I. POPULATION AND MIGRATION

1. On the basis of intercensal estimates, the rate of natural increase in the population of the Northeast was 2.9 percent per annum in 1970, the same as that for Brazil as a whole. This represents an increase of 0.3 percent p.a. in the growth rate over the decade of the fifties, a result which followed from an acceleration of the death rate relative to fertility declines during the sixties. However, in the period 1960-70 total population grew less slowly in the Northeast than in Brazil as a result of continuing outmigration from the region. Taking account of this factor total population grew at 2.5 percent p.a. during the latter period. These, and other demographic magnitudes are visible in Table 1 of the Statistical Appendix.

2. The fact that total population grew less rapidly in the Northeast than in Brazil cannot be taken as evidence that the burden of population growth is less serious here than in the nation as a whole; on the contrary, it is clearly greater. This is quite obvious at least in terms of the relative availability of land resources which are clearly less in the region than in the nation as a whole. But more than this, the fact that average income levels in the Northeast are only about half the national average implies that, at comparable rates of natural increase, the pressure of population growth on savable incomes is much greater in the Northeast. Hence the chronic outmigration, the historic option against the region's poverty.

3. To the extent that the outmigration and the poverty of the region itself result from the effects of rapid population growth, the prospects for the Northeast look much more dismal than for the nation as a whole. This is because the components of the growth in population in the Northeast are less advanced than in Brazil. Both birth rates and death rates are higher in the Northeast: the crude birth rate in 1970 was 42 per 1000 in the Northeast, 37 per 1000 in Brazil; the death rates were 13 per 1000 and 8 per 1000 respectively.<sup>1/</sup> Because death rates have farther to fall in the Northeast fertility declines have to be that much more rapid in order to achieve a decline in population growth comparable to that for the nation as a whole. In fact, they have declined relatively less rapidly.

4. Fertility Declines. As Table 1 shows, the decline in the crude birth rate in the Northeast accelerated during the sixties, falling 5 points

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<sup>1/</sup> One reason for the relatively high death rates in the Northeast is the continuing very high rates of infant mortality. These were about 150 per thousand live births in 1970 (the figure for Brazil is currently about 100 per 1000 live births. The average for Europe is less than 25). In 1960 the rate was about 180, reflecting a fairly steady decline over the decade. These figures may not, however, be very accurate as registration of births and deaths is not very reliable in the Northeast, particularly outside the major urban centers. A recent innovation plans to introduce into the PNAD surveys questions on births and deaths.

as against a decline of less than 1 point in the previous decade.<sup>1/</sup> Further, it appears that the decline reflects a real decline in fertility habits rather than an arithmetic decline in birth rates as a result of factors such as changing age structures of the population, and changes in the proportions of women who are married.<sup>2/</sup> There is, as expected, no established explanation for these trends but it seems consistent with the expected impact of the spread of education, urbanization and the growth in incomes all of which apparently accelerated to some degree over the rates achieved in the fifties. It is also true that the family planning agency BEMFAM has expanded its activities quite rapidly in the years since 1967 and this must have had some impact.<sup>3/</sup> However, this agency has only about 250,000 acceptors in the whole of Brazil of which only about 100,000 are in the Northeast, so the direct impact of its activities is probably quite limited. It is felt by researchers working in this field that a major block to lower fertility rates is the continuing high rate of infant mortality which itself may stimulate fertility. These researchers claim that a nutrition and health program must form a component of any major effort to reduce fertility.

5. Population Policy. The question of population policy as it relates to the issues of family planning, child spacing, etc., is still a

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<sup>1/</sup> These declines were slower than those in Brazil as a whole. In the period 1960-70 the crude birth rate for Brazil declined by 13 percent as against a decline of 10 percent for the Northeast.

<sup>2/</sup> Our calculations reveal that there was a decline in the proportion of women in the age groups 15-49 sufficient to have accounted for a decline in the crude birth rate of about 2.5 points per thousand over the decade 1960-1970. However, at the same time there was an increase in the percentage of married women in these age groups of an amount which, on reasonable assumptions about illegitimacy, would have implied an increase in the birth rate of about 2.5 points, i.e., about offsetting the effect of the change in age structure. The overall decline of 5 points per 1000 in the birth rate, therefore, appears to reflect changing habits.

<sup>3/</sup> BEMFAM stands for "Bem Estar Familiar" (Family Welfare). It is a private agency funded by IPPF and to some extent by the Ford Foundation, its chief aims being the provision of education in family health, welfare and family planning, the running of day care centers for children and the distribution of advice and methods of contraception (25 percent IUDs; 75 percent pills). It has 73 pre- and post-partum clinics in Brazil, 28 of which are in the Northeast. The rate of new acceptors has grown from about 12,000 in 1967 to 111,000 in 1971 and signs are this growth will continue. The IPPF which funded about a US\$1.2 million budget for BEMFAM in 1971 has voted US\$2.5 million for 1972.

very controversial one in Brazil with various social lobbies besides the Church and the press holding to more or less entrenched positions in the debate. Although there are some apparently forceful groups speaking in favor of family planning practices these seem to be in the minority of vocal groups. However, it is their belief that the vocal opposition to these practices that is heard tends to overstate the real feeling among the people at large in Brazil who, it is held, appear to be increasingly receptive to the idea of family planning.

6. The protagonists have explained the situation in the following terms: groups such as the National Federation of Bishops, who are really no more than mildly critical of birth control,<sup>1/</sup> and a group of physicians in the Guanabara Medical Society, who are very strongly critical, make good use of a press which, frankly, sees a controversy as newsworthy, but which may also tend to be "pro-natalist" in leaning. On the other hand, despite this resistance, BEMFAM presses ahead with its activities, pointing to the considerable visible growth in takers in recent years as good evidence of a basic receptivity among the people who can be put in contact with the BEMFAM clinics. The Government, in all of this, seems to play an ambivalent role which apparently prefers not to politicize the issue at all.<sup>2/</sup> BEMFAM claims that this passivity implies that the Government has no strong commitment either way but that in principle it reflects a feeling that the vocal opposition to family planning may not in fact reflect the best interests of the nation.

7. There is some recent evidence to support this insofar as the Government, both at the Federal level and the state and local levels, has been affording increasing support to the work of BEMFAM. In April 1971, for example, a Federal decree granted BEMFAM the status of "Utilidade Publica" (i.e., a non-profit utility of benefit to the community) which carried a real tangible advantage in that it enabled the granting of an exemption of payment of the social security contributions of BEMFAM staff, a saving equal to about 20 percent of BEMFAM's wage bill (i.e., a saving of about US\$120,000 a year). The decree also enabled the granting of a Federal Budget allocation to BEMFAM which, though only very small in 1971 (US\$12,000) is significant beyond the amount involved. The Director of BEMFAM has expressed confidence that future allocations will be substantially greater. In addition to these developments, BEMFAM also reports an increasing amount of cooperation at the level of individual clinics between its staff and the local authority and state government, the latter having responded by supplying buildings, facilities and sometimes personnel to assist in BEMFAM's work.

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<sup>1/</sup> The opposition of the Church, however, is by no means confined to the making of statements alone. BEMFAM is often visited by local churchmen who express displeasure and try to dissuade the BEMFAM staff from their pursuits.

<sup>2/</sup> The single exception to this at present is in the local state government of Rio Grande do Norte (a state in the Northeast) where the Governor has adopted a positive policy favoring family planning.

8. These considerations, which apply equally to Brazil as to the Northeast, seem to provide some ground to expect that the currently observed declines in fertility patterns may be given an added momentum in future years, as the work of BEMFAM grows and to the extent that the measures it advocates are effective. In short, the changes in observed fertility in the Northeast plus the new attitudes towards BEMFAM may be the signals that indicate that the region (and Brazil no less) has now begun a phase of real fertility decline which bodes for declining population growth rates in the longer term.

9. Migration from the Northeast. Workers and families moving out of the region to take up residence and occupations in other parts of Brazil has been a longstanding characteristic of the Northeast. Although this process has often been stimulated by the occurrence of droughts in the hinterland of the Agreste and Sertao, the migration has its own momentum born out of the generally depressed and insecure living standards to be found in the Northeast relative to what has appeared at least to be the much better prospects elsewhere, and particularly in the Center-South region. From the data supplied in the advanced tabulations of the 1970 census it is now possible to draw a complete picture of the size and nature of the migrant flows over the last three decades. A selected tabulation of these data is found in Tables 1-5 of the Appendix.

10. The first important observation to be made of the data on migration is that it reveals an unexpectedly large outflow of people in the decade of the sixties. About 1.7 million people left the Northeast during this period<sup>1/</sup> as against about 1.0 million in the earlier decade. This implied an increase in the migration rate from 4.6 percent for the fifties to 6.0 percent for the sixties. This was unexpected not only for the reason that in contrast to the period 1950-60 which experienced repeated droughts, the decade of the sixties was without a severe drought: it was also expected that, with relatively rapid economic growth in the Northeast matched against a relative slowdown in the national economy early in the decade, as well as a slowdown in coffee expansion in Parana, outmigration from the Northeast would slacken. Clearly it has not, and this requires some explanation.

11. It is true that the drought experienced in the early part of 1970 may have led to its own exodus but there are no reliable figures to show how large it might have been. A significant proportion of those who left for this reason are, moreover, expected to return (or may already have done so) so the figure of 1.7 million may overstate the real outflow.<sup>2/</sup> One observer, working on his own admission by pure guess, thought that 500,000 people may have left temporarily because of the drought, of which 300,000 would return. Both of these figures are probably high, but are certainly highly conjectural.

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<sup>1/</sup> In-migration to the Northeast was small at about 97,000. See Table 1. Note that these figures will understate the outmigration to some extent because they record only migrants surviving at the time of the census.

<sup>2/</sup> The census was made in September 1970, a time when the impact of the drought, in this respect, would have been significant.

12. Some basis for explaining the continued high rate of migration, though not in terms of making comparisons between the intercensal periods, can be found in the data of Table 2 which shows the region of destination of the migrants. It is well known already that most migrants from the Northeast, more than 60 percent in fact, have settled in the industrialized regions of Sao Paulo - Rio where job opportunities have generally been greater and incomes higher than at home. Table 2 shows that there has been little change in this pattern over the last two decades, although the share of migrants going to Rio has fallen slightly while that to Sao Paulo has risen. Other significant changes are the declines in the share of migrants going to both the North and Minas Gerais e Espirito Santo and the sharp increases going to the Center West and Parana, the latter most probably relating to the expansion of agricultural activities in these regions. Most of this expansion, however, may have occurred during the fifties and without similar data for 1960 which is unavailable, it is not possible, on this basis, to go much beyond these very generalized attempts at explaining the migration over the last decade. In short, it seems that the pull of better employment conditions in the Center South, and particularly in Sao Paulo, is the biggest single reason why the outmigration has not abated in recent years, despite, as will be described below, some significant improvement in the employment situation at home.<sup>1/</sup>

13. Internal Rural-Urban Migration. During the two decades 1950-70 the urban population<sup>2/</sup> of the Northeast grew from 26 percent to 42 percent of the total population, or by about 7.3 million. A little less than half this increase (3.5 million) according to BNB/ETENE estimates,<sup>3/</sup> was due to

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<sup>1/</sup> On the basis of the existing data available it is not possible to construct an explanation based on "push" factors in the migration, e.g., by trying to find an inverse relation between income levels and outmigration. Table 3 shows the outmigrants by states of origin where it appears that both gross and net migration rates are higher in the richer states which appears to contradict the "push" hypothesis. However, the "rich" states also have very large groups of very poor people and the data do not indicate from which part of the states the migrants come, so this hypothesis is not tested.

<sup>2/</sup> It should be noted that the Brazilian definition of "urban" population includes all people living in centers having a population of 2,000 and more. By some conventions this considerably overstates the absolute degree of urbanization. The U.N. definition, for example, has a cut-off point of 20,000 although many countries use 10,000 as the defining figure. There has been no change in the Brazilian convention since 1950.

<sup>3/</sup> These estimates are made on the basis of differential age-specific survival rates in rural and urban areas in comparison with recorded rural and urban populations in the census, the residual being the migration. The estimates are found in the study "As Variacoes Migratorias no Nordeste 1940-70," H. Moura BNB/ETENE 1972.

the migration of people out of the rural areas. In terms of annual rates of growth, the rural population grew at about 1.2 percent p.a. during this period while the rate in urban areas was 4.7 percent. Of the latter, about 1.8 percent was due to the migration out of rural areas though there is considerable variation in this between cities (see Table 5). The absolute magnitudes involved here, together with the estimates of migration flows into the major cities of the Northeast, are shown in Tables 4 and 5. Again, comparable data are not available for 1960 to allow a description of the migration over the decade of the sixties separately.

14. Qualitative information on the migrants, both internal and external, is quite sparse. The most that can be said of them is that a majority of them are young (less than 30) and only very few of them are over 50, and this applies both to rural-urban migrants and to those who leave the Northeast. One point of interest is the sex differential which emerges between the two types of migrants. As Table 4 shows, females quite heavily outweigh males in the rural-urban drift (females constitute more than 52 percent of those leaving the rural areas) while of those leaving the Northeast, 56 percent are males. Consequently the urban intake of migrants from the rural Northeast is only 41 percent male. A systematic explanation of these tendencies is not available but the following fairly obvious scenario seems plausible: of those who leave the rural areas most are women because they are more dispensable to the agricultural production process; but of those who leave the Northeast, to take a long and uncertain journey<sup>1/</sup> in search of work, e.g., in the Center-South, most are men for fairly obvious reasons given current social mores. The residual to be absorbed into the urban areas is therefore about 60 percent women who presumably very largely seek domestic service and other relatively low-paying tertiary sector activities. This reflects one aspect of the reason why the achievement of significant structural change within the Northeast, in terms of the statistical shares of labor being absorbed outside agriculture, may not also bring very great changes in average incomes. These matters are taken up in later sections.

15. The Impact of Migration. Much too little is known about the migration process and the people involved to be able to give more than a very generalized assessment of its impact on the development process. It is certainly true, for one thing, that as major poles of industrialization have developed in Brazil as well as in the Northeast, the migration has produced the relocation of labor out of agriculture to facilitate this growth. Further, it seems from what is known about the relative average costs of job creation as between the Northeast and other regions, that these tend to be lower in other parts of Brazil. Further still, it seems clear that the migration out of the Northeast considerably reduces the pressure on the regional labor market and may also, though this is not certain, of itself raise average incomes of those remaining in the region. This last effect will have been enhanced by any remittance flows back to the Northeast by migrant workers employed in other regions. There is,

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1/ It bears emphasis that the distances involved for the migrant moving from one end of Brazil to the other (e.g., from Fortaleza to Sao Paulo) which is still "internal" migration, are very much greater, and communicative lines much less developed than, say, that confronting an "external" migrant from Yugoslavia to Germany. Even in the latter case, incidentally, it is males who predominate.

however, simply no information available to show whether there are any remittances at all, let alone how large the flows might be.

16. The migration, of course, has its costs. To the extent that the migration merely shifts the location of underemployment from rural to urban areas it imposes a cost in terms of the social overheads required for organization. A recent estimate shows that the provision of urban amenities for a low-income worker in the state of Guanabara costs society an amount equal to about 51 percent of the minimum wage.<sup>1/</sup> This alone implies a non-zero shadow wage for labor employed in urban areas in the Center-South and raises the question of whether these resources could not be better used to raise incomes where the shadow wage is closer to zero, e.g., in rural areas in the Northeast or in the new colonization programs in the North. There is some evidence that the Government is responding to this option.

17. A second set of costs arising from the migration results from its effects on the labor force remaining in the Northeast. Because of the age-sex selectiveness of the outmigration the average age of the domestic population has increased, dependency ratios have risen,<sup>2/</sup> more particularly in the rural areas. The ratio of males has fallen from 49 percent in 1960 to 47.8 percent in 1970 and participation rates have fallen quite sharply. (See Table 1 for the various magnitudes involved.) Since, also, it seems likely that those workers who migrate will tend to be of above average quality in terms of education, initiative and time, there is some resulting deterioration in the quality of the remaining labor force. The fact that very high salaries are currently paid to attract higher grade labor (technicians, supervisors, etc.) into enterprises in the Northeast is partly a reflection of this tendency.

18. Finally, there are the private costs borne by the migrants and their families which are not required by the market wage. From a social point of view it is not sufficient to claim simply that the migrants migrate, therefore the private benefits outweigh the private costs. Many migrants separate

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<sup>1/</sup> See EDMAR BACHA: "Case Studies in the Estimation of National Economic Parameters in Less Developed Economies" (Mimeo) IPEA October 1971. The costs included in the calculation cover urbanization expenses, medical assistance and social security, education, urban transport, 13th salary, and family allowances, all net of the indirect taxes paid by the worker.

<sup>2/</sup> The dependency ratio of the migrant population who left during the period 1950-70 was 70.9 which is about 23 percent lower than the average ratio for the remaining population of the Northeast. This is so despite the fact that many migrants take dependents, especially children, with them (36 percent of the migrant population was less than 9 years old). The low ratio arises because most migrants are in the age group 19-35 and none are above 60; in fact there is a net inflow of migrants in the age groups over 60.

from their families for lengthy periods; most migrants may prefer not to migrate if only similar employment opportunities could be found within the Northeast; some may regret the move but may find it too difficult to return. The fact that the migrant is willing to carry these costs implies that he bears a private burden for the public good (measured, e.g., in terms of economic growth, the current location of industry, and the improvement in income distribution) for which his market earnings do not reward him. A resident of the Center-South, after all, receives the same wage as a migrant in the same job. Although they are clearly difficult to quantify, these considerations imply that it may not always be socially cheaper to create jobs in the Center-South than in the Northeast itself, if account is taken both of these private costs and the relative social costs involved.<sup>1/</sup> Current government programs involving 34/18 and other fiscal transfers to the Northeast, and the colonization programs in the Center-West and North, reflect a recognition of this fact. As yet, however, these programs have only a marginal impact on the migration flows.

## II. EMPLOYMENT, UNEMPLOYMENT AND UNDEREMPLOYMENT

9. The current employment situation in the Northeast is characterized by low unemployment rates, relatively rapid growth in non-agricultural employment as compared to the growth in labor force (which has declined in recent years) and by some possible decline in rates of measured underemployment. The improved rate of employment creation outside agriculture is owed largely to an acceleration of the demand for labor in industry which in part at least has responded to the SUDENE-sponsored industrial development programs. These improvements, however, should not obscure the facts of the persisting structures of employment and incomes in the Northeast which remain significantly inferior in several respects to those found in the rest of Brazil. It is these characteristics of employment, rather than any significant observable differences in rates of unemployment, which serve to distinguish the problem in the Northeast from that in the rest of the nation.

10. Unemployment. Estimates based on data collected from the PNAD surveys have recorded rates of open unemployment in the Northeast of

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<sup>1/</sup> This is an inversion of the normal case for shadow pricing and public intervention. Normally, the latter are justified on the grounds that private activities require modulation (in the form of some penalty) because of certain social costs they create. Here, the case is that private activities (involving uncompensated private costs) require some reward on account of the public benefits they bring. The "rewards" here may, e.g., be in the form of a better location of employment opportunities, but could also include possibly improved access to accommodation, transport and information facilities for migrants.

2.3 percent in 1968 and 2.0 percent in 1970.<sup>1/</sup> These rates compare with rates for Brazil as a whole of 3.7 percent in 1968 and 2.6 percent in 1970. Table 16 shows a comparison of different categories of unemployment and underemployment in 1970. Table 17 and 18 give an age-sex breakdown of the unemployed, showing that some specific groups have much higher rates of unemployment than the global rate (this is clearly evident from Chart 1). Males in the age group 14-24, for example, have a rate of 4.0 percent in 1970. Even this, however, is not high in terms of experience in other countries.

21. Clearly, unemployment rates of this magnitude do not suggest that open unemployment is the major dimension of the employment problem in the Northeast, or for that matter in Brazil. These rates are probably close to the minimum that could be expected in terms of inevitable frictional and structural unemployment common to all organized labor markets. For this reason not much significance can be placed on the evidence of recent observed declines in unemployment since the fluctuations around such low rates of unemployment, reflecting essentially cyclical movements in activity, do not serve as a good barometer for the progress being made against the long term employment problem.

22. Examination of some of the qualitative information about the unemployed tends to confirm the view that open unemployment is largely frictional in character. The most striking evidence of this, carried in Table 20 in the Appendix, is that 68 percent of all the unemployed originate from within the urban sector, in the sense that they have held previous employment there. Only 12 percent of all the unemployed come from previous pursuits in agriculture, although there is an additional 20 percent recorded as without previous employment many of whom may come from the rural sector. At any rate, it seems from this evidence that the ranks of the open unemployed are filled more by those changing jobs within the urban sector than by those shifting out of the rural sector. To this extent, this seems to challenge the Harris-Todaro hypothesis that open unemployment is an inevitable element in the process of structural change.<sup>2/</sup>

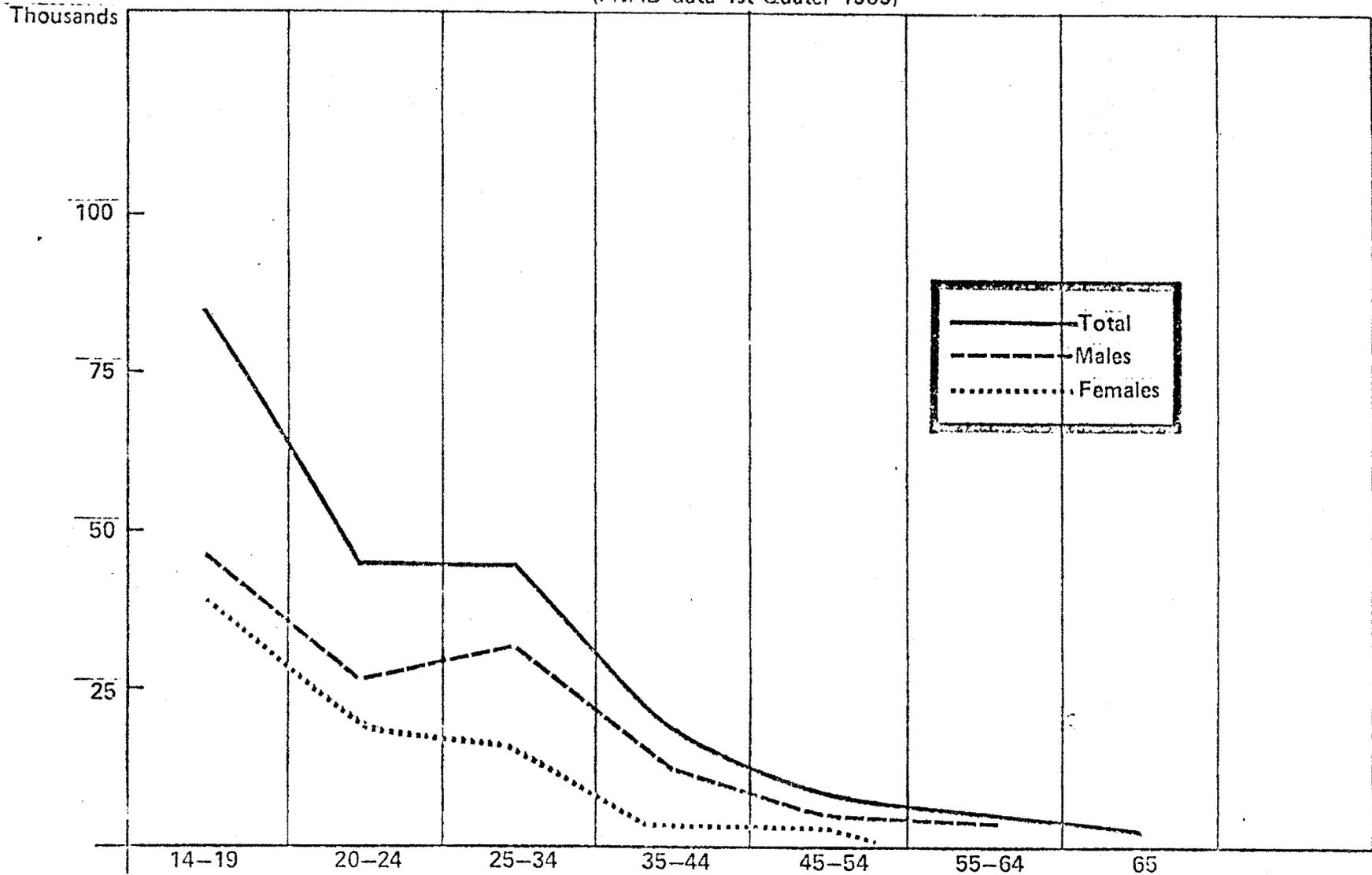
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<sup>1/</sup> "Unemployment" here is defined as those who were not working during the reference week and who were neither absent from a job nor negotiating for one, and who also had taken positive steps "in recent months" to find work. Note that both urban and rural unemployment are included in the data. However, rural unemployment is insignificant. (See Table 16).

<sup>2/</sup> See, e.g., M.P. Todaro and J.R. Harris "Migration, Unemployment and Development: A Two-Sector Analysis," American Economic Review " March 1970. The hypothesis is not, of course, postulated of Brazil but of Africa. Nevertheless, it has gained wide currency and it seems worthwhile recording cases where its applicability may or may not be valid.



AGE DISTRIBUTION OF PERSONS SEEKING WORK  
(PNAD data 1st Quarter 1969)





23. It is interesting to speculate why it is that unemployment rates are not higher in the Northeast where, by other criteria, the employment situation is much worse than in the rest of Brazil. Part of the explanation may be that the labor market is ill-organized, and information flows are very imperfect.<sup>1/</sup> Added to this, the generally low rates of education and literacy simply preclude a high proportion of would-be workseekers from formally entering the ranks of those waiting for or actively looking for work. Further, since income levels are lower in the Northeast, those who do not have a claim to support as dependents (as would, e.g., recent school leavers) may often simply be forced by the pressure of need to find some form of marginal income yielding activity rather than to pursue the search for work. This may partly explain why unemployment rates are slightly higher in the Center-South and why a greater percentage of the workseekers there use a labor exchange office. The labor market is better organized there, income levels are higher and people are in general better educated and better informed. These issues, however, are complex and their full explanation requires much better information than is presently available.

24. Underemployment. Given that, according to information from the demographic census, about 60 percent of all income earners have incomes less than the average minimum wage for the region, it is somewhat academic to pursue more detailed definitions of the degree of underemployment in an effort to describe the "size" of the employment problem. Nevertheless, since the introduction of the PNAD surveys in 1968 Brazil has been in the unusual position of having direct information about underemployment, at least insofar as this can be defined in terms of hours worked per week, stated preferences for more work, and inadequate income levels. Using the PNAD data, SUDENE has compiled estimates of recent rates of underemployment, shown respectively in Tables 16 and 17.

25. On the basis of those in the labor force found to be working part-time but expressing a preference for full-time work, plus those in the agricultural sector working less than 35 hours a week, plus the number of employers and self-employed earning less than Cr\$50.00 a month, these estimates reveal margins of underemployment in 1970 of about 19 percent for agriculture and 25 percent in the urban sector, giving an overall rate of 21 percent. Similar estimates for Brazil as a whole are in the region of 14 percent overall. For the Northeast, this implies about 1.0 million members of the agricultural labor force and about 800,000 in non-agriculture are underemployed by these definitions.

26. There is, however, some uncertainty about these figures. The figure for agriculture which relies exclusively on the number found to be working less than 35 hours is very likely much too low. Since average incomes in agriculture are generally 2 to 3 times lower than in the urban sector, the application of an incomes criterion in agriculture would surely

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<sup>1/</sup> See paragraph 66 in section IV below.



yield a figure for the underemployed higher than 19 percent.<sup>1/</sup> The number of hours worked may alone not be a reliable indicator of the quality of employment, neither in agriculture nor in the urban sector. Significant proportions of the work force -- Table 13 shows 20 percent in agriculture and 25 percent in non-agriculture -- work more than 50 hours a week. In many cases, "work" here may consist of long hours at very low productivity -- the shoe shine boy, for example, or the small store-owner the bulk of whose time is spent in waiting for customers to make a small purchase. Thus the PNAD data, good as they are in their way, may only provide us with a first rough guide possibly indicating only the minimum margin of under-employment.

27. Table 17, reflecting the SUDENE estimates, shows underemployment in the Northeast declining from 23.0 percent in 1968 to 21.1 percent in 1970. Given the relatively short time span covered by these data it is difficult to weigh the significance of the trend they reveal: it could be (as suggested above) that they reflect a purely cyclical reduction in under-employment during the upswing years following the end of the stabilization program in 1967. There is also the possibility that the trend is the result of statistical error following a change in PNAD coverage. This is suggested by the fact, visible in Table 17, that the non-agricultural labor force shows an absolute decline from 4.4 million in 1968 to 4.1 million in 1970 -- a fact which does not generally denote increases in employment opportunities.<sup>2/</sup> On the other hand, there is some evidence to show that underemployment -- in terms of low incomes -- did decline throughout the decade 1960-70. This is evident from Table 28 which shows that the proportion of the labor force earning incomes below the minimum wage held constant in real terms between 1960 and 1970 fell from 86 percent to 81 percent during the decade. This indicates a secular gain in income across the period and thus a decline in underemployment, but, as the table shows, this is much more marked in the urban sectors than in agriculture.

28. The Structure and Quality of Employment. Relatively high under-employment rates in the Northeast are only one reflection of the relatively poor quality of employment in the region. There are several other ways in which this shows up. The structure of employment in the Northeast, in terms of the size of the organized sector, is much less advanced than in Brazil as a whole. In agriculture, which supports 62 percent of the regional labor force (as against 44 percent for Brazil), less than a quarter of all employment is organized, i.e., involving an employer-employee relationship and a contractual wage. In 1970 about 75 percent of the rural labor force and 39 percent in the urban sectors (i.e., about 48 percent of the total labor force) were

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<sup>1/</sup> Other estimates of underemployment in agriculture are available. The SUDENE plan, e.g., has mentioned a figure of 1.2 million families (equivalent to 2.6 million workers) as being underemployed in 1970. This equals about 50 percent of the agricultural labor force.

<sup>2/</sup> The figures for total labor force compiled by PNAD are in any case considerably at variance with those, e.g., from the demographic census. See the note on employment data in the Statistical Appendix.

found to be in self-employment. This contrasts with ratios in the Center-South of 17 percent and 11 percent respectively. The significance of self-employment is that it generally (though not always) denotes an unorganized form of production, typified by the family farm or workshop where work is shared by the family members without the particular regard for productivities that accompanies wage employment. Incomes are often low in this type of work. In manufacturing and services, for which we have information, about 62 percent and 43 percent of those self-employed (i.e., about 15 percent of the total urban labor force) recorded incomes of less than Cr\$50.00 (i.e., about US\$9.00) a month in 1970. (See Table 33 for the ratios in other urban sectors).

29. Other aspects of a large unorganized sector are that the duration of work is shorter and its regularity is less certain. Part-time work is more frequent in the Northeast where "biscateiros" are legion.<sup>1/</sup> Part-time work, practised by 12 percent of the male labor force and 38 percent of working females reflects not only the need to find supplementary incomes where they exist but possibly also it shows the general shortage of work opportunities. In Sao Paulo only 8 percent of working males and 16 percent of working females are in part-time employment. Tables 9-14 contain information on these issues on a comparative basis for the Northeast and Guanabara/Sao Paulo.

30. Employment Growth and Structural Change. As measured by the growth in the number of jobs created outside agriculture in the period 1960-70 the Northeast has surpassed the so-called "critical minimum effort"<sup>2/</sup> required to reduce the share of the labor force in agriculture. This is evident from the figures shown below which also reflect a significant increase in job creation during the sixties as compared to the earlier decade. However, it is noteworthy that the critical minimum is achieved only in terms of the percentage growth rates. In absolute terms non-agricultural job creation was still less than the growth in labor force, and much less if the outmigration is added in.

THE CRITICAL MINIMUM EFFORT CRITERION AS APPLIED  
TO NORTHEAST BRAZIL FOR THE PERIOD 1950-70

Average Annual Increases	1950-60		1960-70	
	(000)	(%)	(000)	(%)
Net Labor Force	137.0	2.2	118.9	1.6
Non-Agricultural Employment	55.3	3.0	101.3	3.6
Residual to Agriculture	81.7	1.8	17.6	0.4
Outmigrants	50.0	-	71.4	-
Gross Labor Force	187.3	2.9	190.3	2.1

Source: IBGE/BND.

<sup>1/</sup> The "biscateiro" is essentially an odd-job man whose talents may vary from, e.g., permitting him a part-time job on a construction site to peddling combs on the sidewalk.

<sup>2/</sup> I.e., if industrial employment fails to exceed the growth in labor force (most of which is in agriculture) the share of labor force in agriculture will not decline and labor surpluses accumulate.

31. As the above figures suggest, the effect of the migration on the sectoral distribution of labor has been very significant. In the decade 1960-70, for every 10 non-farm jobs created in the Northeast 7 workers left for work elsewhere.<sup>1/</sup> Had they stayed behind the labor force would have been at least 700,000 the greater, underemployment would no doubt have been more pronounced, and the share of labor in agriculture would have likely been close to 65 percent in 1970. As it is this share declined from 69.5 percent in 1960 to 61.5 percent in 1970. Table 6 gives a detailed breakdown of the changing sectoral shares of employment in the Northeast from 1950 to 1970.

32. The pace of structural change implied by this decline in the share of labor force in agriculture is significantly slower than that achieved in Brazil as a whole over the same period, as seen from the following figures. Even though the urban sections in the Northeast, led by industry, have

PACE OF STRUCTURAL CHANGE  
BETWEEN SECTORS IN THE  
NORTHEAST AND IN BRAZIL 1960-70

Growth of Share of Labor Force 1960-70 (%)		
	<u>Brazil</u>	<u>Northeast</u>
Agriculture	-16.7	-12.6
Non-Agriculture	+11.5	+25.6
Industry	+19.5	+31.7
Services	+13.4	+23.3

Source: Table 7 in Statistical Appendix.

increased their share of employment much more rapidly than those in Brazil as a whole, their small base has implied only a slow decline in agriculture's share.

33. The Impact of Growth on Incomes: By dint of the current relative sizes of the rural and urban sectors, structural change proceeds slowly in the Northeast. Further, it cannot be assumed that labor which transfers into the urban sector is automatically employed at higher income levels than previously. It is true, average incomes in the urban sector are between two

<sup>1/</sup> This migration figure is an estimate, since there are no reported data for workers as against people who migrate. The estimate is based on the age structure of migrants and an applied participation rate based on the average for the Northeast (see Table 1). Since migrants may be expected to have rather higher participation rates than the average population, this estimate may understate the outflow of workers.

and three times those in the rural sector. However, the distribution of incomes is more highly skewed in the urban sectors. Thus, for example, the services sector has both the highest average income as well as some of the poorest groups in urban areas. This reflects the wide disparity between the income levels of the organized tertiary sector (embodying such branches as organized commerce, finance and the liberal professions) and the unorganized sector comprised of small traders, domestic and other low-paying services.

34. The relative income scales reflected in the following table show that some of the urban poor report incomes below those in agriculture.<sup>1/</sup> Thus, the degree to which labor transfers into urban jobs result in overall income gains will depend very much on whether these jobs are in the organized or unorganized urban sectors. There is no reliable information to show the extent to which urban sector employment growth involves the expansion of low as against relatively high income activities, although in manufacturing it appears that less than half the employment growth is in the organized sector. (See paragraphs 36-38 below.) For the tertiary sector the proportion may be lower still. These considerations should serve to discount to some degree the significance of the more rapid urban sector employment growth recorded in the census data.

35. Additional evidence to explain why the transfer of labor from agriculture may not involve the expansion of high income urban activities in the Northeast is that about 60 percent of the rural-urban migrants are females with possibly low earning potential. This was mentioned above. The balance of their male counterparts are elsewhere in Brazil, no doubt serving to expand relatively high income activities there.

THE STRUCTURE OF AVERAGE MONTHLY INCOMES  
IN NORTHEAST BRAZIL IN 1970

	NCr.\$ 1970	US\$ Equivalent	Services = 100	Share of Total Employment
Regional Minimum Wage in May 1970	122.98	26.79		(%)
1. Services	181.07	39.45	100.0	27.5
2. Industry	161.65	35.22	89.3	10.8
3. Agriculture (a) Wages	75.07	16.36	41.5	14.9
(b) Average Incomes	64.39	14.03	35.6	61.7
4. Poorest 35% in Industry	65.07	14.18	35.9	3.9
5. Poorest 40% in Services	58.23	12.69	32.2	11.0
6. Marginal Urban Self-Employed	50.00	10.89	27.6	13.5

Source: 1, 2, 3 (b), 4 and 5 from Demographic Census, IBGE 1970.  
3 (a) from Getulio Vargas Foundation  
6 from PNAD, IBGE 1970.

<sup>1/</sup> The differential may be even wider if non-monetary incomes in agriculture together with the difference in rural-urban purchasing power are taken into account.

36. Employment in Manufacturing Industry. According to information from the census, employment in manufacturing industry grew significantly faster during the sixties than in earlier years (see Table 6). The average annual increase was 3.1 percent as against declines in the earlier period of -0.7 percent. However, the sector holds only less than 11 percent of total employment so this increase provided only 150,000 new jobs out of a total of about a million urban sector jobs created during the sixties. This is the perspective through which the SUDENE financed programs for Northeast manufacturing should be viewed. Even though within the sector itself, the impact of SUDENE has been significant (34/18 backed projects created about 40,000 of the 150,000 jobs cited above) the magnitudes involved are small relative to the total needs for employment.

37. Further, it may be noted that a significant proportion of the expansion of employment recorded by the census might be in the so-called unorganized sector involving small-scale self-employment enterprises rather than organized establishments offering contractual wage employment. Data available from DEICOM/IBGE which allegedly covers most of the organized sector (about 40 percent of manufacturing employment)<sup>1/</sup> shows employment growth of only about 1.4 percent per annum through the sixties. Thus, organized employment growth accounted for only about 20 percent of total employment growth in manufacturing. Since productivity and incomes are generally significantly lower in the unorganized sector, this means that the impact of manufacturing employment growth on incomes has been less than suggested by the higher figure for employment growth.

38. Nevertheless, efforts continue to expand the growth of manufacturing and widen its impact on incomes. SUDENE plans envisage a growth in output in this sector through the period to 1976 which it sees being achieved through an expansion of real investment flows by about 75 percent over this period. If achieved, and on the ratios reflected in the existing stream of SUDENE-approved investments, this should give an expansion of employment sufficient to create about 300,000 jobs through the current decade, after allowing for inevitable slippage and shortfalls. This performance would about double the size of the existing organized manufacturing sector.

39. Employment - Output Elasticities. There is some question as to whether the ratios of employment creation to output growth reflected in past performance are the best that can be achieved in the circumstances. This depends on which elasticities are drawn. The following figures are instructive. The elasticities from the census-- FGV data which show growth rates in both organized and unorganized sectors combined, are significantly greater than those for the organized sector alone (shown by the DEICOM data). This reflects the lower productivity rates of the unorganized sector.

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<sup>1/</sup> The DEICOM data cover only about 25 percent of the total number of establishments but these account for over 90 percent of total manufacturing output.

EMPLOYMENT - OUTPUT ELASTICITIES IN  
MANUFACTURING IN BRAZIL AND THE NORTHEAST

with es	1. OUTPUT		2. EMPLOYMENT		3. ELASTICITY (2 1)	
	FGV Data	DEICOM Data	Census Data	DEICOM Data	Census -FGV	DEICOM
Brazil (1964-69)	6.9	7.0	4.6	2.8	.66	.40
Northeast (1960-70)	7.9	5.9	3.1	1.4	.39	.24
Northeast (1950-60)	8.1	-	-0.8	-	-.12	-

Source: Demographic Census; DEICOM/IBGE; Getulio Vargas Foundation (FGV)

The fact that, according to both sets of data above, elasticities significantly lower in the Northeast than in Brazil as a whole reflects the fact of stagnating employment growth in the traditional consumer goods industries in the Northeast together with a relatively low elasticity in the dynamic branches producing intermediate goods, which provided most employment growth. The figures below, which relate to the organized sector only, reflect these differences. The profile revealed by these figures displays a central feature of industrial development in the Northeast: the rapidly increasing share of the intermediate goods industries and the decline in the share of traditional consumer goods. To the extent that SUDENE policies have fostered these shifts this pattern of development reflects the official Brazilian

MANUFACTURING EMPLOYMENT GROWTH AND EMPLOYMENT - OUTPUT  
ELASTICITIES BY INDUSTRY BRANCH IN THE NORTHEAST (1958-69)

	Share of Employment in 1969 (000)	(%)	Additions (1958-69) (000)	Elasticities
Consumer Goods	149.2	67.8	4.1	.08
Intermediate Goods	62.4	28.3	20.3	.35
Capital Goods	7.8	3.5	6.5	1.04
Other	0.8	0.4	-0.3	-
TOTAL	220.2	100.0	30.6	.24

Source: DEICOM/IBGE

approach to the development of the Northeast. SUDENE has as a stated objective the building of an industrial profile in the Northeast to match that in Brazil as a whole.

41. The implications of this strategy, however, cannot be avoided. The investment cost per job created in the intermediate goods branches is about 72 percent higher than in the consumer goods branches; wages are much higher in the intermediate goods branches (almost double in 1969) but at the same time wages form a smaller percentage of value added.<sup>1/</sup> Thus, growth in the intermediate branches absorbs much capital in giving relatively high incomes to relatively few people. A worsening of income distribution (for which detailed evidence is offered in Part III below) seems the inevitable consequence of this type of industrial growth.

42. Improving Employment Creation. Given their important impact on employment creation in recent years, it is difficult to advocate policy changes which might retard the development of the so-called dynamic branches in manufacturing. These branches do, however, have above average capital requirements per job created. This, and possibly other questions may be worth examining in an effort to seek improvements in employment creation, as follows:

- i. The average cost per job in manufacturing is very unequal as between branches. Whereas the average of the sector as a whole was about US\$15,800 in 1970, the median cost per job is much lower at about US\$7,000.<sup>2/</sup> Only three industry branches (chemicals, metallurgy and rubber) lie above the average for the sector while absorbing 38 percent of all investments. It is possible that a different branch mix of investments may improve the overall employment impact of investment flows.
- ii. The traditional consumer goods branches have provided almost no increase in employment. Why is this so? Possibly this follows from a tendency to modernize plant

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<sup>1/</sup> The average ratios of the wage bill to value added in each branch over the period 1958-69 are:

CONSUMER GOODS	23.2 percent
INTERMEDIATE GOODS	22.0 percent

The ratios for chemicals and metallurgy, two important branches in the sector, are 18.3 percent and 10.6 percent respectively.

<sup>2/</sup> The median industry branch is that in the center of all industry branches ranked according to the cost of employment generation, i.e., out of the 23 branches so ranked the 11th and 12th branches had a cost per job in the range of US\$7,000. In this ranking even the 19th branch had a cost per job equal to only 64 percent of the overall average. It is principally the chemical and metallurgy industries which raise the average.

and rationalize production, which has expanded production capacity but not employment.<sup>1/</sup> This may not, however, provide the whole story. More information is needed on the demand conditions in these branches. To advocate a different branch mix of output to expand employment (as in (i) above) implies a favoring of the consumer good branches. This makes no sense, however, unless demand conditions would support the new mix.

- iii. SUDENE Allocation Procedures rely heavily on essentially arbitrary criteria. It has not been clearly established how the "points" system has actually worked in practice. Which points categories have in fact been most frequently used in giving awards has not yet been documented and should be so. It is thus not clear how the system may have biased the flows of 34/18 funds and the pattern of growth. If the whole points system were scrapped and substituted with an allocation procedure based on economic criteria, i.e., using shadow prices, would not this provide more direct means of channeling social capital into optimum uses? There is certainly sufficient talent in SUDENE and the BNB to make an examination of this question.
- iv. Factor Price Distortions persist in Brazil despite monetary correction and a rationalization of interest rates on loan capital, and despite the introduction of successive devaluations. Some observers in the Northeast claim that while the devaluations have kept pace with inflation, the parity at which the policy was implemented was still overvalued; the region's manufacturing sector suffers as a result because imports (on import-derived goods from the Center-South) are too cheap. Agriculture, likewise, suffers on the exports side. The production costs of labor, which often have to carry tax contributions up to 40 percent of the wage bill, are a contentious source of distortion among labor using enterprises. Although they represent an effective income transfer from the enterprise to the worker the possibility could be examined of basing the tax on profits or value added rather than the wage bill. This would remove the disincentives to employment and spread the burden of social security revenues more evenly between firms.
- v. Capital-Labor Ratios may be relatively high in some branches in the Northeast because capacity utilization is lower. Evidence is very scant on this. Plants that were visited in the consumer good branches seemed to be working quite

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An interesting thesis on this topic has been written by F. Versiani - "Technical Change, Equipment Replacement and Labor Absorption: The Case of the Brazilian Textile Industry." Unpublished Ph.D. Thesis Vanderbilt University 1971.

close to full capacity, and all had expansion plans. These industries, in any case, have a low cost per job on average. It may be that some of the intermediate and capital good branches have quite low rates of utilization which could be expanded, e.g., by multiple shift working. This option, however, seemed unpopular with the entrepreneurs visited, mainly because of the expense of additional hirings and the lack of supervisory personnel to administer a second shift. The latter should not be an insuperable barrier in a labor surplus region.

43. Employment-Output Trade-Offs. Any attempts to lower capital-labor ratios by expanding capacity utilization, whether by multiple shift working or by other means, will by their nature involve little new investment but an expansion of both output and employment. In this sense there is no trade-off involved in such attempts. Whether or not a change in the branch mix of investment and output would incur a trade-off is a difficult question to answer. Certainly on the evidence of paragraph 40 above it would seem a shift of investments in favor of the traditional consumer good industries may give less employment growth. This, however, may be a false picture because we do not know the investment pattern underlying the growth in employment shown in paragraph 40.

44. Data are available, however, from the SUDENE-approved projects to show investments and the resulting employment and output generation. By arranging these data in a way so as to compare the cost per job in each branch with the output yield per unit of investment it emerges prima facie that some of the dynamic industry branches reveal not only an above average cost per job but also a below average output yield. This can be seen from the scatter diagram at Chart 2. Although the data are not very firm, the pattern they reveal does seem to argue for an examination of the following issues:

- i. What is the reason that the only industry branches having above average costs per job also appear to yield below average output per investment unit? Is there inefficiency in these branches? Is the underutilization of capacity greater?
- ii. It is not clear from the SUDENE data whether "output" is gross output or value added. Resource-based industries (e.g., chemicals) may have a much higher ratio of value added to gross output, so the pattern of the data may be different if plotted for value added as against gross output. This requires clarification.
- iii. Answers to the above questions could lead to prescriptions to tighten efficiency, to expand capacity utilization or to reduce the cost per job in some branches where there is scope for this. They could possibly also be taken to argue for a change in the branch mix of investments having lower investment costs per job created and a higher output yield.

In all these cases, so long as the data in Chart 2 are at all meaningful, both more output and more employment should follow from such changes in the investment stream, and no trade-off need apply.

45. There is some need to insert a disclaimer at this point. The issues raised in these last few paragraphs are to a degree academic. They are certainly tentative, both methodologically and in that the data base on which the scatter diagram is constructed requires further elaboration. The inclusion of the argument in this section does not represent a judgment, either about the performance of SUDENE or about the structure of industry in the Northeast. The mission's judgment on these issues is contained in the body of the main text. The purpose of including this section is simply to raise a set of questions (for which answers can hopefully be found), within a defined structure of thought, in order to seek a possible improvement in the employment and output efficiency of investments in the Northeast.

INVESTMENT COST PER JOB

(K/N)

MEAN COST PER JOB

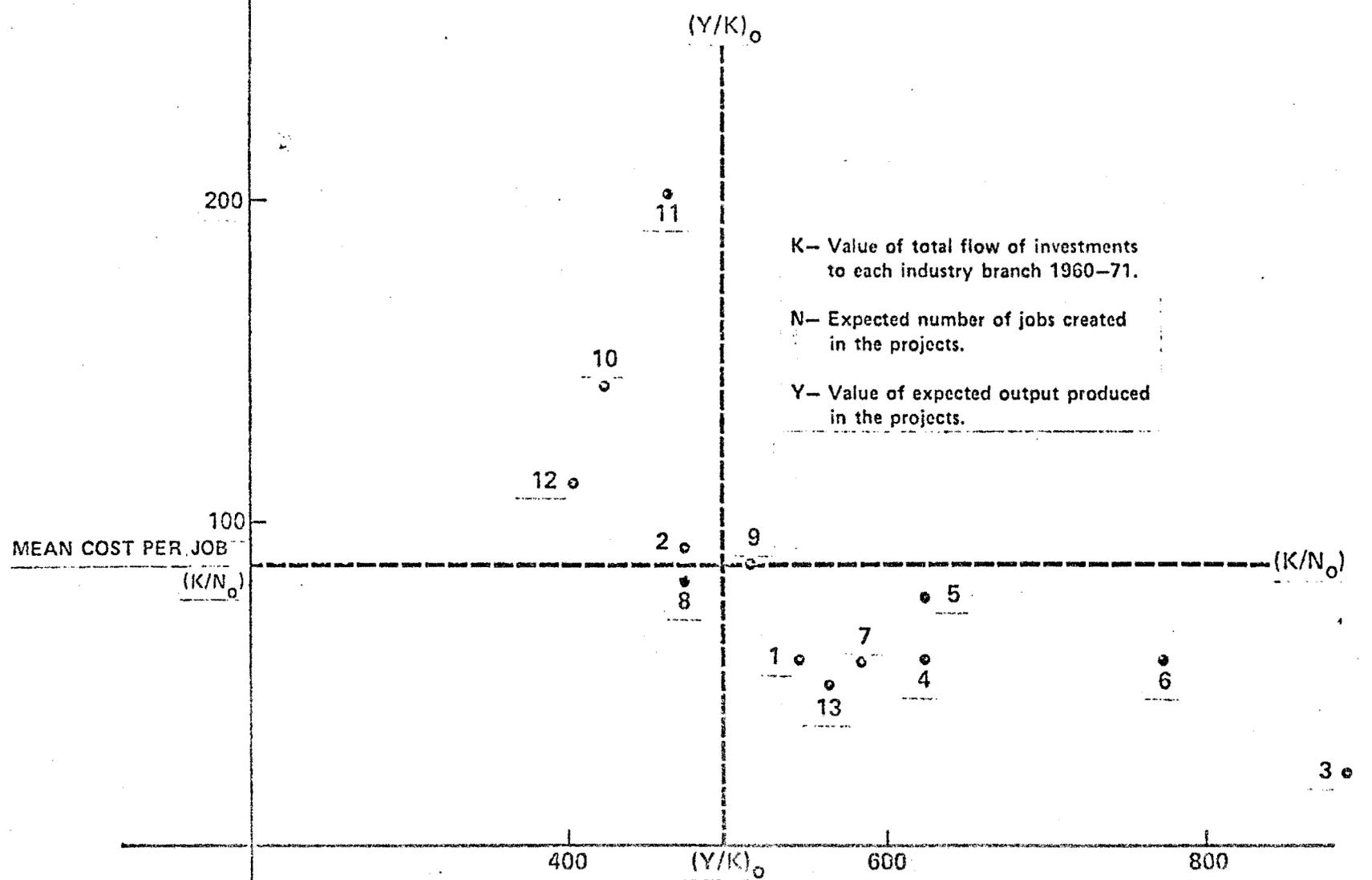
$(K/N)_o$

$(Y/K)_o$

K- Value of total flow of investments to each industry branch 1960-71.

N- Expected number of jobs created in the projects.

Y- Value of expected output produced in the projects.



INDUSTRY BRANCHES

- 1. Food and Beverage
- 2. Textiles
- 3. Clothing
- 4. Wood and Furniture
- 5. Leather Goods
- 6. Printing and Publishing
- 7. Others
- 8. Non Metallic Minerals
- 9. Pulp and Paper
- 10. Rubber
- 11. Chemicals
- 12. Metallurgy
- 13. Electrical Machinery

OUTPUT/INVESTMENT (Y/K)

Source: SUDENE

World Bank-6091

### III. INCOME DISTRIBUTION

The concern about income inequalities in Northeast Brazil cannot be separated from the issue of income distribution in the nation as a whole. Certainly the creation of SUDENE and the BNB, and the instigation of programs such as PROTERRA, PROVALE, the 34/18 scheme and even the PIN and POS have all been specifically designed to revise the level of development and incomes in the Northeast. As far as the evidence goes, it appears that there may have been some (albeit quite limited) progress in this direction in that per capita incomes in the region appear to have grown slightly faster than in Brazil as a whole.

Regional Income Growth. Mission estimates of the growth in regional product suggest that over the decade 1960-70 per capita incomes in the Northeast grew on average by 3.3 percent per annum as against about 0 percent p.a. for Brazil. This difference is owed essentially to the impact of migration on population growth, and not to more rapid economic growth. In fact, during this period the growth in product averaged 5.8 percent p.a. in the Northeast as against 6.0 percent for Brazil. Population grew at 3.0 percent in Brazil but only 2.5 percent in the Northeast, thus giving the difference. This differential has implied that the level of per capita income in the Northeast which was about \$125 in 1960 (42 percent of the national income per capita) moved to \$187 (50 percent of the national figure) in 1970. The absolute differential, however, widened during this period from \$162 to \$205.

It may be mentioned that the data from which these estimates are drawn may not be very reliable. There are problems not only with the choice of statistical deflators but also of the interregional transfers in the form of profit expatriation out of the region and of possible family remittances to the region from migrants working elsewhere. There is no information on the relative size of these flows.

Income Distribution Within the Northeast. Recent studies<sup>1/</sup> have suggested that interregional income inequalities are a less important influence on the overall (national) distribution of income than are the inequalities within each region. In this respect the evidence suggests that inequalities within the Northeast have contributed significantly both to the degree of overall inequality in Brazil and, to a lesser extent, to the deterioration in equality observed through the sixties. It is clear from the profile of incomes in the Northeast, drawn by Landoni from direct observations of 1970 data,<sup>2/</sup> that

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Carlos Langoni: "Distribuicao de Rendias e Desenvolvimento Economico de Brasil: Uma Analise de Decada 1960-70", unpublished mimeo. IPE University of Sao Paulo, July 1972.

Albert Fishlow: "Brazilian Size Distribution of Income". University of California, Berkeley.

Although in this respect Langoni's study is more reliable than earlier work he still faces problems arising from the fact that the census data on which his work is based reflects only reported money incomes. Thus, his results have still to be treated with some caution. A brief account of the data limitations and their implications is given in the Appendix.

of all regions in Brazil the Northeast has the most unequal distribution. Langoni records Gini ratios of .56 for the Northeast in 1970 as against .53 for Guanabara-Rio, .54 for Sao Paulo and .50 for the South. A reproduction of Langoni's profile, showing income shares by deciles of the Northeast population is given in Table 34. Reflections of the higher degree of concentration in the Northeast are that the poorest 75 percent of the population share only about 32 percent of the income, as against about 43 percent in other less developed regions of Brazil.<sup>1/</sup> Whereas, in the Northeast, the richest 10 percent share about 47 percent of income, for the richest 10 percent in Sao Paulo the share is only 44 percent.

50. The reasons for the greater degree of concentration in the Northeast have not yet been fully established. Langoni's interpretation of this is that the stage of development in the region is one in which institutional factors determining the distribution of property, wealth and the access to education are a predominant influence in differentiating a minority of the labor force in urban areas from the majority of workers engaged in traditional pursuits in both urban and rural sectors, characterized by more or less homogeneous inputs and generally low productivity. It is certainly evident that although the Northeast has a more equal distribution in agriculture than do most other regions (Langoni shows Gini ratios for the primary sector of .37 as against .46 for Rio - Sao Paulo) the distribution within the urban sector in the Northeast is very much more unequal than elsewhere. Langoni's estimate shows a Gini ratio for the urban sector of the Northeast of .60 as against .51 and .53 for Rio and Sao Paulo respectively (which have the next most unequal overall distributions).

51. Changes in Equality 1960-70. Langoni's study also shows that during the decade of the sixties there was a deterioration in the equality of incomes in the Northeast by an amount roughly equal to the average deterioration for Brazil as a whole. During this period he shows that the Gini ratio moves from .49 to .56, a change of about 14 percent. These results, it is true, cannot be accepted with the same confidence that can be accorded to his observations for 1970 because the profile for 1960 is drawn on the basis of fitted Pareto curves rather than direct observations. Nevertheless, there is evidence from other work to support the fact of a deterioration during this period.<sup>2/</sup> Further, these other studies are consistent in showing that the deterioration comprises little change (and possibly some improvement) in equality within agriculture while in the urban sector, and particularly in industry, there is a sharp loss of equality. In addition, all available information points to a widening of the average income differential between urban and rural sectors, a factor which would further increase the overall concentration. Langoni, illustrating this last result by showing that average incomes in rural areas grew by only 1.2 percent p.a. while those in urban areas grew at 5.3 percent p.a.

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<sup>1/</sup> The North, far West and Center West.

<sup>2/</sup> A brief account of the findings of other studies is given in the Statistical Appendix.

2. Absolute Income Changes. An idea of what the differential growth of incomes implies for the change in absolute living standards can be had from a comparison of income levels with the legislated urban minimum wage for the region. This is done in Table 27 which shows the proportion of the reporting population having incomes less than the minimum wage in 1960 and 1970. Since the actual value of the minimum wage in fact declined by some 5 percent over this period (see Table 31) the value for 1970 given in the table is the value maintained at a constant real value since 1960. It is clear that some progress has been made, but there are marked differences between sectors. In industry less than 69 percent of the work force reported below the minimum wage in 1970, as against more than 82 percent in 1960. The contrasting result is in agriculture where there is less than a one percentage point decline in this proportion over the period. This accords closely with Langoni's estimates of relative income growth in rural versus urban areas, and with the general knowledge that the development programs of the sixties, i.e., since the inception of SUDENE, have heavily favored industrialization.

3. Elements in the Changing Distribution. Langoni's study does not give much detailed information about the composition of the change in distribution over the period studied. From the other studies, however, it seems clear that the changes comprise at least the following "within" sector and "between" sector components:

"Within" Sector Changes:

- i. A Sharp Loss of Equality in Industry. This is quite marked and it seems unequivocal. It can be explained in terms of two factors, namely (a) a shift in the distribution from wages to profits during the stabilization period which was probably not rectified by the time of the 1970 census. The evidence of this (see Table 31), based on DEICOM/IBGE data is that the ratio of the manufacturing wage bill to total value added fell from about 25 percent in the early sixties to about 22 percent in the late sixties; (b) a pattern of industrial growth involving relatively capital intensive, high-wage intermediate good branches, favoring a minority of workers. Aspects of these developments were described in earlier sections. Additional supporting data for this can be found from Ministry of Labor information (based on the "Law of 2/3" reporting)<sup>1/</sup> which shows that wage incomes in manufacturing have become more concentrated. A calculated Gini ratio for the distribution of wage earnings among workers in manufacturing moved from .30 in 1965 to .44 in 1969, a sharp change in such a short period.

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<sup>1/</sup> A law which requires enterprises to report inter alia their hirings, firings and current labor force.

- ii. Relative Stability within the Services Sectors. Evidence from the Goodman-Cavalcanti study<sup>1/</sup> and from mission estimates shows that income dispersion in the services sector grew during the period, but not very markedly. Goodman-Cavalcanti show the Gini ratios in this sector at .58 in 1960 and .60 in 1970, a change of only 3.5 percent. The mission estimates show even less change. Some evidence towards an explanation of this relative stability is given in Table 29 which shows that movements in wage incomes in the sector have had offsetting impacts on the overall distribution. It is worth noting that the Gini coefficients above, though they signify only slight change, nevertheless indicate that the services sector still has a less equal distribution than the other sectors. Since, also, this is the largest urban sector (employing about two-thirds of all urban workers) it is clear that the overall degree of urban inequality is heavily influenced by the distribution in services.
  
- iii. The Improvement of Equality in Agriculture. It is difficult to decide the extent to which the gain in equality in agriculture results from production increases among low income groups -- or alternately production losses among high income groups -- as against the simple outmigration of labor from the poorer groups. The latter is known to have occurred. No detailed information is available about production and incomes among the very poorest groups in agriculture, so it is difficult to assess the extent to which output gains in these groups may have equalized income distribution. Some of the evidence suggests such gains to be quite small. Table 27, for example, suggests that the proportion of the agricultural reporting population<sup>2/</sup> having incomes less than the urban legal minimum wage, held constant in real terms over the decade 1960-70, has declined only slightly during this period. This result, however, was no doubt affected by the slow growth of output in 1969 and the drought of 1970, both of which would have given a downward bias to incomes reported in the census of 1970.

"Between" Sector Changes:

- i. The Differential between Industry and Services. While the loss of equality within industry contributed to the worsening of urban inequality the fact that average incomes in

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<sup>1/</sup> See the Appendix.

<sup>2/</sup> Excluding the unpaid family workers.

industry grew faster than those in services (see Table 28) implies a decline in the differential between the two sectors. Thus, to some extent this will have equalized the urban distribution offsetting the "within" sector effect. 1/

- ii. The Rural-Urban Differential. The evidence is unequivocal that the differential between average incomes in the urban and rural sectors widened significantly over the decade of the sixties. Langoni's estimates of the relative growth in incomes has already been mentioned. Table 28 carries additional evidence which shows how wage incomes in agriculture have stagnated in contrast to the marked growth of those in the urban sectors, particularly industry.

54. Policy Conclusions. Three major policy conclusions would seem to emerge from the foregoing discussion, as follows:

- i. Insofar as the loss of equality in industry has been the result of certain categories of qualified labor in the "dynamic" sectors earning rapid wage increases (possibly, as Langoni asserts, "quasi-rents") then an expansion of educational opportunity for the relevant types of skills would seem sensible. This should not, however, be at the expense of the education programs aimed at spreading literacy in the Northeast and general education at the lower levels.
- ii. The program of fiscal incentives designed to stimulate the industrial development of the Northeast has clearly met with success and should be continued. However, the possibilities should be explained of raising the rate of absorption of labor both in the dynamic sectors of industry and in the so-called traditional sectors. Knowledge of why employment growth in the latter has been so sluggish is a first priority. Measures should also be found to eliminate existing distortions of labor costs arising in particular from social security and other fiscal burdens which fall on the employer's wage bill.
- iii. The need for a boost to agricultural development is clear. Recent diversions of 34/18 funds into agricultural programs seem certainly to accord with this objective. So, of course, do the PROVALE and PROTERRA programs, though the latter is still lacking in effective implementation. Although elements

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1/ This, of course, is only a partial effect. Insofar as income growth in industry has boosted income growth in the urban sector relative to the rural sector, the impact overall is probably for a loss of equality.

of the PIN involve resettlement of Northeasterners in the Amazon basin it seems unlikely that the impact of this will be sufficient to forego a major effort to develop Northeastern agriculture itself.

#### IV. EMPLOYMENT AND INCOME POLICIES

55. The various government programs involving the setting up of regional development authorities (of which SUDENE is but one), the specific programs of national development such as the PIN, together with the regional programs such as PROTERRA and PROVALE, should all be viewed as principal components of an employment policy. The spirit of these programs is designed as much to bring about a fuller utilization of the country's land and regional economic resources as to provide the means to alleviate the nation's poverty and underemployment, which are found most pressing in the Northeast. In addition to these development programs there are those such as the PIS and PRORURAL, which relate more specifically to labor and social security which would thus clearly fall under the heading of employment or incomes policy.

56. Most of these programs are relatively new, some of them (e.g., the PROTERRA) have progressed little beyond an initial statement of intentions. A detailed account of these programs is not offered here, some of this being given in other parts of the report. In the context of the efforts made in these various fields, however, there are a number of specific policy issues relating to labor, employment and incomes, which could collectively be defined as constituting an "employment policy".

57. Wages Policy. The Federal Government uses the legal minimum salary as the principal instrument in its incomes policy. The central policy objective is to maintain wage increases which retain real income levels of wage labor without contributing to a wage-price spiral and cumulative inflation. The Northeast has featured in this. It is difficult to claim the Government has been successful in this objective, but the inclusion of minimum wage adjustments in the system of national "monetary correction" of economic indicators is its attempt to achieve this.

58. One reason it is difficult to assess the degree of success of the incomes policy is that the relationship between legal minimum wages, and the actual earnings of labor is ambiguous. First, despite the ostensible legality of the minimum wage, it is known that a significant proportion of the work force earns less than the minimum. Exact figures for this are not available. Estimates based on census data, however, suggest that 35-45 percent of all workers in the urban sectors probably fall into this category. In agriculture, no doubt, the figure is about double this. On the other hand, the data which are available on the actual average earnings of urban labor show both that the level of earnings is considerably higher than the level of the minimum wage and that the annual increase in earnings sometimes exceeds the corresponding adjustment in the minimum wage, and sometimes falls

short of it, i.e., positive or negative "wage drift" occurs. This is clearly seen from Table 30. The reason the average earnings here are higher than the legal minimum is probably because the data for these earnings is provided by S.E.P.T. from the "Law of Two-Thirds" reporting which covers only about 30 percent of employment in the urban sector, no doubt mostly involving better established, better paying enterprises.

59. Ambiguity about the operation of the incomes policy thus arises because we have data for the minimum wage, data for the third of the labor force who have earnings above the minimum but none have for the two-thirds lying around or below it. It is thus difficult to assess the overall impact of minimum wage adjustments on average earnings. For this reason, it is difficult to be explicit, e.g., as to how the real wages of the poorer categories of wage labor fared during the government stabilization program and subsequently. Although, as the figures in Table 31 show, the legal minimum wage declined by 25 percent over the decade 1960-71 -- a decline less than that for Brazil as a whole -- it is not clear to what extent average earnings followed this pattern. Better data and research in this field are a clear priority. The University of Brasilia is initiating a research project on wage formation.

60. Minimum Wage Differentials. The Ministry of Labor (DNMO) has an explicit policy designed to eliminate the differentials currently existing between the legal minimum wages in different regions. Progress has already been made along these lines as is evident from Table 32, which shows that within the Northeast region there were five different minimum wages existing in 1960, and only two in 1971. In part this represents an attempt to equalize income distribution among employed labor -- Maranhao and Piaui, the two poorest states, have received the most rapid increases in minimum wages. It is also hoped to modify interregional migration flows in this way.

61. The problem with these efforts is that they may tend to favor a minority of workers, possibly at the expense of the majority. Those outside the organized economy (certainly a majority in the poorer regions) and those earning wages in any case less than the minimum will probably remain largely untouched by these adjustments in minimum wages except insofar as they may lose in real terms to the extent that the adjustments result in the inflation of some urban prices. Where higher minimum wages also imply an increased deterrent against employment, those in the unorganized sector trying to find jobs in the modern sector are further penalized. Efforts to raise real wages by more or less arbitrary institutional adjustments may simply serve to distort further the market wage from the real social cost of labor. Public efforts may be better directed towards the reverse course. Since, also, migration flows are not likely to be responsive to relatively small changes in wage differentials, it would seem the best course to adopt is that of tying all real wage increments (i.e., after adjusting for inflation) to the gains in labor productivity. Real resource gains, and not legislative fiat, provide the only real course to higher income levels.

62. Migration Policy. The federal authorities are hoping to be able to divert the flow of migrants, who have traditionally gravitated towards

the Center-South, into new regions in the Center-West and along the newly colonized frontiers to the North and West. Or, at least, it is hoped to supplement the traditional axis with opportunities for migrants, both in official resettlement schemes and elsewhere, along these new frontiers. In the words of one Ministry of Labor spokesman, there is no intention "to break the 'El Dorado' image of the Center-South" which is often wrongly held by many of those who migrate to the region. The achievement of a more balanced distribution of migrants, however, is probably some way off. Even though the opening up of the frontier regions is proceeding quite rapidly in terms of the construction of the trans-Amazonica and Cuiaba-Santarem highways, the settlement of migrants along these axes is progressing only slowly.

63. Education and the Literacy Program. These subjects have been dealt with elsewhere in the report, so there is no detailed account offered here. Human capital formation, however, whose generally deficient levels have been a distinguishing characteristic of the region, constitutes a need of the first priority both in urban and rural areas. Although much still needs to be done, there has been progress in spreading education across a wider base of the population and in reducing illiteracy.

64. Despite the progress made in spreading education there remains a need, not just to widen the access to elementary education still further, but also to improve the access to secondary education and thereafter to the universities and colleges. Given the importance of private schools in the system there are often still financial barriers inhibiting entry into secondary and thence to higher level education. This perpetuates the existing pattern of income distribution and is regressive.

65. The lack of comprehensive data on the existing educational profile of the employed labor force, together with a lack of systematic information about the region's needs for different types of trained labor, precludes the making of any detailed manpower forecasts for the Northeast. Visits to industrial enterprises in the region, however, many of which undertake on-the-job training of various kinds tended to suggest a shortage of skilled and highly skilled, though not of course of low-grade labor.

66. The Labor Market. As urbanization of the Northeast proceeds, so will the need for an organized and efficient urban labor market become an important factor in the employment situation. At present both the regional delegations of the federal and State Ministries of Labor and the two social services institutes for Commerce and Industry (SESCI and SESI) operate some form of labor exchange system where workseekers and employers needing labor can register. This function, however, forms only a secondary role of these institutions and it is not clear how efficient their operations are in this respect. In the Northeast, only 47.5 percent of those seeking work in 1970 approached the labor exchange while about 70 percent did so in Guanabara-Sao Paulo. (See Table 23). Since the institutions have only a single recreation office in each major urban center and none in rural areas in the Northeast, there is only a relatively limited information spread about these activities which could be improved by building a network of offices and by more active advertising.

67. Development Strategy and Employment. Some of the conflicts inevitable in a strategy of industrial development which relies heavily on a bullish private sector encouraged by subsidized public capital have already been mentioned and need no elaboration here. In the same category also is the issue of whether the incidence of social security contributions is rationally placed. Macro-economic policy could be reexamined to see if the relative real prices of labor and capital could not be adjusted.

68. The point here is not the simple one that assumes a wide choice of techniques such that employers will choose more labor intensive methods if relative prices were different. The impact of this effect is probably quite limited. If, however, capital can be rationally priced this will tend to shift the allocation of capital to the most efficient (rather than the most privileged) producers who may be accustomed to making comfortable profits with a relatively inefficient use of capital. Tightening up efficiency could increase both output and employment. A shifting of the heavy burden of social contributions from the wage bill, however, seems a prerequisite to eliminate the current reluctance of employers using relatively large amounts of labor to expand their employment.

69. Shadow Wages in the Northeast. If the legal minimum wage implies an arbitrary distortion between the actual market price of labor and its free market price, the existence of the social security contributions add still further to the distortion since they raise the cost of labor to the employer. From the social point of view these imply some positive limit to the shadow wage insofar as a portion of the contributions is committed to providing some of the urban amenities "consumed" by the urban worker.

70. As an illustrative case, merely to reflect possible orders of magnitude, it might be of interest to report the results of a very rough attempt to define the limits of the shadow wage for a port construction project in Recife. Assuming the upper limit to be the going market wage for an unskilled construction worker, this gave a figure of Cr\$190.00 a month in 1971. Assuming that the public authority does not intervene to assign specific weight to encourage employment, the lower limit can be defined in terms of the opportunity cost of labor (i.e., output foregone in a previous activity) plus the indirect costs involved in migration, urbanization and increased consumption.

71. Since open unemployment is very low in the Northeast, newly employed labor would be found from among the underemployed. Whether or not any output is foregone depends upon whether the man taking up the new job has his work taken up by someone else. In the last count the output lost will probably be in the rural area as the rural-urban migrant takes up the place left among the urban underemployed by the newly employed worker. This output loss could be close to zero, but many of the migrant are in the most productive age groups, so something close to the average product may be lost. In Pernambuco this was probably in the region of Cr\$35-45 a month for the poorest class of agricultural worker in 1971. Add to this an estimate of the indirect costs<sup>1/</sup> which came to Cr\$22.00 gave a final lower limit of Cr\$57-67, i.e., about 35-40 percent of the market wage. These estimates, however, could not be defended very vigorously.

<sup>1/</sup> Based on the urbanization costs derived by EDMAR BACHA, op. cit.

72. Research and Data Collection. Research in a number of fields relevant to employment, migration and incomes is being planned in various parts of Brazil which should provide useful policy guidance for the future. A detailed account of these is given in a recent IBRD report on the subject.<sup>1/</sup> New efforts are also being mounted to expand and improve the existing quarterly household survey to improve information on incomes, savings, consumption, migration and fertility patterns amongst others. Standardization and centralization of data collection and publication is also being planned by the DNMO in an effort to eliminate inconsistencies between law of two-thirds data and that from other sources. All this bodes well for the future state of knowledge in this field.

#### V. FUTURE PROSPECTS

73. The only firm basis for assessing prospects for the future, other than simply projecting past trends, is the SUDENE plan which covers expected developments in the coming years. Using the plan as a yardstick it is possible, in the light of the discussion of earlier sections, to gain a general impression of the prospects for future employment and incomes.

74. Employment Growth. The SUDENE plan envisages a growth in regional product of around 10 percent per annum through the current decade. This compromises the sectoral growth rates shown in the table below. The employment impact which would follow the achievement of these targets depends on the future changes in employment-output elasticities, i.e., on the respective rates of productivity growth in each sector. This is difficult to forecast. The only available basis is to project past elasticities which is the procedure adopted below for the services sector and agriculture. For industry, there is more definite information in the form of the pipeline of SUDENE-approved projects which, as described in paragraph 38 above, may be expected to create about 300,000 jobs in this decade. Assuming construction and utilities expand their employment by roughly similar proportions (which they may do in response to the growth in manufacturing) this gives a total employment expansion for industry of 583,000.<sup>2/</sup>

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<sup>1/</sup> "Development Research in Brazil as an Aid to the Definition of the Bank's Lending Program," Peter B. Clark, John Simmons, May 1972, IBRD.

<sup>2/</sup> This implies an employment-output elasticity of .39. The elasticity recorded for industry in the period 1960-70 was .56. The decline reflects the inclusion of organized sector manufacturing projects which have a relatively high productivity rate (see paragraph 39 above).

EXPECTED GROWTH IN LABOR FORCE AND EMPLOYMENT, 1970-80

Expected Annual Increase	Output %	Employment %	Elasticity	Absolute Increase 1970-80
Industry	15.0	5.5	.39	0.640
Services	10.0	5.4	.54	1.241
Agriculture	<u>6.5</u>	<u>0.5</u>	<u>.10</u>	<u>0.264</u>
<u>Total</u>	10.0	3.1	.31	2.145
Expected growth in labor force				2.767 <sup>1/</sup>
Deficit				0.622

<sup>1/</sup> This estimate assumes that the growth in labor force in the seventies is determined by the growth in population in the sixties (i.e., 2.9% p.a.). This probably leads to a slight overestimate because it fails to allow for possible declines in participation rates as education enrollments expand.

Source: Demographic Census; DEICOM/IBGE; Getulio Vargas Foundation (FGV)

75. These quantities indicate that, even if the expected employment growth is achieved (which would be a considerable accomplishment) there would still be a need for the migration of a little more than 600,000 migrants if underemployment in the region were not to increase. These estimates, of course, take no account of the existing backlog of underemployment comprising about 1.8 million. The prospects for reducing underemployment are thus entirely dependent upon how great the outmigration is in excess of 600,000, and, of course, on income growth.

76. The Amazon resettlement is reputed to be able to absorb 700,000 families in the decade but this is doubtful. Probably half this number, if that, is a more realistic estimate. The fate of the residual will depend on the rate at which new labor can continue to be absorbed in the Center-South. In any case, 600,000 workers equates (on previous patterns) to about 1.7 million people which, as shown in the projection of Table 1, implies a migration rate of 5.0 percent. Unless drought conditions return to force people out, it seems unlikely that migration will exceed this rate. The chances of significantly reducing underemployment, therefore, seem slim. Certainly the SUDENE prognosis, which sees underemployment declining by 5 percent or more, seems optimistic.

77. Structural Change and Incomes. The achievement of the expected growth rates in employment would certainly bring about a significant change in the structure of the regional economy. As the table below shows, agriculture's share of employment would decline by 10 percent, implying a

significantly more rapid rate of transformation than in the previous decade. The services sector, however, would still provide the bulk of the expanded urban employment.

The Changes in Sector Shares of Employment  
According to SUDENE Estimates for 1970-80

	1970		1980	
	(000)	(%)	(000)	(%)
Industry	904	10.8	1437	13.9
Services	2299	27.5	3540	34.4
Agriculture	5157	61.7	5330	51.7
<u>Total</u>	<u>8362</u>	<u>100.0</u>	<u>10307</u>	<u>100.0</u>

Source: SUDENE

78. The impact which these changes may have on incomes is difficult to assess without a more detailed knowledge of the types of activity making up the new employment. In industry, although its share might not expand very rapidly, the prospect is for most new employment to be in organized activities yielding relatively high incomes. This seems assured by the existing pipeline of SUDENE approved projects, all of which involve modern sector operations offering contractual wage employment. The employment growth in the services sector, however, offers less grounds for optimism. A high proportion of the labor absorbed into this sector may be taken up into the low income unorganized sector, or in the poorer grades of the public sector. In the latter case, income growth depends not on productivity but on transfers of real income growth in other parts of the economy.

79. The growth of incomes within agriculture will depend to a large extent on the successful implementation of the various public programs to boost production in this sector, although natural conditions are inevitably paramount here. On past performance, an average growth in agricultural output of 6.5 percent is high. So, too, are SUDENE's expectations for the other sectors. An overall growth in regional product of 10 percent per year would imply a per capita income growth of about 7.5 percent. This would be a substantial achievement even for economies with a greater resource endowment than is currently visible in the Northeast.

STATISTICAL APPENDIX

A Note on Employment Statistics

1. There are three principal sources of employment data for Brazil, namely the Demographic Census, the PNAD Surveys<sup>1/</sup> and the data collected by the Ministry of Labor in relation to the "Law of Two-Thirds". In terms of coverage, and in the detailing of different qualitative characteristics of employment the PNAD data are the best and, as described below, this source also gives very useful information on unemployment and underemployment. The problem with the PNAD data is that they go back no further than 1968 and so do not allow the examination of long-term trends. As a source of data for the future, however, the PNAD system provides exceptionally good information by most developing country standards.<sup>2/</sup> The "Law of Two-Thirds" data, although they go back further than PNAD, are relatively deficient in qualitative information and they do not cover agriculture. Also, reporting seems to be erratic, resulting in highly unstable fluctuations in apparent rates of growth of employment. For the examination of long-term trends the census data provides the only consistent record and they are generally accepted as the most reliable source for this purpose, although again, there are certain problems with these, too.<sup>3/</sup> The basic structural analysis of this paper is based largely on the data from the demographic census.<sup>4/</sup>

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<sup>1/</sup> A household survey system giving quarterly results for all regions of Brazil.

<sup>2/</sup> At present there are some inconsistencies between PNAD data and, for example, the census information which I have not as yet been able to explain. One case of this is that PNAD shows a total labor force for the Northeast of 9.2 million as against 8.4 million from the census. This kind of discrepancy is possibly due to an inflated population estimate in building the PNAD universe.

<sup>3/</sup> The 1960 census, for example, is essentially incomplete and carries very little reliable data at disaggregated levels, while that at aggregate levels needs adjusting for consistency with the other censuses. Also, the censuses do not give data for unemployment and "employment" is found by proxy under the heading of economically active population by sector. The latter, as is common to most data of this type, include the unemployed and underemployed.

<sup>4/</sup> A fourth source of data, which gives information from routine industrial enterprise reporting for the manufacturing sector, is the IBGE (DEICOM) data contained in the publication Producao Industrial. Here again, coverage is partial and dates only from 1965 (with some information for 1958). Further, employment growth data from this source appear unduly low in terms of corresponding data for output growth. Implications of this are discussed in the text.

A Summary of Findings from Other Studies  
of Income Distribution

There are three studies, other than that by Langoni, which have attempted studies of the distribution in the Northeast. In addition, some estimates were made by the mission of distribution changes within each sector in the region.

1. The Goodman-Cavalcanti Study:

D. Goodman and R. Cavalcanti have completed a study of industrialization in the Northeast<sup>1/</sup> in which they estimate from demographic census data the change in concentration ratios of personal incomes of the economically active population over the period 1960-70.<sup>2/</sup> Using Gini ratios as the measure of concentration, their study showed both a lower degree of inequality in the Northeast and less of a deterioration than in Brazil as a whole. A deterioration was found nevertheless with the overall Gini ratio moving from .50 in 1960 to .56 in 1970. This comprised sectoral movements as follows:

	1960	1970	% Change
Agriculture	.39	.35	-11.1
Industry	.45	.54	20.0
Services	.58	.60	3.5

The problem with this study is that very little discussion is given to methodology so it is difficult to compare with confidence these results with those of other studies. The Gini ratios alone are published, but not the cumulative frequencies underlying them.

2. The Study by the BNB-ETENE:

There is a study published in 1969 by the BNB/ETENE<sup>3/</sup> which is based on household survey data of consumption patterns in a dozen cities in

<sup>1/</sup> "A Industrializacao do Nordeste" IPEA, Rio 1971.

<sup>2/</sup> On account of the way the data are presented in the census, all size distributions of income have to be on the basis of the economically active (or inactive) individuals. Neither household nor family income data are available.

<sup>3/</sup> "Distribuicao e Niveis da Renda Familiar No Nordeste Urbano", BNB, December 1969.

the Northeast, which also shows that, in the urban sector at least, inequities worsened during the sixties. This study does not calculate unified concentration ratios but shows by drawing Lorenz curves for pairs of years through the sixties that a deterioration occurred in all cases. It attributes this fact to the common tendency for rural-urban migration to swell the urban population at the lowest income levels. A major problem with this study apart from the fact that it covers only urban areas is that it draws data mostly from the period 1964 to 1968, i.e., precisely during the period of price-wage stabilization in which it is known that wage earners generally suffered some relative declines in real incomes, a factor not accounted for in the study. It is important to distinguish these effects from changes in concentration which follow from the structure of economic growth.

3. The Study by A. Fishlow:

In an as yet unpublished study on income distribution in Brazil, Albert Fishlow of the University of California has estimated size distributions for the Northeast based on the demographic census data. His work is as yet incomplete but his current estimates reveal that the overall concentration in the Northeast changed very little during the sixties. In fact, led by a quite sharp lessening of inequality in agriculture, the overall Gini ratio showed a very slight decline during the period (moving from .57 in 1960 to .56 in 1970), thus indicating a lessening of overall inequality. Within the urban sector, however, he records a deterioration. The respective Gini ratios for the major sectors are as follows:

	1960	1970	% Change
Agriculture	.51	.37	-37.8
Urban Sector	.55	.60	9.1

Fishlow explains the sharp improvement in equality in agriculture in terms of the outmigration of unpaid family workers, who formed only 17 percent of the reporting population in 1970 as against 27 percent in 1960. However, their departure may have produced a statistical result unrepresentative of economic performance. Apart from the fact of increased inequality in the urban sector it is the fact of widening income differentials between agriculture and the other sectors which offsets the total effect of the improvement within agriculture. The estimated average income in agriculture in 1960 is 64 percent of average regional income. By 1970 it is 56 percent.

4. The Mission Estimates:

Using data from the demographic census in 1960 and 1970, and employing techniques similar to those used by Fishlow,<sup>1/</sup> but with a different

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<sup>1/</sup> This involved fitting Pareto functions to the distribution data arranged in cumulative frequency form.

treatment of the unpaid family workers, the mission found the following Gini ratios. The cumulative frequencies underlying these are shown in Tables 25 and 26.

	1960	1970	% Change
Agriculture	.33	.28	-15.2%
Industry	.47	.58	23.2%
Services	.61	.62	0.5%
Total Non-Agriculture	.65	.63	-3.2%
Overall Total	.50	.53	6.0%

These results are qualitatively similar to those of Fishlow in that they reveal a lessening of inequality within agriculture. They differ with both Fishlow's results and the BNB study, however, insofar as they reveal little change in equality within the urban sector as a whole, rather than a deterioration. As for the individual urban sectors, the results are close to the Goodman-Cavalcanti study, showing little change within the services sector, but a sharp deterioration within industry.

Data Limitations, Technical Problems and their Implications

1. All of the studies of distribution mentioned above suffer from two basic limitations, namely:
  - a. The distribution profile has to be estimated from census data which shows a relatively small number of income groups designated by upper and lower income limits, but without a stated mean income for each bracket. Langoni does not face this problem for the distribution in 1970 because he has access to individual reported incomes. The profile he draws for 1970 is thus based on observations, not estimates. For 1960, however, Langoni's study, like the others, is based on estimated means.
  - b. The income data reported in the census reflects only monetary income. Apart from the usual caveats arising from the possibility of certain groups misreporting their true money incomes, these data deserve qualification because money income, even if accurately reported, comprises only a part of total income. Thus, even where a good approximation of the profile of reported incomes can be obtained (as in the Langoni study for 1970) there is still considerable uncertainty as to whether the reported profile gives a true representation of real incomes.
2. Not all of the studies mentioned treat these problems in the same way. In some cases many of the issues arising from data imperfections are simply ignored. There is no sense here in attempting a detailed critique of the methodology of each study. The approach will be to outline the main issues thought to be relevant to the results achieved in the various studies. Particular emphasis will be placed on the work by Fishlow and Langoni since these are the two major studies.
3. Estimates of the Income Profile. In all except the Langoni study of 1970 the profile of incomes has been estimated by fitting a Pareto function to the reported income groups with arbitrary assumptions about the mean income of each group. In particular, the means of the lowest and highest income groups, which are open-ended in the data, are assumed to be approximated by the fitted Pareto curve. This is an assumption common to such studies of distribution, but it can lead to distorted results. It is apparent from a cross-check of Langoni's observed profile for 1970 against Fishlow's estimates for the same year that the Pareto function does in fact tend to overstate the mean of the upper income bracket. Thus, even with Langoni's study there is uncertainty about the accuracy of the profile drawn for 1960 (and in the other studies for both years).
4. Unpaid Family Workers. An additional problem arising from the reported data is that these contain a group in the labor force who report no income, assumedly on account of their being unpaid family workers. To include this group in the profile will overstate the degree of inequality. To exclude

them may (though this is less certain) bias the results in favor of equality. Langoni excludes the group, as do the estimates made by the mission. Fishlow in his estimates for the Northeast (though not for Brazil as a whole) includes the group without adjustment. This is part of the reason for the sharp improvement in his estimated distribution for the agricultural sector, (where about 80 percent of the unpaid workers are found) because their numbers fell sharply between 1960 and 1970. There is at present no satisfactory way to treat this group. Only after the production of family income data (to be made available from the 1970 census) will an unbiased treatment be possible.

5. Non-Reported Incomes. There are several categories of non-monetary income not reflected in the census data. These include the implicit income of property owners, self consumption in agriculture, and the consumption of public goods such as health, education and other amenities. This latter category has received very scant treatment in the studies mentioned on account of the lack of information. Langoni conjectures, on the basis of a qualitative treatment of this issue, that its impact on balance is probably regressive, i.e., the income derived from health, education and public transport tend to be urban biased and hence favor those in middle and upper income groups. Production of the data from the forthcoming PNAD will serve to improve future treatment of these issues.

6. Adjustments are made on the data for Brazil as a whole by both Fishlow and Langoni to account for self-consumption in agriculture. Fishlow attempted estimates of the impact of self-consumption in agriculture on the 1960 data using information derived from the Getulio Vargas Foundation family budget survey from which he was able to adjust the monetary incomes of different categories of agricultural labor. He found that the average income in agriculture was increased by 38 percent after including the imputed self-consumption. Langoni introduces similar adjustments to the 1970 data but based on information from the agricultural extension service (ASCAR) surveys. He claims his adjustments give less chance of distortion than Fishlow's because he is able to discriminate between a number of income groups than could Fishlow. Interestingly, he finds that the impact on average incomes of his adjustment is only 15 percent, i.e., less than half that found by Fishlow. However, there is a marked difference in the impact on different income groups. The adjustment varies from a negligible one percent in the highest income group to 79 percent in the poorest group. Rather surprisingly, however, these adjustments do not have a very significant effect on the measured degree of inequality within agriculture. The Gini ratio declines by only one point. Given the relative importance of subsistence agriculture in the Northeast it seems likely that if these adjustments were repeated for the region the change would be greater.

7. Fishlow attempts adjustments to account for the imputed rent of homeowners and domestic servants living with their employers. Again, however, these adjustments were not made on the data for the Northeast. There may be some bias resulting from this omission but the net direction of the bias is not clear. Langoni, for his part, regards this issue as of secondary importance.

8. Differential Costs of Living. There is an undoubted bias in the census data incurred by the fact that reported incomes are in nominal terms and take no account of relative purchasing powers in different regions and between rural and urban areas. Fishlow fails to mention this point at all. Langoni, on the other hand, draws attention to it, pointing out that most people in the upper income brackets live in urban areas where prices are much higher. He argues this is a case for assuming that reported incomes will systematically overstate the income of the rich, but he does not attempt any quantification of this effect. Further, if his point is valid, it seems the corollary must be that reported incomes would understate the income of the poor, so the final bias from this effect may not be very great.

9. Differential Inflation Rates. Since the market bundle of the rich is likely to be quite different from that of the poor it is likely that their respective inflation rates have also been different. This may be particularly important insofar as the prices of services and other items, which weigh more heavily in the bundle of the upper income groups, have risen at faster rates than those of basic wage goods. The C.O.L. Indexes in Brazil are based on weights found from budget surveys of income groups equating to unskilled labor in industry<sup>1/</sup> and is, therefore, inappropriate for use in deflating the incomes of upper income groups. An attempt was made to use the Paulding Index<sup>2/</sup> for executive C.O.L. movements. This index has clearly risen at a much faster rate than the index for Guanabara.<sup>3/</sup> In 1971, with 1960 as base, the Guanabara Index was 4441.0 while the Paulding Index was 8259.1. The problem with this index, however, apart from some doubtful implications relating to its method of construction, is that it is based on a very high income by Brazilian standards. It takes as its average family one which spends NCr\$65,000 a month in 1957 prices which is more than twice as high as estimated means of the upper income bracket in 1960. My feeling was that this would apply to a very small minority of income earners which, on the basis of the existing data, could probably not be identified as a separate group. To use the index for the whole of the reported upper income group would probably distort more than improve the calculations. Thus, no adjustment was made for differential inflation, and this probably means that the growth in reported money incomes of the upper group to some extent overstate their growth in real terms relative to that of the poorer groups. A rough indication of the possible scope for bias is that the price index for personal services increased by 40 percent more over the period 1960-70 than the overall consumer price index. There is no reason to believe why this effect should apply any less to the Northeast than to the whole of Brazil.

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<sup>1/</sup> I have this information from the Statistics and Econometrics Division of the Getulio Vargas Foundation.

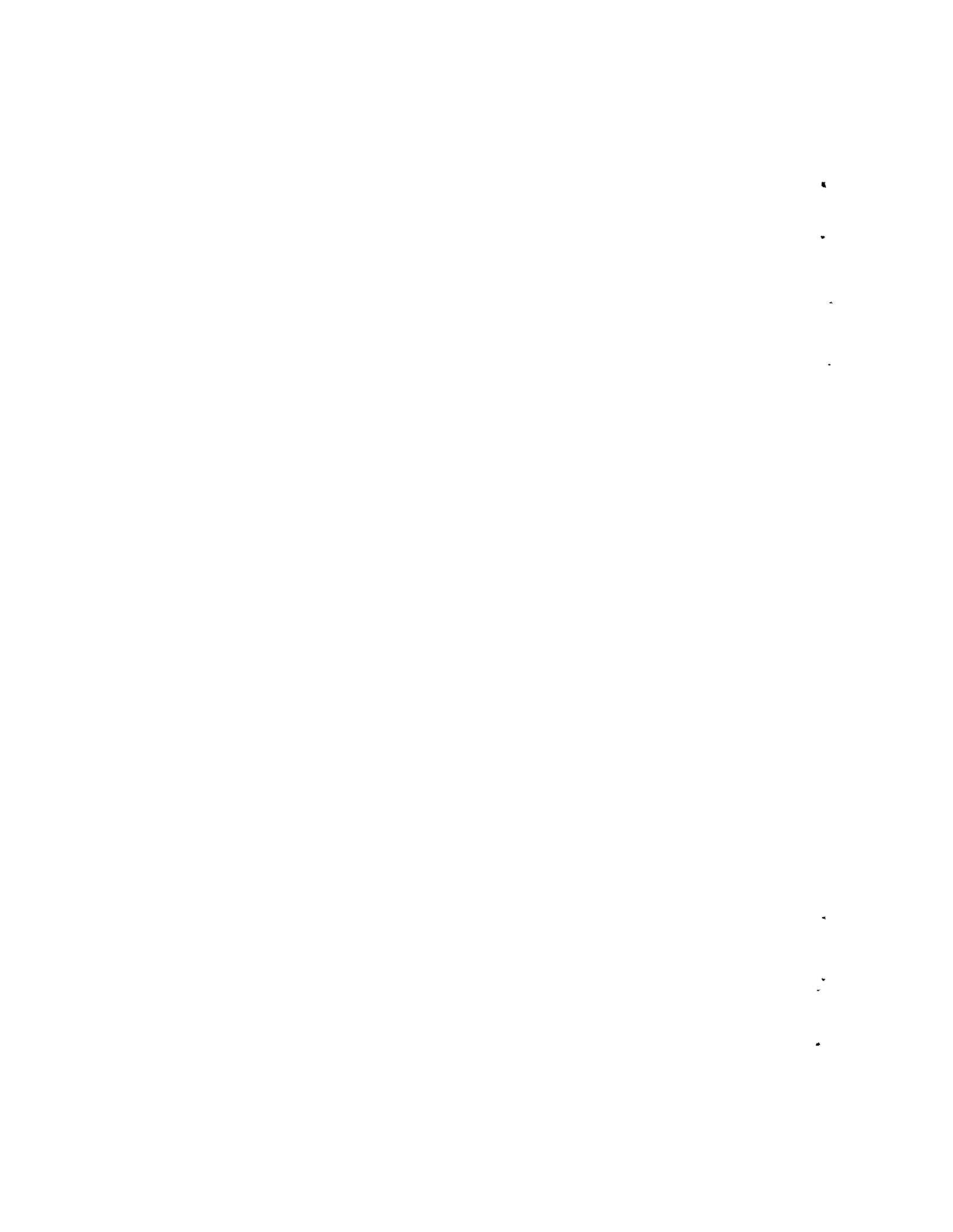
<sup>2/</sup> Derived from "Executive Cost of Living Requirements in Rio de Janeiro and Sao Paulo" Paulding Associates, Rio de Janeiro 1968, plus additions for later years.

<sup>3/</sup> Ideally, we should use a regional C.O.L. index rather than that for Guanabara. As yet no regional index is published. A number of indexes for cities in the Northeast are compiled by the Ministry of Labor but on examination these were found to be little different in evolution to the Guanabara index. They are in any case only available since 1969.

10. The Impact of Taxes. A corollary of the issue arising from the impact of the income derived from the consumption of public goods is the redistributive effect of the tax structure. Langoni examines the issue for Brazil as a whole, finding some, though not very much, progressivity in the incidence of income tax. The issue is not tackled for the Northeast separately but he finds, in any case, that the pre- and post-tax profiles do not differ very greatly.

11. Part Time Earnings. Langoni emphasizes the fact that the income profile drawn from the census reflects the earnings of both part-time and full-time workers. This will always reflect greater inequality than the profile drawn for full-time workers only because the inclusion of part-time workers swells the numbers of below average income earners. Most part-time workers are women doing jobs to supplement family incomes. Including them as individual income earners thus distorts the real income profile. As can be seen from Table 9, this is of greater importance in the Northeast than, e.g., in the Center-South.

ANNEX II - THE EDUCATION AND TRAINING SYSTEM



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## SUMMARY AND CONCLUSIONS

1. Quantitative measures indicate that the education and training system of Northeast Brazil has responded impressively to the growing national commitment to education. Between 1964 and 1970 enrollments in the formal education system increased on average at a rate of 5.1 percent per annum at the primary level (grades 1-4), 12.9 percent at the ginasio level (grades 5-8), 14.7 percent at the colegio level (grades 9-11) and 10.3 percent at the higher level. The primary and colegio enrollment growth rates surpassed those for Brazil as a whole. In 1970 the Northeast accounted for 26 percent of Brazil's primary school enrollments and for 14-17 percent of enrollments at the other levels, with Northeast being: primary -- 3.30 million; ginasio -- 0.53 million; colegio -- 0.19 million; and higher -- 0.06 million.
2. Vocational apprenticeship training provided in the Northeast by the national associations of industry and commerce (SENAI and SENAC) has also increased substantially, with trainees in 1970 numbering 32,000 or ten percent of the national total. In addition, in its first year Brazil's national literacy campaign (MOBRA) involved over 1,000 or 75 percent of the Northeast's municipalities in programs of adult education. By mid-1971 the Northeast accounted for 360,000 or 42 percent of the adults successfully alphabetized by MOBREAL.
3. Despite these gains, however, there remain significant regional disparities and imbalances regarding the distribution of education opportunities and attainments and the efficiency and quality of the education system. Enrollment ratios for the relevant age groups in the Northeast are lower than overall Brazil average at all levels of education, amounting to only 45-50 percent of the primary age groups versus almost 70 percent for all Brazil. The education attainments of the Northeast labor force show that 63 percent of the economically active population (ten years old and above) had less than one year of schooling compared to 36 percent for Brazil as a whole. With almost one-third of Brazil's population, the Northeast still accounts for about one-half of the country's 15 million illiterates over 14 years of age.
4. A comparison of education efficiency shows that 81 percent of primary school students drop out before completing grade four in the Northeast, compared to 64 percent for all Brazil. Due to wastage in the system caused by repeaters and dropouts, it takes eleven student years to graduate one primary school student in the Northeast, compared to 8 student years for Brazil at large.
5. Secondary level education dropout rates are much lower than for the primary level but still show a similar disparity between the Northeast and all Brazil. A selective examination between the primary and secondary levels has contributed to the lower dropout rates in secondary schools. About one-half of primary graduates continue to secondary school.

. Comparisons between the Northeast and all Brazil should not obscure the disparities within the Northeast itself between urban and rural areas. Enrollment ratios, literacy and labor force education attainments, and (in most Northeast states) education efficiency in the rural areas are all lower than in the urban areas. By these measures, the rural areas of the Northeast also compare unfavorably in most instances with rural areas in Brazil as a whole.

. Contributing to the low efficiency of the Northeast's education system is the fact that at least one-half of primary and secondary school teachers are unqualified. Most teachers are part-time and may hold another job or teach in several schools. Another contributing factor is the lack of sufficient physical facilities (70 percent of primary schools have a single classroom) to keep students in school for more than a few hours each day. Most primary and secondary schools operate on a triple shift basis. In addition the curriculum at both levels is crowded and difficult and text books are rare. Socio-economic factors, such as seasonal agricultural work and distance to school in the rural area, also undoubtedly contribute to the system's inefficiency.

. Manpower data required to evaluate the external productivity of the formal education system is lacking, although a main criticism of the present system is that it is too theoretically and academically oriented and thus limits the adaptability of graduates and dropouts to job tasks in the labor force. Academic and university oriented streams accounted for approximately 80 percent of secondary school enrollments in 1970. The percentage of enrollments in industrial and commercial streams combined declined slightly during the 1960's (amounting to 12 percent of ginasio and 23 percent of colegio enrollments in 1970.) Enrollments in agricultural streams account for less than 1 percent of enrollments. There has been no regional education development strategy to parallel the Government's regional development projects and plans.

. The decentralized institutional structure of the Brazilian education system gives the states the main responsibility for administration and finance of primary and secondary education. Between 1964 and 1970 state education expenditure accounted for an average of 60 percent of total public education expenditures and were concentrated (about 60 percent) at the primary level, where they provided the bulk of total public primary education expenditures. A relatively small share of state education expenditures (about 30 percent) accounted for almost three-fourths of total public secondary level education expenditures. Municipality education expenditures amounted on average to 12 percent of the total and were applied largely at the primary level. Federal Ministry of Education expenditures accounted for 28 percent of total expenditures on average and were directed mainly to higher education, where they provided approximately 90 percent of the expenditures.

. Between 1964 and 1970 total public education expenditures in the Northeast increased at an average annual rate of 15.5 percent in real terms with education expenditures by all levels of government making substantial

gains. The growth in expenditures was not enough, however, to improve the Northeast's share of total Brazilian public education expenditures. With more than 20 percent of Brazil's enrollments, the Northeast in 1970 accounted for only 14 percent of total national public education expenditures, the same share it accounted for in 1964. Expenditures per student at the primary and secondary school level in the Northeast are approximately one-half the comparable expenditures in the more developed states of Brazil. This can be attributed to (a) placing with the state governments the main financial and administrative responsibility for primary and secondary schooling and (b) the inadequacy of federal transfers for education in compensating for different state financing capacities.

11. Recent trends show that on the average the states have been committing to education a slightly larger share of their budgetary resources (from 14.7 percent in 1964 to 16.3 percent in 1970) and that reliance on these resources has grown significantly in comparison to transfers from the Ministry of Education. An average of 92 percent of the states' budgetary resources devoted to education, as well as a considerable portion of federal transfers for education, go to meet recurring costs, mainly personnel salaries. With the present availability of funds the states cannot afford to devote any significant amount of their own resources to capital investments in education.

12. Recent reforms enacted by the Government are intended to:

- (i) change the structure of the education system by combining the primary and ginasio levels into an eight-year course of basic education;
- (ii) expand education opportunities at this new level to include 80 percent of all 7-14 year olds by 1975, while streamlining enrollments to eliminate repeaters and dropouts;
- (iii) end early specialization by providing exploratory pre-vocational courses only during the last two years of the eight-year basic cycle;
- (iv) orient curricula and enrollments at the colegio level to job opportunities, providing adequate professional training to students who will not continue to higher education.

13. The implementation of these reforms rests with the individual states. Consequently, the reforms' success will depend largely upon the states' physical and financial constraints. Federal assistance will be channelled through the Education Salary Tax, an earmarked transfer mechanism, and several Northeast states will receive additional assistance from USAID. No cost estimates for the reforms have yet been derived; these are to be determined on the basis of results of a school mapping and inventory of existing facilities now being conducted by the states.

14. Federal government objectives give great emphasis to quantitative expansion of enrollments, particularly among the 7-14 year old age group. The low quality of education and the past rapid expansion at this level in the Northeast require that future quantitative expansion be balanced against quantitative improvements. Relatively little attention is being paid to the colegio level (grades 9-11), and there is a great need to expand education opportunities at this level. The system of financing higher education through the Federal Ministry of Education results in excessively high expenditures at this level relative to primary and secondary education. Improvement and expansion at the primary and secondary levels in the Northeast states to correct existing regional disparities require that greater resources be provided through transfers from the Federal Government.

15. Mission projections possible at the primary and ginsasio school levels in the state and municipal systems show that, excluding the cost of conversion to the new structure of basic education and the subsequent increased student flow between the primary and ginsasio levels, the state and municipalities would face a gap in recurrent expenditures alone of some Cr\$170 million by 1975 and Cr\$240 million by 1980 simply by maintaining the enrollment growth rate achieved between 1964 and 1970, with the same relatively low qualitative level. Estimates of school construction needs to facilitate the same continued enrollment growth suggest that on the basis of past capital expenditure patterns, the states and municipalities would face a capital investment gap of some Cr\$300 million by 1975 and Cr\$850 million by 1980

16. There is a clear need to strengthen state education planning units and to relate planning at the federal level to state and regional disparities and priorities. National education objective may not be consistent with state and regional development needs, and national enrollment targets have little meaning for states with below average enrollment ratios, such as those in the Northeast. Migration and its costs and benefits need to be analyzed and taken into account in the formula used for the allocation of federal transfers for education in the Northeast.

## I. THE EDUCATION AND TRAINING SYSTEM

### A. Institutional and Administrative Background

1. The institutional and administrative characteristics of the educational system of Northeast Brazil must be viewed in the national context. The Brazilian education system is a decentralized one in which functions and authority are dispersed among a number of institutions and governmental levels. Frequently, the functions and areas of authority of one institution or governmental level overlap those of another. The principal thrust of constitutional and legislative measures regarding education has been to assign planning and coordination authority as well as supplementary financing responsibilities to the federal level, leaving the main responsibility for education administration and finance (excluding the university level) to the states and municipalities.
2. Despite these broad divisions, however, the Federal Government shares policy making, planning, teacher-training, as well as financing functions, with the states and, to a lesser extent, the municipalities. To the extent that it maintains primary schools and a large number of technical vocational secondary schools, the Federal Government also shares the administrative function at these levels. Public (federal and state) and private universities and other institutions of higher education are administratively autonomous. Religious and lay organizations in the private sector maintain institutions at the three levels of education. Two large organizations within the private sector, the National Service of Industrial Apprenticeship (SENAI) and the National Service of Commercial Apprenticeship (SENAC), maintain centers of vocational training in each state.
3. The basic institutional framework of the present formal public education system was established in the Law of Policy and Principles (Lei de Diretrizes e Bases) of December 1961. This law also attempted to define more clearly the functions and areas of authority corresponding to the different levels of government.
4. Established by the law, the Federal Council of Education (consisting of 24 educators appointed for six years by the President of the Republic) is the principal body responsible for developing overall education policy in Brazil, including the drawing up of basic guidelines and standards as well as the criteria for the allocation of the federal education budget resources to the different levels of education. The executive arm of the Federal Council of Education is the Ministry of Education and Culture. In addition to its responsibility for directly administering a relatively small number of federal primary schools and a relatively large number of technical vocational secondary schools, the Ministry of Education has been given a number of major responsibilities directly involving the states:

- (a) it is encharged with exercising a "supervisory and supplementary" role in primary and secondary education to ensure that state policies and practices are consistent with those laid down by the Federal Council of Education;
- (b) it is responsible for allocating federal monetary transfers among the states and controlling the subsequent expenditures;
- (c) it is responsible for the coordination of education planning between the federal and state levels and for the provision of technical assistance to the states for planning and administration.

5. The broad responsibilities of the Ministry of Education have given it a significant role in the interpretation of national education policy itself and made the Ministry the crucial link between the federal and state levels. To simplify its procedures and function more efficiently, the Ministry has been reorganized since 1970 under the leadership of a new and dynamic Minister of Education. Some 70 internal entities reporting to the Minister were reduced to 8 major departments (See Chart I) and 106 separate budgetary entities were consolidated into 20 within a composite Ministry of Education Budget. Each of these departments -- particularly those dealing with primary and secondary education -- maintains direct contact with state education authorities, largely through the provision of technical assistance.

6. In spite of the important role and responsibilities of the Ministry of education, however, the education system in Brazil remains decentralized, for in practice the Ministry operates as an advisory rather than regulatory body vis-a-vis the states. In the end, practical decision making with regard to education organization, administration, and finance (excluding federal universities) is in reality left to the states themselves. Hence, although the Law of Policies and Principles intended to decentralize only the administration of education, the states are, in fact, largely autonomous in other spheres as well. For example, little control is exercised over the use of federal monetary transfers, and the states are generally free to use these as well as their own much larger budgetary education funds as they see fit. Similarly, the states enjoy a great deal of leeway in conforming their own education plans and objectives to those articulated at the federal level.

7. The principal body responsible for defining policies and programs in each state is the State Council of Education, established by the 1961 Law of Policies and Principles. Like their federal counterpart, the State Councils have an executive arm -- the State Secretariats of Education -- which are responsible for the administration of the state education system. Generally, the organization of the State Secretariat includes functional departments somewhat similar to the Federal Ministry of Education. (The organization of two State Secretariats -- Ceara and Pernambuco -- is presented in Charts II and III.)

8. Appointed by the state governors, the state secretaries of education are generally the most influential authorities in determining programs and finance allocations within the education sector. Although larger municipalities have their own boards handling educational matters (usually related only to primary education), all municipality programs and policies are subject to the authority of the State Secretariate, and many states maintain supervisory personnel to oversee municipality education.

9. The framework of the Northeast's education system provides no institutional procedures through which the nine state secretaries of education can collaborate on a regional basis. Although SUDENE, the Northeast development authority, is formally responsible for providing a regional focus on education development problems, it has not played a regional coordinating or planning role in this sector and has no formal authority over the state secretaries of education.

10. The increased priority given to education within the last five years has led to the introduction by federal authorities of several recent major reforms in the education system. This reformatory phase in education development is likely to test severely the decentralized character of the institutional structure for education. In a country as large as Brazil, some decentralization is undoubtedly conducive to more efficient administration. The decentralization of authority, however, particularly with regard to the administration and finance of primary and secondary education, makes the timely implementation of nation-wide qualitative and quantitative reforms at these levels of education extremely problematic. The federal authorities have been given the function of drawing up national plans and targets but not the power or authority to implement them. This means that federal authorities must rely on the states to adopt and comply with federally-initiated policies and guidelines. State actions, in turn, are determined largely by the states' own administrative and financial constraints. Only when there is a substantial financial contribution attached to federally-originated policies are the states willing and able to comply without considerable delay. As a result, the adoption of national policies in such fundamental areas as teacher salaries and the structure of education occurs in varying degrees and at different times throughout the country.

#### B. Formal Education

11. As a result of federally enacted changes in the structure of primary and secondary education, a reformed or legal structure of education has come into existence alongside the still far more prevalent de facto structure.

#### Prevalent Structure

12. Primary schools offer a four-year course with entry beginning at the age of 7. Some state and municipal schools offer a fifth and sixth

year of primary education, but both of these two years account for less than 4 percent of total primary enrollment. Secondary education is divided into two levels: the ginasio (grades 5 through 8) and the colegio (grades 9 through 11). Both ginasios and colegios are differentiated according to the curriculum which they emphasize - academic, industrial, agricultural, commercial, or normal (teacher training). Although only the completion of a ginasio is required for entrance to the colegio level, an examination has been required for entrance to ginasio, resulting in a sharp drop in student flow between the primary and secondary levels. Depending on the degree sought, higher education offers courses of three to six years' duration to students passing a required entrance examination.

#### Recent Reforms

3. Two major structural reforms have been enacted by the Government. First, with the intention of eventually transforming all ginasios, the Government introduced in 1968 the ginasio polivalente, or multi-purpose school, which eliminates early specialization and provides instead two years of general education followed by two years of more specialized laboratory and workshop studies of a pre-vocational nature.<sup>1/</sup>

4. Second, in August 1971, the Government established the structural unification of the ginasio and primary levels, creating an eight-year basic education course (ensino fundamental).<sup>2/</sup> Incorporating the new concept of ginasio polivalente, this basic course is meant to prepare students for either continuation into colegio or entrance into the labor force. The elimination of the examination between the primary and ginasio levels is expected to increase pupil flow greatly, and a school mapping is being undertaken in an attempt to maximize the use of existing facilities. (See Chart IV, V and VI for comparison of different structures.)

5. The requirements and implications of the basic education program need to be assessed by the individual states in relation to their physical and financial constraints. As a result, this new program has not been implemented in the Northeast in 1972 and its introduction will be gradual, with the result that there will exist for a long transition period two education systems covering the first eight years of schooling.

6. The following discussion on trends and evaluation of the education system is based on the structure prevailing before August 1971.

<sup>1/</sup> Introduced as the "Program of Expansion and Improvement of Secondary Education" in Decree 63.914 of December 26, 1968. This program is the subject of USAID's first sector loan, amounting to US\$32 million to assist in the construction and equipping of some 300 ginasios polivalentes in four states as well as 1 ginasio in each state capital in Brazil for demonstration purposes. One Northeast state, Bahia, is included under the USAID loan. A second sector loan is presently being discussed by USAID and the Brazilian Government; it is anticipated that at least two more Northeast states will be included under this loan.

<sup>2/</sup> Decree Law 5.692 of August 31, 1971, "Directives and Bases for Fundamental and Secondary Education".

Enrollment Growth and Quality of Education

An Overview

17. As shown in Table 1 below, the national commitment to education has increased significantly since 1964. The quantitative expansion of the system has been impressive, particularly at the post-primary levels. The educational development of the Northeast region improved relatively to the

Table 1: ENROLLMENTS 1964 AND 1970

Level of Education	1964		1970		Annual Growth	
	Brazil	Northeast	Brazil	Northeast	Brazil	Northeast
Primary	10,217,300	2,450,900	12,812,000	3,300,500	3.8%	5.1%
Secondary						
1st Cycle	1,453,700	256,400	3,080,200	530,000	13.3%	12.9%
2nd Cycle	439,000	77,400	1,003,385	185,134	14.8%	15.7%
Higher	136,700	21,600	425,500	59,200	21.0%	18.3%

Source: Anuario Estatístico do Brazil 1967 and 1971.

rest of the country in the provision of primary, was about the same for secondary education but lagged in higher education, a phenomenon that could partly be explained by the migration of young people to pursue higher studies in other states. Despite these favorable enrollment trends, the Northeast states accounted for a smaller share of enrollments than their representative population, with a 26 percent share of the primary students and 14 percent of those in higher education in 1970. (Additional information on enrollments is given in Annexes 1-3.)

18. The relative improvement in the provision of basic education in the Northeast has had marginal impact so far on the disparities of scholarization rates and literacy among this region and the rest of Brazil. Almost half of Brazil's 15 million illiterates over 14 years of age resided in the Northeast region in 1970 and the enrollment ratio of the region is roughly estimated to lag the national one of about 67% by ten percentage points. Additional regional imbalances vis-a-vis labor force educational attainments also prevail, and they are discussed in detail further below.

19. Qualitative improvements in the education system have lagged the quantitative expansion. A very high percentage of the teachers is unqualified. These teachers are found mostly in the public school system, particularly the municipios where expenditures per student have chronically remained at

extremely low levels because of inadequate public finances. There are problems of inequity in the availability of educational opportunities within the region and these are accentuated by differences in the quality of education provided in the public versus the private schools, the latter being more successful in placing their candidates in schools of the immediately higher level.

### Primary Education

0. As illustrated in the appended case studies despite substantial progress in enrollment growth there has been, within the Northeast states, tremendous chronic disparity in the provision of educational opportunities among urban and rural areas. Enrollment ratios in rural areas range from 10 percent to 60 percent of those in urban areas. The inequality of educational opportunities can be attributed to a number of factors such as the dispersion of rural population which cannot sustain economic size schools, ineffective or non-existent planning at the local level, and scarcity of local government financial resources.

1. The overall lack of school facilities has led to a very intensive use of the existing ones. One-room schools account for some 70 percent of all schools. Sessions are short (about 4 hours per day) and schools operate on a double or triple shift basis. The conditions of teaching service are not attractive to qualified teachers and do not promote creation of a dedicated professional force. Most teachers are part-time, either having another job or teaching in several schools. About half of the primary teachers in the Northeast are not qualified (Annex 4). The unqualified teachers concentrate in the municipalities, where they account for as much as 80 percent of the teaching staff. Teacher upgrading is very limited and offered erratically depending on fund availability. Teacher salaries, by law fixed equal to the state salary minimum, cannot be met in the municipalities which may pay as little as 20 percent of the minimum. Other local arrangements are not sufficient inducements to attract qualified teachers. The curriculum is crowded and difficult.<sup>1/</sup> All these affect adversely the efficiency of the education system.

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<sup>1/</sup> A recently completed study by the Ministry of Education's research branch (INEP), comparing curricular context required at each grade level in primary schools in the USA, France, Russia, Sweden and Switzerland, showed that the Brazilian requirements at the same levels were often far greater for each year and were required at a younger age level in general. In some cases, a topic or skill expected to be mastered in Brazil at the second grade level was offered at the sixth grade level in the other countries.

22. In the Northeast, the municipalities account for the largest proportion of primary enrollments, predominantly rural, in sharp contrast with Brazil as a whole as shown in Table 2 and Annex 1. Any quantitative and qualitative improvements in educational opportunities must include the municipalities. Yet, the greatest constraints for such improvements exist at this level. They include low teacher salaries for qualified personnel, a poorly qualified teaching staff, and limited finances for the provision of schooling in sparsely populated areas or qualitative improvements by increasing expenditures per student which now represent a bare one fifth of state expenditures per student. Municipal schools have the lowest average number of students, 41, as compared with 119 in federal primary schools, 138 in state schools and 82 in private schools.

Table 2: MUNICIPAL PRIMARY SCHOOL BASIC DATA, 1970

	(a) Numbers of Schools	(b) Numbers of Classes	(c) Enrollments	(d) Teachers	c/a	d/c
<u>Municipalities</u>						
Brazil	81,583	97,627	3,851	124,232	47	31
Northeast	39,926	45,008	1,629	51,461	41	28
As a % of Total						
Brazil	56%	36%	30%	27%		
Northeast	74%	88%	49%	48%		

Secondary Education

Lower Level ("Ginasio")

23. Despite the real gains in the expansion of opportunities to gain entrance to middle-level education (Table 1), on the basis of evidence gathered for the two case studies of Ceara and Pernambuco still only about half of the primary graduates were admitted to grade one of ginasio in 1970.

24. Most schools operate in three sessions. Their teaching staffs are almost entirely part-time and less than half are qualified. Science laboratories and workshops are rare. Teaching is mainly by the lecture method and courses are too academic. The courses become increasingly specialized as the level increases. Through 1970, the ginasio offered options into eight areas of study: general, commercial, industrial, agricultural, teacher training, arts, home economics and nursing.

25. Very small relative changes have occurred in the distribution of enrollments since 1964, when commercial education and teacher training were favored slightly more. The academic stream accounts for about 85

percent of the enrollments, and the commercial and industrial ones for 11 percent. Enrollments by sex, while balanced for Brazil, as a whole, are 48 percent female in the Northeast. The public schools account for half of the overall enrollments. There are only marginal differences in the distribution of enrollments between the Northeast states and the country as a whole in 1964 and 1970 (Annex 3).

Under the new education system (para. 14) practical work in grades seven and eight will be promoted to allow students to explore their interest in such areas as industrial arts, commerce, agriculture, and home economics. The emphasis of the various programs will be related to the environment of the school's location. Teacher training at this level is being gradually phased out. Other pre-vocational training that had been offered in a small number of schools at this level will terminate and the more sophisticated equipment, where available, will be transferred for use in colegios. The constraints to quick implementation of this program are developed later.

#### Upper Level ("Colegio")

Colegio enrollments have grown at a rapid rate, partly because of increasing social pressure for colegio-level education, but also because the base of the growth has been small. The distribution of enrollments in the various categories is markedly different in this cycle than at the lower level, mainly because of the significance of teacher training. This is an option students choose not so much to prepare for teaching careers but rather to take advantage of a relatively easier course of study which, nevertheless, satisfies the minimum colegio requirement for university entrance. Enrollments in the academic streams account for 32 percent. Since 1964, there has been a small relative increase in industrial enrollments and teacher training while general and commercial enrollments declined slightly, relatively. For industrial enrollments, this may be indicative of the beginning of a larger response to the greater demand for middle-level industrial personnel in the region. This may also account for the noticeable change in the distribution of the enrollments in Northeast which now approximates that of Brazil at large. (Annex 3).

Female enrollments at colegio level are the highest of any education level and stand at 57 percent of the total in Northeast, compared with 53 percent for Brazil at large. This is because of the overwhelming female enrollments in teacher training institutions which amount for over nine-tenths of the total for the Northeast and for Brazil. Enrollments are overwhelmingly public in industrial and agricultural education, about half in teacher training and about one third in the general and commercial schools. Overall public enrollments account for 57 percent of the total.

Colegios also operate in a shift system with 2-3 sessions per day. Their teaching staff qualifications are mostly limited to general subjects background. In some cases, the offering of practical courses is limited because of the lack of qualified science, laboratories and workshop

teachers. The remuneration of such personnel in non-teaching occupations is too high for the school systems to compete with. In some instances, qualified engineers from local companies render valuable part-time service as technical teachers. Very few of the practical subject teachers have received any pedagogic training. Two of eight regional centers for technical education, established under Federal law in 1966 to train technical teachers, are located in the Northeast and are designed, when in full use, to meet the technical teacher requirements of the region.

### Higher Education

30. The most rapid expansion of enrollments has taken place at the higher level. The greatest growth of enrollments has taken place in the fields of liberal arts and humanities. Enrollments in engineering, medicine and agronomy, despite their substantial absolute gains, accounted for 24 percent of university enrollments, a considerable decline from a share of 32 percent in 1964. The federal universities in the region accounted for the majority of the enrollments (61 percent).

31. The rapid expansion of university enrollments has been supported by the Government to meet the high-level manpower requirements of the country. It has been accomplished, however, at the expense of quality and at a high cost. Because the universities were originally created by uniting separate faculties, there is a widespread duplication of courses with individual entrance examinations to separate faculties for some of which there is excessive competition while for others there is too little.

### New Media

32. Although it is still largely in a preparatory stage, the use of educational radio and television broadcasting has received a significant emphasis during the last three years in both the Northeast and Brazil as a whole. In 1969 the Government set up an inter-ministerial commission to coordinate feasibility and program studies on the use of modern communications media in reformulating educational methods. The long-range goal of the Government is the establishment of a national educational communications network (known as Advanced System of Educational Technology - SATE). To provide coordination and financing assistance for the use of television and radio within this system, the Government created in early 1972 the National Program of Tele-education (PRONTEL) under the direction of the Minister of Education.

33. The regional institutional basis for SATE has been laid with the development of five regional audio-visual centers for assisting in teacher training and testing of prototype materials. The Northeast center in Recife, established in the Federal University of Pernambuco, has begun equipment acquisition and program design for local television broadcasting.<sup>1/</sup>

<sup>1/</sup> Financial assistance of slightly more than US\$1 million was recently obtained from the German Kreditanstalt, with SUDENE providing approximately US\$100,000 additional.

In addition the Brazilian Space Agency (CNAE) has begun a pilot project in the state of Rio Grande del Norte to determine the cost and effectiveness of radio and television education programs transmitted by satellite from Sao Paulo.

34. Brazil and its Northeast clearly offer a great potential for the use of educational radio and television. With proper use and programming these media could assist in reducing the disparities in educational opportunities that result from sheer geographical separations between regions and between urban and rural environments. Although educational television must be viewed as still somewhat experimental, it holds out the possibility of maximizing the use of qualified teachers while compensating for the scarcity of educational materials and the inadequacy of curricula. And although start-up costs are high, the unit costs rapidly decline with large audiences, and further cost savings can be obtained by the provision of simple programs aimed at increasing the productivity of adult workers.

35. These potential advantages, however, can be realized only after a considerable period of experience during which pilot projects are tested, technicians are trained, and a number of other administrative and planning conditions are established. Hence, for the foreseeable future, modern technology must be viewed as a minor complement to the more conventional means of developing education in the Northeast.

### C. NON-FORMAL EDUCATION

#### Vocational Training: Technical and Commercial

36. Concerted efforts have been undertaken to provide vocational training to meet local manpower demands. Commercial training is undertaken by SENAC (National Service for Commercial Apprenticeship); industrial training is undertaken by SENAI (National Service for Industrial Apprenticeship). Almost all vocational training is for middle-level personnel and about half of the industrial training is for much needed skilled worker upgrading. The priorities for vocational training are determined from studies commissioned by state representatives of PIPMO, (Intensive Program for the reparation of Labor, under the Directorate of Secondary Education of the Ministry of Education), and from specific requests from establishments for trained manpower or in-plant training.

37. In 1970, about 11,000 trainees enrolled in SENAC's various training programs organized in 9 centers in the Northeast states. Another 5,000 participated in SENAI's training programs implemented in 24 of its own centers and in the facilities of 11 firms. These enrollments represented, in each case, a tenth of the national ones. Their distribution by type of program is given in Annex 5. Adult training account for the bulk of SENAC's enrollments, while for SENAI half of the enrollments were in skilled worker training programs, a fifth in apprenticeship programs and about 28 percent in supervisory and management personnel training programs.

38. The facilities of the larger SENAC and SENAI centers are generally well equipped and maintained. The teaching staff is composed primarily of part-time personnel who are contracted for the duration of the course. SENAI is experiencing some problem in finding and retaining qualified staff to teach some of the more specialized courses. There are no facilities for instructor training, a factor that has limited the organization's flexibility in allocating its staff and undertaking requests for organizing training programs. The existing institutional arrangements are flexible and adaptable so as to meet short-term local manpower training requirements, although the effectiveness of the training could be enhanced with better resource allocation and new training schemes.

39. A large number of training programs, enrolling an additional 5,900 trainees in the Northeast during 1970, were financed directly by PIPMO. PIPMO is a very flexible organization with very dynamic state personnel. Its objectives are to carry out labor market studies and to organize as well as finance training programs through SENAI, SENAC and other private or public facilities, particularly the Ministry of Labor. It owns no physical infrastructure and its only overhead is its state professional and administrative staff of about five persons in each state. The organization attempts to meet regional needs and this is clearly shown in the regional distribution of its trainees. Of the 104,000 who participated in PIPMO programs in 1971, a full one-third were in the Northeast states. PIPMO finds itself strategically in the best position to promote regional, urban and rural programs and fills the tremendous gaps existing in the system with regard to the training required by small land holders and businesses. It works on a limited budget which has been, however, increasing in recognition of the organization's effectiveness. Any support to expand PIPMO activities must be undertaken without compromising the organization's flexibility, a view also endorsed by the national and state officials of the organization.

#### Agricultural Training

40. In 1970, PIPMO expanded its activities to include agricultural training for small- and medium-size farm holders. The organized courses were residential and of short duration. These courses were the only agricultural training activity addressed to farmers, other than those connected with farm credit utilization, and who benefit from the regular extension services. While PIPMO's initiative will meet a great need when the agricultural training programs are expanded in scope and coverage, the programs will still fall short of being totally effective because of the lack of follow-up of the trainees by extension agents. The present institutional arrangements of the extension service relate most of the activities of the extension agents with credit extension, thus resulting in lack of trained personnel that could advise the large majority of the small- and medium-size land holders.

41. Additional agricultural training schemes of a predominately in-service nature are being organized by other public agencies such as ABCAR and the Bank of Northeast. ABCAR has two of its seven training centers located

in the Northeast. In 1970, a total of 1,850 trainees attended over 200 courses of an average duration of 10 days. However, only 320 of these trainees were ABCAR personnel. The rest were staff from the state secretariats of agriculture and agricultural institutions. Included in the courses were rural extension, cooperatives, planning and agricultural technology. The Bank of Northeast is implementing its own training programs to meet its various needs for credit supervisors and for personnel for farm management, a newly created occupational classification. The programs extend over 4 months and enroll university graduates many of whom are lured from ABCAR by higher salaries.

### Literacy

42. In 1970, 8.4 million or almost one-half of Brazil's analphabetized over 14 years of age resided in the Northeast. In that year the analphabetized became part of the target of a national campaign (MOBRAL-Movimento Brasileiro de Alfabetizacao) aimed at providing: (a) functional literacy to all the analphabetized by 1980, and (b) an education equivalent to primary level, but condensed in a year of teaching, to those who wish to continue beyond the functional literacy courses. In the Northeast, about 34,000 successfully obtained functional literacy in the second half of 1970 when the program began and their number increased to about 332,000 in the first six months of 1971 alone. This is indicative of the wide national attention as well as momentum the literacy program has gained. The Government has concentrated its resources on the Northeast programs. Roughly 40 percent of MOBRAL's financial and human resource effort has been directed to this region. This is also shown in the increased participation of the Northeast population in the programs. Of 1,373 municipalities in the region, 1,051 participated in MOBRAL programs and Northeast enrollments accounted for 42 percent of the total in 1971 (Annex 6).

43. The success of the program will, however, eventually be determined, in large measure, by the availability of qualified teaching staff. Over 28,000 teachers were recruited in the region in 1971, but few of them were qualified. Teacher training courses of one week are organized throughout the states so that the various visual aids used in the program can be explained and teaching techniques demonstrated, but the effectiveness of this short training is limited because of the poor teaching capability of the teachers.

## II. EFFICIENCY OF THE EDUCATION SYSTEM

### A. Formal Education

#### Internal Efficiency

44. There is a very uneven distribution of pupils among grades in primary school. Since 1964, there has been a minor correction in this distribution, but, still, Northeast enrollments in the first grade account for about 60 percent of all primary enrollments, as compared with a corresponding share of 47 percent for Brazil at large. Fourth grade enrollments were less than 10 percent of the total. This phenomenon is explained by the large numbers of repeaters and dropouts. The system's inefficiency is illustrated in the charts below.<sup>1/</sup>

Chart 1: PROGRESSION OF A COHORT (PRIMARY)

	Year 1	Year 2	Year 3	Year 4
Students in Each Year				
All Brazil	1,000	513	439	356
Dropouts	487	74	83	
Northeast	1,000	313	245	190
Dropouts	687	68	55	

45. It is indicated from the chart above that while the drop out rate for the country as a whole was 64 percent of 1,000 students entering in grade one, that for the Northeast region was 81 percent. Most of this drop out takes place in the first grade.

46. Another contribution to wastage arises from the repeaters in the system. UNESCO data offer the following composition of 1,000 students in each of the four primary grades.<sup>2/</sup> Repeaters in the first grade amounted to about one-fourth of the grade's enrollment at the beginning of the school year.

	Year 1		Year 2		Year 3		Year 4	
	Brazil	NE	Brazil	NE	Brazil	NE	Brazil	NE
Repetition	301	240	192	147	171	130	116	105
Promotion	327	258	697	672	681	677		
Drop Out	327	502	111	181	148	193		
Output							884	895

<sup>1/</sup> Based on actual 1967 and 1966 data. UNESCO, International Conference on Education, the Statistical Measurement of Educational Wastage, July, 1970.

<sup>2/</sup> UNESCO, Ibid.

47. Drop-outs and repeaters have raised the unit cost per successful graduate of the fourth grade to a very high level. It takes about 11 student years to graduate one student from primary four, as compared to a much lower, but still relatively high, about 8 student years for Brazil at large. This latter statistic compares more favorably with most Latin America countries (Argentina 11 student years in a seven year primary cycle; Columbia 12 student years in a 5-year cycle; Mexico 11 student years in a six-year cycle).

48. Wastage and other levels of education is much lower but still significant. Drop-out rates at other levels of the education system exhibit a variation with no definitive trends and with Northeast rates intermitently lower or higher than those in Brazil at large. At the ginasio level, the drop-out rate was 6 percent in the Northeast, a decline from 8.3 percent in 1964. But certain streams, particularly those of general education and teacher training exhibited very large drop-out rates in 1969 as high as 20 percent, and relative increases in the rates over 1964. At colegio level, the overall drop-out rate was estimated at 8.4 percent for the Northeast in 1969. It has varied erratically over the years and has generally been above that for Brazil at large.

#### External Efficiency

49. There is lack of appropriate data that would allow the evaluation of the external productivity of the education system in the Northeast. A proposed labor market study (see Northeast Mission volume on employment and income distribution) would include an identification of the educational and occupational characteristics of marginal urban groups. The possible subsequent extension of this study to include comprehensive state labor market surveys would fill a great need and would be very valuable, if appropriately designed, in assessing the performance of the education system and in formulating a long-term strategy to meet the projected educational requirements of the labor force in the Northeast states. One of the main present criticisms of the education system is that education is too theoretically oriented, which limits the adaptability of the graduates and drop-outs to new job tasks when they join the labor force.

50. Another area where the external efficiency of the system can be improved is in the education of the over-age students who in almost all cases now follow the regular curriculum. Over-age students could be grouped separately and offered, in special or parallel shifts, a curriculum designed appropriately for their needs and capabilities. Attainment of literacy or pursuance of school work towards degrees should in most cases be obtained with accelerated programs commensurate to the absorption capacity of the students.

51. One of the difficulties in evaluating the education system's external efficiency in the Northeast is that such an evaluation would have to extend beyond the confines of state boundaries. Almost half of the university graduates and most post-graduates migrate to southern regions where they are employed. Migration also occurs among other school graduates but to a lesser degree. Disaggregated raw census data on the education attainments of migrants are available but have not been compiled by the Brazilian statistical services for analysis.

## B. Non-Formal Education

### Internal Efficiency

52. The efficiency in the implementation of SENAI and SENAC courses varies with the administration of each center, as well as with the type and level of courses offered. SENAC experienced in 1970 a drop-out rate of about 11 percent in its courses for minors and a larger, 19 percent, in its adult courses, (the respective rates for Brazil were 14 percent and 15 percent). The drop-outs are attributed primarily to family obligations by the trainees and securing of employment while still registered for the course. Because of limited funds SENAC's facilities are underutilized. In a few states where new large facilities have been built recently, there is clearly a problem of excessive capital investment in training capacity.

53. SENAI's operations are more efficient both in terms of space and equipment utilization as well as the limited drop-out rates of trainees from its programs. The larger facilities of SENAI are used at capacity. There are difficulties, in Pernambuco for example, in meeting all requests by firms for the organization of training programs. In the courses offered, the highest drop-out rate was experienced in the courses for skilled workers (about 10 percent in the Northeast versus 12 percent in Brazil at large). But, in other courses such as for technician, teacher and management and supervisory personnel training, the number of trainees successfully concluding their courses ranges from 95 percent - 100 percent.

### External Efficiency

54. Because of its direct job orientation and its flexibility in course organization and administration, vocational training is effective, although still short of meeting the training requirements of new or existing enterprises in the Northeast. The effectiveness of such training could be enhanced further with better resource allocation and new training schemes to assist in the remedy of chronic labor market problems. Recent interest in developing some programs to train chronically unemployed should be encouraged. Limited labor market information from Ceara and Pernambuco shows a chronic unsatisfied demand for qualified assistant accountants and administration workers. Future absorption of hotel office personnel in Pernambuco was found to have a high potential. In blue collar jobs, the most critical shortages are identified in occupational fields that include electricians, mechanics and welders.

55. While there are vocational training programs which are oriented in meeting some of the above shortages, they are not sufficient to meet all the requirements. The constraints in program organization in SENAC are primarily financial, while in SENAI both physical and financial. A more efficient manner of meeting the more specialized industrial manpower requirements of the Northeast could be the expansion of training for selected skills on a regional basis. This is currently done for textile training with one center serving the needs of the whole region.

### III. LABOR FORCE: EDUCATIONAL ATTAINMENTS, DEMAND AND SUPPLY FOR THE 1970'S

#### A. Educational Attainments

6. Similar to the regional literacy differences (para. 18), the educational attainments of the Northeast labor force lag considerably those of Brazil at large. The 1970 census shows that about 63 percent of the economically active of ten years of age and above had none or less than one year of schooling in the Northeast, while the corresponding proportion for the whole country was 36 percent. (The differences would, of course, be accentuated if Northeast was excluded from the Brazilian averages.)

7. As indicated in Table 4, the differences among the educational attainments of the labor force in Northeast and Brazil at large prevail for almost all economic activities, except for public administration among those who have had schooling of ten or more years. The higher the educational levels considered the greater are the differences in educational attainments. Relatively less provision of higher education in the Northeast would account for some of these differences, but the migration from the Northeast of large numbers of better educated personnel would certainly be a very significant factor as well. The chronic lack of educational opportunities in rural areas is strongly reflected in the data on educational attainments in agricultural activities where the Northeast region shows the greatest and most serious lag in such attainments at all levels of education.

8. While the more limited formal education background of the workers in the Northeast can be and is being complemented by non-formal training such as vocational, on-the-job and in-service training, nevertheless, it is quite likely that the lag in educational attainments affects, relatively, their productivity and influences their adaptability to new technology. Because of lack of other reliable data, if the distribution of educational attainments were to be liberally transformed to a manpower distribution by occupational level, with the highest levels of educational attainments corresponding to higher-level manpower, one could deduce that there is a spread of occupational tasks not commensurate to training backgrounds, i.e., professional staff attending sub-professional tasks and unqualified lower personnel involved in supervision and sub-professional areas. Field visits by the mission confirm this.

9. There are no sufficient data for comparison of labor force participation rates by age groups and educational attainments. Census data indicate that it is not until the tenth year of education or more, (corresponding to upper secondary and university education), that the participation rates by educational attainment are significantly higher than those of the other categories. This is shown in Table 5 and in more detail in Annex 7.

10. The data in Table 5 show that for both the Northeast region and Brazil at large, the majority of those who have had at least up through nine years of education were not considered to be economically active at the time

Table 4: PROPORTION OF POPULATION OF AGE 10 OR MORE  
BY LEVELS OR YEARS OF STUDIES

Activity	Total	None or less than 1 year	Incomplete Primary	Primary	6-9 Years	10-12 Years	13-17 Years
Total Population							
NE	100	59.2	24.0	9.2	4.7	2.2	.7
Brazil	100	36.5	29.9	20.0	8.5	3.7	1.4
Economic Active							
NE	100	62.7	21.8	8.2	3.4	2.7	1.2
Brazil	100	35.8	28.4	21.3	7.4	4.8	2.3
<u>By Activity</u>							
Agriculture							
NE	100	79.1	18.6	1.9	.3	.05	.04
Brazil	100	57.6	31.7	9.6	.8	.20	.10
Industry							
NE	100	47.1	30.0	14.3	5.0	2.8	1.6
Brazil	100	21.8	30.2	32.1	9.6	4.2	2.1
Commerce							
NE	100	29.7	29.4	22.2	12.2	5.7	.8
Brazil	100	13.8	24.6	35.0	17.5	7.6	1.5
Services							
NE	100	46.9	31.6	16.6	3.9	.8	.2
Brazil	100	28.3	32.1	30.7	7.0	1.5	.4
Trans. Commun.							
NE	100	30.4	30.4	24.9	9.9	3.6	.8
Brazil	100	15.0	30.5	37.0	12.2	4.3	1.1
Social Activities							
NE	100	8.4	12.8	22.9	13.8	28.6	13.5
Brazil	100	5.3	10.5	21.6	14.3	31.8	16.5
Public Admin.							
NE	100	13.7	18.3	24.9	20.2	13.9	9.0
Brazil	100	7.4	16.0	29.0	24.1	13.8	9.7
Other Activities							
NE	100	40.4	17.7	13.1	11.0	11.3	6.5
Brazil	100	18.0	15.3	22.5	17.8	17.0	9.4

of the census. The steady decline of the proportions of economically active as educational attainments increase is perplexing. It could be partly explained by the fact that these ratios are affected by the population in school, which would be reported as non-economically active.

Table 5: LEVELS OF EDUCATION AND DISTRIBUTION BY ECONOMICALLY ACTIVE AND NON-ECONOMICALLY ACTIVE

	None or Less than 1 1 Year	1 Year	2 Years	3 Years	4-5 Years	6-9 Years	10-12 Years	13-17 Years
Total Population	100	100	100	100	100	100	100	100
Econom. Active								
NE	46.3	42.1	39.0	37.1	39.3	32.8	53.4	73.5
Brazil	44.0	43.1	41.9	42.4	47.8	39.0	57.0	75.3
Non-Econom. Active								
NE	53.7	57.9	61.0	62.9	60.7	67.2	46.6	26.5
Brazil	56.0	56.9	58.0	57.6	52.2	61.0	43.0	24.7

B. Educational Attainments and Earnings

61. Data relating educational attainments and earnings are limited (see also volume on employment and income distribution). The discussion below is based on data gathered by the Ministry of Labor on employees of industrial, commercial and service establishments in the North-east in 1969<sup>1/</sup> (All earnings are in 1969 prices.) A detailed breakdown of earnings by level of education, in the above establishments, is given in Annex 8.

62. For the purpose of the present analysis, earnings have been grouped into three categories: (a) up to Cr\$119, which was about the average minimum salary in the region in that year; (b) from Cr\$120 to Cr\$299; and (c) Cr\$300 or more. About half of the employees in industry and one-third of those in commerce and services earned up to the minimum wage. These percentages are lower than those reported in the Mission's volume of employment and income because of the limited coverage of the reported data to the Ministry of Labor, used in the present estimates. The large majority of those earning up to the minimum wage have had only primary education or less.

63. Earnings in commerce and services are considerably higher than those in industry, even for the same level of education. The data also

<sup>1/</sup> Ministerio de Trabalho e Previdencia Social, Boletim Tecnico de SEPT, Apuracao Lei de 2/3 n° 20, Setembro 1970, pp.24-27. The data reported by employers, represent about one-half of the employees in the industrial sector and about one-third of those in services and commerce.

indicate greater mobility existing within the service sector than others. The range of earnings accrued to the majority of the service and commerce workers at different educational backgrounds is more extended than that for industrial employees. The attainment of some primary education is more crucial in earnings above the minimum wage in the industrial sector, while in commerce and services such earnings extend over educational attainments ranging from incomplete primary through colegio-level education.

64. An analysis of earnings by educational attainments support further the points raised in paragraph 58, regarding educational attainments and occupational responsibilities. Large proportions of employees with low educational background earn incomes which are at the higher range of earnings. For example, about 44 percent of those who earned more than Cr\$299 had up through primary education in industry, as compared to about 21 percent in commerce and services.

#### IV. EDUCATION FINANCE

##### A. Formal Education Expenditures

The formal education financing system includes both public and private sources and expenditures. Private education expenditures are estimated to account for approximately 10 percent of total formal education expenditures. The multiplicity of sources, transfers, earmarked funds, and expenditures has given the public education financing system a complex character. Because of the flow of funds among the federal, state, and municipal levels of government, a comprehensive and accurate view of the public education financing effort requires not only the measurement of education expenditures at the three levels of government but also the identification of the source "supplier" of funds spent.

##### Overview of the Financing System and Expenditures

Table 6 on the following page presents the direct education expenditures made in the Northeast by the state and municipal governments and the Federal Ministry of Education from 1964-70, with state and municipal expenditures broken down by source. During this period state education expenditures accounted for an annual average of 60 percent of total public education expenditures, municipalities expenditures for 12 percent, and the Ministry of Education expenditures for 28 percent.

State Governments. The great bulk (about two-thirds) of state education expenditures have been met by the state's own budgetary revenues derived from direct and indirect taxes. During the 1964-70 period the states spent on education an average of approximately 20 percent of their revenues and 15 percent of their total public expenditures.<sup>1/</sup>

The remaining portion of state education expenditures has been met mainly by three federally established revenue sharing and transfer programs which are partially designed to favor the poorer states in Brazil.<sup>2/</sup> The most recent of these, the Participation Fund was established in 1967 as a federal revenue sharing mechanism to offset state and municipality revenue losses resulting from the Tax Reform Law of 1966. Since its establishment, the Northeast region has received an average of about 40 percent of the Fund's

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The 1961 Law of Policies and Principles and subsequent constitutional enactments require both states and municipalities to allocate 20 percent of their tax revenues to education. Each of these programs and its formula used for the allocation of funds among states are discussed more fully in Annex 9.

Table 6: NORTHEAST BRAZIL PUBLIC EDUCATION EXPENDITURES BY LEVEL OF ADMINISTRATION, 1964-70

(Millions Cr\$, 1971 Prices)

Classification	1964		1965		1966		1967		1968		1969		1970	
	Cr\$	%												
<u>State Expenditures</u>	<u>248.8</u>	<u>100</u>	<u>343.3</u>	<u>100</u>	<u>280.8</u>	<u>100</u>	<u>334.5</u>	<u>100</u>	<u>419.2</u>	<u>100</u>	<u>492.1</u>	<u>100</u>	<u>543.5</u>	<u>100</u>
Own Budgetary Resources	167.1	67	208.8	61	193.6	69	210.3	63	266.5	64	372.8	76	417.7	77
Participation Fund <sup>1/</sup>	--	--	--	--	--	--	43.5	13	81.9	20	46.4	9	46.9	9
Education Salary (State Quota)	--	--	1.5	nil	3.9	1	8.0	2	8.7	2	12.0	2	16.9	3
Education Salary (Federal Quota)	--	--	14.2	4	31.9	11	24.9	7	29.8	7	40.4	8	48.6	9
MEC: Primary Ed. Fund	31.9	13	52.1	15	18.9	7	24.5	7	11.7	3	--	--	--	--
Secondary Ed. Fund	21.6	9	49.8	15	17.8	6	16.4	5	15.5	4	15.2	3	13.4	2
Other (Foreign Assistance, SUDENE, etc.)	28.2	11	17.2	5	14.7	5	6.9	2	5.1	1	5.3	1	n.a.	--
<u>MEC Direct Expenditures</u>	<u>87.7</u>	<u>100</u>	<u>114.2</u>	<u>100</u>	<u>145.6</u>	<u>100</u>	<u>183.5</u>	<u>100</u>	<u>220.7</u>	<u>100</u>	<u>251.9</u>	<u>100</u>	<u>289.4</u>	<u>100</u>
<u>Municipal Expenditures</u>	<u>45.7</u>	<u>100</u>	<u>67.9</u>	<u>100</u>	<u>61.4</u>	<u>100</u>	<u>70.4</u>	<u>100</u>	<u>146.5</u>	<u>100</u>	<u>86.6</u>	<u>100</u>	<u>73.2</u>	<u>100</u>
Own Resources <sup>2/</sup>	33.7	74	44.1	65	55.0	90	16.5	23	31.5	22	16.6	19	18.3	25
Participation Fund <sup>3/</sup>	--	--	--	--	--	--	49.1	70	94.8	65	49.8	58	54.9	75
MEC: Primary Ed. Fund	12.0	26	23.8	35	6.4	10	4.8	7	20.2	14	20.2	23	--	--
<u>TOTAL EXPENDITURES</u>	<u>382.2</u>	<u>100</u>	<u>525.7</u>	<u>100</u>	<u>487.8</u>	<u>100</u>	<u>588.4</u>	<u>100</u>	<u>786.4</u>	<u>100</u>	<u>830.6</u>	<u>100</u>	<u>906.1</u>	<u>100</u>
State Ex. as % of Total		65		65		58		57		53		60		60
MEC Ex. as % of Total		23		22		30		31		28		30		32
Municipal Ex. as % of Total		12		13		13		12		19		10		8

1/ Fifteen percent of total Participation Fund receipts of Northeast states.

2/ Estimated at one-third of municipality education expenditures from Participation Fund receipts.

3/ Twenty percent (legal minimum) of municipality Participation Fund receipts.

allocations to states and municipalities.<sup>1/</sup> The Northeast states have been spending on education approximately 15-20 percent of their Participation Fund receipts.

69. The Education Salary Fund was established by the Government in 1965 to provide earmarked funds to the states for primary or fundamental education by means of a payroll tax equivalent to 1.4 percent of the legal minimum wage multiplied by the number of employees on the payroll of each private and public enterprise contributing to Brazil's social security system. One-half of the tax remains in the state where it is collected and the other half is channelled to the Ministry of Education for reallocation among the states. Between 1965-70 the Northeast states received an average of 42 percent of these reallocations. Most of these receipts (75 percent) represented a net transfer<sup>2/</sup> from the rest of Brazil.

70. The third federally established source of funds for state education expenditures has been the Primary and Secondary Education National Funds, which provide transfers from the federal Ministry of Education's budget. From 1964 to 1968, when they began to be phased out, transfers from these funds amounted on average to an estimated 15-20 percent of the Ministry's budget. During this period the Northeast region received an annual average of 42 percent and 34 percent respectively of the Primary and Secondary Education Fund transfers.

71. Table 6 shows that only a very small percentage of state education expenditures in recent years has been provided by other sources of finance such as foreign assistance (principally USAID and IDB) and SUDENE. Current and planned education sector loans by USAID include several Northeast states and, consequently, will increase this percentage.<sup>3/</sup>

72. Ministry of Education. The Ministry of Education's direct education expenditures shown in Table 6 generally provide the financing for one or two federal colegios and one federal university in each Northeast state. In 1968 and 1969, the only years for which complete data are available,

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<sup>1/</sup> The Participation Fund is composed of receipts from the Brazilian Industrial Products Tax and Federal Income Tax. Five percent of the Fund is allocated among the states and 5 percent among the municipalities. The states and municipalities generally include Participation Fund receipts and expenditures for education within the category of those from their own budgetary resources. Noting that the Participation Fund was established to substitute for revenues which they previously collected themselves, the states argue that the exclusion of these funds from their own budgetary expenditures would give a misleading picture of changes in state budgetary commitments to education.

<sup>2/</sup> Total allocations received from the federal level minus an amount equal to the state quotas.

<sup>3/</sup> See footnote to paragraph 13.

the Northeast region received approximately 20 percent of the Ministry of Education's total direct expenditures at the secondary level and approximately 18 percent of its total allocation to institutions of higher education.

73. Municipal Government. Municipalities are legally required to spend 20 percent on their tax revenues and participation fund receipts on education. Although data for total municipality education expenditures are not available in Brazil on a regional or state basis, federal and state education authorities estimate that 75 percent of municipality education expenditures are derived from Participation Fund receipts. This estimate excludes Ministry of Education (Primary Education National Fund) transfers, which provided an annual average of approximately 20 percent of total Northeast municipal education expenditures during 1964-69.

Sources and Expenditures: Growth and Trends

74. Education expenditures by level of government have been consolidated according to source of funds in Table 7. Based in part on Tables 6 and 7, the following conclusions can be drawn concerning growth and trends in public education expenditures:

- (a) Overall growth in public education expenditures and unchanged share of Northeast in total Brazil education expenditures.

Total public education expenditures in the Northeast increased at an average annual rate of 15.5 percent growing in real terms from Cr\$382.2 million in 1964 to Cr\$906.1 million in 1970 (in 1971 prices). This rate of growth is somewhat larger than the rate of growth in Northeast education enrollments and slightly greater than the rate of growth of public education expenditures in Brazil as a whole. However, the rapid rate of growth of Northeast education expenditures was not great enough to improve the Northeast's share of total Brazilian public education expenditures. With 30 percent of Brazil's population and 20 percent of its enrollments, the Northeast in 1970 accounted for only 14 percent of total national public education expenditures, the same share it accounted for in 1964.

- (b) Increased share of state financing

Although direct education expenditures by the Federal Ministry of Education grew at a somewhat greater rate than state education expenditures, the state share of education financing increased as a percentage of both state education expenditures and total public education expenditures. This can be attributed largely to the marked decline in transfers from the Ministry of Education as a result of the phasing out of the Primary and Secondary Education National Funds. Although the Education Salary Tax transfers have grown impressively, these transfers have not been sufficient to offset the decline in transfers through the Ministry of Education.

While the Northeast states' education expenditures and share of overall education financing have grown significantly in recent years, the

Source of Funds	1964		1965		1966		1967		1968		1969		1970	
	Cr\$	%												
MEC Budget <sup>1/</sup>														
Direct Expenditures	87.7	23	114.2	22	145.6	30	183.5	31	220.7	32	251.9	30	289.4	32
Transfers	65.5	17	125.7	24	43.1	9	45.7	8	47.4	2	35.4	5	13.4	1
Sub-Total	<u>153.2</u>	<u>40</u>	<u>239.9</u>	<u>46</u>	<u>188.7</u>	<u>39</u>	<u>229.2</u>	<u>39</u>	<u>268.1</u>	<u>34</u>	<u>287.3</u>	<u>35</u>	<u>203.8</u>	<u>33</u>
State Budget (Own Revenues)	167.1	44	208.8	40	193.6	40	210.3	36	266.5	34	372.8	45	417.7	46
Participation Fund	--	--	--	--	--	--	92.6	16	176.6	22	96.2	12	101.8	11
Education Salary <sup>2/</sup>	--	--	15.7	3	35.8	7	32.9	6	38.5	5	52.4	6	65.6	7
Municipal (Own Revenues) <sup>3/</sup>	33.7	9	44.1	8	55.0	11	16.5	3	31.5	4	16.6	2	18.3	2
Other (Foreign Assistance, SUDENE, etc.)	28.2	7	17.2	3	14.7	3	6.9	1	5.1	1	5.3	1	n.a.	--
<b>TOTAL</b>	<u><u>382.2</u></u>	<u><u>100</u></u>	<u><u>525.7</u></u>	<u><u>100</u></u>	<u><u>487.8</u></u>	<u><u>100</u></u>	<u><u>588.4</u></u>	<u><u>100</u></u>	<u><u>786.4</u></u>	<u><u>100</u></u>	<u><u>830.6</u></u>	<u><u>100</u></u>	<u><u>906.1</u></u>	<u><u>100</u></u>

<sup>1/</sup> Includes Primary and Secondary Education National Fund (transfers) and Direct Expenditures.

<sup>2/</sup> Includes State and Federal Quotas, although the latter is channelled through MEC.

<sup>3/</sup> Estimated at one-third of municipality Participation Fund education expenditure.

states have been committing to education a slightly larger share of their own total budgetary resources. In 1970, an average of 16 percent of state budgetary revenues was committed to education, compared with 14 percent in 1964. <sup>1/</sup> This slight increase suggests that despite the shift of education financing responsibilities to the states, other sectors of the states' economies have been given a higher priority in allocation of funds and have continued to absorb the bulk of state resources.

(c) Decreasing growth of municipality expenditures and sources of education finance.

Mission estimates of municipality expenditures show a decline after 1968, which is partially the result of unusually large Participation Fund disbursements in that year. Beginning in 1970, however, an important impact can be seen in the termination of the Ministry of Education's transfers to municipalities for primary education, transfers which accounted for 23 percent of total municipal education expenditures in 1969. The purpose of terminating these transfers, according to federal authorities, is to increase the coordination between state and municipal education authorities. To compensate for this loss, an increase in Education Salary Tax receipts and the transfer of a portion of these receipts by the state to the municipalities are anticipated by federal authorities.

Public Expenditures by Level of Education

75. The allocation of the Northeast's total public education expenditures substantially favors the primary and higher levels. Of the almost Cr\$700 million in public expenditures classified according to level of education in 1970<sup>2/</sup>, 43 percent was devoted to primary education, 36 percent to higher education, and only 21 percent to secondary education. By way of comparison, in 1964 primary education received 54 percent of public education expenditures, higher education 21 percent, and secondary education 24 percent. Consequently, since 1964 the share of both primary and secondary education has decreased to the benefit of higher education.

76. The total expenditures at each level of education in 1970 are broken down according to governmental level in the table below:

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- <sup>1/</sup> Two notable exceptions are Rio Grande do Norte (where the percentage of state expenditures committed to education increased from 17 percent in 1964 to 23 percent in 1970) and Sergipe (from 12 percent to 21 percent).
- <sup>2/</sup> This amount is less than the total public education expenditures due to the exclusion of expenses falling under "Central Administration", "Training", and "Culture" categories in the State Balance Sheets. From 1964-69 "Administrative Costs" accounted for an average of 14 percent of state education expenditures.

**Table 8: EXPENDITURES OF ADMINISTRATIVE LEVELS AS PERCENTAGE OF TOTAL AT LEVEL OF EDUCATION**

		MEC		
		Direct & Transfers <sup>1/</sup>	States	Municipalities
Primary	100	13	67	18
Secondary	100	23	73	4
Higher	100	88	12	0

<sup>1/</sup> Includes earmarked transfers (Primary and Secondary Education Funds and Federal Quota of Education Salary Tax).

Source: State Balance Sheets and Ministry of Education

The data shows that the bulk of public expenditures at the primary and secondary levels are made by the states, with higher education being financed mainly by the Federal Government. Comparative data since 1964 reveal that the states have steadily accounted for a growing percentage of the public expenditures at every level of education, while the federal share at each level has decreased (see Annex 10).

77. Although the states provide a slightly greater share of total public funds spent at the secondary level than at the primary level, a breakdown of the states' education expenditures show that the states commit twice as much of these expenditures to primary education as to secondary education. From the data in Table 8 and Table 9 below it can be seen that less than one-third of state education expenditures provides almost three-fourths of the total expenditures at the secondary level.

78. The breakdown of Federal Ministry of Education funding in the Northeast shows that 90 percent of the Ministry's direct expenditures go to institutions of higher education, leaving only 10 percent for federal technical colegios. Similarly, a relatively small share (22 percent) of the Ministry's transfer funds was directed to secondary education.

**Table 9: EXPENDITURES BY LEVEL OF EDUCATION**

		Primary	Secondary	Higher
State Expenditures	100	60	31	9
Ministry of Education	100	13	12	75
Direct Expenditures	100	--	10	90
Transfers <sup>1/</sup>	100	78	22	--
Municipal Expenditures <sup>2/</sup>	100	90	10	--

<sup>1/</sup> Includes Education Salary Tax (Federal Quota).

<sup>2/</sup> Estimated.

Source: State Balance Sheets and Ministry of Education.

Types of Expenditures: Recurring and Capital<sup>1/</sup>

79. Almost all of the Northeast states' own education resources have been used to meet recurrent expenditures (see Annex 11). Between 1964 and 1970 recurrent expenditures accounted for a yearly average of 92 percent of the states' expenditures. During the same period yearly expenditures for teacher and administrative salaries alone absorbed 84 percent of the states' own education resources. With the present availability of funds, the states cannot afford to devote any significant amount of their own resources to capital investments in education. One result of this is the use of a large number of one-room buildings for school classrooms even though they were not constructed for this purpose.

80. In the past, a considerable share of federal transfers was earmarked for capital investments.<sup>2/</sup> States and municipalities, however, increasingly diverted these investment funds to meet recurring costs, and in 1970 the restrictions on transfer expenditures were removed. Since 1968 about 50 percent of federal transfers to the states for primary and secondary education have been used for recurring expenditures, primarily personnel costs. Although no data concerning the type of expenditures by municipalities is available, it is not likely that the municipalities have devoted any greater share of their transfer receipts to capital investments. In addition, the municipalities, like the states, spend almost all their own education resources on recurrent expenditures.

81. Total direct federal expenditures in the Northeast states have shown approximately the same distribution between recurrent and capital expenditures as the states' own expenditures. During the 1964-70 period, 90 percent of federal direct expenditures at the secondary level and 84 percent at the higher level were devoted to recurring costs.

82. Taken together, total public resources used for capital investments in education in the Northeast amount to only some 10 percent of total public education expenditures.

Unit Costs

83. Overall public education expenditures in the Northeast and data from selected state balance sheets permit an indication of the range of recurrent expenditures per student in state-run schools and federal

<sup>1/</sup> The 1967, IBRD Economic Report (WH-173, Vol VI), notes a number of difficulties involved in breaking down federal expenditures and transfers according to recurrent and capital costs. Two recent studies have simplified this problem with regard to direct expenditures in recent years (see MEC-Servico de Assistencia Tecnica, "Despesa Federal Realizada em Educacao e Cultura, 1968 and 1969", July 1970; and "Despesa Publica Realizada em Educacao e Cultura, 1967-69", March 1971). Calculations regarding federal transfer and state expenditure breakdowns have been made from state balance sheets and information obtained by USAID from the State Secretariats of Education.

<sup>2/</sup> See Annex 9.

universities. In 1964 and 1970, the range of expenditures was as follows:

	<u>Primary</u>	<u>Secondary</u>	<u>Higher</u> <sup>1/</sup>
	----- (in 1971 Cr\$) -----		
1964	105 - 135	295 - 360	n.a.
1970	160 - 190	330 - 390	4,250 - 11,000

84. As in most unit cost analyses, the data show a striking difference between the primary and secondary levels, on the one hand, and higher education on the other. This reflects the decentralization of primary and secondary education financing to the states which have more limited funds.

85. Primary education recurrent expenditures per student are much lower at the municipal level than at the state level. In 1970, these expenditures ranged between Cr\$35 and Cr\$95 (1971 prices), reflecting the lower teacher salaries and related quality of education at this level. In addition, the average municipal primary school expenditure per student (about Cr\$45) has remained relatively unchanged since 1964, whereas the expenditure per student at the state level has grown at an average annual rate of 6.4 percent (from about Cr\$120 in 1964 to Cr\$175 in 1970). The extremely low expenditures per student at the municipal level reflect the poverty of most of these local governments as well as the financial constraints within which efforts to improve educational quality must take place.

86. Despite their recent growth, the relatively low level of per student expenditures in the Northeast state school systems can be seen in a comparison with per student expenditures (expressed in 1971 Cr\$) in three high income states with strong systems of public education:

	<u>Primary</u>	<u>Secondary</u>
Northeast Average (1970)	175	360
Guanabara (1969)	336	730
Rio Grande do Sul (1969)	305	938
Sao Paulo (1969)	318	693

The comparison with these states indicates that placing the responsibility for primary and secondary schooling on the state governments leads to strikingly lower expenditures per student in the poorer states. The existence of federal transfers does not alter this picture, since these transfers are included in the state expenditures above. It is not likely that these differences in per student expenditures can be overcome without greater federal transfers to the poorer states.

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<sup>1/</sup> Includes federal universities.

B. Non-Formal Education Expenditures

87. Financing for the industrial and commercial vocational training provided by SENAI and SENAC is obtained largely from the private sector through the levy of a 1 percent payroll tax on industrial and commercial enterprises. Additional funds are occasionally obtained by state SENAI and SENAC organizations through contracts with Government agencies, particularly PIPMO and the Ministry of Labor, for specified training programs.

SENAI

88. The Northeast expenditures of SENAI which were financed by the industrial payroll tax amounted to Cr\$50.44 in 1971 prices during the four years, 1968-71. The collection and distribution of the tax is designed to provide a net transfer to the Northeast from the developed regions of Brazil<sup>1/</sup>. Table 10 below presents SENAI's annual tax-derived expenditures in the Northeast together with the transfer component for the years 1968-71.

Table 10: SENAI NORTHEAST EXPENDITURES AND TRANSFERS, 1968-71

(Million Cr\$, 1971 price)

	1968	1969	1970	1971	TOTAL
TOTAL EXPENDITURES	11.79	12.13	11.94	14.58	50.44
of which COLLECTED IN N. E.	<u>9.49</u>	<u>9.97</u>	<u>9.37</u>	<u>10.92</u>	<u>39.75</u>
NET TRANSFER	2.30	2.16	2.57	3.66	10.69
% Transfer/Total Ex.	20%	18%	22%	25%	21%

89. The Northeast expenditures and net transfers of SENAI remained relatively constant in real terms during 1968-70 but increased significantly (22 percent and 40 percent respectively) in 1971. Net transfers have provided a significant portion of the Northeast expenditures. As an indication of the importance of the private sector in providing technical vocational training in the Northeast, it can be noted that SENAI's expenditures during 1968-70 amounted to slightly more than one-half of the direct expenditures made by the Federal Ministry of Education for technical schools in the Northeast.

<sup>1/</sup> The tax is collected by INPS, the Brazilian Social Security Agency, which allocates 85 percent of the tax proceeds to the SENAI Administration in the state of collection. The remaining 15 percent is allocated to the SENAI National Administration, and is composed of the following: 5 percent for national administration; 4 percent for supplementary financing of school construction costs when local funds are insufficient; 4 percent for North-Northeast region training programs; and 2 percent for support of the National Confederation of Industry.

SENAC

90. Total tax-derived expenditures by SENAC in the Northeast states amounted to Cr\$30.6 million from 1966-71 (in 1971 prices). Comparative data available for SENAC expenditures in all states of Brazil (see Annex 13) show that the Northeast states accounted for an annual average of 10 percent of these expenditures.

91. Annual expenditures by SENAC in the Northeast are shown for the 1966-71 period in Table 11 below. These expenditures grew at an average annual rate of 18 percent and showed a more stable growth pattern than SENAI expenditures during the period for which comparable data are available. Nevertheless, SENAC expenditures are significantly less than those of SENAI, the average being about one-half for 1968-71. This can be attributed to a smaller revenue base (as reflected in the smaller totals collected) and to different transfer policies followed by SENAC's National Administration.

Table 11: NORTHEAST EXPENDITURES AND TRANSFERS, 1966-71

(Millions Cr\$, 1971 Prices)

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>TOTAL</u>
Total Expenditures	2.86	3.72	4.94	5.87	6.67	6.57	30.63
Total Collected in N.E.	3.00	3.95	5.59	6.42	7.37	7.20	33.53
Net Transfer	(0.14)	(0.23)	(0.65)	(0.55)	(0.70)	(0.63)	(2.90)
% Transfer/Total Collected	5%	6%	12%	9%	9%	9%	9%

92. Table 11 reveals that there has been a net outflow of SENAC tax receipts from the Northeast equivalent to 9 percent of collections during the 1966-71 period. This is due to the fact that the National Administration of SENAC receives 20 percent of the commercial payroll tax receipts in each state but redistributes only a very small portion of this in the form of transfers to the states.<sup>1/</sup> Consequently, even though the Northeast states received an annual average of 70 percent of the transfers to the states from 1966-71 (Annex 13), the absolute amount of these transfers was insufficient to prevent a net outflow.

<sup>1/</sup> Like the industrial payroll tax, the commercial payroll tax is collected by INPS, but a smaller percentage (80 percent) remains with the SENAC organization in the state of collection. Of the 20 percent received annually by the National Administration of SENAC between 1966-71, a yearly average of only 7 percent (or 1.4 percent of total collections) was redistributed as transfers to the states. The remainder appears to have been absorbed by the National Administration.

Literacy: MOBRAL

93. Financing for Brazil's literacy campaign which began in 1970 is provided by government receipts from the weekly National Sports Lottery. The Ministry of Education receives 13.5 percent of these receipts, a portion of which it allocates to MOBRAL. MOBRAL transfers these resources directly to municipalities participating in the literacy campaign on the basis of an estimated cost of Cr\$25 per pupil, including a Cr\$70 salary per teacher for courses lasting five months.

94. MOBRAL's expenditures in the Northeast and all Brazil are presented below for 1970 and the first six months of 1971. The data show a significant increase in MOBRAL expenditures after its initial year as well as a significant increase in the share of expenditures represented by the Northeast. At 45 percent the region's share is approximately equal to the percentage of Brazil's illiterates over 14 years of age residing in the Northeast.

	(Constant 1971 Cr\$)	
	1970	(six month) 1971
All Brazil	3.74	10.63
Northeast	1.01	4.75
Percentage Northeast of Total	27	45

## V. EDUCATION DEVELOPMENT: PLANNING AND STRATEGY

### A. Overview

95. The marked regional disparities in Brazil as well as the Government's regional economic development programs clearly indicate the need for a planning process capable of generating education development strategies on a regional basis. Neither SUDENE nor the Federal Government, however, have moved to meet this need. The Government's most recent plan provides the following outline of national objectives and enrollment growth targets for the three years 1972-74:<sup>1/</sup>

Fundamental Education - 35 percent increase in total enrollments to attain an 80 percent escolarization rate of 7-14 year olds; training of 45 percent of unqualified teachers.

Secondary Education - 100 percent increase in total enrollments, with emphasis on industrial and agricultural school enrollments.

Higher Education - 90 percent growth in total enrollments, with emphasis on secondary school teacher and professional technician training.

In addition to these targets, the plan calls for a 117 percent increase in the training of industrial labor in the non-formal education system as well as a 50 percent reduction in the number of illiterates between the ages of 15 and 35. Financing targets are set at a 75 percent increase in total public education expenditures and a 67 percent increase in total federal education expenditures.

96. Although IPEA lists some twenty project areas that would assist in the attainment of these targets (see Annex 14), the value of this exercise as a guideline for action is doubtful. There is no attempt, for example, to address the question of how the enrollment targets are to be met, that is, through increased efficiency of the educational system or through physical expansion, or both. Without a resolution of this question, it is impossible to determine meaningfully the cost of reaching the targets. In addition, the enrollment and financing targets are presented without a breakdown of the institutions or levels of government responsible for attaining them. No attempt is made to relate the enrollment growth rates to future

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<sup>1/</sup> The outline presented here is from the 1972 document Government Action: Goals and Sector Projects, produced by the Ministry of Planning's Institute of Economic and Social Planning (IPEA). The education section in this document is virtually the same as that found in IPEA's 1971 Goals and Bases for Government Action and also the same as the Ministry of Education's three-year Sector Plan for Education and Culture 1972-74. The project area list presented in all three documents is presented in Annex 14. In 1966 the Planning Ministry published a more detailed Ten-Year Plan for the education sector which is discussed in the 1967 IBRD Economic Report No. WH-173, Vol. VI.

national or regional manpower requirements. Nor is any attempt made to relate the financing targets to the resources available at the different levels of government.

97. Because they represent national averages in a country with marked regional disparities, the targets themselves are of little value from the regional point of view and particularly from the point of view of the states which lag substantially behind the rest of the nation in enrollment ratios, teacher and program quality, and financial capacities. In fact, pursuit of all these targets could even hamper education development if scarce resources were diverted to implement programs designed at the center which do not account for state priorities in educational development and for state physical and financial constraints.

98. The absence of a clearly delineated national education development strategy and investment program addressing regional and state requirements and goals emphasizes the decentralization to the states of the planning function and practical choices to be made at the primary and secondary levels of education. In recognition of the important administrative and decision working role of the states and the need to achieve uniform progress under federal guidelines, the 1971 Reform Law of Basic Education directed the states to prepare a diagnostico of their education systems and a plan for the implementation of the new education structure. Although it will, of necessity, be introduced gradually, this program has become the focus of the Northeast states' education development efforts.

99. Government proposals indicate that the program is to be implemented by using a system of "satellite schools" that will offer practical courses in centrally located facilities containing laboratories and workshops. The cost implications of this system have not been assessed and will depend on the results of a school mapping program. Neither have the requirements for teacher training been analyzed. There has been no evaluation of the impact of the program on the private sector, whereas it appears that a portion of the private schools will not afford to meet the requirements of the program. Thus, the states may be burdened with additional school enrollments transferring from the private sector. The state resources devoted to education are already strained from the past rapid expansion of the system, and the implementation of the new program will depend on the growth of state and municipal education financing sources, the rationalization of enrollments with regard to average students and repeaters, and a more efficient utilization of existing physical capacity as a result of the school mapping.

#### B. Expenditure Projections

100. While the financing requirements of future enrollment growth and conversion to the new education structure cannot be adequately assessed without further information, available data do permit an estimation of financing needs for state and municipal primary school and ginasio enrollment growth rates.

101. For state-run primary schools and ginasios, recurrent expenditure requirements are projected on the basis of 1970 recurrent unit costs. Assuming an unchanged share of state education expenditures devoted to recurrent costs at these levels, the mission projections presented below show that simply in order to maintain the average annual enrollment growth rates achieved during 1964-70 the states would require additional recurrent expenditures on the order of Cr\$170 million by 1975 and Cr\$240 million by 1980, over projected budgetary and federal transfer allocations.

<u>State Schools</u>	<u>Millions 1971 Cr\$</u>	
Recurrent Expenditures Necessary	<u>1975</u>	<u>1980</u>
Primary (5.4% enrollment growth rate)	<u>295</u>	<u>388</u>
Ginasio (12.9% enrollment growth rate)	<u>138</u>	<u>252</u>
TOTAL	<u>433</u>	<u>640</u>
<u>Available Resources</u>		
State Budget 1/		
Primary	<u>176</u>	<u>279</u>
Ginasio	<u>44</u>	<u>70</u>
Sub-Total	220	349
Education Salary 2/ (5% growth rate)	<u>42</u>	<u>53</u>
TOTAL	<u>262</u>	<u>402</u>
Recurrent Expenditure Deficit	171	238

102. These estimates suggest that further educational development in the Northeast states will depend greatly on the extent to which (a) the states can devote a larger share of their resources to education, (b) savings can be generated internally by increasing the systems' efficiency, and (c) the Federal Government can provide increased support through new fund transfers. In recognition of the need for greater federal assistance, the Ministry of Education has proposed an increase in the Education Salary Tax from 1.4 percent to 2.2 percent (see para. 69 and Annex 9). By itself, however, this increase would not provide sufficient funds to permit the states to maintain past enrollment growth rates. The cost of conversion to the new system of basic education will limit even further the states' ability to maintain past growth rates.

1/ Includes 20 percent of Participation Fund receipts.

2/ The share of Education Salary Tax receipts devoted to recurrent costs is based on the 1964-70 average of 50 percent.

103. Much the same picture of fund shortages emerges with respect to capital expenditure requirements, although the estimation of these requirements is more tentative than in the case of recurrent expenditures, pending the results of the school mapping. Projections are made on the assumptions that (a) new classrooms will be built at an estimated cost of Cr\$22,500 (1971 prices); (b) they will be used in a double shift with 34 students in each shift; and, (c) additional enrollments can be accommodated only through increased class construction. Assuming the same average share of state education expenditures devoted to capital expenditures at the primary and ginasio levels as during 1964-70, the states would need additional resources of Cr\$121 million by 1975 and Cr\$386 million by 1980.

<u>State Schools</u>	<u>(Millions 1971 Cr \$)</u>	
Capital Expenditures Necessary	<u>1975</u>	<u>1980</u>
Primary (5.4% enrollment growth rate)	<u>119</u>	<u>278</u>
Ginasio (12.9% enrollment growth rate)	<u>69</u>	<u>196</u>
TOTAL	188	474
State Budgetary Resources Available <sup>1/</sup>		
Primary	20	31
Ginasio	<u>5</u>	<u>7</u>
Sub-total	25	38
Education Salary <sup>2/</sup> (5% growth rate)	<u>42</u>	<u>53</u>
TOTAL	<u>67</u>	<u>91</u>
Capital Expenditure Gap	121	386

104. For the Northeast municipalities, Mission projections show that on the basis of 1970 recurrent unit costs, municipal expenditures required to sustain the past 6.7 percent growth in municipal primary school enrollments could be met out of municipal budgetary resources while allowing, at the same time, some additional resources for proceeding with the gradual conversion to the new system of basic education.

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<sup>1/</sup> Including Participation Fund receipts.

<sup>2/</sup> The share of Education Salary Tax receipts devoted to capital expenditures is based on the 1964-70 average of 50 percent.

	(In millions 1971 Cr\$)			
	1975	1975	1980	1980
Municipal Schools	At 1970 Unit Costs	With 5% p.a. increase in Unit Costs	At 1970 Unit Costs	With 5% Increase in Unit Costs
Recurrent Expenditure at 6.7% Enrollment Growth Rate	77	104	108	176
Municipal Budget $\frac{1}{2}$	99		167	

Including Participation Fund receipts and assuming that municipalities spend on education the legally required minimum of 20 percent of their tax and Participation Fund receipts.

05. However, municipal primary school recurrent expenditures are extremely low compared to state expenditures. If the municipal expenditures were increased by only 5 percent in order to facilitate marginal quality improvements, projected municipal resources in 1975 and 1980 would permit either the continuation of the past enrollment growth rate nor the conversion to the new basic education system unless the share of municipal public expenditures devoted to education were increased or new resources of land transfers obtained.

06. If, as appears likely, new classroom construction were required to enable enrollment growth, Mission estimates indicate that the Northeast municipalities will face an investment resource gap of considerable proportions. With an unchanged share of education expenditures devoted to capital investments and with the classroom costs and use estimated as in para. 103, projected municipal resources for capital investments would fall short of that needed to maintain the past primary school enrollment growth by approximately Cr\$192 million in 1975 and Cr\$467 million in 1980.

Municipal Schools	(Millions 1971 Cr\$)	
	1975	1980
Capital Expenditures Necessary at 6.7% primary school enrollment growth rate	207	490
Municipal Resources Available $\frac{1}{2}$	15	23
Capital Investment Gap	192	467

Including Participation Fund receipts and assuming that municipalities spend on education the legally required minimum of 20 percent of their tax and Participation Fund receipts.

107. Given the magnitude of these projected fund requirements, it is certain that the past municipal primary school enrollment growth rate cannot be maintained if new school construction is required. These projections suggest that the termination of transfers to municipalities from the Ministry of Education is unwarranted, particularly inasmuch as the projected shortages of funds at the state level preclude large transfers from the states to the municipalities.

108. None of the foregoing should suggest that priority be attached to the quantitative expansion of enrollments at the primary school and ginasio levels. To the contrary, a most pressing need at these levels (particularly at the primary one) is for qualitative improvements, and quantitative expansion must be balanced against this need.

109. The lack of a breakdown of secondary school enrollments at the collegio level in the state and municipal systems precludes the projection for the Northeast of financing requirements at this level. Data on the manpower demand side is not adequate to permit a thorough assessment of the relative priority that should be given to this level of education. It can be said, however, that with the present distribution of financing and planning efforts the collegio level appears to be neglected. Whereas investments at the primary school level should be balanced between quantitative expansion and qualitative improvements, the most pressing need at the collegio level appears to lie in the expansion of enrollments, particularly in the "non-academic" streams, as a means of both broadening the presently restricted educational opportunities at this level and orienting collegio level instruction more in line with the Northeast's manpower requirements for middle-level personnel.

110. In the appended case studies specific projects meeting state requirements and priorities in the development of the education sector of Pernambuco and Ceara are discussed. As the characteristics and constraints in the development of the education sectors of all the northeast states are more or less common, most of the projects proposed for Ceara and Pernambuco would be also responding to basic needs and priorities of the other northeast states as well. The project areas proposed are as follows:

- (a) the construction and equipping of training centers serving satellite schools and adapted to local environment, to allow an exploration of the students' (grades 7-8) practical abilities or interests;
- (b) teacher upgrading programs, particularly for the municipio teachers. Construction of teacher upgrading centers or conversion of existing facilities may be necessary in some states to provide the physical capacity for the upgrading;

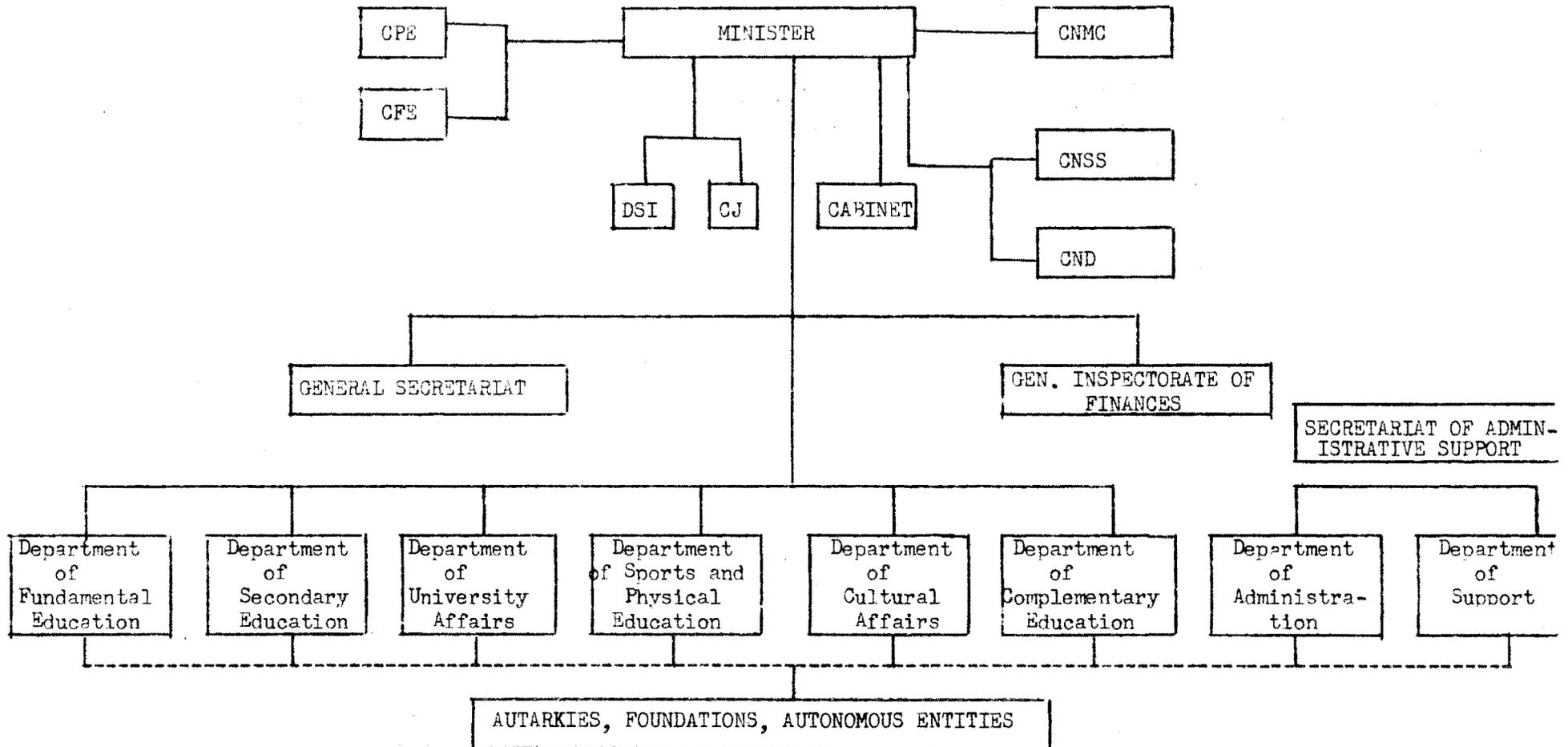
- (c) extension of technical assistance at federal and state levels to improve and develop the capability for curriculum development and evaluation, education planning, education finance analysis and budgeting and management and administration. One of the specialists' tasks would also be to develop an economic alternative for a more efficient means of educating overaged students at the primary level.
- (d) expanding the capacity of technical education and vocational training to meet middle and skilled level manpower requirements on a state and regional level.
- (e) provision, on a pilot basis, of mobile units equipped with audio-visual aids to assist in the short teacher training courses offered to groups of local teachers in the alphabetization program;
- (f) training of extension agents and farmers. A pre-investment study would be necessary to identify a) the required optimum background and the training programs needed to develop agricultural technicians responsive to farmer demands for advice; and, b) the most efficient arrangements for farmer training.

### C. Migration and Education

11. Given the crucial role of the state level in education development, it is lamentable that the Northeast states generally lack not only qualified professional planning staff but also the information necessary to develop education plans and strategies with the assurance that these would be consistent with an efficient allocation of resources to the different levels of education in light of development needs and possibilities. Inasmuch as migration is a very real means of reducing Northeast poverty while transferring human resources to regions where development possibilities are greater, state planning needs to take into account the relationship between education and migration as well as the Northeast's own manpower requirements.

12. The prevailing net migratory movements of people to the southern and western states of Brazil present complex and as yet uninvestigated problems in the allocation of resources to the education sector within and to the Northeast states. The distribution of the financial burden of education of the migrants raises significant social policy questions as well. Federal fund transfers to the education sector of the Northeast are undertaken on the basis of a formula that favors the poorer states (Annex 9), but there is no indication that this formula takes into account the net benefits accruing to the states receiving the migrants at the expense of the Northeast states' earlier investment in their education. Resource allocations to the education sectors should be responsive to prevailing migratory patterns and mechanisms of compensatory fund transfers for education should be established and often reviewed to reflect these patterns.

MEC - ADMINISTRATIVE REFORM, 1970



CPE = FEDERAL COUNCIL OF EDUCATION  
 CFC = FEDERAL COUNCIL OF CULTURE  
 CNMC = NATIONAL COMMISSION OF MORALS AND CIVISM

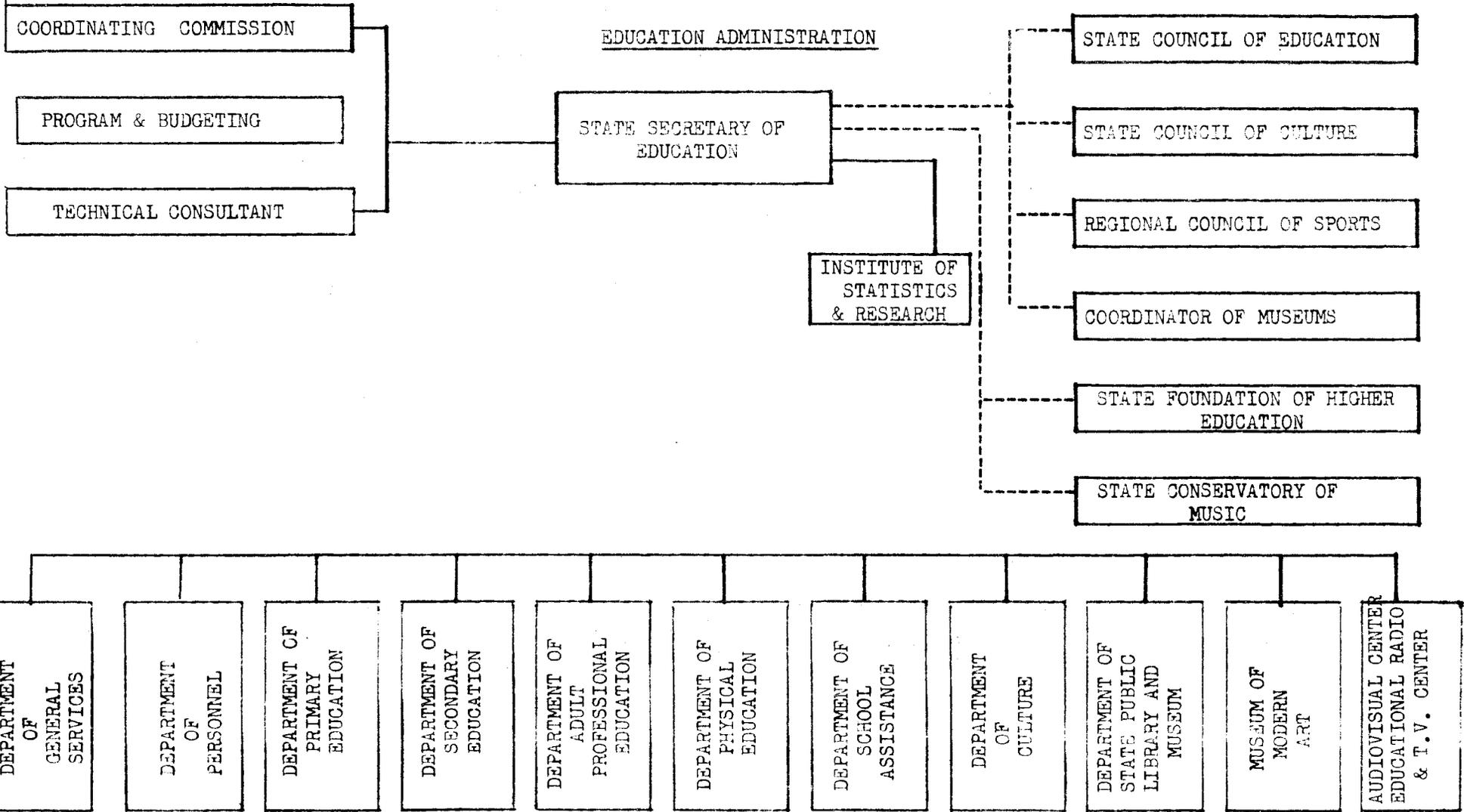
DSI = DIVISION OF SECURITY AND INFORMATION  
 CJ = JURIDICAL CONSULTANTS  
 CNSS = NATIONAL COUNCIL OF SOCIAL SERVICE  
 CND = NATIONAL COUNCIL OF SPORTS



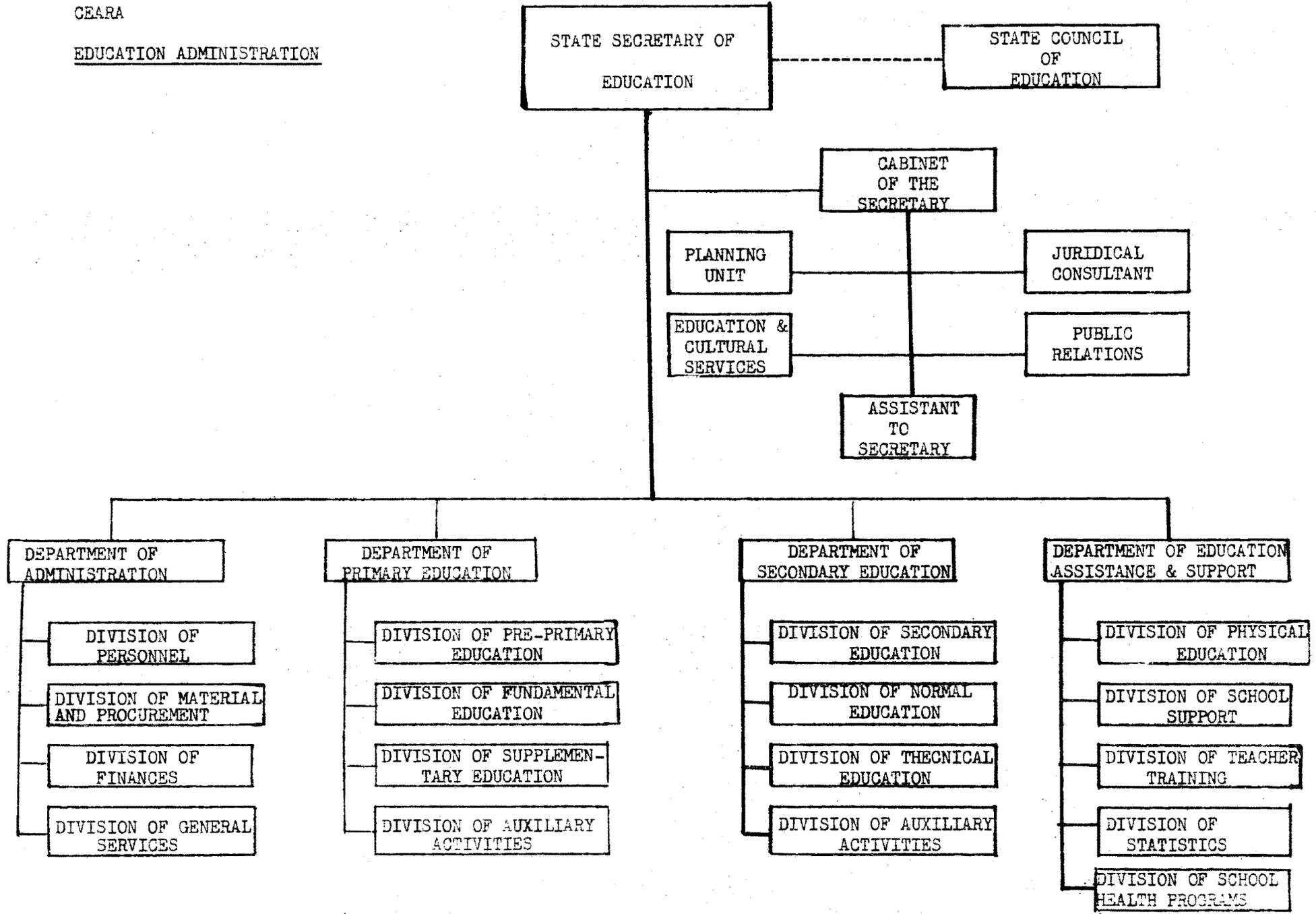
CHART II

PERNAMBUCO

EDUCATION ADMINISTRATION

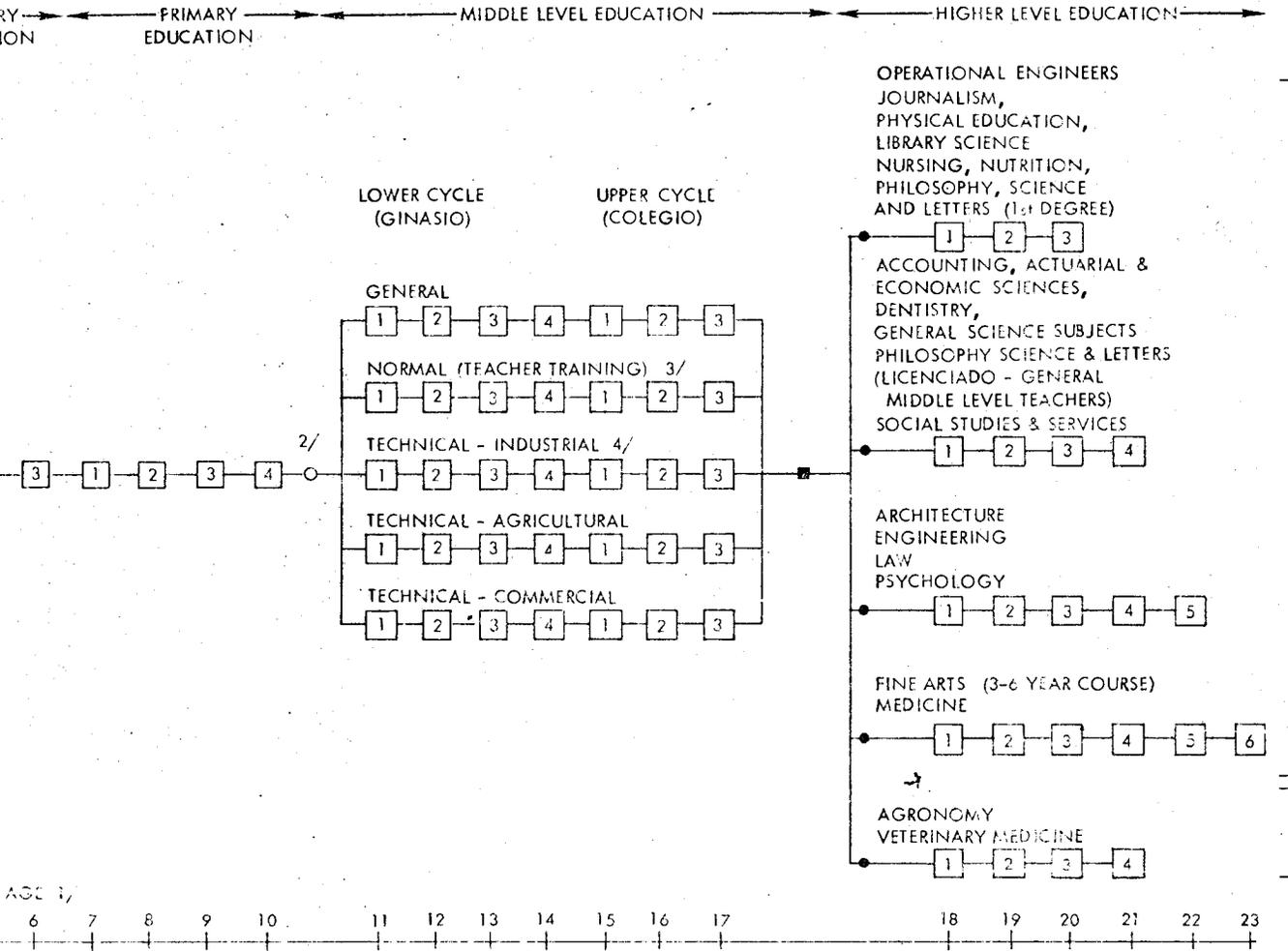






# BRAZIL - STRUCTURE OF THE EDUCATION SYSTEM 1969

( BEFORE INTRODUCTION OF POLYVALENT GINASIOS )

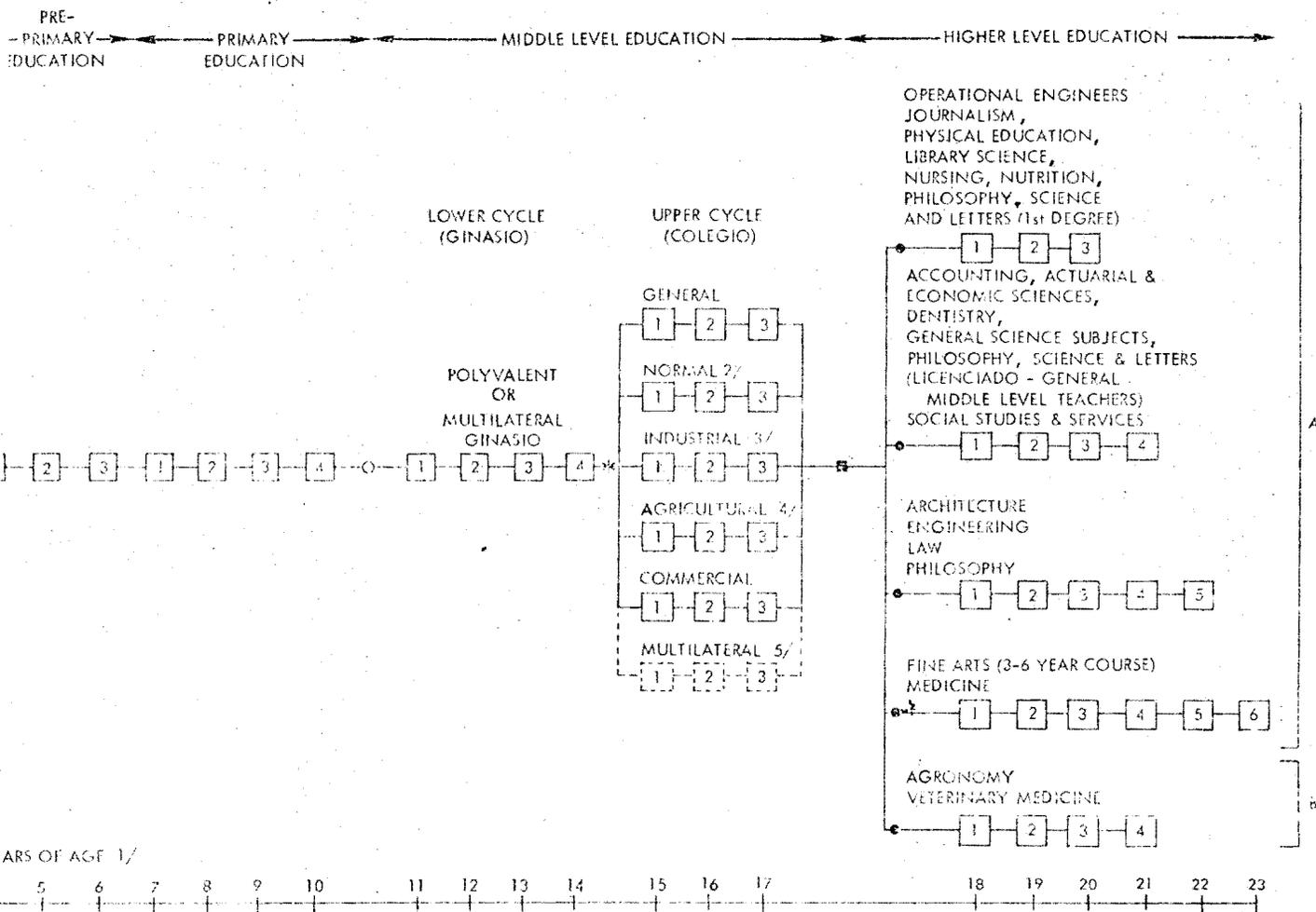


**SYMBOLS**  
 ○ GRADE EXAMINATION TO SECONDARY EDUCATION  
 □ SECONDARY LEAVING EXAMINATION  
 ● UNIVERSITY EXAMINATIONS FOR UNIVERSITY ENTRANCE  
 ○ SEPARATE FACULTIES  
 ○ UNIVERSITIES AND INSTITUTIONS

**NOTES**  
 1/ THE AGE GROUP RELATIONSHIP APPLIES ONLY WHEN STUDENTS ENTER PRIMARY SCHOOL AT 7 AND DO NOT REPEAT A CLASS. GENERALLY STUDENTS ARE OLDER.  
 2/ IN SOME STATES A FIFTH AND SIXTH YEAR OF PRIMARY EDUCATION IS OFFERED, FOLLOWING WHICH STUDENTS ENTER GINASIO SECOND GRADE.  
 3/ IN SOME STATES THE NORMAL COLEGIO COURSE EXTENDS OVER FOUR YEARS.  
 4/ THE TECHNICIANS' COURSE EXTENDS OVER FOUR YEARS, THE LAST YEAR CONSISTING OF SUPERVISED INTERNSHIP IN INDUSTRY.

# BRAZIL-NEW STRUCTURE OF THE EDUCATION SYSTEM

(AFTER INTRODUCTION OF POLYVALENT GINASIOS)



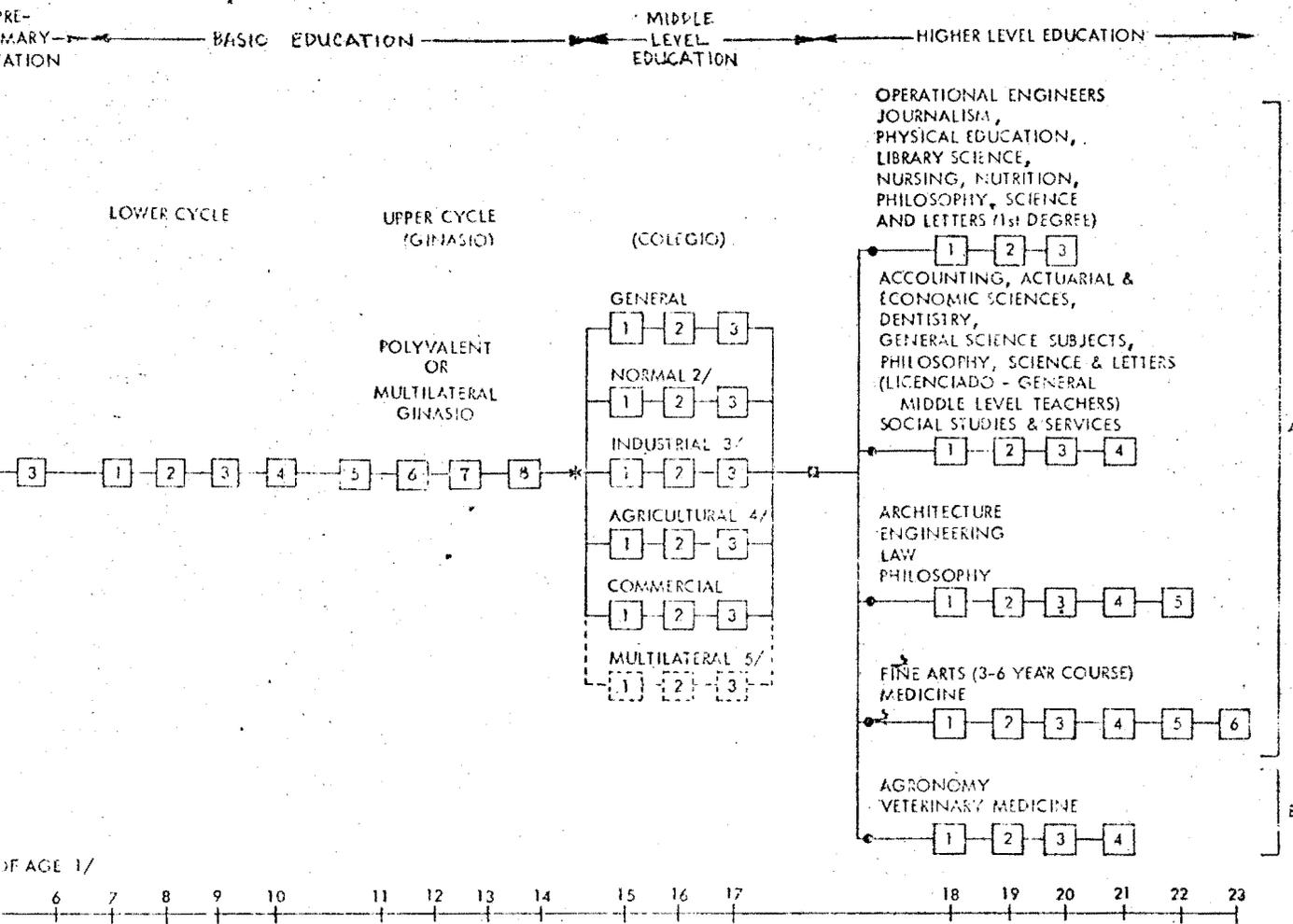
KEY TO SYMBOLS

○ ENTRANCE EXAMINATION TO SECONDARY EDUCATION. TO BE PHASED OUT.  
○ POSSIBLE FUTURE EXAMINATION FOR ENTRY TO COLEGIO.  
○ SECONDARY LEAVING EXAMINATION  
○ FACULTY EXAMINATIONS FOR UNIVERSITY ENTRANCE  
○ UNIVERSITIES AND SEPARATE FACILITIES  
○ RURAL UNIVERSITIES AND INSTITUTIONS

- NOTES
- 1/ THE AGE GROUP RELATIONSHIP APPLIES ONLY WHEN STUDENTS ENTER PRIMARY SCHOOL AT 7 AND DO NOT REPEAT A CLASS.
  - 2/ IN SOME STATES THE NORMAL COLEGIO COURSE WILL EXTEND OVER FOUR YEARS.
  - 3/ THE TECHNICIANS' COURSE EXTENDS OVER FOUR YEARS, THE LAST YEAR CONSISTING OF SUPERVISED INTERNSHIP IN INDUSTRY.
  - 4/ A TERMINAL FOURTH YEAR WILL BE PROVIDED FOR AGRICULTURAL TECHNICIANS.
  - 5/ NO DECISIONS HAVE YET BEEN MADE REGARDING THE INTRODUCTION OF MULTILATERAL TYPE COLEGIOS.

# BRAZIL - NEW STRUCTURE OF THE EDUCATION SYSTEM

(AFTER INTRODUCTION OF BASIC EDUCATION)



**SYMBOLS**

● POSSIBLE FUTURE EXAMINATION FOR ENTRY TO COLEGIO.  
 ○ SECONDARY LEAVING EXAMINATION  
 ○ QUALIFYING EXAMINATIONS FOR UNIVERSITY ENTRANCE EXAMINATIONS AND SEPARATE FACULTIES AT UNIVERSITIES AND INSTITUTIONS.

**NOTES**

- 1/ THE AGE GROUP RELATIONSHIP APPLIES ONLY WHEN STUDENTS ENTER PRIMARY SCHOOL AT 7 AND DO NOT REPEAT A CLASS.
- 2/ IN SOME STATES THE NORMAL COLEGIO COURSE WILL EXTEND OVER FOUR YEARS.
- 3/ THE TECHNICIANS' COURSE EXTENDS OVER FOUR YEARS, THE LAST YEAR CONSISTING OF SUPERVISED INTERNSHIP IN INDUSTRY.
- 4/ A TERMINAL FOURTH YEAR WILL BE PROVIDED FOR AGRICULTURAL TECHNICIANS.
- 5/ NO DECISIONS HAVE YET BEEN MADE REGARDING THE INTRODUCTION OF MULTILATERAL TYPE COLEGIOS.

BASIC DATA ON PRIMARY EDUCATION, 1970

ANNEX 1

<u>Administration</u>	<u>Number of Schools</u>	<u>Number of Classes</u>	<u>Enrollment (000)</u>	<u>Teachers</u>	<u>c*</u>	<u>d*</u>	<u>c</u>
	(a)	(b)	(c)	(d)	(a)	(c)	(b)
<u>Federal</u>							
Brazil	791	1,624	82	2,820	104	29	50
Northeast	201	414	24	695	119	35	58
<u>State</u>							
Brazil	54,450	137,369	7,726	285,476	142	27	56
Northeast	9,338	22,573	1,293	41,447	138	31	57
<u>Municipalities</u>							
Brazil	81,583	97,627	3,851	124,232	47	31	40
Northeast	39,926	45,008	1,629	57,461	41	28	36
<u>Private</u>							
Brazil	9,312	31,734	1,154	44,878	124	26	36
Northeast	4,309	10,157	354	13,511	82	26	35
<u>Total</u>							
Brazil	146,136	88,354	12,813	457,406	88	28	48
Northeast	53,774	78,152	3,300	107,104	61	31	42
<u>Municipal as % of Total</u>							
Brazil	55.8%	36.4%	30.1%	27.2%			
Northeast	74.2%	57.6%	49.4%	48.0%			

\* Students per school and student/teacher ratios are not meaningful because of the shift attendance system and of the large number of part-time teachers.

Source: Ministerio da Educacao e Cultura, Secretaria Geral, Securico de Estatistica da Educacao e Cultura, Ensino Primario Comum - 1970.

PRIMARY EDUCATION INDICATORS  
BY RURAL AND URBAN DISTINCTION - 1970

ANNEX 2

	<u>Urban</u> (a)	<u>Rural</u> (b)	<u>Total</u>	<u>b/a</u>
<u>ents</u>				
1.	8,066,694	4,745,335	12,812,229	37%
east	1,847,537	1,452,909	3,300,446	44%
1.	34,388	111,748	146,136	76%
east	15,012	38,732	53,744	72%
<u>oms</u>				
1.	137,977	130,377	268,354	49%
east	36,510	41,642	78,152	53%
1.	300,118	157,288	457,406	34%
east	62,447	44,627	107,074	42%

Source: Ministerio da Educacao e Cultura, Secretaria Geral, Securico de Estatistica da Educacao e Cultura, Ensino Primario Comum - 1970.

DISTRIBUTION OF SECONDARY ENROLLMENTS, 1964 and 1970

ANNEX 3

Type of Education	G I N A S I O								C O L E C I O							
	1 9 6 4				1 9 7 0				1 9 6 4				1 9 7 0			
	Brazil		Northeast		Brazil		Northeast		Brazil		Northeast		Brazil		Northeast	
Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
General	1,200,935	82.6	219,455	85.6	2,590,889	85.2	452,710	86.4	167,242	38.0	35,582	46.0	462,366	46.1	81,706	44.1
Commercial	155,217	10.7	21,280	8.3	234,873	7.7	39,048	7.4	114,819	26.1	15,177	19.6	219,101	21.8	34,405	18.6
Industrial	46,127	3.2	7,677	3.0	113,207	3.7	19,762	3.8	22,692	5.2	2,832	3.7	49,522	4.9	7,900	4.3
Agricultural	7,193	.5	1,393	.5	11,730	.4	2,235	.4	3,102	.7	651	.8	8,146	.8	1,625	.9
Teacher Training	44,199	3.0	8,585	2.8	85,183	2.8	8,940	1.7	131,185	30.0	23,152	29.9	262,690	26.2	59,124	31.9
Arts	-	-	-	-	429	.01	146	.02	-	-	-	-	300	-	-	-
Home Economics	-	-	-	-	2,322	.07	1,038	.2	-	-	-	-	1,089	.1	374	.2
Nursing	-	-	-	-	1,292	.04	396	.07	-	-	-	-	171	-	-	-
Total	1,453,671	100.0	256,390	100.0	3,039,925	100.0	524,275	100.0	439,040	100.0	77,394	100.0	1,003,385	100.0	185,134	100.0

Source: Anuario Estatístico do Brazil, various years.

NORTHEAST BRAZIL  
PRIMARY SCHOOL TEACHERS, 1964-70

State and Region	Year	Total Number of Teachers Employed	Number of Teachers Employed Actually Teaching		
			Total	"Normalistas"	% of "Normalistas"
<u>Maranhão</u>	1964	5,219	5,080	1,246	24.5
	1966	7,034	6,768	1,815	26.8
	1968	9,136	8,706	2,271	26.1
	1970	9,764	9,522	n.a.	n.a.
<u>Piauí</u>	1964	4,236	4,052	1,043	25.7
	1966	4,353	4,051	1,472	36.3
	1968	5,705	5,411	1,645	30.4
	1970	5,650	5,353	n.a.	n.a.
<u>Ceará</u>	1964	12,786	12,406	3,802	30.6
	1966	12,189	11,384	3,470	30.5
	1968	16,660	16,146	5,527	34.2
	1970	17,624	16,911	n.a.	n.a.
<u>R. G. do Norte</u>	1964	5,573	5,505	991	18.0
	1966	7,383	6,884	1,377	20.6
	1968	7,490	7,123	1,714	24.1
	1970	7,335	7,557	n.a.	n.a.
<u>Paraíba</u>	1964	7,242	6,757	1,322	19.6
	1966	9,223	8,523	1,902	21.4
	1968	8,311	8,124	2,231	26.3
	1970	10,190	9,771	n.a.	n.a.
<u>Pernambuco</u>	1964	15,467	14,861	7,725	52.0
	1966	17,435	16,594	8,191	49.4
	1968	19,763	19,058	11,171	58.6
	1970	20,570	19,737	n.a.	n.a.
<u>Alagoas</u>	1964	4,190	4,016	1,743	43.4
	1966	4,420	4,169	1,806	43.3
	1968	5,397	5,144	2,489	48.4
	1970	5,997	5,576	n.a.	n.a.
<u>Sergipe</u>	1964	2,414	2,197	673	30.6
	1966	2,829	2,714	785	28.9
	1968	3,043	2,627	763	29.0
	1970	3,714	3,527	n.a.	n.a.
<u>Bahia</u>	1964	19,835	19,835	9,789	49.4
	1966	21,683	20,409	10,800	52.9
	1968	23,524	22,916	12,011	52.4
	1970	25,702	24,982	n.a.	n.a.
<u>Northeast</u>	1964	76,992	74,709	28,334	37.9
	1966	86,263	81,641	31,618	38.7
	1968	100,056	95,615	39,822	41.6
	1970	107,104	102,936	n.a.	n.a.
<u>Brazil</u>	1964	336,903	299,888	163,153	54.4
	1966	393,001	346,628	200,334	57.8
	1968	423,145	382,360	233,882	61.2
	1970	457,406	411,755	n.a.	n.a.

Source: Anuario Estatístico de Brasil, various years.

NORTHEAST BRAZIL: SENAI AND SENAC ENROLLMENTS, 1970

State	A. SENAI ENROLLMENTS						B. SENAC ENROLLMENTS		
	Total	Apprentices	Skilled Workers	Technicians	Management Supervision	Teachers	Minors	Adults	Professionals
Maranhao	916	237	440	-	224	5	195	895	144
Pernambuco	2,602	716	1,142	115	575	54	336	1,590	71
Bahia	2,524	372	1,166	103	741	110	310	1,865	85
Alagoas	757	314	373	-	70	-	279	528	62
Sergipe	1,064	244	507	6	297	10	136	221	86
Paraiba	1,429	639	657	-	114	19	367	443	151
Ceara	4,797	272	2,421	23	1,999	82	479	1,296	199
Piaui	348	119	163	-	51	15	143	262	62
Rio Grande do Norte	659	147	456	-	142	14	99	692	17
TOTAL	15,096	3,060	7,325	247	4,213	309	2,344	7,792	937
Brazil	146,052	40,704	72,366	4,436	26,728	1,818	16,220	80,923	14,409
Northeast as % of Brazil	10.3	7.5	10.1	5.6	15.8	16.9	14.0	9.6	6.5

Source: SENAI: Relatorio 1970, Senai Departamento Nacional. SENAC: Relatorio 1970, Senac Departamento Nacional.

NORTHEAST LITERACY: SUMMARY OF MOBRL RESULTS 1970-71<sup>1/</sup>

	Existing Municipalities	Participating Municipalities		Beginning Enrollment		Final Enrollment		Successfully Alphabetized		Number of Teachers	
		1970	1971	1970	1971	1970	1971	1970	1971	1970	1971
Pernambuco	164	18	122	12,000	99,531	9,800	84,012	5,400	51,077	814	4,068
Ceara	141	21	132	12,584	112,936	9,126	85,183	4,956	49,471	746	4,604
Rio Grande do Norte	150	17	66	5,087	31,200	2,233	25,647	1,472	11,350	202	1,280
Paraiba	171	24	167	8,519	75,439	6,000	65,892	3,541	33,549	463	3,011
Alagoas	94	14	79	11,333	62,380	7,811	45,339	6,255	42,166	576	2,899
Sergipe	74	7	66	5,274	21,688	3,006	15,000	1,815	10,000	491	766
Piani	114	24	107	11,150	89,248	9,243	75,918	5,000	44,911	650	3,431
Bahia	336	22	203	14,812	101,169	n.a.	n.a.	n.a.	n.a.	742	4,047
Maranhao	<u>129</u>	<u>41</u>	<u>109</u>	<u>12,805</u>	<u>99,040</u>	<u>8,553</u>	<u>98,040</u>	<u>5,617</u>	<u>90,000</u>	<u>1,560</u>	<u>3,922</u>
NORTHEAST	1,373	188	1,051	93,563	692,631	55,772	495,031	34,056	332,524	6,235	28,028
TOTAL BRAZIL	3,951	611	2,963	509,014	1,632,842	n.a.	n.a.	n.a.	n.a.	25,619	65,311
% N.E. of TOTAL	35%	31%	36%	18%	42%	-	-	-	-	24%	43%

<sup>1/</sup> MOBRL began function in the last six months of 1970; 1971 data covers first six months of year.

Source: MOBRL

**TOTAL POPULATION AND ECONOMICALLY ACTIVE BY EDUCATIONAL ATTAINMENTS**  
(BRAZIL AND NORTHEAST (NE)--1970)

ANNEX

Economic Activity	YEARS OF SCHOOLING																	
	Total	None or Less One		1 Year		2 Years		3 Years		4 And 5 Years		6 to 9 Years		10 to 12 Years		13 to 17 Years		
		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Total (NE)	19,031,013	100	11,317,400	100	1,746,535	100	1,599,599	100	1,217,270	100	1,748,852	100	904,702	100	416,579	100	140,076	100
Northeast (%)	100		59.2		9.2		8.4		6.4		9.2		4.7		2.2		.7	
Brazil (%)	100	100	36.5	100	8.2	100	10.6	100	11.1	100	20.0	100	8.5	100	3.7	100	2.4	100
Econ. Active (NE)	8,361,676	43.9	5,242,391	46.3	734,515	42.1	623,172	39.0	451,215	37.1	687,984	39.3	297,153	32.8	222,305	53.4	102,941	73.5
Northeast (%)	100		62.8		8.8		7.5		5.4		8.2		3.4		2.7		1.2	
Brazil (%)	100	44.8	35.8	44.0	7.9	43.1	10.0	41.9	10.5	42.4	21.3	47.8	7.4	39.0	4.8	57.0	2.3	75.3
Agriculture (NE)	5,157,798	27.1	4,080,297	36.0	472,353	27.0	327,645	20.5	158,653	13.0	98,669	5.6	14,733	1.6	3,060	.7	2,388	1.7
Northeast (%)	100		79.1		9.2		6.4		3.1		1.9		.3		.05		.04	
Brazil (%)	100	19.9	57.6	31.3	10.3	25.0	11.6	21.5	9.8	17.4	9.6	9.5	.8	1.9	.2	.9	.1	1.2
Industry (NE)	903,752	4.7	425,353	3.7	82,267	4.7	96,931	6.1	84,748	7.0	129,525	7.4	45,288	5.0	25,585	6.1	14,055	10.0
Northeast (%)	100		47.1		9.1		10.7		9.4		14.3		5.0		1.8		1.6	
Brazil (%)	100	8.1	21.8	4.8	7.0	6.8	10.2	7.7	13.0	9.3	32.1	12.8	9.6	8.9	4.2	8.9	2.1	12.6
Commerce (NE)	555,220	2.9	165,480	1.5	49,804	2.9	56,614	3.5	56,908	4.6	123,239	7.0	67,501	7.5	31,469	7.7	4,205	3.0
Northeast (%)	100		19.7		3.0		10.2		10.2		22.2		12.2		5.7		.8	
Brazil (%)	100	4.1	13.8	1.5	5.6	2.7	8.2	3.1	10.8	3.9	35.0	7.0	17.5	8.2	7.6	8.1	1.5	4.4
Services (NE)	713,244	3.7	334,572	3.0	74,994	4.3	76,585	4.8	73,651	6.1	118,273	6.8	28,151	3.1	5,577	1.3	1,441	1.0
Northeast (%)	100		46.9		10.6		10.7		10.3		16.6		3.9		.8		.2	
Brazil (%)	100	4.9	28.3	3.8	7.9	4.8	11.0	5.1	13.2	5.9	30.7	7.6	7.0	4.1	1.5	1.9	.4	1.3
Transport, Storage & Communications (NE)	227,457	1.2	69,171	.6	19,876	1.1	23,547	1.5	25,447	2.1	56,677	3.2	22,598	2.5	8,295	2.0	1,846	1.3
Northeast (%)	100		30.4		8.7		10.5		11.2		24.9		9.9		3.6		.8	
Brazil (%)	100	1.9	15.0	.8	6.3	1.5	10.2	1.8	14.0	2.4	37.0	3.5	12.1	2.7	4.3	2.2	1.1	1.5
Social Activities (NE)	295,614	1.6	27,713	.2	8,312	.5	11,712	.7	17,832	1.5	67,749	3.9	40,795	4.5	84,503	20.3	39,998	28.5
Northeast (%)	100		8.4		2.8		4.0		6.0		22.9		13.8		28.6		13.5	
Brazil (%)	100	2.1	5.3	.3	2.1	.5	3.3	.7	5.1	1.0	21.6	2.3	14.3	3.6	31.8	18.2	16.5	26.1
Public Adminis. (NE)	238,195	1.3	32,365	.3	11,747	.7	14,856	.9	17,010	1.4	59,427	3.4	48,212	5.3	33,108	7.9	21,470	15.3
Northeast (%)	100		13.7		4.9		6.3		7.1		24.9		20.2		13.9		9.0	
Brazil (%)	100	1.7	7.4	.4	3.4	.7	5.1	.8	7.5	1.2	29.0	2.5	24.1	4.9	13.8	6.5	9.7	12.5
Other Activities (NE)	270,376	1.4	109,268	1.0	15,344	.9	15,282	1.0	16,966	1.4	35,425	2.0	29,875	3.3	30,678	7.4	17,538	12.5
Northeast (%)	100		40.4		5.7		5.7		6.3		13.1		11.0		11.3		6.5	
Brazil (%)	100	2.1	18.0	1.1	3.9	1.1	4.9	1.0	6.5	1.3	22.5	2.6	17.8	4.7	17.0	10.3	9.4	15.7
Non Economically Active (NE)	10,279,357		6,075,009	53.7	1,012,020	57.9	976,427	61.0	766,055	62.9	1,060,868	60.7	697,549	67.2	194,274	46.6	37,135	26.5
Northeast (%)	100		56.5		9.3		9.4		7.1		9.8		5.7		1.9		.3	
Brazil (%)	100	55.2	37.0	56.0	8.4	56.9	11.2	58.1	11.6	57.6	18.9	52.2	9.4	61.0	2.9	43.0	.6	24.7

Source: Tabulacoes Avancadas do Censo Demografico, Volume 8, Recenseamento Geral, 1970. Results have been aggregated for incorporation in this table for Region II (Maranhao and Piaui); Region III (Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas and Territorio de Fernando de Noronha); Region 5 (Sergipe and Bahia); and Brazil at large.

## EARNINGS AND EDUCATIONAL BACKGROUND, 1969\*

ANEXO B

## COMMERCE AND SERVICES

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than CR\$119	7.0	30.3	31.6	11.4	6.2	4.2	4.2	.6	.2	4.3	76,899
CR\$120-CR\$299	2.6	22.1	30.0	12.2	9.0	7.1	10.8	2.7	1.3	2.2	95,726
More than CR\$299	.7	5.6	14.6	9.3	12.7	7.8	23.5	6.0	17.5	2.3	59,842
Total	3.6	20.6	26.5	11.2	9.0	6.3	11.9	2.9	5.1	2.9	232,467
	8,288	47,895	61,753	26,027	20,993	14,695	27,688	66,540	11,812	6,792	100

## INDUSTRY

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than CR\$119	24.4	48.1	19.4	2.5	.8	.5	.3	.02	.02	4.0	143,904
CR\$120-\$299	9.5	44.2	30.2	5.4	3.3	2.1	1.5	.1	.05	3.7	103,589
More than CR\$299	1.7	12.7	29.3	7.0	11.9	4.8	11.4	2.9	7.2	1.0	39,786
Total	15.8	41.7	26.1	4.2	3.2	1.7	2.3	.5	1.0	3.5	287,279
	45,710	119,940	74,878	1,928	9,255	4,757	6,508	1,306	2,979	9,958	287,279

\* Numbers are proportions of totals. The proportions in the upper part of the boxes correspond to the total at the end of the horizontal columns. Those in the lower part of the boxes correspond to the totals on the vertical columns denoting educational attainments.  
Source: Ministerio do Trabalho e Previdencia Social - Boletim Tecnico de Set. - Apuracao Lei de 2/3 - No. 20, Setembro 1970.

FEDERAL TRANSFER PROGRAMS FOR EDUCATION

I. National Education Plan (Plano Nacional de Educacao - PNE)

1. Since its inception in 1964, the PNE has been defined as a redistributive mechanism designed to maximize educational opportunities and improve the quality of education. The PNE was financed by the National Education Fund, which according to the Law of Policies and Principles was to receive 12 percent of total federal tax revenues. From the monies collected, one-tenth was held for administrative and overhead costs, and the remaining nine-tenths was to be divided into three equal portions for allocation to the Elementary Education National Fund, the Secondary Education National Fund, and the Higher Education National Fund. In practice, however, the Higher Education Fund received over one-half of the monies collected. The earmarking and allocating formula established by the Law of Policies and Principles was revoked by the Constitution of 1967, leaving the allocation of federal budgetary funds to education at the discretion of the Ministries of Finance and Education.
2. Funds received from the PNE represented 65 percent of the Elementary Education National Fund and were transferred through the Ministry of Education to both state and municipal governments through specific agreements entered into annually. The transfers were made under special equalization criteria using the following formula: 85 percent of the funds were to be disbursed in proportion to the enrollment deficit for children in the 7-14 age group in the state; 5 percent in proportion to the number of certified teachers practicing in the state; and 10 percent in proportion to the number of students enrolled in the third grade and above in rural schools and in the fourth grade and above in urban schools.
3. Funds received from the PNE for secondary education represented 95 percent of the Secondary Education National Fund and were transferred only to state governments. The formula used for allocation among the states' municipalities with no secondary school; 35 percent in proportion to the number of primary school graduates and inversely to the per capita income in the state; 20 percent in proportion to the population in the 11-18 age group and inversely to the number of public secondary education openings in the state; 20 percent for aid in supporting and enlarging the system of normal schools at the ginasio level, distributed in proportion to the number of untrained teachers in primary schools; and 5 percent for technical assistance, mainly for the execution of an emergency program to train teachers in secondary education.
4. Beginning in 1965, 40 percent of PNE funds was to be used for recurrent expenditures and 60 percent for capital expenditures. This ratio was to be gradually inverted until 1970 when 60 percent of PNE funds would be earmarked for recurrent expenses and 40 percent for capital expenses. These restrictions were removed in 1970. By 1971 the PNE was virtually phased out, with transfers being made only for obligations incurred but not disbursed prior to 1971.

## II. Education Salary Tax (Salario Educacao)

5. The Education Salary Tax was legislated (Law No. 4.440 in October 1964) for the purpose of tapping the private business sector as a means of supplementing public efforts in the financing of primary education. The tax is equivalent to 1.4 percent of the legal minimum wage multiplied by the total number of employees on the payroll of all public and private concerns which contribute to the social security program. One study has estimated that about 500 thousand enterprises contribute to this program, with some 50 thousand accounting for approximately 90 percent of the education salary tax collections.<sup>1/</sup> Firms with more than 100 employees which maintain their own primary schools or pay scholarships for their employees and their children of elementary school age are exempted from the tax.

6. The Education Salary Tax is collected by the National Institute of Social Security (INPS), which holds 0.5 percent to defray collection costs. Of the remaining 99.5 percent, one-half (the state's "quota") is deposited in the account of the Primary Education State Fund in the state where the collections are made. The other half (the federal "quota") is credited to the Primary Educational National Fund in the Federal Ministry of Education. Funds deposited in the states are spent exclusively for primary education in accordance with plans formulated by the State Boards of Education. Funds deposited with the Ministry of Education are also earmarked exclusively for primary education and are redistributed among the states mainly on the basis of an index of illiteracy rates and population. The formula for redistribution has been readjusted frequently, and the Ministry of Education intends to develop a multi-variable formula similar to that used for PNE funds. Beginning in 1970, restrictions regarding the use of Education Salary funds for recurrent and capital expenditures (similar to the PNE) were removed.

7. Beginning in 1971, the Education Salary Tax represents the only transfer from the Ministry of Education to the states. Its scope has been broadened to include the new cycle of basic education (grades 1-8). The Ministry of Education has proposed an increase in the tax from 1.4 percent to 2.2 percent with the objective of raising enough funds to finance at least 20 percent of the expenditures made by the states at the basic education cycles.

## III. Participation Fund (Fundo de Participacao)

8. Under the Tax Reform Law (Law No. 5172) of 1966 state and municipal governments were no longer allowed to collect as many taxes as before. The Participation Fund was then established as an element of the Reform especially designed to offset the revenue losses that resulted from the reduction in tax power at the state and municipal levels.

9. The Participation Fund is composed of 10 percent of the total collection of the Federal Income Tax and the Industrialized Products Tax. The monies credited to the Fund account are distributed equally to two sub-funds: The Participation Fund designated for the 22 states and the Federal

District and the Participation Fund designated for Brazil's some 4,000 municipalities.

10. The Participation Fund of the states and Federal District is distributed proportionally to the land area (5 percent of the Fund) and to the "Individual Coefficients of Participation" (95 percent of the Fund). The "Individual Coefficients of Participation" are computed based on the population and the inverse of the per capita income. The Participation Fund of the municipalities is distributed for the state capital municipalities (10 percent of the Fund) using the criteria of the "Individual Coefficients of Participation" considering the municipality population and the state per capita income. The distribution coefficients for the non-capital municipalities (90 percent of the Fund) are simply based on the population factor.

11. By force of legal provision, beginning the year of 1970, 20 percent of the Participation Fund transferred to states, the Federal District and municipalities is to be used in education.



TOTAL NORTHEAST PUBLIC EXPENDITURES AT EACH LEVEL ACCORDING TO SOURCE, 1964-70  
(Millions Current Cr\$)

Year Level	t o t a l		M E C Direct and Transfers		S t a t e <sup>1/</sup>		Municipal <sup>2/</sup>		O t h e r	
	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%
<u>1964</u> Primary	30.1	100	5.3	18	16.6	55	5.0	17	3.2	11
Secondary	13.4	100	5.5	41	5.8	43	0.6	4	1.5	11
Higher	11.9	100	11.5	97	0.4	3	0	0	0	
<u>1965</u> Primary	72.3	100	23.5	33	34.5	48	10.3	14	4.0	6
Secondary	29.1	100	15.7	54	11.7	40	1.2	4	0.5	2
Higher	19.1	100	18.2		0.9		0		0	
<u>1966</u> Primary	78.5	100	20.5	26	36.1	46	17.8	23	4.1	5
Secondary	32.4	100	11.4	35	17.9	55	2.0	6	1.1	3
Higher	49.9	100	47.3	95	2.6	5	0	0	0	
<u>1967</u> Primary	127.3	100	24.9	20	72.6	57	27.3	21	2.5	2
Secondary	47.6	100	15.2	32	28.9	61	3.0	6	0.5	1
Higher	81.4	100	77.0	95	4.4	5	0	0	0	
<u>1968</u> Primary	212.6	100	35.5	17	109.3	51	65.2	31	2.6	1
Secondary	78.2	100	21.7	28	48.9	63	7.3	9	0.3	nil
Higher	125.6	100	112.8	90	12.8	10	0	0	0	
<u>1969</u> Primary	242.2	100	41.8	17	155.7	64	41.4	18	3.3	1
Secondary	112.5	100	24.1	21	83.6	74	4.6	4	0.2	nil
Higher	182.4	100	159.3	87	23.1	13	0	0	0	
<u>1970</u> Primary	300.8	100	40.8	13	205.3	67	54.7	18	-	1
Secondary	147.0	100	33.9	23	106.9	73	6.1	4	-	nil
Higher	250.3	100	219.4	88	30.9	12	0	0	0	

/ State and Municipal include Fundo de Participação  
/ Assumes 10% Municipio total expenditures are for secondary education

OTE: Table not equal to total public education expenditure because excludes  
Central Administration and Training and Culture



CURRENT AND CAPITAL PUBLIC EDUCATION EXPENDITURES  
BY SOURCE AND LEVEL OF EDUCATION, 1964-70

(millions current Cr\$)

		State <sup>1/</sup>	Federal <sup>2/</sup> Direct Expen.	MEC Trans. to States	MEC Trans. to Municipi- palities <sup>3/</sup>	Municipi- palities <sup>4/</sup> /Other	
1964	Current	16.4	-	2.1	1.8	4.5	0.9
	PRIMARY Capital	0.2	-	3.2	0.2	0.5	2.3
	Current	5.6	1.3	1.6	-	0.5	0.3
	SECONDARY Capital	0.2	0.6	2.0	-	0.1	1.2
	Current	0.3	9.6	-	-	-	-
	HIGHER Capital	0.1	1.9	-	-	-	-
1965	Current	33.9	-	6.0	5.0	9.3	1.0
	PRIMARY Capital	0.6	-	11.3	1.2	1.0	3.0
	Current	11.4	2.6	5.3	-	1.1	0.1
	SECONDARY Capital	0.3	0.2	7.6	-	0.1	0.4
	Current	0.8	14.5	-	-	-	-
	HIGHER Capital	0.1	3.7	-	-	-	-
1966	Current	34.5	-	7.1	1.8	16.0	1.6
	PRIMARY Capital	1.6	-	11.1	0.5	1.8	2.5
	Current	17.7	4.5	2.9	-	1.8	0.1
	SECONDARY Capital	0.2	0.5	3.5	-	0.2	1.0
	Current	2.4	40.1	-	-	-	-
	HIGHER Capital	0.2	7.2	-	-	-	-
1967	Current	71.0	-	9.6	2.0	22.4	1.4
	PRIMARY Capital	1.6	-	13.1	0.2	4.8	1.1
	Current	28.4	7.3	3.9	-	2.5	0.3
	SECONDARY Capital	0.5	0.8	3.2	-	0.5	0.2
	Current	4.3	64.7	-	-	-	-
	HIGHER Capital	0.1	12.3	-	-	-	-
1968	Current	95.5	-	11.0	10.4	53.8	0.8
	PRIMARY Capital	13.8	-	12.9	1.2	11.4	1.8
	Current	41.0	11.4	5.2	-	6.0	0.1
	SECONDARY Capital	7.9	1.3	3.8	-	1.3	0.2
	Current	9.0	94.8	-	-	-	-
	HIGHER Capital	3.8	18.0	-	-	-	-
1969	Current	129.6	-	14.6	12.6	34.1	1.4
	PRIMARY Capital	26.1	-	13.2	1.4	7.3	1.9
	Current	66.7	12.1	4.1	-	3.8	0.1
	SECONDARY Capital	16.9	1.5	6.4	-	0.8	0.1
	Current	13.8	131.6	-	-	-	-
	HIGHER Capital	9.3	27.7	-	-	-	-
1970 <sup>5/</sup>	Current	169.2	-	18.8	-	45.2	n.a.
	PRIMARY Capital	34.1	-	20.0	-	9.5	n.a.
	Current	85.7	20.5	5.3	-	5.0	n.a.
	SECONDARY Capital	21.0	2.3	5.8	-	1.1	n.a.
	Current	22.7	183.8	-	-	-	n.a.
	HIGHER Capital	8.2	35.6	-	-	-	-

<sup>1/</sup> Includes state quota of Education Salary Tax (see Appendix ) and actual Participation Fund expenditures on education. Totals of state capital and current expenditures do not equal total state expenditures due to the inclusion in the latter of expenditures categorized as administration, training, and culture.

<sup>2/</sup> Ministry of Education expenditures for federally-supported universities and secondary technical schools. Capital and Recurrent expenditures for 1964-67 are based on the breakdown for 1968-69.

<sup>3/</sup> Capital expenditures estimated at 10 percent of total.

<sup>4/</sup> Includes Participation Fund receipts for education beginning in 1967. It is estimated that 20 percent of these receipts and 10 percent of the municipalities' own education resources are used for capital expenditures. Secondary education is estimated to account for 10 percent of current and capital expenditures.

<sup>5/</sup> Capital and recurrent breakdown based on 1968-69 averages.

NORTHEAST EXPENDITURES, 1968-71

(Thousands current Cr\$)

State	1968		1969		1970		1971	
	State Quota	Nat'l Assist.	State Quota	Nat'l Assist.	State Quota	Nat'l Assist.	State Quota	Nat'l Assist.
Alagoas	182.6	157.6	211.4	191.7	334.2	245.4	445.3	397.4
Bahia	1935.0	510.7	1760.2	657.2	1844.0	887.2	3186.2	1100.6
Ceara	559.4	211.1	674.9	241.7	924.1	383.4	1109.0	580.6
Maranhao	121.9	160.6	116.2	187.0	179.4	223.2	178.2	325.2
Paraiba	199.6	165.6	468.2	191.6	410.0	251.7	376.2	508.6
Pernambuco	1186.9	531.0	2054.0	544.1	2290.4	613.2	3423.9	1244.2
Piaui	99.5	128.5	93.4	151.4	138.2	215.0	108.4	344.3
Rio Grande do Norte	126.7	151.4	223.5	187.6	222.9	225.0	225.9	386.7
Sergipe	198.8	144.0	271.6	180.3	274.6	251.4	227.2	409.2
Total Northeast	<u>4610.4</u>	<u>2160.5</u>	<u>5873.4</u>	<u>2532.6</u>	<u>6617.8</u>	<u>3295.5</u>	<u>9280.3</u>	<u>5296.8</u>
TOTAL (1+2)	<u>6770.9</u>		<u>8406.0</u>		<u>9913.3</u>		<u>14577.1</u>	
Total Collected in Northeast (State Quotas) (.85)	<u>5424.0</u>		<u>6909.8</u>		<u>7785.6</u>		<u>10918.0</u>	
Net Transfer	1346.9		1496.2		2127.7		3659.1	
% of Total Expenditures	20%		18%		21%		25%	

1. State Quota is equal to 85 percent of the payroll tax of industrial enterprises, as collected by INPS in each state (the remaining 15 percent is transferred to the National Administration of SENAI)
2. National Assistance is that amount which each state receives through the redistribution by SENAI's National Administration of part of the 15 percent allotment which it receives from INPS in each state.

NATIONAL SERVICE OF COMMERCIAL APPRENTICESHIP (SENAC)

NORTHEAST EXPENDITURES 1968-71

(Thousands current Cr\$)

State	1966		1967		1968		1969		1970		1971	
	State Quota	Nat'l Assist.										
Alagoas	28.9	29.0	68.0	52.8	96.6	51.3	147.1	74.7	219.5	95.6	292.0	147.0
Bahia	264.3	-	363.6	-	868.7	-	863.6	-	1568.1	-	1836.6	-
Ceara	132.7	7.7	209.4	-	384.5	-	598.8	-	641.3	-	805.2	-
Maranhao	34.8	22.2	66.1	35.3	115.5	35.7	154.9	74.5	183.7	87.0	193.8	150.0
Paraiba	39.3	21.5	53.1	36.8	135.8	37.5	240.6	87.9	267.5	84.0	294.0	90.0
Pernambuco	297.2	-	594.6	-	692.8	-	1086.7	-	1589.0	-	1839.5	-
Piaui	23.7	31.9	27.8	51.9	104.2	54.0	166.0	86.4	129.5	120.0	126.3	132.0
Rio Grande do Norte	30.5	29.5	44.7	47.9	86.0	48.6	145.9	102.6	144.5	123.0	209.7	150.0
Sergipe	16.0	19.3	34.8	31.3	84.8	43.2	157.6	79.2	152.3	135.0	163.7	138.0
All Northeast	867.3	161.1	1462.1	256.1	2567.9	270.3	3561.2	505.3	4895.4	644.6	5760.9	807.0
TOTAL (1+2)	1028.4		1718.2		2838.2		4066.5		5540.1		6567.9	
TOTAL COLLECTED IN NORTHEAST (State Quotas) (.80)	1084.1		1827.6		3209.8		4451.5		6119.3		7201.1	
Net Transfer	(55.7)		(109.4)		(371.6)		(385.0)		(579.2)		(633.2)	
% of Total Collected	5%		6%		12%		9%		9%		9%	
<u>COMPARISON WITH ALL BRAZIL</u>												
All Brazil	10,090.0	236.4	20,296.0	368.9	29,981.1	384.6	36,483.6	703.1	47,493.8	908.2	64,965.8	1,203.0
% Northeast	9%	68%	7%	69%	9%	70%	10%	72%	10%	71%	9%	67%
Total Brazil Expenditures (1+2)	10,326.4		20,664.9		22,365.7		37,186.7		48,402.0		66,168.8	
% Northeast	9%		8%		12%		10%		11%		9%	

1. State Quota is equal to 80 percent of the payroll tax of Commercial enterprises, as collected by INPS in each state (the remaining 20 percent is transferred to the National Administration of SENAC).

2. National Assistance is that amount which each state receives through the redistribution by SENAC's National Administration of the 20 percent allotment which it receives from INPS in each state.



OUTLINE OF MINISTRY OF EDUCATION  
SECTOR PLAN 1972-74

<u>Project No.</u>	<u>Title</u>	<u>Estimated MEC Budgetary Funds to Be Allocated 1972-74</u>
Project 1	"Operation School" - Implementation of Reform of Basic Education	Cr\$ 537 million
Project 2	Construction, Renovation and Equipping of Multi-Purpose Schools (Ginasios Polivalentes)	Cr\$ 63 million (USAID, others: Cr\$ 186 million)
Project 3	Upgrading and Improvement of Teachers for Fundamental and Normal Schools	Cr\$ 102 million
Project 4	Training and Upgrading of Technical Secondary School Teachers	n.a.
Project 5	National Literacy and Supplemental Education Program	Cr\$ 44 million
Project 6	Integrated Program to Assist Students	
	(a) School Lunch Program	Cr\$ 31 million
	(b) Scholarship Aid	Cr\$ 72 million
	(c) Support to Community Organizations	Cr\$ 6 million
	(d) Aid to Community Schools	Cr\$ 16 million
Project 7	Elaboration of New Mechanisms for Financing Education	n.a.
Project 8	Equipping Advanced Centers and Other Federal Establishments of Higher Education	(Undisbursed portion of loans from Ger- many and Hungary: US\$12.9 million)
Project 9	First Phase of Construction of University Integrated Campuses	Cr\$ 170 million
Project 10	Operation Productivity of Higher Education	Cr\$ 9 million
Project 11	Introduction of Post-Graduate Regional Centers and Courses	Cr\$ 378 million (also USAID antici- pated loan: approx. Cr\$ 96 million)
Project 12	Study on Career and Compensation Improvement Plan for Fundamental School Teachers	Cr\$ 0.3 million

Project No.	Title	Estimated MEC Budgetary Funds to Be Allocated 1972-74
13	Study on Career and Compensation Improvement for Secondary School Teachers	Cr\$ 0.6 million
14	Progressive Implementation Plan of Full-Time Teaching Schedules in the Higher Education System	Cr\$ 699 million
15	Intensive Labor Training Program (PIPMO)	Cr\$ 0.06 million
16	Integration of School and Business (Adjustment of Course Content and Teaching Methods to Labor Market) Higher Education Secondary Education	Cr\$ 9 million Cr\$ 3.5 million
17	Construction, Renovation and Equipping of Federal Technical Secondary Schools	Cr\$ 110.5 million (Also IBRD: Cr\$ 37.6 million; IDB: Cr\$ 72.4 million)
18	Program to Integrate Universities into Communities (Community Work Experiences for Students)	Cr\$ 6.5 million
19	Encouragement to Short-Term Training Careers (Sub-Professional Training)	Cr\$ 6 million
20	Establishment of an Advanced System of Educational Technology (SATE)	Cr\$ 10 million
21	Improvement of the Information System on Education and Culture	n.a.
22	Physical Education and Sport Program	Cr\$ 89 million (Fed. Sporting Lottery proceeds)
23	Studies Oriented Toward Modernization of Fundamental School Curricula	Cr\$ 1.8 million
24	Preservation of the Nation's Heritage (Conservation and Restoration of Monuments)	Cr\$ 33.5 million
25	Program of Encouragement to Cultural Dissemination and Creativity	Cr\$ 17 million
26	Training, Improvement and Qualification of Ministry of Education Personnel	Cr\$ 1.9 million

<u>Project No.</u>	<u>Title</u>	<u>Estimated MEC Budgetary Funds to Be Allocated 1972-74</u>
Project 27	Program of Technical Assistance to States	Cr\$ 12.2 million
Project 28	Administrative Reform Within Ministry of Education	Cr\$ 1.5 million
Project 29	School Mapping of Fundamental and Secondary Education Facilities	
	Fundamental Education	Cr\$ 0.3 million
	Secondary Education	Cr\$ 3.6 million
Project 30	Implementation of an Open University Credit System for Graduation and Continued Higher Education	Cr\$ 45 million
Project 31	Research on the Establishment of Geo-Educational System (Concerning Distribution of Higher Education Schools in Relation to Labor Markets)	Cr\$ 2.3 million
Project 32	Educational Plans and Research (INEP)	Cr\$ 44.5 million
Project 33	National Book Program	Cr\$ 33.2 million



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**Table 1: NORTHEAST BRAZIL: TOTAL POPULATION, MIGRATION, ECONOMICALLY ACTIVE POPULATION AND DEMOGRAPHIC INDICATORS, 1950-80**

	1950 -----	1960 (Thousands)	1970 -----	Growth Rates			Projections to 1980	
				1950-60	1960-70	1950-70	Absolute Numbers ( '000)	Growth Rates (% p.a.)
1. Total Natural Population <sup>1/</sup>	18,870	24,309	32,188	3.6	2.9	2.7	41,619	2.6
2. Northeasterners Outside the Northeast	1,025	2,066	3,795	7.3	6.3	-	5,610	
3. Immigrants to the Northeast	128	184	281	3.7	4.4	-	350	
4. Total Population in the Northeast	17,973	22,427	28,674	2.2	2.5	2.4	36,359	2.4
5. % Urban	26.1	34.4	41.8	-	-	-	-	
6. Intercensal Out-Migration	315	1,041	1,729	-	-	-	1,815	
7. Intercensal In-Migration	30	56	97	-	-	-	69	
8. Outmigration Rate <sup>2/</sup> (%)	1.8	4.6	6.0	-	-	-	5.0	
9. Population of Working Age <sup>3/</sup>	11,918	14,942 <sup>4/</sup>	18,490	2.3	2.2	2.2	22,983	2.2
10. As % of Total Population	66.3	66.6	64.5	-	-	-	-	
11. Economically Active Population	5,803	7,173 <sup>4/</sup>	8,362	2.2	1.6	1.9	10,359	2.2
12. Inactive Population	6,115	7,769	10,128	2.4	2.7	2.6	12,641	2.2
13. Activity Rates <sup>5/</sup>	32.3	32.0	29.2	-0.1	-1.0	-	28.4	-
14. Participation Rates <sup>6/</sup>	48.7	48.0	45.2	-0.2	-0.6	-	45.0	-
15. Ageing Index <sup>7/</sup>	9.8	10.3 <sup>4/</sup>	10.5	0.5	0.2	-	-	-
16. Dependency Ratio <sup>8/</sup> (Total)	85.2	86.4 <sup>4/</sup>	88.1	-	-	-	-	-
Urban Areas	-	78.9	80.6					
Rural Areas	-	90.8	93.8					
Crude Birth Rate/1,000 <sup>9/</sup>	47.1	46.7 <sup>4/</sup>	41.9	-0.1	-1.1	-	27.0	-
Crude Death Rate/1,000 <sup>10/</sup>	21.0	20.0 <sup>4/</sup>	13.0	-0.5	-4.4	-	11.0	-

<sup>1/</sup> I.e., born in the Northeast.

<sup>2/</sup> Intercensal outmigration as % total population in terminal census year.

<sup>3/</sup> 10-69 years.

<sup>4/</sup> Estimated

<sup>5/</sup> (11) + (4).

<sup>6/</sup> (11) + (9).

<sup>7/</sup> Population over 50 as % of total population in the Northeast.

<sup>8/</sup> (Population < 15) + (Population > 69).

<sup>9/</sup> Data from BNB/ETENE.

<sup>10/</sup> Data from CBED, Rio.

Source: Demographic Censuses, IBGE 1940, 1950, 1960, 1970.

**Table 2: OUTMIGRANTS FROM THE NORTHEAST BY REGION  
OF CURRENT DOMICILE, 1950-70**

	1950		1970		Increment 1960-1970 (000)
	Total (000)	% Males	Total (000)	% Males	
<u>Age Numbers:</u>					
	116.8	62.02	170.4	57.45	53.6
Gerais e Espirito Santo	87.7	56.86	206.0	56.06	118.3
de Janeiro e Guanabara	252.5	55.08	856.6	49.54	604.1
Sa Paulo	387.6	60.31	1480.5	53.57	1092.9
Paraná	35.5	65.21	390.0	57.50	354.5
do Sul	4.6	75.72	7.1	65.87	2.5
do Oeste	139.6	57.92	684.3	56.53	544.7
<b>Total:</b>	<b>1024.6</b>	<b>58.83</b>	<b>3795.1</b>	<b>53.93</b>	<b>2770.6</b>
<u>Age Distribution:</u>					
	11.4		4.5		1.9
Gerais e Espirito Santo	8.6		5.4		4.3
de Janeiro e Guanabara	24.6		22.6		21.8
Sa Paulo	37.8		39.0		39.5
Paraná	3.5		10.3		12.8
do Sul	0.5		0.2		-
do Oeste	13.6		18.0		19.7
<b>Total:</b>	<b>100.0</b>		<b>100.0</b>		<b>100.0</b>

Demographic Census, IBGE. Tabulations supplied by NBN/ETENE.

**Table 3: OUTMIGRANTS FROM THE NORTHEAST ACCORDING TO STATES OF ORIGIN,  
1950-1970**

	Total (000)	% Males	Total (000)	% Males	Gross Migration Rate 1950-70/1 %
<u>Gross Migration:</u>					
Maranhao	78.8	53.93	266.2	51.41	6.1
Piaui	28.2	60.99	124.1	55.43	5.5
Ceara	126.8	66.09	433.8	57.69	6.8
R.G. do Norte	42.6	58.21	181.4	55.62	8.6
Paraiba	52.4	66.03	344.2	55.05	11.9
Pernambuco	141.5	58.72	690.0	53.78	10.4
Alagoas	100.9	56.68	327.1	52.12	14.1
Sergipe	56.2	58.71	202.3	52.49	16.0
Bahia	397.3	58.94	1266.1	53.17	11.5
<u>Northeast Total:</u>	1024.6	58.83	3795.1	53.93	9.7
<u>Net Migration:</u>					
	<u>Absolute Net Out Migration Flow 1950-70 (000)</u>		<u>Net Migration Rate/1 (%)</u>		
<u>Region I:</u> Maranhao, Piaui	51.7		1.1		
<u>Region III:</u> Ceara, Pernambuco, Alagoas	1132.7		10.0		
<u>Region IV:</u> Bahia, Sergipe	920.8		10.8		
<u>Northeast Total:</u>	2105.2		7.3		

(Migration Increment 1950-70) ÷ (Total Population in 1970) in each State.

Rough estimates.

/

**Table 4: ESTIMATE OF RURAL-URBAN MIGRATION IN THE NORTHEAST  
BY AGE AND SEX, 1950-70**

	(Total Gains (+) and Losses (-) in Population During the Period 1950-70)								
	(Urban Areas)			(Rural Areas)			Northeast		
	Males	Females	Total	Males	Females	Total	Males	Females	Totals
0 - 9	441.6	440.1	881.8	-938.6	-931.4	-1869.9	-496.9	-491.2	-988.1
10 - 19	278.8	444.3	723.1	-567.0	-640.4	-1207.4	-288.2	-196.0	-484.3
20 - 29	300.4	509.7	810.2	-699.6	-590.2	-1289.8	-399.2	- 80.5	-479.7
30 - 39	159.9	219.9	379.8	-522.6	-511.5	-1034.1	-362.8	-291.6	-654.4
40 - 49	9.7	241.1	250.8	-191.1	-331.3	- 522.4	-181.4	- 90.2	-271.6
50 - 59	116.4	86.2	202.6	- 63.1	-161.3	- 224.4	+ 53.4	- 75.2	- 21.8
60	118.8	111.5	230.3	+ 11.2	- 79.6	- 68.4	+130.0	+ 32.0	+162.0
<b>Total:</b>	1425.7	2052.8	3478.5	-2970.8	-3245.6	-6216.4	-1545.2	-1192.8	-2737.9
Percentage Males			41.0			47.8			56.4
Percentage < 30			69.4			70.2			71.3
Percentage > 50			12.4			4.7			-

Source: IBGE/BNB/ETENE

Table 5: ESTIMATE OF MIGRATION TO MAJOR URBAN AREAS  
OF THE NORTHEAST, 1950-70

	1950	1970	1950-70	Net Migration	Migration As % of Total Population Growth
	----- (Thousands) -----				
Recife, PE	654.8	1,641.6	1,148.2	481.5	49
Salvador, BA	389.4	1,024.6	707.0	334.6	53
Fortaleza, CE	237.8	842.1	540.0	420.8	70
Joao Pessoa, PB	109.9	285.5	157.7	90.9	52
Natal, RGN	102.5	283.2	192.8	101.7	56
Maceio, AL	99.1	248.7	173.9	73.1	49
Sao Luis, MA	88.4	209.6	149.0	52.9	44
Teresina, PI	51.4	190.3	120.8	99.2	71
Aracaju, SE	67.5	182.4	125.0	62.7	55
Campina Grande, PB	72.5	164.9	118.7	36.5	40
Ilheus/Itabuna, BA	47.9	150.4	99.2	65.5	64
Feira de Santana, BA	26.6	129.5	78.0	82.4	80
Crato/Juazeiro, CE	58.8	106.4	82.6	2.3	5
Caruaru, PE	43.5	102.5	73.0	25.4	43
Other Towns and Villages	2,694.2	6,417.9	4,556.0	1,549.0	42
<u>Total</u>	<u>4,744.3</u>	<u>11,979.6</u>	<u>8,361.9</u>	<u>3,478.5</u>	<u>48</u>

Source: IBGE/BNB/ETENE.

Table 6: MOVEMENTS IN SECTORAL DISTRIBUTION OF THE LABOR FORCE IN  
NORTHEAST BRAZIL, 1950-70

	1950 (000)	%	1960 (000)	%	1970 (000)	%	Absolute Increase		Average Annual Growth Rates	
							1950-60	1960-70	1950-60	1960-70
Labor Force	5803	100.0	7173	100.0	8362	100.0	1,370	1.189	2.2	1.6
Agriculture	4164	71.7	4983	69.5	5159	61.7	819	176	1.8	0.4
Industry:	587	10.1	590	8.2	904	10.8	3	314	0.1	4.4
of which:										
Mining	24	0.4	22	0.3	48	0.6	-2	26	-0.8	8.1
Manufacturing	436	7.5	408	5.7	558	6.7	-28	150	-0.7	3.1
Utilities	5	0.1	10	0.1	23	0.3	5	13	10.0	8.7
Construction	122	2.1	150	2.1	275	3.3	28	125	2.3	6.2
Tertiary:	1052	18.1	1600	22.3	2299	27.5	548	699	4.3	3.7
of which:										
Commerce	263	4.5	356	4.9	597	7.1	93	241	3.1	5.3
Services	613	10.6	991	13.8	1358	16.2	378	367	4.9	3.2
Transport	135	2.3	209	3.0	218	2.6	74	9	4.5	0.4
Others	41	0.7	44	0.6	126	1.5	3	82	0.7	11.1

Source: IBGE/SUDENE.

Table 7: SECTORAL SHARES OF EMPLOYMENT: A COMPARISON BETWEEN THE  
NORTHEAST, BRAZIL, AND GUANABARA/SAO PAULO, 1950-70

	1950	1960	1970	Comparisons with Brazil (Each Sector in Brazil = 100)		
				1950	1960	1970
<u>Brazil</u>						
Agriculture	59.9	51.6	44.2			
Industry	13.7	14.9	17.8			
Services	<u>26.4</u>	<u>33.5</u>	<u>38.0</u>			
Total	100.0	100.0	100.0			
<u>Northeast Brazil</u>						
Agriculture	71.7	69.5	61.7	119.7	134.7	139.6
Industry	10.2	8.2	10.8	74.5	55.0	60.7
Services	<u>18.1</u>	<u>22.3</u>	<u>27.5</u>	68.6	66.6	72.4
Total	100.0	100.0	100.0			
<u>Guanabara/Sao Paulo</u>						
Agriculture	-	n.a.	17.1	-	n.a.	38.7
Industry	-	n.a.	29.5	-	n.a.	165.7
Services	-	n.a.	53.4	-	n.a.	140.5

Source: Demographic Census IBGE 1950, 1960, 1970.

Table B: STRUCTURE OF LABOR FORCE BY OCCUPATION STATUS IN THE  
MAJOR ECONOMIC SECTORS IN NORTHEAST BRAZIL AND GUANABARA/SAO PAULO, 1970

Percentage Distribution	Employees	Self-Employed	Employers	Without Remuneration	Total	Sector Shares in 1970
<u>Northeast Brazil:</u>						<u>100.0</u>
Agriculture	23.5	60.0	1.0	15.5	100.0	61.7
Industry	72.3	25.7	0.9	1.1	100.0	10.8
Commerce	41.3	55.4	2.5	0.8	100.0	6.6
Other Services	75.1	18.8	0.2	5.9	100.0	20.8
Of which: Personal Services	68.0	31.3	0.4	0.3	100.0	8.5
Transport	77.8	21.3	0.4	10.5	100.0	2.7
Public Administration, Other	80.1	6.9	0.1	12.8	100.0	9.6
<u>Guanabara/Sao Paolo:</u>						<u>100.0</u>
Agriculture	50.7	35.5	2.5	11.4	100.0	17.1
Industry	89.2	8.6	1.9	0.3	100.0	29.5
Commerce	62.9	30.6	5.6	0.9	100.0	12.3
Other Services	84.8	11.4	0.5	3.2	100.0	41.2
Of which: Personal Services	82.3	16.7	0.7	0.2	100.0	15.0
Transport	82.1	17.2	0.5	0.3	100.0	6.4
Public Administration, Other	88.3	5.4	0.3	6.0	100.0	19.8

Source: Demographic Census, IBGE 1970.

Table 9: PART-TIME AND FULL-TIME WORKING IN URBAN AND RURAL  
ACTIVITIES IN NORTHEAST BRAZIL AND IN GUANABARA/SAO PAULO,  
1970

(Percentage of the Labor Force)	Men		Women	
	Urban Areas	Rural Areas	Urban Areas	Rural Areas
<u>Northeast Brazil</u>				
Full-Time Working	87.2	92.2	57.2	49.0
Part-Time Working	7.4	5.0	33.7	43.1
Temporarily Absent from Work	<u>5.4</u>	<u>2.9</u>	<u>9.2</u>	<u>7.9</u>
Total	100.0	100.0	100.0	100.0
<u>Guanabara/Sao Paulo</u>				
Full-Time Working	92.0	94.4	76.4	67.5
Part-Time Working	3.7	2.6	15.0	27.1
Temporarily Absent from Work	<u>4.3</u>	<u>3.0</u>	<u>8.6</u>	<u>5.3</u>
Total	100.0	100.0	100.0	100.0

Source: PNAD, IBGE, 1970.

Table 10: FULL-TIME AND PART-TIME WORKING BY AGE GROUPS IN THE LABOR FORCE IN NORTHEAST,  
BRAZIL AND GUANABARA/SAO PAULO IN 1970

	-----Men:-----				-----Women:-----			
	<u>Full Time</u>	<u>Part Time</u>	<u>Temporarily Absent</u>	<u>Total</u>	<u>Full Time</u>	<u>Part Time</u>	<u>Temporarily Absent</u>	<u>Total</u>
<u>Northeast Brazil:</u>								
14-24	87.3	10.0	2.7	100.0	61.7	30.9	7.4	100.0
25-34	92.2	3.8	4.0	100.0	46.7	39.2	14.0	100.0
35-44	88.1	4.6	7.3	100.0	47.4	41.9	10.8	100.0
> 45	84.3	7.8	7.8	100.0	47.1	42.6	10.3	100.0
All Ages	88.0	6.7	5.2	100.0	52.1	37.6	10.3	100.0
<u>Guanabara/Sao Paulo:</u>								
14-24	95.0	3.7	2.3	100.0	85.9	7.9	6.2	100.0
25-34	93.4	3.1	3.5	100.0	71.5	16.1	12.4	100.0
35-44	91.6	3.1	5.3	100.0	63.0	27.9	9.1	100.0
> 45	86.9	4.8	8.3	100.0	67.7	23.2	9.2	100.0
All Ages	91.7	3.7	4.6	100.0	75.2	16.1	8.7	100.0

Source: PNAD, IBGE 1970.

Table 11: PART-TIME WORKERS EXPRESSING PREFERENCE FOR FULL-TIME WORK BY  
MAJOR ECONOMIC SECTOR AND ACTUAL HOURS WORKED, 1970

	Hours Worked Per Week					
	Men:-----			Women:-----		
	<u>&lt; 24 Hours</u>	<u>25-39 Hours</u>	<u>Total</u>	<u>&lt; 24 Hours</u>	<u>25-39 Hours</u>	<u>Total</u>
<u>Sao Paulo:</u>						
Agriculture	22.2	77.8	100.0	17.8	82.2	100.0
Industry	33.3	66.7	100.0	28.6	71.4	100.0
Services	28.6	71.4	100.0	52.3	47.7	100.0
<u>Total:</u>	27.8	72.2	100.0	34.4	65.6	100.0
<u>Northeast Brazil:</u>						
Agriculture	52.0	48.0	100.0	48.5	51.5	100.0
Industry	35.0	65.0	100.0	46.5	53.5	100.0
Services	49.0	51.0	100.0	51.8	48.2	100.0
<u>Total:</u>	50.9	51.1	100.0	47.3	52.9	100.0
Northeast (Sao Paulo = 100)	183.1	70.8	-	137.5	80.6	-

Source: PNAD, IBGE, 1970.

**Table 12: PART TIME WORKERS IN DIFFERENT AGE GROUPS EXPRESSING A PREFERENCE FOR FULL TIME WORK IN 1970**

	Men		Women	
	Total Part-Time	% Preferring Full Time (Total Part Time = 100.0)	Total Part-Time	% Preferring Full Time (Total Part Time = 100.0)
<u>Least Brazil</u>				
15-24	31.5	16.4	28.7	14.4
25-34	23.3	12.8	25.4	14.3
35-44	21.0	9.7	22.6	9.9
45+	24.3	11.1	23.4	11.3
Total Ages	100.0	50.0	100.0	49.9
Total Ages (Full Time = 100)	7.7	3.9	72.0	35.9
<u>Parana/Sao Paulo</u>				
15-24	27.6	9.1	20.3	3.5
25-34	22.6	5.0	23.8	7.0
35-44	20.1	13.6	35.4	10.4
45+	29.7	7.0	20.6	3.8
Total Ages	100.0	34.7	100.0	24.7
Total Ages (Full Time = 100)	4.0	1.4	21.5	5.3

Source: PNAD IBGE 1970.

Table 13: WEEKLY HOURS OF WORK COMPLETED IN THE MAJOR ECONOMIC SECTORS  
IN THE NORTHEAST AND IN BRAZIL, 1970

Percentage Distribution	<u>&lt; 15 Hours</u>	<u>15-39 Hours</u>	<u>40-49 Hours</u>	<u>&gt;50 Hours</u>	<u>Undeclared</u>	<u>Total Labor Force</u>
<u>Northeast Brazil:</u>						
Agriculture	3.2	10.6	59.9	19.5	6.7	100.0
Industry	2.8	11.2	61.6	24.1	0.3	100.0
Services	3.2	19.9	50.3	25.9	0.7	100.0
<u>Type of Labor:</u>						
Employees	2.7	16.2	55.4	25.1	0.6	100.0
Self-Employed	4.2	19.6	50.4	25.1	0.7	100.0
Employers	1.1	10.2	49.8	37.7	1.2	100.0
Without Remuneration	3.2	13.5	53.2	16.0	14.1	100.0
<u>Brazil:</u>						
Agriculture	4.1	10.8	55.7	26.5	2.9	100.0
Industry	1.1	4.9	69.7	24.3	-	100.0
Services	1.2	15.9	55.2	26.6	1.1	100.0
<u>Type of Labor:</u>						
Employees	1.4	12.0	62.2	24.2	0.2	100.0
Self Employed	3.0	14.0	51.6	31.1	0.3	100.0
Employers	1.1	5.6	50.8	42.2	0.3	100.0
Without Remuneration	2.3	10.9	45.2	25.5	16.1	100.0

Source: Demographic Census, IBGE 1970.

IN NORTHEAST BRAZIL AND GUANABARA/SAO PAULO, 1970

Percentage Distribution	Men				Women			
	< 39 Hours	40-49 Hours	> 50 Hours	Total	< 39 Hours	40-49 Hours	> 50 Hours	Total
<u>Northeast Brazil</u>								
14 - 24 years	15.1	72.1	12.8	100.0	44.3	46.3	9.3	100.0
24 - 34 years	9.4	69.9	20.7	100.0	54.2	38.2	7.6	100.0
35 - 44 years	8.0	70.2	21.8	100.0	52.7	40.5	6.8	100.0
> 45 years	13.2	68.4	18.4	100.0	53.4	39.7	6.9	100.0
All Ages	12.1	70.3	17.6	100.0	50.1	42.0	7.9	100.0
<u>Guanabara/Sao Paulo</u>								
14 - 24 years	7.1	70.3	22.6	100.0	13.5	62.4	24.0	100.0
25 - 34 years	6.3	63.3	30.4	100.0	24.9	60.0	15.1	100.0
35 - 44 years	6.9	61.7	31.4	100.0	33.5	50.9	15.6	100.0
> 45 years	9.2	59.0	31.7	100.0	31.9	52.2	15.9	100.0
All Ages	7.4	64.0	28.7	100.0	22.7	58.2	19.2	100.0
Northeast All Ages								
Guanabara/Sao Paulo = 100	163.5	109.8	61.3		220.7	72.2	41.5	

Source: PNAD, 1970.

Table 15: NUMBER OF MONTHS WORKED A YEAR<sup>1/</sup> BY AGRICULTURAL LABOR IN BRAZIL,  
THE NORTHEAST AND GUANABARA/SAO PAULO, 1970

Percentage Distribution	MEN:					WOMEN:				
	<3 months	3-6 months	6-9 months	9-12 months	Total	<3 months	3-6 months	6-9 months	9-12 months	Total
<u>Brazil:</u>										
TOTAL	1.1	5.0	18.2	75.8	100.0	1.3	9.4	23.8	65.5	100.0
Employees	2.0	5.5	15.3	77.2	100.0	3.6	8.1	19.0	69.3	100.0
Self Employed	0.8	4.8	19.4	75.0	100.0	0.6	9.4	28.3	61.7	100.0
Employers	1.2	1.7	8.9	88.2	100.0	0.0	2.3	14.2	83.5	100.0
Without Remuneration	1.0	5.1	19.3	74.6	100.0	1.0	9.9	22.3	66.8	100.0
<u>Northeast Brazil:</u>										
TOTAL	1.1	8.0	26.1	64.8	100.0	1.2	13.1	32.4	53.3	100.0
Employees	1.6	7.9	22.0	68.5	100.0	2.1	8.3	25.7	63.9	100.0
Self Employed	0.8	7.8	26.8	64.6	100.0	0.6	10.8	33.2	55.4	100.0
Employers	0.7	3.9	20.9	74.5	100.0	0.0	3.1	25.3	71.6	100.0
Without Remuneration	1.4	9.2	30.5	58.9	100.0	1.8	20.1	35.3	42.8	100.0
<u>Guanabara/Sao Paolo:</u>										
TOTAL	2.0	3.0	9.4	85.6	100.0	4.4	6.7	10.8	78.1	100.0
Employees	3.2	3.9	8.1	84.8	100.0	6.7	9.0	10.3	74.0	100.0
Self Employed	1.1	1.6	10.9	86.4	100.0	1.7	6.7	9.0	83.6	100.0
Employers	1.0	0.7	4.5	93.8	100.0	0.0	0.0	0.0	100.0	100.0
Without Remuneration	0.7	1.8	11.7	85.8	100.0	1.3	2.3	12.9	83.5	100.0

Source: Demographic Census, IBGE 1970.

<sup>1/</sup> In the year preceding the Census.

Table 16: UNEMPLOYMENT AND UNDEREMPLOYMENT IN BRAZIL AND THE NORTHEAST IN 1970

	1 - Northeast		2 - Brazil/1		Other Regions/2-1	
	Absolute Numbers (000)	%	Absolute Numbers (000)	%	Absolute Numbers (000)	%
1. <u>Labor Force in Agriculture</u>	5,223	100.0	12,549	100.0	7,326	100.0
1.1 Unemployed	19	0.4	53	0.4	34	0.5
1.2 Underemployed/2	973	18.7	1,748	14.0	775	10.6
2. <u>Non-Agricultural Labor Force</u>	4,144	100.0	17,553	100.0	13,409	100.0
2.1 Unemployed	113	2.7	479	2.7	366	2.7
2.2 Visible Underemployment/3	463	11.1	1,111	6.3	648	4.8
2.3 Disguised Underemployment/4	555	13.4	1,469	8.4	914	6.8
2.4 Total Underemployment	1,018	24.5	2,580	14.7	1,562	11.6
3. <u>Total Labor Force</u>	9,424	100.0	30,295	100.0	20,871	100.0
3.1 Seeking Work for First Time/5	57	0.6	193	0.6	136	0.7
3.2 Total Unemployment (1.1 + 2.1 + 3.1)	189	2.0	725	2.4	536	2.6
3.3 Total Underemployment (1.2 + 2.2 + 2.3)	1,991	21.1	4,328	14.3	2,337	11.2

Source: PNAD-IBGE (Tabulation by SUDENE) - 1st Quarter, 1970.

/1 Excludes the Federal District, Rondonia, Acre, Amazonas, Roraima, Para, Amapa, Mato Grosso and Goia.

/2 Persons working less than 35 hours a week.

/3 Persons working part-time but preferring full time work, and persons normally working full time who, for economic reasons, are currently working only part time.

/4 Employers and self-employed who earn less than NCr\$50.00 a month.

/5 Who are also considered as unemployed, according to I.L.O. convention.

Table 17: MOVEMENT IN UNEMPLOYMENT AND UNDEREMPLOYMENT IN NORTHEAST BRAZIL 1968-70

	1968		1969		1970	
	Absolute Numbers (000)	%	Absolute Numbers (000)	%	Absolute Numbers (000)	%
1. <u>Labor Force in Agriculture</u>	4,667	100.0	4,966	100.0	5,223	100.0
1.1 Unemployed	14	0.3	16	0.3	19	0.4
1.2 Underemployed/ <u>1</u>	898	19.2	920	18.5	973	18.7
2. <u>Non-Agricultural Labor Force</u>	4,446	100.0	4,158	100.0	4,144	100.0
2.1 Unemployed	196	4.4	140	3.4	113	2.7
2.2 Visible Underemployment/ <u>2</u>	540	12.1	513	12.3	463	11.1
2.3 Disguised Underemployment/ <u>3</u>	655	14.8	614	14.8	555	13.4
2.4 Total Underemployment	1,195	26.9	1,127	27.1	1,018	24.5
3. <u>Total Labor Force</u>	9,113	100.0	9,176	100.0	9,424	100.0
3.1 Seeking Work for First Time/ <u>4</u>	-	-	52	0.6	57	0.6
3.2 Total Unemployment (1.1 + 2.1 + 3.1)	210	2.3	208	2.3	189	2.0
3.3 Total Underemployment (1.2 + 2.2 + 2.3)	2,093	23.0	2,047	22.3	1,991	21.1

1 Persons working less than 35 hours a week.

2 Persons working part-time but preferring full time work, and persons normally working full-time who, for economic reasons, are currently working only part-time.

3 Employers and self-employed who earn less than NCr\$50.00 a month.

4 Who are also considered as unemployed, according to I.L.O. convention

Source: PNAD-IBGE (Tabulation by SUDENE) - 1970, using PNAD labor force estimates. Note that the PNAD data on the size of the labor force do not coincide with those from the Census (see e.g. Table 1 above). The difference has not been explained but is felt to result from an inflated estimate of total population in the Northeast used to build the PNAD universe from the sample survey.

Table 18: AGE AND SEX DISTRIBUTION OF THE UNEMPLOYED IN NORTHEAST BRAZIL AND GUANABARA/SAO PAULO IN THE FIRST QUARTER OF 1970

	Men		Women		Ratio of Women to Men
	Abs. (000)	% Distribution	Abs. (000)	% Distribution	
<u>Northeast Brazil</u>					
14 - 24	85	64.4	38	66.7	44.7
25 - 34	23	17.4	11	19.3	47.8
35 - 44	12	9.1	5	8.8	41.7
45	12	9.1	3	5.3	25.0
All Ages	132	100.0	57	100.0	43.2
<u>Guanabara/Sao Paulo</u>					
14 - 24	120	66.7	65	74.7	54.2
25 - 34	27	15.0	13	14.9	48.2
35 - 44	14	7.8	4	4.6	28.6
45	19	10.6	5	5.8	26.3
All Ages	180	100.0	87	100.0	48.3

Source: PNAD, IBGE 1970.

**Table 19: STRUCTURE OF THE POPULATION 14 AND OVER ACCORDING TO POSITION IN THE LABOR FORCE BY SEX AND AGE GROUPS IN NORTHEAST BRAZIL AND GUANABARA/SAO PAULO, 1970**

	Men:				Women:			
	14-24	25-34	35-44	>45	14-24	25-34	35-44	>45
<b>Northeast Brazil:</b>								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Outside the Labor Force	15.8	2.4	1.9	12.5	59.5	58.8	57.0	68.4
Labor Force	84.2	97.6	98.1	87.5	40.5	41.2	43.0	31.6
Employed	96.0	98.2	99.0	99.3	96.7	98.4	99.2	99.6
Unemployed	4.0	1.8	1.0	0.7	3.3	1.6	0.8	0.4
Total Labor Force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Guanabara/Sao Paulo:</b>								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Outside the Labor Force	26.4	2.6	1.9	27.5	60.3	69.0	70.3	85.4
Labor Force	73.6	97.4	98.1	72.5	39.7	31.0	29.7	14.6
Employed	94.2	98.4	99.1	98.9	94.1	97.8	99.2	98.6
Unemployed	5.8	1.6	0.9	1.1	5.9	2.2	0.8	1.4
Total Labor Force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: PNAD 1970.

Table 20: STRUCTURE OF THE POPULATION 14 YEARS AND OVER SHOWING POSITION IN THE LABOR FORCE AND FAMILIAL STATUS, NORTHEAST BRAZIL AND GUANABARA/SAO PAULO

Percentage Distribution	Heads of Household	Wives	Children	Other Parents	Without Parents	Total Absolute (Million)	Total % Distribution
<u>Northeast Brazil</u>							
Total Population 14 and Over	100.0	100.0	100.0	100.0	100.0	15,042	100.0
Outside the Labor Force	12.4	70.0	34.6	53.5	27.8	5,618	37.3
Labor Force	87.6	30.0	65.4	46.5	72.2	9,424	62.7
Employed	99.0	99.2	96.4	95.2	98.8	9,235	98.0
Unemployed	1.0	0.8	3.6	4.8	1.2	0,189	2.0
Total Labor Force	100.0	100.0	100.0	100.0	100.0	100,000	100.0
<u>Guanabara/Sao Paulo</u>							
Total Population 14 and Over	100.0	100.0	100.0	100.0	100.0	17,164	100.0
Outside the Labor Force	17.2	83.8	37.6	59.7	21.6	7,677	44.7
Labor Force	82.8	16.2	62.4	40.3	78.4	9,497	55.3
Employed	99.0	98.4	94.7	94.8	98.8	9,230	97.2
Unemployed	1.0	1.6	5.3	5.2	1.2	,267	2.8
Total Labor Force	100.0	100.0	100.0	100.0	100.0	100,000	100.0

Source: PNAD, 1970.

Table 21: THE SECTOR OF ACTIVITY<sup>1/</sup> OF THOSE SEEKING WORK IN DIFFERENT AGE GROUPS IN 1970

	MEN						WOMEN					
	All Ages (000)	All Ages %	14-24	25-34	35-44	>45	All Ages (000)	All Ages %	14-24	25-34	35-44	>45
<u>Northeast Brazil</u>												
Agriculture	16	100.0	62.5	6.3	6.3	24.9	3	100.0	66.7	-	33.3	-
Non-Agriculture	90	100.0	54.4	24.4	12.2	8.9	23	100.0	52.2	21.7	17.4	8.7
No Previous Work	26	100.0	100.0	-	-	-	31	100.0	77.4	19.4	-	3.2
TOTAL	132	100.0	64.4	17.4	9.1	9.1	57	100.0	66.7	19.3	8.8	5.3
<u>Guanabara/Sao Paulo</u>												
Agriculture	13	100.0	76.9	-	-	23.1	4	100.0	25.0	-	-	75.0
Non-Agriculture	133	100.0	57.9	19.6	10.5	12.0	66	100.0	75.8	15.2	6.1	3.0
No Previous Work	34	100.0	97.1	2.9	-	-	17	100.0	82.4	17.6	-	-
TOTAL	180	100.0	66.7	15.0	7.8	10.6	87	100.0	74.7	14.9	4.6	5.8

<sup>1/</sup> The Sector in which the last job was held.

AND GUANABARA/SAO PAULO IN 1970

	Men:					Women:						
	<4 Weeks	5-12 Weeks	13-26 Weeks	>27 Weeks	Total	Average No. of Weeks for Each Age	<4 Weeks	5-12 Weeks	13-26 Weeks	>27 Weeks	Total	Average No. of Weeks for Each Age
<b>Northeast Brazil:</b>												
14-24	38.8	38.8	11.8	10.6	100.0	7.6	31.6	44.7	7.9	15.8	100.0	12.5
25-34	39.1	21.7	30.4	8.7	100.0	11.3	36.4	27.3	-	36.4	100.0	13.2
35-44	58.3	33.3	8.3	-	100.0	6.2	40.0	20.0	20.0	20.0	100.0	12.2
>45	33.3	50.0	-	16.7	100.0	9.8	66.7	-	33.3	-	100.0	8.5
All Ages	40.2	36.4	13.6	9.9	100.0	9.6	35.1	36.8	8.8	19.3	100.0	11.1
<b>Guanabara/Sao Paulo:</b>												
14-24	48.3	26.7	15.8	9.2	100.0	9.3	33.9	24.6	18.5	23.1	100.0	15.3
25-34	33.3	33.3	25.9	7.4	100.0	9.7	53.9	38.5	7.7	-	100.0	7.3
35-44	50.0	28.6	7.1	14.3	100.0	9.2	25.0	-	25.0	50.0	100.0	19.1
>45	42.1	31.6	15.8	10.5	100.0	9.9	-	80.0	20.0	-	100.0	12.2
All Ages	45.6	28.3	16.7	9.4	100.0	9.6	34.5	28.7	17.2	19.5	100.0	12.1

/1 Average Number of Weeks Spent in Seeking Work.

Source: PNAD, IBGE 1970.

**Table 23: DURATION OF UNEMPLOYMENT AND MEANS OF WORK PROCUREMENT IN THE MAJOR ECONOMIC SECTORS/1 IN 1970**

Percentage Distribution	Means of Procurement				Duration of Unemployment				Average Duration Using Agency (Weeks)	Average Duration For Those Using Employment Agency	
	Employment Agency	Personal intermediary	Other	Total	< 4 Weeks	5-12 Weeks	13-26 Weeks	> 27 Weeks			
<u>Northeast Brazil</u>											
Agriculture	57.9	21.1	21.0	100.0	36.8	52.6	5.3	5.3	100.0	8.4	
Non-Agriculture	55.8	42.5	1.8	100.0	40.7	31.9	14.2	13.3	100.0	10.7	
No Previous Work	35.1	54.4	10.5	100.0	35.1	40.4	10.5	14.0	100.0	8.8	
<u>Total:</u>	49.7	43.9	6.4	100.0	38.6	36.5	12.2	12.7	100.0	10.4	10.7
<u>Guanabara/Sao Paulo</u>											
Agriculture	82.4	17.6	-	100.0	64.7	17.7	11.8	5.9	100.0	7.8	
Non-Agriculture	66.8	29.7	3.5	100.0	40.2	30.2	17.1	12.6	100.0	10.9	
No Previous Work	72.6	17.7	9.7	100.0	41.2	25.5	17.7	15.7	100.0	11.5	
<u>Total</u>	68.9	27.3	3.8	100.0	42.0	28.5	16.9	12.7	100.0	10.8	11.2

/1 i.e. Sector of last employment.

Source: PNAD, IBGE 1970.

Table 24: THOSE SEEKING WORK IN DIFFERENT AGE GROUPS, ACCORDING TO  
TYPE OF WORK FOUND AND METHOD OF PROCUREMENT, IN 1970

	<u>Type of Work Found</u>			<u>Method of Procurement</u>		
	Full-Time	Part-Time	Total <sup>1/</sup>	Employment Agency	Relatives, Friends etc.	Total <sup>1/</sup>
<b>MEN:</b>						
<u>East Brazil:</u>						
14-24	88.2	11.8	100.0	54.1	37.7	100.0
25-34	91.0	9.0	100.0	65.2	30.4	100.0
35-44	71.7	8.3	100.0	41.7	50.0	100.0
> 45	83.3	16.7	100.0	33.3	58.3	100.0
All Ages	88.6	11.4	100.0	53.0	39.4	100.0
<u>Para/Sao Paulo:</u>						
14-24	95.0	5.0	100.0	70.0	29.2	100.0
25-34	100.0	-	100.0	70.4	25.9	100.0
35-44	100.0	-	100.0	78.6	21.4	100.0
> 45	89.5	10.5	100.0	52.6	26.3	100.0
All Ages	95.8	4.2	100.0	70.0	27.8	100.0
<b>WOMEN:</b>						
<u>East Brazil:</u>						
14-24	79.0	21.0	100.0	44.7	52.6	100.0
25-34	63.6	36.4	100.0	45.5	45.5	100.0
35-44	80.0	20.0	100.0	40.0	60.0	100.0
> 45	33.3	66.7	100.0	-	60.0	100.0
All Ages	73.7	26.3	100.0	42.1	54.4	100.0
<u>Para/Sao Paulo:</u>						
14-24	89.2	10.8	100.0	75.4	20.0	100.0
25-34	84.6	15.4	100.0	53.9	23.1	100.0
35-44	75.0	25.0	100.0	25.0	75.0	100.0
> 45	100.0	-	100.0	-	100.0	100.0
All Ages	88.5	11.5	100.0	66.7	26.4	100.0

PNAD, IBGE 1970.

Table 25: SIZE DISTRIBUTION OF INCOME OF THE  
ECONOMICALLY ACTIVE POPULATION/1 OF NORTHEAST BRAZIL IN 1960 BY SECTOR

<u>Income Class (NCr \$)</u>	<u>Total Distribution</u>		<u>Industry</u>		<u>Services</u>		<u>Agriculture</u>	
	<u>% Population</u>	<u>% Income</u>	<u>% Pop.</u>	<u>% Income</u>	<u>% Pop.</u>	<u>% Income</u>	<u>% Pop.</u>	<u>% Income</u>
Up to 2100	50.5	19.7	40.1	14.4	37.6	9.6	57.4	30.3
2101 - 3300	22.8	19.2	20.8	15.7	16.0	8.8	26.0	29.7
3301 - 4500	12.3	14.7	21.5	23.3	14.0	10.3	10.3	17.0
4501 - 6000	6.6	10.8	9.3	14.6	12.7	13.5	3.7	8.1
6001 - 10000	4.3	10.8	5.0	11.2	10.4	16.9	1.6	5.6
10001 - 20000	2.0	9.4	1.7	7.1	5.4	16.6	0.6	3.8
Above 20000	1.5	15.3	1.7	14.9	4.0	24.2	0.4	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean Income (NCr \$)		3118		3600		4911		2367
Gini Ratio		.50		.47		.61		.33
Ratio of Mean Income to the Overall Mean		100.0		115.5		157.5		75.9

/1 Those reporting income only.

Source: 1960 Demographic Census, IBGE.

Table 26: SIZE DISTRIBUTION OF INCOME OF THE  
ECONOMICALLY ACTIVE POPULATION/1 OF NORTHEAST BRAZIL IN 1970 BY SECTOR

Income Class (NCr \$)	Total Distribution		Industry		Services		Agriculture	
	% Population	% Income	% Pop.	% Income	% Pop.	% Income	% Pop.	% Income
Up to 100	61.5	26.8	33.9	11.0	41.1	11.3	77.3	53.4
101 - 150	16.9	14.2	30.6	19.1	17.7	9.3	13.6	18.1
151 - 200	8.1	9.5	13.3	11.6	11.2	8.2	5.5	10.2
201 - 250	2.7	3.8	5.1	4.5	5.3	5.0	0.7	2.1
251 - 500	6.9	13.6	11.4	15.6	15.1	17.5	1.9	7.8
501 - 1000	2.4	12.0	3.3	12.5	6.0	18.9	0.4	3.2
1001 - 2000	1.1	10.2	1.5	10.7	2.6	16.3	0.2	2.3
Above 2000	0.5	9.8	1.0	15.1	1.0	13.6	0.1	2.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean Income (NCr \$)		128		194		217		77
Gini Ratio		.53		.58		.62		.28
Ratio of Mean Income to the Overall Mean		100.0		151.6		169.5		60.2

1 Those reporting incomes only.

Source: 1970 Demographic Census, IBGE.

/1  
**Table 27: DISTRIBUTION OF LABOR FORCE ACCORDING TO  
 INCOME LEVELS BY MAJOR ECONOMIC SECTORS IN NORTHEAST BRAZIL 1960 AND 1970**

		Less than Min. Wage (=NCr\$4.49 in 1960; NCr\$165.95 in 1970/2)	Middle Range Incomes (NCr\$4500-10000 in '60) (NCr\$166.32-369.55 in '70)	Upper Range Incomes (>NCr\$10,000 in '60) (>NCr\$369.55 in '70)	Total	Gini Ratios
<b>1960:</b>						
Agriculture	%	93.7	5.3	1.0	100.0	.33
	Abs.	2341.0	131.1	25.9	2498.0	
Industry	%	82.2	14.2	3.5	100.0	.47
	Abs.	295.1	51.1	12.7	358.9	
Services	%	67.6	23.0	9.4	100.0	.61
	Abs.	715.1	243.8	99.6	1058.5	
Total	%	85.6	10.9	3.5	100.0	.50
	Abs.	3351.2	426.2	138.2	3915.6	
<b>1970:</b>						
Agriculture	%	92.8	5.6	1.6	100.0	.28
	Abs.	3923.7	239.0	66.5	4229.2	
Industry	%	68.7	20.1	11.2	100.0	.58
	Abs.	601.0	175.8	97.7	874.5	
Services	%	62.5	20.8	16.7	100.0	.62
	Abs.	1313.0	437.4	351.7	2102.1	
Total	%	81.0	11.8	7.2	100.0	.53
	Abs.	5837.7	852.2	515.9	7205.8	

/1 Only members of the Labor Force reporting incomes.

/2 Maintained at level equivalent to minimum wage in 1960.

Source: Demographic Census 1960 and 1970. Cost of Living Inflator from Conjuntura Economica (C.O.L. Guanabara).

**Table 28: MOVEMENT IN SECTOR EARNINGS AND INCOME DIFFERENTIALS AND  
SECTOR SHARES OF LABOR FORCE IN NORTHEAST BRAZIL/1, 1960 TO 1970**

	<u>/2</u>		<u>/3</u>		Evolution of Differentials				Growth in Real Terms		Sector Shares of Employment Non Agriculture = 100	
	Average Salaries		Average Incomes		Average Salaries		Average Incomes		Salaries	Incomes	1960	1970
	1965	1969	1960	1970	1965	1969	1960	1970	(1965=100)	(1960=100)		
	(1969 NCr\$)		(1970 NCr\$)		(Services = 100)							
<b>Total Non-Agriculture</b>	208.16	235.90	136.49	175.55	84.0	85.6	91.7	97.0	113.3	128.6	100.0	100.0
Industry	179.82	203.99	102.79	161.65	72.6	74.0	69.0	89.3	113.5	157.3	26.9	28.2
Services	247.71	275.54	148.91	181.07	100.00	100.00	100.00	100.00	111.2	121.6	73.1	71.3
<b>Agriculture:</b>												
<b>Total</b>	-	-	53.44	64.39	-	-	35.9	35.6	-	120.5	237.9	161.1
Wage Labor (Skilled)	113.05/ <u>4</u>	116.16	-	-	45.6	42.2	-	-	102.8	-	-	-
Wage Labor (Unskilled)	75.90/ <u>4</u>	72.91	-	-	30.6	26.5	-	-	96.1	-	-	-
<b>Total Wage Labor</b>	77.74/ <u>4</u>	75.07	-	-	31.4	27.2	-	-	96.6	-	-	-
<b>Agriculture Total (Non-Agriculture = 100)</b>	-	-	-	-	37.4	31.8	39.1	36.7				

1 1965 data excludes Maranhao.

2 Data from S.E.P.T.

3 Data from Demographic Census. Reflects effective per capita incomes of population of working age.

4 Estimated on basis for first quarter 1966; deflated by factor of 131.

Source: IBGE 1970.

**Table 29: CHANGES IN THE STRUCTURE OF INTER-BRANCH  
EARNINGS DIFFERENTIALS AND EMPLOYMENT SHARES IN BRANCHES OF THE SERVICES SECTOR, 1965 TO 1969**

Northeast Brazil	Average Monthly Earnings		Differentials (Average = 100)		Impact on Inter-Branch Inequality in 1969	Share of Employment in 1969	Growth in Earnings in Real Terms 1965-69 (1969 = 100) % p.a.		Gini Ratios	
	1965	1969	1965	1969			1965	1969		
	(1969 NCr\$)									
Finance	458.21	522.36	212.9	218.7	* Incr.	4.5	114.0	4.5	.35	.41
Transport & Communication	238.71	245.70	110.9	102.9	* Decr.	4.9	102.9	0.8	.30	.37
Other Services	237.39	273.56	110.3	114.6	* Incr.	7.5	115.3	4.9	.40	.45
Education, Public Administration and Social Services	202.46	<sup>/1</sup> 219.76	<sup>/1</sup> 94.1	92.0	* Incr.	70.4	108.5	2.1		
Commerce	176.24	219.19	81.9	91.8	* Decr.	12.8	124.4	5.5	.35	.45
Total (Average)	215.21	238.82	100.0	100.0		100.0	111.0	2.7	.37	.46

Ranking of Branches according to rate of earnings increase 1965-9:  
(Average annual percentage)

	p.a.	Share of Labor Receiving Above and Below Average Increases
Commerce	36%	
Other Services	33%	24.8% Above Average
Finance	33%	
Average	32%	
Education, Public Administration and Social Services	31%	75.2% Below Average
Transport and Communications	30%	

<sup>/1</sup> Estimated.

\* Increases Inequality  
Decreases Inequality

Source: Anuario Estatístico IBGE/DNS.

30: EVOLUTION OF LEGAL MINIMUM WAGES, AVERAGE NON-AGRICULTURAL EARNINGS AND WAGE BILL IN THE NORTHEAST AND BRAZIL 1960-70

	Legal Minimum Wage (NCr\$)/ <sup>1</sup>	Average Non-Farm Earnings (NCr\$) <sup>/3</sup>	Ratio of Earnings to Minimum Wage	Wage Drift/ <sup>2</sup> (%)	Ratio of Wage Bill to Value Added in Manufacturing
1958	2.20	2.38 <sup>/3</sup>	108.2	-	25.3
1960	4.49	-	-	-	-
1961	6.93	-	-	-	-
1962	6.93	13.43 <sup>/3</sup>	193.8	-	25.4
1963	14.83	27.00 <sup>/3</sup>	182.1	-13.0	25.3
1964	28.51	49.77 <sup>/3</sup>	174.6	- 7.9	24.3
1965	40.94	75.64	184.8	8.4	-
1966	55.76	121.80	218.14	24.8	21.6
1967	70.05	143.65	205.07	- 7.7	21.8
1968	88.31	200.28	226.79	13.4	21.7
1969	102.03	235.65	231.0	2.1	22.5
1970	122.98	286.52	233.0	1.1	-

<sup>/1</sup> Mid year average.

<sup>/2</sup> Difference between annual increases in average earnings and minimum wages. Negative drift signifies minimum wage increases greater than average earnings increases.

<sup>/3</sup> Manufacturing industry only.

Source: IBGE/DNS/SEPT./DEICOM.

**Table 31: EVOLUTION OF LEGAL MINIMUM WAGES IN NOMINAL AND REAL TERMS IN NORTHEAST BRAZIL AND RIO/SAO PAULO 1960-71**

	Nominal Terms		Real Terms	
	Northeast	Rio/Sao Paulo	Northeast	Rio/Sao Paulo
1965 (1960 = 100)	9.118	8.837	.84	.81
1971 (1965 = 100)	3.653	3.387	.89	.83
1971 (1960 = 100)	33.312	29.926	.75	.67

Source: IBGE/DNS 1971

	Salary Groups (NCR \$ a month)							Total	Share of Employ- ment
	<50	50 - 149.99	150 - 299.9	300 - 499-99	500 - 999.99	>1000.00	Un- declared		
Transformation Industry	61.6	19.2	6.1	5.7	1.6	0.8	4.9	100.0	20.1
Construction	-	25.0	-	-	25.0	50.0	-	100.0	0.3
Commerce	12.9	35.7	25.7	14.3	6.0	4.9	0.6	100.0	29.1
Services	42.7	34.1	14.4	3.6	1.0	0.4	3.8	100.0	41.2
Transport and Communications	11.3	17.0	26.4	17.0	20.8	5.7	1.9	100.0	4.4
Liberal Professions	4.3	4.3	13.0	30.4	8.9	34.8	4.3	100.0	1.8
Social Services	44.4	44.4	-	5.6	-	-	5.6	100.0	1.4
Other	52.6	36.8	-	-	10.5	-	-	100.0	1.6

Source: PNAD 1st Quarter 1969.

**Table 33: EVOLUTION OF DIFFERENTIALS IN THE LEGAL MINIMUM  
WAGE BETWEEN THE STATES OF THE NORTHEAST 1960-71**

	1960	1965	1971
Northeast	100.0	100.0	100.0
Pernambuco, Bahia	114.3	114.4	107.3
Ceara	94.0	87.8	93.9
Rio Grande Do Norte, Paraiba, Sergipe, Alagoas	91.4	87.8	93.9
Maranhao	86.4	87.8	93.9
Piaui	63.5	79.9	93.9
Northeast (1960 = 100)	100.0	9.118	33.312

Source: IBGE/DNS 1971.

**Table 34: LANGONI'S ESTIMATES OF THE  
DISTRIBUTION OF INDIVIDUAL INCOMES IN THE NORTHEAST  
IN 1970 BY DECILES**

		Percentage of Income	Average Monthly Income (1970 NCr \$)
Richest	10	45.3	737.08
	10	13.6	214.16
	10	9.5	147.74
	10	7.6	118.58
	10	6.4	95.76
	10	5.2	77.75
	10	4.3	66.01
	10	3.6	53.39
	10	2.9	41.55
Poorest	10	1.7	23.75
Poorest	75	36.5	55.08
Richest	25	63.5	292.74
Gini Ratio:	1970	.56	
	1960	.49	
% Change		14.3	

	1960	1970	% Change
<u>Average Monthly Incomes (U.S.\$)</u>			
Primary Sector	18.36	20.46	11.0
Urban Sector	34.49	53.92	56.3
Total	25.49	34.20	34.2

Source: Langoni (op. cit) Tables 5.3 and 5.5.

**CASE STUDY I: PERNAMBUCO**



PERNAMBUCO

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## I. THE EDUCATION AND TRAINING SYSTEM

### A. Administration and Structure

1. The administrative structure of Pernambuco's education and training system conforms to that stipulated in the Federal Law of Policies and Principles (December 1961). The State Council of Education is responsible for defining programs corresponding to national objectives. The State Council's executive branch is the Department of Education, headed by the State Secretary of Education. The Department of Education contains some eleven major divisions, including its own research and planning units (see Chart II in Northeast Report).
2. The state has the main responsibility for primary and secondary education. Although state authorities attempt to supervise and coordinate primary education with the municipalities, the latter are largely autonomous, particularly in the rural areas. Private education exists at all levels. The Federal University of Pernambuco and the Federal Rural University are autonomous. Large regional centers for non-formal vocational training are maintained in the state capital of Recife by SENAI (National Service of Industrial Apprenticeship) and SENAC (National Service of Commercial Apprenticeship).
3. The structure of the education system is that explained in para. 12 of the Northeast Report. State education authorities anticipate a very slow conversion to the new structure of basic education.

## PERNAMBUCO

### B. Formal Education

#### Enrollments: Growth and Distribution

4. Enrollments amounted to 851,000 students in Pernambuco in 1970. Their distribution and growth among the various levels of education is given in Table 1 below and in Annex 1. Compared with the enrollment distribution of the Northeast region it is evident that Pernambuco's educational system is more developed and its growth more balanced than most other Northeast states.

Table 1

	1964	1970	Annual Growth Rate
Primary	498,566	662,124	4.8
Secondary	81,089	169,387	13.0
1st Cycle	62,416	125,334	12.3
2nd Cycle	18,673	44,053	15.3
Higher	7,161	19,780	13.5

Source: Anuario Estadístico 1967 and 1971.

Primary enrollments grew at about the same rate as those of the region as a whole in 1964-70. There has been a net annual increase in the primary enrollment ratio as the growth rate of the corresponding age group was about 4.8 percent per annum.

The public commitment to the provision of expanded education opportunities is shown in the larger annual increases in state and municipal enrollments at the various levels of education and the consequent relative decline of the significance of the private enrollments in the state. At the primary level, state and municipal enrollments grew at about 5 percent per annum in 1964-70 and the share of private enrollments declined from 23 percent to 12 percent in the same period. At the secondary level, both state and municipal enrollments grew at 22 percent per annum. The private sector still accounts for the largest enrollment shown at this level at 49 percent, but it has declined significantly from 67 percent in 1964.

Of the total 168,000 secondary enrollments in 1970, 126,000 were in ginasio and 42,000 in colegio. The growth patterns by administrative levels and the distribution of these enrollments are different in each cycle. The 1970 distribution of secondary enrollments by administrative dependency was:

	<u>Federal</u>	<u>State</u>	<u>Municipal</u>	<u>Private</u>
Ginasio	1%	39%	12%	48%
Colegio	6%	33%	10%	51%

Private enrollments dominate particularly in commercial education (92 percent at the ginasio level in commerce, and 88 percent of those at colegio level); they were about half of the enrollments in general education and teacher training, insignificant in industrial education and non-existent in agricultural education.

7. There have been minor changes in the distribution of enrollments since 1964 reflecting the greater growth of commercial enrollments at ginasio level and of teacher training at colegio level (Annex 2). The academic streams accounted for the overwhelming majority of the enrollments at the ginasio level while at the colegio level, both enrollments in teacher training and the academic stream are significant. The reasons given earlier (para. 27 in Northeast Report) as with regard to student choice for teacher training streams are applicable for the state of Pernambuco as well.

8. The higher education enrollments grew at the highest rate of expansion of any level of education and this growth is consistent with regional and national patterns. Enrollments in engineering, medicine and agriculture have declined, however, as a proportion of the total from 36 percent in 1964 to 25 percent in 1970. The Federal University of Pernambuco accounts for 8,800 of the enrollments at the higher level.

Educational Opportunities

9. There has been some correction in the unevenness of educational opportunities available in the state. At the primary level, enrollment growth has been higher in areas other than the capital (5.5 percent per annum versus 3.4 percent per annum growth in the capital). This expansion, reflected more in the state enrollments, has slightly ameliorated the age enrollment ratios of the age group 7-14 in the interior but, still, substantial differences in these ratios prevail as illustrated in the following table.

Table 2: ENROLLMENT RATIOS BY AGE, 1970

	7	8	9	10	11	12	13	14
Total								
(% in schools)	53.4	63.6	68.7	59.3	68.3	53.4	50.9	44.5
Interior	48.7	57.0	62.6	53.8	62.1	49.9	47.6	40.6
Capital	79.0	102.5 <sup>1/</sup>	103.5 <sup>1/</sup>	92.1	88.8	72.0	69.4	62.5

<sup>1/</sup> Exceeds one hundred because of underestimates of respective population age groups. No data are available from the 1970 census to refine the population estimates by age groups, which are based here on the age distribution of earlier censuses.

Source: Secretaria de Educacao e Cultura, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife 1972.

10. There are no separate data for the scholarization ratios in the rural areas of the state, but it could be presumed that the ratios will be much lower than those of the interior at large since the latter includes all urban areas other than the capital of Recife. Information supporting this can be found in the distribution of overall enrollments among rural and urban areas which is

quite different from the state's population division. Only about one-third of the primary enrollments were in rural areas while the rural population of age 7-14 was roughly about half of the total in that age group. Inequities in educational opportunities in the rural and urban areas are accentuated by differences in teachers' quality, availability of teaching materials, and suitability of school facilities.

11. Much of the administrative responsibility for the primary enrollments is borne by the municipal governments which are financially the most constrained to provide quantitative and qualitative improvement of educational opportunities. The record also indicates that these governments have clearly opted for quantitative over qualitative improvements in the system.

12. Until the recent reform, only a fraction of the primary four and five grade graduates could enter secondary education. In 1969, the graduates of these two grades were 65,000. The first year enrollment in ginasios was roughly 45,000 excluding repeaters. Since a substantial proportion of the students enrolled after an interruption of their primary studies, it would be reasonable to assume that only about half of the primary graduates may have had a chance to continue their studies. This attendance has been lopsided in favor of urban areas. The schools at this level are heavily concentrated in densely populated areas, which can support economic size units, thus making attendance by rural youth expensive and often prohibiting. About 49 percent of the total ginasio enrollments, and 46 percent of the first-year enrollments were in the Recife area alone. These patterns of opportunity of entry to secondary education and urban concentration of secondary education are not unique to Pernambuco, but, more or less, representative of most Northeast states.

13. A similar situation exists in the provision of colegio level education. Entrants in the first year of colegio were about 17,000, only a fraction of the graduates of the last year of ginasio. Again, the locality of the schools favors the urban areas, even more heavily so than at the ginasio level. This is clearly shown in the distribution of enrollments: the capital accounts for almost two-thirds of the total colegio enrollments in the state and the corresponding ratio for the first grade is about the same.

14. While the state government is conscious of these inequities, its regulations pertaining to the opening of new schools encourage them for financial reasons. For example, no school is built unless there are one hundred students available, and currently the state is not building any schools with less than eight classrooms. The area served by schools has also been widened so that as many of the existing one-room schools as possible can be closed down.

#### Teaching Staffs

15. There were 20,500 primary school teachers employed in 1970, 11,800 secondary and 1,450 professors in the principal institutions of higher learning. Staff increases have lagged behind enrollment growth in primary and higher education but slightly outpaced secondary enrollment growth. The quantitative magnitude of the teaching force is not very

important in deriving and interpreting such indicators as student/teacher ratios since many teachers, particularly at the lower levels of education, are employed in administrative tasks and a very large number are part-time teachers, working in other jobs including teaching in other schools.

16. The quality of teaching is poor. This is due to the method of teaching employed and to the poor qualifications of the staff itself. At the primary level, about 40 percent of the staff is not qualified (that is, the teachers are not graduates of teacher training colegios). Most of the unqualified teachers are teaching in municipal schools. For example, on 1969, only 13 percent of the municipal primary teachers were qualified, while the corresponding proportions were 61 percent in state schools and 43 percent in private schools. About two-thirds of the municipal primary teachers had only some or a complete primary education.

17. At the secondary level, only about 40 percent of the teachers are qualified. Teachers of practical subjects are scarce and when available mostly lack pedagogic training. Under the Alliance for Progress Program, four centers for teacher upgrading have been built but their annual use varies depending on fund availability. Each center has a capacity of 76 places. The training program for unqualified teachers, is well designed. It is extended over a period of three years, with two months of training each year and one school year of supervised work. Although improvements in the educational background and teaching techniques of the teachers are very important in improving the education system's efficiency and improving educational quality, lack of funds have limited the availability of such training programs. In 1971, only 532 teachers attended the training programs. At this pace it would take fifteen years to train all unqualified teachers.

18. The supervision and the teaching in the teacher upgrading institutes are undertaken by a group of supervisors, whose background consist of a university education, five years of practical experience and a three-month special course. There are 14 teams of these supervisors, with a total of 186 persons. The teams are also responsible for regular teacher supervision and for coordinating educational activities at the local level, such as evaluating requirements for opening and staffing new local schools. The salary of a supervisor is about Cr\$1,200, which is competitive with salaries paid to people with similar education background in other occupations. As a result, qualified people are retained by the service.

19. The State of Pernambuco compensates its teachers on a scale which is slightly above the minimum salary. The municipalities, however, are unable to pay such salaries and their teacher remuneration varies from 20 percent to 50 percent of the state minimum. With such low salaries the municipalities cannot attract qualified teachers. Worse, because of lack of funds and personnel no teacher upgrading programs are organized at the municipal level, to improve the qualifications of the staff.

C. Non-Formal Education: Vocational Training

0. The organization and implementation of vocational training programs discussed earlier on a regional basis are identical with those at the state level. In Pernambuco, one of the more industrial states of the Northeast, SENAI is a very illustrious organization working very closely and in a productive relationship with PIPMO and local employers. A limited 1971 state labor market study has identified training needs by industrial groups and SENAI's effort is now being directed at meeting these needs. A total of about 5,000 industrial workers in thirteen industrial subsectors will be trained in the next few years in existing or new programs. The training covers a large spectrum of skills.

1. SENAI operates four training centers to meet the state's needs and one regional center, catering to the training demands for textile workers by the Northeast textile industries. (The latter was equipped by the Japanese government at a cost of Cr\$1.1 million.) Training courses in the four centers range from 40 to 300 hours and from two to three hours per day. There are basically two programs of training: for minors and for adults. In 1970, 716 minors enrolled in 11 training programs, some extending over a two-year period. Only 7 percent of these dropped out by year's end. About 1,970 adult trainees participated in programs for skilled workers, supervisors, technicians, supervisory and management personnel. This number represented a substantial increase over the previous year. Of the trainees 1,007 were trained in SENAI in pre-service courses, while the remainder were personnel of local industry receiving skill upgrading. Through "convenios" (contracts) with PIPMO, an additional 815 workers were trained in SENAI facilities.

2. The teaching staff of SENAI is composed primarily of part-time teachers who are contracted for the duration of a course. The qualifications of the permanent staff are technical secondary education and two years of work experience. This is a limited background, and there are, occasionally, problems in finding suitable teachers for very specialized courses. Also, as there doesn't exist any organized training for instructors to meet staff attrition at the centers in Pernambuco and the region at large, there are some difficulties in filling the organization's few permanent posts where they are vacated.

3. SENAI's facilities, particularly the one in Recife which trains about 1,000 people per year, are being utilized to capacity. They are being maintained well and operated efficiently, but because of lack of space and staff there are increasing difficulties in meeting requests by private firms for organizing training courses. Because of these constraints, priority in allotting space and other resources is given to courses in occupational areas which have been identified as crucial for state development or where acute managerial shortages prevail. In the present labor market conditions, the occupational skills for which a very strong demand exists include electricians, welders and mechanics.

24. SENAC operates three training centers including a newly built center in Recife. Courses are offered in eight areas including administration, vending, hotel management and tourism. About 2,000 were trained in 1970 of whom 12 percent were minors. The capacity of the training centers is sufficient to double the number of the trainees but there are no sufficient funds to offer additional courses. A study was commissioned in 1971 to survey and identify the states' training requirements in the sector. The demand for qualified assistant accountants and administration workers was found to be strong and largely unfilled. Hotel office personnel was another area where future absorption was found to be promising. Training programs for the above personnel would range from six months to a year which SENAC cannot afford because of existing resource limitations. In fact, the state administration of SENAC has been reallocating resources to finance short-term training programs which are less costly and which have a greater student turnover. Part of the financial problems facing SENAC arise out of its over-investment in physical capacity. Loan repayment and amortization of facilities account roughly for a high 30 percent of the state organization's annual budget.

## II. EFFICIENCY OF THE EDUCATION SYSTEM

### A. Formal Education

#### Internal Efficiency

25. The enrollment distribution in Pernambuco is more rational than that of the northeast region at large, but still very uneven. Half of the primary enrollments are in the first grade. Only 17 percent of the enrollments are in the 4th and 5th grades. There have been some improvements in the enrollment distribution since 1964, where the first grade enrollment accounted for about 61 percent of the total and the fourth and fifth grades for only 12 percent.

26. Pernambuco's educational system is becoming increasingly more productive but wastage is still at a high level. Corrective action is required to make the system more efficient and reduce the unit cost per successful graduate. Of 100 students entering primary grade one, only 31 successfully continue to grade two; of those, only 23 continue to grade three, and finally, only 17 are in grade four. This progression is almost identical to the one identified for the Northeast region (para. 43). The greatest bottleneck in the student progression is in the very first grade where the highest dropout rate is experienced. The other indicator of wastage, class repeating, also shows that repeaters are overwhelmingly concentrated in the first grade too.

7. A relatively large proportion of enrollments (10 percent) are below seven years of age or over 14 years. Only 20 percent of the enrollments in the first grade are seven years old. A rationalization of the age distribution of enrollments would be useful but there is reluctance on the part of the authorities to pursue vigorously such a policy, other than attempting to provide separately for the needs of the overaged students.

8. Similar problems with regard to the system's internal efficiency, but of a lesser magnitude, prevail at the ginasio level. Repeaters account for about 10 percent of the enrollments with high concentration in the first year (50 percent). Only 33 percent of the enrollments were within the age group 11-14, and as many as 26 percent were 18 or older. Dropouts at this level amounted to only three percent, but industrial enrollments have exhibited a very high dropout rate, up to 24 percent.

9. At colegio level, the overall dropout rate is estimated at 10 percent. It is half of the rate estimated for the region. While the weighted average is affected by the very low dropout rate in the academic streams, dropout rates in industrial and commercial streams are high. In 1969, they amounted to 27 percent and 19 percent of the respective enrollments.

#### External Efficiency

10. The earlier discussion on the education system's external efficiency for the Northeast at large is applicable to the state of Pernambuco as well. There are no adequate data to assess accurately this efficiency of Pernambuco's educational system. The Secretariat of Planning is greatly interested in the undertaking of in-depth labor market study one of the by-products of which would be the evaluation of the relevance of the education system to the state's training requirements. Such a study will be preceded, however, by a more limited one studying the marginal urban groups in Northeast urban areas (para. 8 in the Northeast Report) which would include the area of Recife. Among the various data that will be collected, information on education and training of these groups will be gathered and its relevance will be related to identified requirements for obtaining a job.

11. One of the areas where improvements should be made, is to increase the relevance of the education of overage students who most often are now following regular curriculum. The comments developed earlier on this problem for the Northeast region at large are certainly applicable here. Some efforts have been undertaken in Pernambuco for the implementation of such a program but they are limited because of lack of funds.

12. One of the weaknesses of the work currently undertaken by the planning group of the state secretariat of education in Pernambuco is that it is related overwhelmingly only with the supply side of the labor market. There are no effective liaisons with other public agencies that could lead to planning of the expansion of the system and of qualitative improvements as they relate to whatever indicators may be available with regard to labor market requirements.

Non-Formal Education

33. The patterns established for the Northeast at large are identical in the case of SENAC in Pernambuco. In the various training schemes this organization has implemented a higher dropout rate among its adult trainees (19 percent) than among minors (10 percent) has developed. The reasons for this have been explained earlier. The SENAI operations are more efficient. Those concluding successfully their courses amounted to 94 percent of skilled workers, 99 percent of the technicians and 90 percent of the supervisory personnel. The external efficiency of these training schemes is high because the operations of these agencies are effectively and directly linked with the specific industrial and commercial training requirements of the state.

III. EDUCATIONAL ATTAINMENTS AND EARNINGS

34. Disaggregated census data on labor force educational attainments in Pernambuco, are not available. The only data available are from the reports from employers in industrial, commercial and service establishments for 1969. As these data cover the larger establishments there is an upward bias in the derived educational attainments of the workers they employ.

35. The distribution of the attainments of 89,000 reported employees in industry and 64,000 in commerce and industry, are given below:

	<u>Industry</u>	<u>Commerce and Services</u>
Illiterates	13.1	3.0
Incomplete Primary	40.7	20.9
Complete Primary	24.3	24.4
Incomplete Ginasio	6.0	12.4
Complete Ginasio	3.3	9.4
Incomplete Colegio	2.3	6.2
Complete Colegio	2.4	12.4
Incomplete University	.6	3.2
Complete University	.8	4.4
Not Declaring	6.5	3.7

36. As expected, the educational attainments of those in commerce and services are significantly higher than those in industry. Some 50 percent of those employed in industry were illiterate or had less than complete primary education, compared to some 20 percent of those employed in commerce and services. These patterns of educational attainments are also consistent with those observed for the Northeast region at large. The distribution in the industrial sectors suggests an under-education of the employees in the sector with regard to formal education. But no information is available indicating how formal education has been complimented by pre-service, vocational training and on-the-job and in-service training.

7. Earning patterns follow closely the educational attainments by industry discussed in para. 62 of the Northeast Report. (A detailed breakdown of earnings by years of schooling is given for industry and commerce and services in Annex 7.) Earnings in commerce and services are considerably higher than those in industry, even for the same levels of education. In a grouping of earnings similar to those presented in the discussion of Northeast about 62 percent of the illiterates employed in industrial activities received less than Cr\$119, while this proportion was 40 percent in commerce and services. Overall, 38 percent of industrial workers earned up to Cr\$119 as compared with 19 percent of commerce and service workers. The range of earnings for the majority of the service and commerce workers, who have different educational backgrounds, is higher and more extended than that for industrial employees. The attainment of some primary education is more crucial in earnings above the minimum wage in the industrial sector, while in commerce and services such earnings extend over educational attainments ranging from incomplete primary through colegio.

#### IV. EDUCATION FINANCE

##### A. Formal Education

##### Growth and Trends

8. The formal education financing system in Pernambuco is composed of both private and public sources and expenditures. Private education expenditures in 1970 accounted for approximately 20 percent of total education expenditures, a share which appears to have declined somewhat due to the rapid increase in public enrollments and expenditures between 1964 and 1970. During this period public education expenditures increased at an impressive annual rate of 15.7 percent in real terms, growing from Cr\$83.3 million in 1964 to Cr\$198.1 million in 1970.

9. Direct expenditures on public education by the federal, state and municipal governments, as well as the source of funds spent, are shown for the 1964-70 period in Tables 3 and 4 on the following pages. These data show that the patterns and trends of public education finance in Pernambuco are similar in most respects to those for the Northeast at large.

10. State education expenditures have accounted on average for 55 percent of total public education expenditures. Most of the state's education expenditures (about four-fifths) have been met by the state's own budgetary resources. This proportion is higher than that for the Northeast as a whole and reflects both the state's relatively high commitment to education and its lesser reliance on federal transfers. Pernambuco's education expenditures from its own budgetary resources grew at an average annual rate of 12.5 percent in real terms between 1964 and 1970 and increased as a percentage of total state budgetary expenditures from 14 percent in 1964 to 17.5 percent in 1970.

Table 3: PERNAMBUCO PUBLIC EDUCATION EXPENDITURES BY LEVEL OF ADMINISTRATION, 1964-70

(Thousands Cr\$, 1971 prices)

Classification	1964		1965		1966		1967		1968		1969		1970	
	Cr \$	%	Cr \$	%	Cr \$	%	Cr \$	%	Cr \$	%	Cr \$	%	Cr \$	%
<u>STATE EXPENDITURES</u>	<u>52654</u>	<u>100</u>	<u>58990</u>	<u>100</u>	<u>46393</u>	<u>100</u>	<u>67442</u>	<u>100</u>	<u>80769</u>	<u>100</u>	<u>99278</u>	<u>100</u>	<u>109672</u>	<u>100</u>
Own Budgetary Resources	44222	84	41183	70	33614	72	52131	77	65935	82	77778	78	89578	82
Participation Fund	--	-	--	-	--	-	1610	2	3217	4	9947	9	7054	6
Education Salary (State Quota)	--	-	--	-	2661	6	2452	4	2265	3	3973	4	5511	5
Education Salary (Fed. Quota)	--	-	2038	4	4598	10	3837	6	4634	6	5173	5	5538	5
MEC: Primary Ed. Fund	5229	10	7888	13	2534	5	4142	6	2324	3	--	-	--	-
Secondary Ed. Fund	3203	6	7880	13	2500	5	3270	5	2394	3	2408	2	1991	2
SUDENE	--	-	--	-	486	1	--	-	--	-	--	-	--	-
<u>MEC DIRECT EXPENDITURES</u>	<u>24641</u>	<u>100</u>	<u>32947</u>	<u>100</u>	<u>42087</u>	<u>100</u>	<u>51503</u>	<u>100</u>	<u>61104</u>	<u>100</u>	<u>65358</u>	<u>100</u>	<u>76153</u>	<u>100</u>
<u>MUNICIPAL EXPENDITURES</u>	<u>5987</u>	<u>100</u>	<u>9240</u>	<u>100</u>	<u>6906</u>	<u>---</u>	<u>14605</u>	<u>100</u>	<u>20047</u>	<u>100</u>	<u>14805</u>	<u>100</u>	<u>12233</u>	<u>100</u>
Own Resources <sup>1/</sup>	3882	65	5601	61	6020	87	6840	47	8565	43	5332	36	4154	34
Participation Fund <sup>2/</sup>	--	-	--	-	--	-	6925	47	8292	41	7229	49	8079	66
MEC: Primary Ed. Fund	2105	35	3639	39	886	13	840	6	3190	16	2244	15	--	-
<u>TOTAL EXPENDITURES</u>	<u>83282</u>	<u>100</u>	<u>101177</u>	<u>100</u>	<u>95385</u>	<u>100</u>	<u>133550</u>	<u>100</u>	<u>161920</u>	<u>100</u>	<u>179441</u>	<u>100</u>	<u>198058</u>	<u>100</u>
<u>STATE EX. as % of TOTAL</u>		63		58		49		50		50		55		55
<u>MEC EX. as % of TOTAL</u>		30		33		44		39		38		36		38
<u>MUNICIPAL EX. as % of TOTAL</u>		7		9		7		11		12		9		7

1/ Estimated at one-third of municipality education expenditures from Participation Fund receipts.

2/ Twenty percent of municipality Participation Fund receipts (minimum legally required to be committed to education).

**Table 4: CONSOLIDATED SOURCES OF FINANCE FOR PUBLIC EDUCATION IN PERNAMBUCO, 1964-70**  
(Thousands Cr\$, 1971 prices)

Source of Funds	1964		1965		1966		1967		1968		1969		1970	
	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%	Cr\$	%
MEC Budget														
Direct Expenditures	24641	30	32947	33	42087	44	51503	39	61104	38	65358	36	76153	38
Transfers <sup>1/</sup>	10537	12	19407	19	5920	6	8252	6	7908	5	4652	3	1991	1
Sub-Total	35178	42	52355	52	48007	50	59755	45	69012	43	70010	39	78144	39
State Budget (Own Revenues)	44222	53	41183	41	33614	35	52131	39	65935	41	77774	43	89578	45
Participation Fund	--	-	--	-	--	-	8535	6	11509	7	17176	10	15133	8
Education Salary <sup>2/</sup>	--	-	2038	2	7259	8	6289	5	6899	4	9146	5	11099	6
Municipal (Own Revenues)	3882	5	5601	5	6020	6	6840	5	8565	5	5332	3	4154	2
Other	--	-	--	-	486	1	--	-	--	-	--	-	--	-
TOTAL	<u>83282</u>	<u>100</u>	<u>101177</u>	<u>100</u>	<u>95385</u>	<u>100</u>	<u>133550</u>	<u>100</u>	<u>161920</u>	<u>100</u>	<u>179441</u>	<u>100</u>	<u>198058</u>	<u>100</u>

<sup>1/</sup> Includes Primary and Secondary Education National Fund transfers.

<sup>2/</sup> Includes State and Federal Quotas, although the latter is channelled through MEC.

41. Direct expenditures by the federal Ministry of Education have accounted for an average of 37 percent of total public education expenditures. The Ministry's direct expenditures have grown impressively, but Table 4 shows that this contribution from the federal education budget has been partially offset by a marked decline in the Ministry's transfer programs. Consequently, the share of education financing shouldered by the federal Ministry of Education has declined since 1965 while the state's share has increased. As in the case of the Northeast as a whole, the overall decline in the Ministry's transfers has occurred despite increases in the federal contribution from the Education Salary tax.

42. Municipal education expenditures between 1964 and 1970 provided an average of 9 percent of public education expenditures. Pernambuco presents the only case in which the mission was able to obtain complete data showing the municipalities' education expenditures from their own resources. According to the data, municipalities have been spending on average 14 percent of their budgetary tax revenues on education, well below the 20 percent legally required minimum. Since 1967, an increasing share of municipal education expenditures have been met by Participation Fund receipts. The termination in 1970 of the Ministry of Education's transfers directly to municipalities is expected by federal authorities to be offset largely by increased Participation Fund receipts, transfers from the state, and by an increase in the share of municipal revenues devoted to education. No estimates have been made by the authorities, however, concerning the feasibility of significant new flows from these sources.

#### Public Expenditures by Level of Education

43. The distribution of public education expenditures among the different levels of education in Pernambuco significantly favors higher education. Of total public education expenditures classified according to level of education in 1970,<sup>1/</sup> 47 percent was devoted to higher education, 37 percent to primary education, and 16 percent to secondary education. Higher education has received an increased share of public education expenditures since 1964, when it received 31 percent of the expenditures, while the share of expenditures at the primary level has declined from 56 percent in 1964 and at the secondary level increased slightly from 13 percent. The increased share of expenditures at the higher education level can be attributed primarily to the establishment of a state university in the capital of Recife in 1966.

44. The relatively low priority which the distribution of public expenditures indicates for secondary education emphasizes the importance of private education at this level. Allocation of an estimated one-half to two-thirds of private education expenditures to the secondary level

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<sup>1/</sup> Equivalent to Cr\$180.5 million (in 1971 prices), which is less than total public education expenditures due to the exclusion of expenditures falling under "Administration", "Training and Culture" and "Other" categories in the state's balance sheet.

would increase this level's share of total education expenditures to 25-30 percent. Nevertheless, the relatively small share of public expenditures devoted to this level introduces a bias against students who seek middle-level training but cannot afford private education. Increased public expenditures at the secondary level would be justified not only to broaden education opportunities but also to meet Pernambuco's relatively high middle-level manpower requirements.

45. The total of public expenditures at each level of education in 1970 is presented below according to the percentage distribution among governmental levels:

Table 5: PUBLIC EXPENDITURES AS PERCENTAGE OF TOTAL AT LEVEL OF EDUCATION

		MEC Direct & Transfers <sup>1/</sup>	State	Municipalities
Primary	100	8	75	16
Secondary	100	19	77	4
Higher	100	86	14	0

<sup>1/</sup> Includes earmarked transfers (Primary and Secondary Education Funds and Federal Quota of Education Salary Tax).

Source: State Balance Sheets, Federal Ministry of Education, State Secretariat of Education.

Similar to the pattern prevailing throughout the Northeast, state expenditures account for the great majority of primary and secondary education expenditures, while Ministry of Education expenditures predominate at the higher level. Comparative data for 1964 reveal that the share of state expenditures at the secondary and higher levels has increased substantially, as has the share of municipal expenditures at the primary level. The Ministry of Education's share at all these levels has declined.

46. The state devotes most of its education expenditures to the primary level. Expenditures by level of education in 1970 show that 60 percent of the state's education expenditures were committed to primary education, with only 27 percent going to secondary education. Thus, although the state accounts for 77 percent of total public education expenditures at the secondary level (Table 5), these expenditures play a relatively small role in the state's overall education expenditures (Table 6).

Table 6: EXPENDITURES BY LEVEL OF EDUCATION

		Primary	Secondary	Higher
State Expenditures	100	60	27	13
Ministry of Education	100	7	7	86
Direct Expenditures	100	-	5	95
Transfers <sup>1/</sup>	100	74	26	-
Municipal Expenditures <sup>2/</sup>	100	90	10	-

<sup>1/</sup> Primary and Secondary National Education Funds and Federal Quota of the Education Salary Tax.

<sup>2/</sup> Estimated.

47. The breakdown of the federal Ministry of Education's expenditures and transfers shows a lopsided distribution in favor of higher education, with 86 percent of the total going to this level. The Ministry's direct expenditures for technical secondary schools account for only 5 percent of total direct expenditures, partly as a result of the large amount of funds allocated to the Federal University of Pernambuco, one of the largest in Brazil. The Ministry's transfers to the state also show a relative neglect of secondary education in favor of the primary level.

Type of Expenditures: Recurring and Capital

48. Between 1964 and 1970 capital outlays accounted for an average of only 5 percent of Pernambuco's education expenditures from its own resources (see Annex 8). The largest item in recurrent expenditures is personnel salaries (mainly teachers). During the 1964-70 period salary expenditures alone accounted for an average of 75 percent of the state's education expenditures from its own resources. The continuing expansion of enrollments and the present need to improve the quality of education by attracting qualified teachers through higher pay both suggest that the state will continue to be forced to devote the bulk of its education funds to recurrent expenditures.

49. Federal transfers from the Ministry of Education (particularly the Education Salary Tax transfers) have provided the main source of capital investments, although an estimated 50 percent of these transfers have been used by the state to meet recurring expenditures, primarily personnel salaries. A very small amount of assistance for capital outlays has been provided by SUDENE. Municipality education expenditures are estimated to have been at least 90 percent recurrent during the 1964-70 period.

50. The great bulk of direct expenditures by the Ministry of Education have also gone to meet recurring costs. Data available for 1968 and 1969 show that recurring costs absorb 90 percent of federal direct expenditures at the secondary education level and 86 percent at the higher level. As a result of the large amount of funds allocated by the Ministry to the higher level, capital investments at this level have been greater than all capital outlays at the primary and secondary levels combined.

## B. Private Expenditures

51. Private education expenditures consist of fees paid to private schools and of expenditures, by all students, on items associated with schooling such as uniforms and books. The range of private fees for different levels of education were obtained for 1971; they were about 18 percent higher than the 1970 rates. The fees are approved annually by the State Council of Education. The range for primary education fees was Cr\$50 (minimum for the interior) to Cr\$983 (maximum for the capital areas); for ginasio, it was Cr\$100 (minimum for the interior) to Cr\$1,131 (maximum for the capital); for colegio, Cr\$423 to Cr\$1,251.

52. Private expenditures in 1970 were in the order of Cr\$55 million. This is derived from prorated estimates of expenditures at primary, ginasio and colegio levels, employing estimates of average fees.

53. The cost of books varies from Cr\$6-10 at primary level and Cr\$10-30 at secondary. The books are privately printed and their availability is not subsidized by the government. The State Secretary, however, does choose the titles for the various courses among alternatives presented to him by publishers. Prorated estimates on total book expenditures are not possible because of inadequate data on book use.

## C. Recurrent Unit Costs

### Formal Education

54. In 1970, recurrent unit costs for the state operations were about Cr\$180 for primary education and Cr\$360 for secondary (in 1971 prices). While these costs per student represent significant increase (in real terms) over the last five years, they have varied intermittently because of the uneven flow of realized education expenditures. For example, in 1969, both unit costs were higher. In primary, they were slightly so at Cr\$160 and in secondary substantially so at Cr\$380 (in current prices). The unit costs in Pernambuco are generally low, particularly at the secondary level, reflecting the low teacher salaries and the limited expenditures for teaching materials. The costs are, however, higher than the respective ones for the region, indicative of the better economic conditions prevailing in Pernambuco and the higher teacher salaries the state pays compared with other Northeast states.

55. Economies have been realized with the expansion of enrollments. Indirect costs, consisting of administrative and related expenditures, declined to acceptable levels of about 7 percent of the unit costs in primary and 4 percent in secondary in 1970. They were as high as 14 percent and 18 percent respectively in the 1964-70 period. Of the direct costs, personnel expenditures accounted for about 95 percent in primary and 73 percent to 95 percent in secondary. Combining direct and indirect costs, personnel expenditures accounted for 93 percent in primary and 92 percent in secondary education, with variations ranging from 88 percent to 94 percent in primary and 66 percent to 93 percent in secondary.

56. Municipal recurrent unit costs are extremely low because of the low teacher salaries and the virtual absence from schools of teaching materials. Estimates of expenditures per student for 37 of the 143 municipalities, accounting for about one-third of the municipal enrollments and for which data were available for 1970, ranged from Cr\$24 to Cr\$217, in 1971 prices. The average unit cost was about Cr\$96. Unit costs for all municipal enrollments based on actual expenditures on education as reported in the 1970 balance sheets have been estimated to be much lower, however, at about Cr\$42. This estimate is very much in line with the corresponding average for the Northeast. But, contrary to the relative worsening of these costs for the region as a whole, there has been some minor relative improvement in Pernambuco. In 1964, these costs represented about 20 percent of the state unit costs while in 1970 they amounted to about 23 percent. Increases in unit costs have come about basically from the salary adjustments decreed by law. Adjustments of municipal teacher salaries to state minimum salary levels would increase unit costs of municipal students to the level of state unit costs, but this is not feasible in view of municipal financial constraints.

57. Higher education is very expensive. Data available only for 1968 suggest that the unit cost for the federal university of Pernambuco were an exorbitant Cr\$10,900 (in 1968 prices). The cost of higher education is so high because of (a) the very low student/teacher ratio, which is five for the federal university and four for the rural one; and (b) the costs include allocations to research and extension which are an integral part of the university functions. But, even allowing for these activities, the expenditures per student in the federal rural university are high.

#### Vocational Training Unit Costs

58. In industrial vocational training, unit costs are estimated on a student/hour basis. The cost amounted to Cr\$2 per student/hour for courses for minors and Cr\$2.5 for the adult programs. The highest costs were in the textile training (Cr\$6 per student/hour). These costs compare favorably with similar costs in SENAI centers in other states.

### V. EDUCATION DEVELOPMENT STRATEGY: EVALUATION, PROJECTS, AND THEIR FINANCING

59. The states' education development strategy attaches high priority to the implementation of the new program of basic education according to the general guidelines of the Ministry of Education. The State Secretariat of Education in Pernambuco also attaches much importance to the expansion of educational opportunities at the basic level over actions aimed specifically at reducing the system's inefficiency and expanding enrollments at the colegio level. Consequently, the Secretariat's planning manpower has been primarily devoted in the preparation of adequate documentation of the requirements of the implementation of the new program. The sector plan has been drafted and is under internal review.

60. The State Secretariat of Education has decided to implement the new education program in two stages. The first stage, which will last about five years, will gradually allow the expansion of enrollments to the sixth grade of basic education. In the second stage, it will provide the facilities required to implement the new practical program. The capital expenditures for implementation of the first stage will be minimized by the ongoing primary school mapping which is expected to be completed early next year. It will lead to class reshuffling in different facilities and to enlarge classes to minimize the costs of enrollment expansion. These costs are tentatively estimated in the order of Cr\$5 million for the state and about Cr\$2 million for the municipios in 1975. They are based exclusively on required classroom construction to facilitate enrollment growth and their magnitude would be affected by the results of the mapping. (It has been assumed that (a) there are 34 students per class; and (b) the classroom will be used in a double shift). The projected increases in enrollments in grades five and six will cost by 1975 a total of Cr\$8 million, of which Cr\$7 million will be state expenditures. (The costs have been estimated by applying unit cost estimates and an amended enrollment distribution by administrative level to reflect the tendency of enrollment concentration in state schools.)

61. The implementation of the second stage will be costly. There is a sore lack of practical facilities. The specific requirements are yet to be determined since one of the main expected products of the school mapping is to collect information that will assist in determining the most efficient way of implementing this second stage of the strategy. If a very economical idea of providing practical facilities in a school serving a number of satellite schools is followed through, the Government would have to engage in a program of constructing and/or equipping these central schools containing rooms for teaching practical courses in industrial arts, agriculture, commerce and home economics; guidance facilities and administrative space. The cost of such a school with two of each type of practical rooms would be roughly US\$120,000 with a foreign exchange component of about 50 percent. Each such center could be of a capacity of 200 places to be used in three shifts. Fifty of these centers would provide facilities for about one-third of the projected enrollment in the seventh and eighth grades and would cost about US\$6.0 million. The implementation of such proposal would of course require the identification of clusters of primary schools to be served in this economic way by the central school.

62. The elimination of the examination at the end of primary school will increase student flows after grade five. Assuming also that the overall enrollment expansion will continue at about the same rate as in the 1964-70 period, there will be a significant improvement in the state's enrollment ratio among those in the 7-14 years age group by 1980. This is illustrated in the table below:

Table 7

Year	Population Age 7-14	Gross Enrollments (Grades 1-8)	Unadjusted Enrollment Ratio	Enrollments of 7-14 Years Age <sup>1/</sup>	Adjusted Enrollment Ratio
1975	1,170,000	1,063,000	91%	850,000	73%
1980	1,286,000	1,370,000	106%	1,100,000	85%

<sup>1/</sup> Assumed at 80 percent of gross enrollments.

63. The attainment of these enrollment ratios, which for 1975 fall short of the Ministry of Education target of 80 percent net enrollment ratio among those of 7-14 years of age, would require in 1975 recurrent expenditures of Cr\$118 million by the state and about Cr\$18 million by the municipalities. The respective estimates for 1980 are Cr\$165 million and Cr\$20 million. All estimates are based on 1970 unit costs in 1971 prices. The cost estimates do not allow for real increases in expenditure per student. The share of the private sector has been assumed to continue its decline and account by 1980 for 8 percent of the enrollments of the first four grades (versus 11.9 percent in 1970) and 19 percent of the enrollments of the upper four grades of primary school (versus 49 percent in 1970). Capital expenditures in 1980 have been estimated at Cr\$8 million for the state enrollments and Cr\$2.5 million for the municipalities (in 1971 prices).<sup>1/</sup>

64. Assuming that the state will continue to devote 17.5 percent of its budgetary resources to education and 60 percent of its education resources to primary education, the requirements for funds compare unfavorably with projected state resources and government transfers through the education salary tax estimated at Cr\$70 million in 1975 and Cr\$88 million in 1980. The implementation of the reform program and the expansion of enrollments cannot be sustained unless additional assistance is extended from the Federal Government or provided by external agencies. The situation is even worse with the municipalities whose revenue basis is much more limited.

65. This is an area where the Bank could assist the Government in financing a portion of the capital expenditures to implement the reform, thus releasing state resources to meet enrollment targets and improve educational quality. Priority ranking for this assistance can be determined only after the results of the school mapping are analyzed and the resulting requirements for additional capital financing are determined.

<sup>1/</sup> The cost of a classroom has been put at Cr\$22,500.

6. Such assistance would be much more needed by the municipios whose resources are more limited and could not support the financing of the new education program. If one were to assume the same timetable of implementation of the new education program as in the states, projection of recurrent and capital expenditures in 1975 and 1980, and of resources to be devoted to education indicate a gap of Cr\$8 million in 1975 and Cr\$7 million in 1980, without allowing for any real increases in expenditures per student which are currently very low.

7. The new education program doesn't address itself to qualitative improvements of the primary level education with regard to teacher efficiency, wastage from repeaters and dropouts, etc. A more balanced approach to quantitative expansion in the provision of educational opportunities and qualitative improvements would seem to be a reasonable strategy given the great inefficiency of the sector. The reduction of repeaters could lead to an internal generation of savings that would finance part of the enrollment expansion.

8. There are two priority areas where the Bank could assist the government in improving the quality of the system: teacher upgrading and programs for overage children. The upgrading of 80 percent of unqualified teachers over a six-year period would cost a minimum of Cr\$20 million, a sum which the states and municipalities clearly cannot define to spend. The Bank could assist in financing a portion or all of these expenditures. All costs of teacher training can be considered as capital investment since there will be returns from such investment over the lifetime of the teachers.

9. For overage students plans exist to expand special supplemental courses in order to free school places for regular enrollment growth, but the implementation of such plans will be slow unless a specific plan of action is drawn and the additional financial resources required are identified and allocated from local resources or external aid. A school mapping is being undertaken to assist in the reationalization of the distribution of enrollments and through facility conversions to achieve maximum space use. The Bank could assist the state government in this area, once preparatory work according to suggestions developed in the volume on the Northeast has been completed. The more specific requirements for such a program consist of curriculum planning for these students and some limited special teacher training. This is also an area on which special attention could be focused by the proposed survey of the education system to be financed under the first Bank education project.

10. The preoccupation of the state government has been with the implementation of the new education program. Planning for colegio level education is in a secondary, non-priority, status. It is true that increased student enrollments won't create much pressure for increased colegio level education until near the end of the decade, but, this level of education also plays a pivotal role in meeting the requirements of the economy for qualified manpower. It should not, therefore, be neglected. The proposed education sector survey should include as much information and analysis as possible for this level of education, with regard to its efficiency, both internal and external, and the requirements for its growth.

71. The state's educational planning unit, composed of eight "techicos" and supporting staff of 11, is capable of addressing itself to the various problems of the state education system. It enjoys a high regard within the Secretariat. But, it needs strengthening both in additional, diversified manpower, as well as in improving its educational planning skills. The Government recognizes this and would welcome any opportunity leading to the strengthening of its education planning staff such as participation in the educational planning course recommended by the mission earlier in the Northeast region's education system.

72. In the area of vocational training no comprehensive strategy exists and training program planning is usually limited to two years only. Excess capacity available at SENAC's centers could be used, as long as it exists, to supplement the meager practical facilities of secondary schools thus avoiding construction and equipping of additional facilities. A plan of use of these facilities, including the requirements and costs for staff should be developed by the Secretariat of Education and the State Administration of SENAC. SENAI's operations need to be expanded to meet the increasing requirements for training of the growing state economy. The centers cannot cope with all requests for training, and the situation is becoming worse by the year. With the effective linkage SENAI has with industry, it is best suited for meeting the immediate and longer-run industrial vocational training requirements.

73. This is an area of high priority and the Bank could assist in the construction and equipping of a new vocational training center in Recife under the administration of SENAI. While additional information of the requirements for vocational training should be developed in the sector survey, the capacity of the center could be about 300 places and minimum annual turnover of trainees about 600. The center could serve in a twofold function: (a) supplement SENAI's other vocational training activities; and, (b) serve as a regional instructor training center for SENAI's operations in the Northeast. Pending further identification of the needs, the center could also serve as a regional center for teaching specific skills required for the industrial development of the Northeast, skills for which training facilities do not exist in the region or are inadequate. The cost of this center would be about US\$600,000 with a foreign exchange component of roughly 60 percent.

74. Small farmer training is sorely inadequate. The rural extension service activities are strongly interwoven with the credit extension system. Small farm holders not obtaining agricultural credit are not likely to benefit from extension service guidance in crop cultivation or use of new methods of production. The manpower composition of the extension service is dominated by agronomists who often are not trained in the practical requirements of their field jobs and whose training, in any event, would represent an overinvestment in the education if they were to cater to small farm production. In the absence of any administrative structure to promote small farmer training, PIPMO offers the best medium-term alternative for the organization of farmer training and it should expand its involvement in this area. In order to respond, however, to the long-term requirements of increased small farm productivity, that will determine the livelihood of many farmers, a study ought to be undertaken in order to

identify (a) the educational and other background and the training requirements to develop an agricultural technician capable of responding to small farmer demand for guidance, and (b) the most efficient and productive arrangements for farmer training (i.e., on farm training, short residential courses, or a combination), as may be required to implement the Government's agricultural programs and meet production targets. Clearly, this study would be applicable beyond the state of Pernambuco and should be extensive enough to respond to the extension service demands by farmers in colonized areas in other Northeast states.

## PRIMARY EDUCATION STATISTICS, 1970

		Schools		Classrooms		Teachers				Enrollments	
		Total	Rural	Total	Rural	Total General		Female		Total	Rural
						Total	Rural	Total	Rural		
CEARA	( Federal	37	21	96	41	142	66	122	65	4,620	1,927
	( State	1,590	704	3,015	743	5,417	816	5,284	721	138,858	19,551
	( Municipal	8,022	6,582	8,430	6,603	9,209	6,632	8,959	6,507	227,115	157,060
	( Private	<u>873</u>	<u>243</u>	<u>2,389</u>	<u>267</u>	<u>3,262</u>	<u>278</u>	<u>3,130</u>	<u>266</u>	<u>72,487</u>	<u>7,207</u>
	( Total	10,521	7,550	13,930	7,654	18,030	7,792	17,495	7,559	443,080	185,745
FORTA- LEZA	( Federal	8	-	22	-	47	-	47	-	1,599	-
	( State	105	3	532	4	1,473	5	1,471	3	39,206	252
	( Municipal	189	16	352	25	756	41	751	41	22,211	1,135
	( Private	<u>310</u>	<u>28</u>	<u>1,132</u>	<u>31</u>	<u>1,685</u>	<u>34</u>	<u>1,609</u>	<u>31</u>	<u>38,546</u>	<u>706</u>
	( Total	612	47	2,038	60	3,961	80	3,878	75	101,562	2,093

Source: State Secretariat of Education.

SECONDARY EDUCATION

LOWER LEVEL - GINASIO

Year	Capital				Interior				State			
	Enrollments		Teachers		Enrollments		Teachers		Enrollments		Teachers	
	State	Total	State	Total	State	Total	State	Total	State	Total	State	Total
1969	15,778	36,158	794	2,910	6,662	28,782	325	2,890	22,440	64,940	1,119	5,800
1970	17,213	40,330	868	2,155	6,784	35,816	408	2,347	23,997	76,146	1,276	4,492
1971	16,950	42,259	971	2,646	7,877	34,113	468	2,600	24,978	76,372	1,439	5,159

UPPER LEVEL - COLEGIO

Year	Capital				Interior				State			
	Enrollments		Teachers		Enrollments		Teachers		Enrollments		Teachers	
	State	Total	State	Total	State	Total	State	Total	State	Total	State	Total
1969	8,753	19,608	419	659	2,380	7,289	64	126	11,133	26,897	483	785
1970	9,942	22,427	631	3,653	3,042	7,455	139	898	12,984	29,882	770	4,551
1971	10,240	22,925	734	1,820	3,130	8,771	271	1,153	13,370	31,696	1,005	2,973

Source: State Secretariat of Education.

**C E A R Á**  
**PRIMARY EDUCATION**

(in 000)

Y E A R	POPULATION AGE 7-14			ENROLLMENTS			DEFICIT IN ATTENDANCE					
	T O T A L	Urban	Rural	T O T A L	Urban	Rural	T O T A L	%	Urban	%	Rural	%
1960	734	250	484	276	137	139	458	62.4	113	45.2	345	71.3
1961	756	264	492	283	141	142	473	62.6	123	46.6	350	71.1
1962	777	278	499	260	148	112	517	66.6	130	46.8	387	77.6
1963	800	294	506	317	167	150	483	60.4	127	43.2	356	70.4
1964	823	309	514	335	189	146	488	59.3	120	38.8	368	71.6
1965	846	326	520	329	170	159	517	61.1	156	47.9	361	69.4
1966	872	344	528	297	149	148	575	65.9	195	56.7	380	72.0
1967	896	361	535	344	205	139	552	61.6	156	43.2	396	74.0
1968	923	380	543	438	243	195	485	52.5	137	36.1	348	64.1
1969	950	399	551	422	236	186	528	55.6	163	40.9	365	66.2

Source: State Secretariat of Education

PRIMARY EDUCATION

ENROLLMENTS BY AGE, GRADE AND RURAL ORIGIN, 1969

GRADES	A G E										Total
	-7	7	8	9	10	11	12	13	14	14+	
1 Total	23,487	36,020	40,954	38,895	36,113	38,915	25,428	18,309	13,665	22,655	284,441
Rural	11,062	17,589	21,046	20,739	20,532	17,317	16,004	11,953	9,183	14,811	160,236
2 Total	-	1,052	3,539	5,985	7,613	7,402	7,494	6,194	4,915	8,140	52,334
Rural	-	285	522	1,025	1,564	1,889	2,365	2,439	2,125	3,438	15,654
3 Total	-	-	628	2,365	4,255	5,625	6,139	5,835	4,892	8,807	38,564
Rural	-	-	83	217	404	660	945	1,125	1,107	2,374	6,915
4 Total	-	-	-	490	2,012	3,158	4,362	4,603	4,373	8,546	27,544
Rural	-	-	-	16	69	186	318	394	428	1,058	2,469
5 Total	-	-	-	-	685	1,284	2,208	2,980	3,296	8,629	19,082
Rural	-	-	-	-	43	38	79	96	121	367	744
Total	23,487	37,072	45,121	47,735	50,678	46,384	45,631	37,921	31,141	56,777	421,947
Rural	11,062	17,874	21,651	21,998	22,612	20,090	19,711	16,007	12,965	22,048	186,018

Source: State Secretariat of Education

C E A R A

SECONDARY EDUCATION

ENROLLMENTS BY GRADE AND AGE AT THE BEGINNING OF 1970 AND END OF 1969

GRADE AND SEX	TOTAL	A G E										Repeaters	DATA OF 1969			
		11	12	13	14	15	16	17	18	19	20		20+	Enroll- ment End of Year	Approved	
		-----														
<b>1. LOWER LEVEL-GINASIO</b>																
GRADE I	Total	24.545	1.082	2.284	2.978	3.388	3.347	2.792	2.251	1.600	989	771	1.757	1.306	19.648	16.929
	Female	13.040	593	1.222	1.621	1.807	1.801	1.498	1.233	860	499	411	879	616	10.460	8.974
GRADE II	Total	19.106	71	728	1.676	2.559	2.898	2.604	2.136	1.739	1.118	886	1.837	854	16.834	14.641
	Female	10.430	39	413	952	1.407	1.557	1.397	1.175	965	622	492	952	459	9.057	7.973
GRADE III	Total	16.132	-	-	734	1.646	2.280	2.453	2.268	1.936	1.258	977	2.139	471	14.377	13.104
	Female	8.936	-	-	340	890	1.226	1.379	1.326	1.002	743	546	1.213	271	8.912	7.393
GRADE IV	Total	16.353	-	-	-	568	1.276	1.872	2.155	2.059	1.621	1.144	2.342	4.325	10.838	10.165
	Female	11.453	-	-	-	305	703	1.087	1.230	1.162	941	651	1.218	4.156	6.072	5.905
TOTAL		76.146	1.153	3.012	5.388	8.161	9.801	9.721	8.811	7.304	4.986	3.778	8.075	6.955	61.697	54.839
TOTAL FEMALE		43.859	632	1.635	2.946	4.409	5.237	5.361	4.964	3.989	2.805	2.100	4.252	5.502	33.601	30.245
<b>2. UPPER LEVEL-COLEGIO</b>																
GRADE I	Total	12.952	-	-	-	-	666	1.131	1.591	1.756	1.423	1.262	2.891	5.232	9.256	8.299
	Female	11.001	-	-	-	-	327	552	913	1.012	794	765	1.539	5.099	5.239	5.054
GRADE II	Total	9.095	-	-	-	-	91	477	960	1.376	1.360	1.154	3.532	145	7.939	7.507
	Female	5.233	-	-	-	-	55	224	556	821	790	701	2.014	72	4.785	4.762
GRADE III	Total	7.835	-	-	-	-	-	37	297	1.027	1.202	1.279	3.923	60	6.701	6.494
	Female	4.749	-	-	-	-	-	21	184	538	742	797	2.434	33	3.976	4.016
TOTAL		29.882	-	-	-	-	757	1.626	2.848	4.159	3.935	3.695	10.356	5.437	23.896	22.330
TOTAL FEMALE		20.983	-	-	-	-	382	787	1.653	2.371	2.325	2.253	5.987	5.204	14.000	13.832

Source: State Secretariat of Education

CBARA

EARNINGS AND EDUCATIONAL BACKGROUND, 1969\*

ANNEX 6

COMMERCE AND SERVICES

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than CR\$119	4.3	26.3	36.0	11.5	9.2	6.3	5.6	.1	.0	.7	100
	63.5	66.0	58.4	53.1	34.7	38.0	16.0	1.9	.3	51.8	43.3
CR\$120-CR\$299	1.9	15.5	28.7	9.2	12.5	7.4	18.3	4.3	1.6	.6	100
	21.5	30.1	35.8	32.9	36.5	34.5	40.2	43.6	8.6	33.0	33.3
More than CR\$299	1.9	2.9	6.6	5.6	14.0	8.4	28.3	7.6	24.3	.4	100
	15.0	3.9	5.8	14.0	28.8	27.5	43.8	54.5	91.1	15.2	23.4
Total	2.9	17.2	26.7	9.4	11.4	7.2	15.1	3.2	6.3	.6	100
	969	5,750	8,908	3,120	3,812	2,400	5,057	1,085	2,093	191	33,385

INDUSTRY

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than CR\$119	16.9	52.7	24.6	2.5	1.8	.5	.7	.0	-	.3	100
	90.5	78.6	59.8	61.5	33.5	23.1	13.8	3.1	-	71.9	68.7
CR\$120-\$299	4.8	36.8	39.2	3.2	7.2	3.9	4.2	.0	.3	.4	100
	9.3	19.7	34.3	28.2	48.1	62.9	32.2	9.1	5.3	27.3	24.7
More than CR\$299	.4	11.9	25.6	4.4	10.4	3.3	26.7	5.4	11.9	.0	100
	.2	1.7	5.9	10.3	18.4	14.0	54.0	93.8	94.7	.8	5.6
Total	12.8	46.1	28.2	2.8	3.7	1.5	3.3	.4	.8	.4	100
	4,341	15,625	9,577	947	1,261	520	1,101	127	281	121	33,901

\* Numbers are proportions of totals. The proportions in the upper part of the boxes correspond to the total at the end of the horizontal columns. Those in the lower part of the boxes correspond to the totals on the vertical columns denoting educational attainments.

Source: Ministerio do Trabalho e Previdencia Social - Boletim Tecnico de Setembro, Apuracao Lei de 2/3 - No. 20, Setembro 1970.

CURRENT AND CAPITAL PUBLIC EDUCATION EXPENDITURES  
BY SOURCE AND LEVEL OF EDUCATION, 1964-70

(thousands current Cr\$)

			State <sup>1/</sup>	Federal <sup>2/</sup> Direct Expen.	MEC Transp. to State	MEC Trans. to Municipi- palities <sup>3/</sup>	Municipi- palities <sup>4/</sup>	Other
<u>1964</u>	PRIMARY	Current	1,969	-	370	180	750	-
		Capital	11	-	350	20	84	-
	SECONDARY	Current	1,478	245	330	-	83	73
		Capital	96	27	44	-	9	466
	HIGHER	Current	103	3,975	-	-	-	-
		Capital	56	701	-	-	-	-
<u>1965</u>	PRIMARY	Current	3,986	-	823	891	1,295	-
		Capital	51	-	2,194	99	145	-
	SECONDARY	Current	2,352	415	990	-	145	41
		Capital	4	46	979	-	16	207
	HIGHER	Current	249	6,735	-	-	-	-
		Capital	114	1,188	-	-	-	-
<u>1966</u>	PRIMARY	Current	5,790	-	1,306	338	1,964	237
		Capital	124	-	1,584	37	217	-
	SECONDARY	Current	3,280	612	920	-	218	113
		Capital	-	68	875	-	24	775
	HIGHER	Current	350	9,937	-	-	-	-
		Capital	135	1,753	-	-	-	-
<u>1967</u>	PRIMARY	Current	8,304	-	2,028	410	2,920	244
		Capital	109	-	1,523	45	619	-
	SECONDARY	Current	4,489	842	992	-	324	254
		Capital	-	93	18	-	69	126
	HIGHER	Current	577	13,649	-	-	-	-
		Capital	70	2,409	-	-	-	-
<u>1968</u>	PRIMARY	Current	13,384	-	2,190	2,052	7,148	122
		Capital	207	-	857	228	1,516	-
	SECONDARY	Current	7,207	1,349	747	-	794	48
		Capital	-	149	10	-	168	-
	HIGHER	Current	596	17,818	-	-	-	-
		Capital	252	2,850	-	-	-	-
<u>1969</u>	PRIMARY	Current	12,378	-	4,041	1,775	4,316	-
		Capital	642	-	573	197	915	-
	SECONDARY	Current	8,564	1,087	741	-	478	-
		Capital	-	120	1,229	-	101	-
	HIGHER	Current	2,129	21,988	-	-	-	-
		Capital	744	4,739 <sup>1</sup>	-	-	-	-
<u>1970<sup>5/</sup></u>	PRIMARY	Current	12,466	-	3,794	-	5,772	-
		Capital	800	-	832	-	1,224	-
	SECONDARY	Current	8,589	1,790	1,704	-	641	467
		Capital	-	199	319	-	136	16
	HIGHER	Current	2,200	29,042	-	-	-	-
		Capital	400	5,125	-	-	-	-

1/ Includes state quota of Education Salary Tax and actual Participation Fund expenditures on education. Totals of state capital and current expenditures do not equal total state expenditures due to the inclusion in the latter of expenditures categorized as administration, training, and culture.

2/ Ministry of Education expenditures for federally-supported universities and secondary technical schools. Capital and Recurrent expenditures for 1964-67 are based on the breakdown for 1968-69.

3/ Capital expenditures estimated at 10 percent of total.

4/ Includes Participation Fund receipts for education beginning in 1967. It is estimated that 20 percent of these receipts and 10 percent of the municipalities' own education resources are used for capital expenditures. Secondary education is estimated to account for 10 percent of current and capital expenditures.

5/ Capital and recurrent breakdown based on 1968-69 averages.



CASE STUDY II: CEARA



CEARA

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## I. THE EDUCATION AND TRAINING SYSTEM

### A. Administration and Structure

1. In accordance with the Federal Law of Policies and Principles for Education (December 1961), overall responsibility for education programs and policies in Ceara is vested in the State Council of Education. The State Council's functions, however, are largely symbolic, with most planning and actual decision-making resting in the State Department of Education. The latter is headed by the State Secretary of Education and contains four major departments in addition to a Secretarial Cabinet, Planning Unit and Legal Consultant (see Chart III in Northeast Main Report).

2. The state has main administrative and financial responsibility for both primary and secondary education. Unlike Pernambuco, Ceara has no state-run university. The Federal University of Ceara is supported exclusively by federal funds and is administratively autonomous from state authorities. In the areas of primary and secondary education, the policy of the State Department of Education is to force its financial and supervisory efforts on urban schools, leaving the municipalities relatively autonomous in these spheres in the rural areas. Private education exists at all levels but is concentrated at the secondary level. Centers for non-formal vocational training are maintained in the state capital of Fortaleza by SENAI (National Service of Industrial Apprenticeship) and SENAC (National Service of Commercial Apprenticeship).

3. The general structure of the public education system prevailing in Ceara is the same as that presented in paragraph 12 of the Northeast Main Report.

## CEARA

### B. Formal Education

#### Enrollments: Distribution and Growth

4. There were a total of 541,000 students in Ceara in 1970. Although their distribution by level of education was very lopsided in favor of primary education (81 percent), they were still more evenly distributed among various education levels than those of the Northeast region at large.

5. The growth of the education system lagged behind comparative records of other Northeast states, particularly at the secondary level. The enrollment growth rates in 1964-70, by education level, are given in Table 1 below.

Table 1

	1964	1970	Annual Growth Rate
Primary	335,002	443,080	4.8%
Secondary	57,840	108,068	11.0%
1st Cycle	44,278	76,372	9.5%
2nd Cycle	15,562	31,696	12.6%
Higher	4,003	9,270	15.0%

Despite a declining share of primary enrollments from 21 percent in 1962 to 15 percent in 1970, the private sector's contribution to education in Ceara is still significant (Annex 1). It accounts for a larger portion of enrollments than the private sector in Pernambuco. However, the relative decline in private enrollments over the years and the small absolute decrease in 1969, suggest that the public sector has been able to meet with success the rising social demand for education at this level.

6. Primary enrollments in municipal schools expanded the most in 1964-70, at the average annual rate of 6 percent p.a.; in 1970, these schools accounted for 51 percent of the primary students. These schools are widely dispersed, in contrast with the state schools, whose enrollment comes primarily from urban areas. The average municipal school had 28 students in 1970, while the state schools had a much more economical size of 87 students. Similarly as in other Northeast states, the municipal schools enroll the overwhelming majority of rural students. In 1970, of the 186,000 primary rural students, the municipal schools enrolled about 85 percent.

7. Students in the secondary level are enrolled, in their majority, in private schools. About 80 percent of the secondary establishments are private, accounting for 58 percent of the enrollments. As in primary education, however, the importance of the private sector has been declining, primarily because of the rapid expansion of state facilities for the provision of educational opportunities at this level. As early as 1962, for example, private enrollments amounted to over two-thirds of total enrollment.

8. The comparative growth of secondary enrollments by administrative level is given in Table 2.

Table 2: SECONDARY ENROLLMENT GROWTH BY ADMINISTRATIVE LEVEL

	1962	1964	1966	1968	1969
Federal	100	173	222	237	238
State	100	244	285	376	364
Municipal	100	88	120	164	188
Private	100	119	129	164	183

9. The share of lower secondary enrollments has been decreasing very gradually from 74 percent of total secondary enrollments in 1964 to 71 percent in 1970 (Annex 2). Enrollment distribution within this level of education in 1970 is similar to that described earlier for Pernambuco, but with less emphasis on industrial enrollments. This is commensurate with the distribution of economic activity in the state which is less industrial than Pernambuco.

10. The enrollment distribution at the upper secondary level of education was similar to that of the ginasio level. The academic streams accounted for just over half of the enrollments and teacher training for about 35 percent. The growth of the teacher training enrollments has been very rapid. If enrollments in 1960 were to be presented on an index scale equal 100, enrollments in 1969 were 323 for the general streams, 191 for the commercial and 503 for teacher training.

11. At the higher level, enrollments grew at the greatest rate of expansion of any level of education, consistent with the regional and national patterns. As in other northeast states, the bulk of the enrollments are in philosophy, science and letters, administration and law. Enrollments in engineering, agriculture and medicine account for 9-11 percent each of the total.

#### Educational Opportunities

12. There are inequities and qualitative imbalances in the provisional education and in the public sector's expansion of educational opportunities in the state. Some of these imbalances are chronic and are amply demonstrated in comparisons of relative enrollments and enrollment ratios in rural and urban areas. In 1969, about 42 percent of the population was considered urban, the rest rural. In the same year, 56 percent of the primary enrollments were urban and only 44 percent rural. This imbalance in school attendance is more strongly reflected in a comparison of the overall educational attainments of the rural and urban population of the state and the respective deficits in school attendance (Annex 3). For example, in 1969, of the student primary age group not attending school about 64 percent were in rural areas.

13. The differences between scholarization in rural versus urban areas are better exemplified in the disparities among the two enrollment ratios. In 1969, the enrollment ratio for urban areas was 47 percent (adjusted for underaged and overaged students) while that in rural areas amounted to only about 60 percent of this ratio. The enrollment ratio is larger in urban areas over rural areas for every age group. This is illustrated in Table 3. The age specific enrollments are quite lower than the estimated ones in Pernambuco indicating the comparative lesser primary school attendance in Ceara.

Table 3: AGE ENROLLMENT RATIOS IN URBAN AND RURAL AREAS

Zone	Age							
	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.
Urban	35.8	44.4	51	50	57.8	57	48.9	30.9
Rural	25.0	29.3	31.4	28.2	31.7	28.6	25.4	11.7

14. The differences in the enrollment ratios have been further aggravated by the slower growth of rural enrollment in Ceara which is quite contrary to the developments in Pernambuco. Table 4 illustrates the unevenness in rural and urban enrollment growth.

Table 4: RURAL AND URBAN ENROLLMENT GROWTH

	Year									
	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Urban	100	103	108	122	138	124	109	150	177	172
Rural	100	102	81	108	105	115	106	100	141	134

15. The responsibility for rural enrollment growth rests mainly with the municipal governments, which are unable to meet the challenge for rapid increases in the provision of educational opportunities because of financial constraints. As it is shown further below, these constraints are greater for the municipal governments in the state of Ceara than in Pernambuco.

16. Substantial differences in teacher qualifications, in the suitability of school buildings and in the use of teaching materials aggravate further the inequities in educational opportunities among rural and urban areas. Most of the relative needs for improvement are in municipal schools where, historically, it has almost been impossible to improve substantially the quality of education they offer.

17. The state's official policy is free access to education and for those successfully passing a grade or level, free access to the next stage. While the state government stated that all students who have sought a school place have been given one, even if facilities to accommodate the demand for education have to be rented, access to lower secondary education from primary and to upper secondary from lower is limited to a fraction of graduates, as in Pernambuco and the other Northeast states. The commitment to education is diminishing the significance of income increased as a determinant of secondary school attendance but other forms of economic discrimination exist since secondary schools are concentrated primarily in densely populated areas thus making the school attendance of rural youth prohibitively expensive.

Teaching Staffs

18. There were about 16,000 primary school teachers in Ceara in 1969, 5,000 secondary and 1,200 professors in the principal institutions of higher learning. Many of the teachers at the lower levels are not qualified (Annex 4 of Northeast Education volume). As the table below illustrated, most of the teaching staff deficiencies are concentrated in the municipal primary schools. A series of upgrading courses has been offered to about half of the unqualified staff in 1963-69 but these courses, although useful, have clearly not met the needs of teachers. This is an area that requires specific attention, not only because of the beneficial effects of teacher training programs but also because the need for teacher improvement is heavily concentrated among the local governments (municipal) which are the least capable of meeting it.

Table 5: PRIMARY TEACHERS' QUALIFICATION 1969

	Total	By Administrative Level			
		Federal	State	Municipal	Private
Total	16,000	79	4,800	8,500	2,649
Qualified	5,600	29	3,400	760	1,417
Qualified as %	35%	37%	71%	9%	53%

19. At the secondary level, the unqualified staff amounts to about 28 percent of the total with the federal and private schools containing the most qualified personnel and the state and municipal schools the least (40 percent and 31 percent of their respective staffs were unqualified in 1969).

20. Efforts to upgrade the teaching staffs have generally been limited. A case has been made for a state in-service training center to meet the space requirements for upgrading programs and thus avoid the administration of courses in churches or primary classrooms as it is presently done. However, given the financial constraints the state is faced with, it would be more appropriate to rationalize the enrollments at teacher training institutions in line with the hiring of teachers, and use the excess space in these schools for in-service training. In Ceara, additional problems arise with regard to the unavailability of training teams and of an effective supervisory system to follow-up the teachers after training, evaluate their classroom work and offer further guidance and advice. Any financial allocations for teacher training programs would require an additional allocation of resources to organize the infrastructure which would conduct, supervise and follow-up the in-service training of the teachers.

## II. EFFICIENCY OF THE EDUCATION SYSTEM

21. The discussions on internal and external efficiency of the Northeast and Pernambuco education systems are very relevant to Ceara. This state faces the same basic problems of wastage and inefficiency arising out of high dropout rates early in the school cycle, of a great age mix of students at different grades and a lopsided enrollment distribution. Corrective action taken by the Government is minimal, as in the previous case study, and is in accord with the underlying policy of the governments of the Northeast states in allocating resources to education: almost all of the resources allocated to education are for the quantitative expansion of the system at the basic level of education.

22. The enrollment distribution within the primary sub-sector in Ceara is very lopsided towards the first grades, much more so than Pernambuco (Annex 4). About 65 percent of the primary enrollments in 1970 were accounted for in the first grade, which also included the vast majority of the primary repeaters. Only 12 percent of the students were in grades four and five. There is some minor improvement in enrollment distribution since 1964 but not sufficient enough to have had an impact on reduction of wastage in the system. Rationalization in the distribution of enrollments is necessary, therefore, as a matter of policy if the system is to become more productive and reduce drastically the number of years required to graduate a student from the fourth grade, estimated at 15 as compared to 11 for the Northeast at large. The progression rates after grade one are very low. Of 1,000 students entering grade one only 132 pass through grade four.

23. The proportion of enrollments whose age is outside the range 7-14 is 19 percent, also quite higher than that of Pernambuco. Only 13 percent of the enrollments of the first grade are seven years old, in fact as much as 8 percent are over 14 years old. The age mix of the enrollments is on the average greater than that of Pernambuco.

24. The problem of underaged and overaged students is also prevalent at the secondary level, primarily at the ginasio level (Annex 5). Overall, about 21 percent of the students at the secondary level were 12 years of age or under and over 20. Were the age groups to be defined in closer juxtaposition with the exact years of secondary schooling, the above percentage would be considerably higher. Approval rates have varied over the years. In 1970, they amounted to 89 percent at the ginasio grades and 93 percent of the colegio ones. Approval rates in ginasios increased by grade, from 86 percent of the grade one enrollments to 94 percent of the grade four ones. Similar increases, but a higher level, were observed in colegios: 90 percent in first grade to 97 percent in the third.

### III. EDUCATIONAL ATTAINMENTS AND EARNINGS

25. Data available on labor force educational attainments and earnings are limited. They are comparable to those of Pernambuco. Their source is reports from employers in industrial, commercial and service establishments for 1969. A total of 67,300 employees were reported, almost equally spread among the two different economic activities.

26. The distribution of the attainments of the reported employees have been tabulated below:

	<u>Commerce and Services</u>	<u>Industry</u>
Illiterates	2.9%	12.8%
Incomplete Primary	17.2%	46.1%
Complete Primary	26.7%	28.2%
Incomplete Ginasio	9.3%	2.8%
Complete Ginasio	11.4%	3.7%
Incomplete Colegio	7.2%	1.5%
Complete Colegio	15.1%	3.2%
Incomplete University	3.2%	.4%
Complete University	6.3%	.8%
Not Declaring	.6%	.4%

27. As in Pernambuco, the educational attainments of those in commerce and services were significantly higher than those in industry. In Ceara also, a greater proportion of the reported employees had more than primary education in the activities of commerce and services than in Pernambuco, but the reverse was true in industry. While this may be explained partly by the fact that a relatively greater proportion of the employees in Pernambuco did not declare educational attainments, which may have affected the relative distribution, it is also quite likely that because the commerce and service sectors are of more relative prominence in Ceara's economy, they may have attracted relatively better educated personnel.

28. The shortcoming of the above data is that it is only in terms of formal educational attainments. No information is available to the possible complementary and more specific job oriented training, such as vocational pre-service in SENAC or SENAI, on-the-job and in-service training, that may have been undertaken by the employees or organized by the employers.

29. As expected, the earning patterns follow closely the distribution of educational attainments (Annex 6). Earnings in commerce and services were considerably higher than those in industry. This is shown in the table below.

Table 6

	Commerce and Services	Industry
Earnings less than Cr\$119	43.3%	68.7%
Earnings less than Cr\$120-299	33.3%	24.7%
Earnings more than Cr\$300	<u>23.4%</u>	<u>6.6%</u>
	100.0%	100.0%
Absolute Total	33,400	33,900

30. The employees in commerce and services have a greater spread in terms of earnings, given educational attainments, than those in industry, especially at levels of education below completed ginasio. For example, 15 percent of the illiterates reported earnings of more than Cr\$299 versus .2 percent in industry. This is due to the greater occupational mobility that exists in commerce and services. All these basic findings are consistent with those discussed in the Pernambuco study and the Northeast region at large.

#### IV. EDUCATION FINANCE

##### A. Formal Education

###### Growth and Trends

31. A complete picture of formal education expenditures, including both the public and private school systems, is difficult to present due to the absence of adequate data on private expenditures. The mission was able to obtain, however, the broad range of fees prevailing in the private system. On the basis of this fee structure and private school enrollments, it is roughly estimated that private education expenditures account for some 25 percent of total education expenditures. Private education expenditures appear to have declined as a percentage of total education expenditures in recent years, a trend which can be attributed to a declining percentage share of private enrollments. Public education expenditures increased at an annual rate of 5.4 percent in real terms between 1964 and 1970, growing from Cr\$74.7 million to Cr\$96.5 million. This rate of increase is well below the Northeast average of 15.5 percent.

32. Direct expenditures on public education by the federal, state and municipal governments are shown in Table 7, together with a breakdown of the sources of the expenditures. Expenditures by all levels of government have been consolidated according to the source of the funds in Table 8.

Unlike the case of Pernambuco, these data show that the pattern and trends of public education expenditures in Ceara differ somewhat from those prevailing in the Northeast as a whole.

33. State education expenditures have accounted for a relatively lower share (49 percent on average) of total public education expenditures between 1964 and 1970. In addition, a smaller share of the state's education expenditures has been met by the state's own budgetary resources. Even the inclusion of Participation Fund receipts among the state's budgetary revenues,<sup>1/</sup> would not prevent a decline in the share of expenditures derived from this source since 1964. The declining share of state education expenditures provided by the state's own budgetary resources reflects both an absolute decrease in real terms in the state's budgetary commitment to education and an increased reliance on transfers as a source of funds since 1964. Ceara's education expenditures from its own resources declined on average at a rate of 2.5 percent a year between 1964 and 1970. Ceara presents the only Northeast state in which such a decline took place. Similarly, Ceara's education expenditures from its own budgetary resources decreased as a percentage of total state budgetary expenditures from 17 percent in 1964 to 13 percent in 1970.

34. Unlike the case in the rest of Northeast Brazil, direct expenditures by the federal Ministry of Education constitute the single largest source of public education expenditures, accounting for 45 percent of the total in 1970 (Table 7). At 6.5 percent, these expenditures have also shown the largest average annual rate of growth between 1964 and 1970; Tables 7 and 8 also show a marked decline in the Ministry of Education's transfers to Ceara. However, the decline in these transfers has been more than offset by the increase in the federal contribution from the Education Salary Tax transfer. Consequently, the overall share of public education financing shouldered by the federal Ministry of Education has increased since 1964, while the state's share has declined.

35. Although the data regarding municipal education expenditures in Ceara is fragmented, mission estimates suggest that these expenditures between 1964 and 1970 accounted for an average of 11 percent of total public education expenditures. The bulk of these expenditures were provided by the municipalities' own revenues until 1967, when the Tax Reform and the initiation of the Participation Fund resulted in the latter becoming the predominant source of municipal education expenditures.<sup>2/</sup> Although municipal education expenditures grew at an average annual rate of 5.5 percent between 1964 and 1967, the following table shows the marked decline in expenditures after 1969 as a result of the termination of the federal Ministry of

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<sup>1/</sup> See footnote 3, para. 67 of Main Report.

<sup>2/</sup> See Annex 9 of Main Report.

CEARA PUBLIC EDUCATION EXPENDITURES BY LEVEL OF ADMINISTRATION, 1964-70  
(Thousands Cr. \$, 1971 Prices)

Classification	1964		1965		1966		1967		1968		1969		1970	
	Cr. \$	%	Cr. \$	%	Cr. \$	%	Cr. \$	%						
<u>STATE EXPENDITURES</u>	<u>38151</u>	<u>100</u>	<u>48711</u>	<u>100</u>	<u>50164</u>	<u>100</u>	<u>43235</u>	<u>100</u>	<u>48534</u>	<u>100</u>	<u>49242</u>	<u>100</u>	<u>43588</u>	<u>100</u>
Own Budgetary Resources	28337	74	28188	58	29460	59	25652	59	23590	49	30333	62	24583	56
Participation Fund <sup>1/</sup>	--	-	--	-	--	-	5819	13	17122	35	7098	22	6805	16
Education Salary (State Quota)	--	-	452	1	1188	2	541	1	902	2	2309	5	2408	6
Education Salary (Fed. Quota)	--	-	2318	5	7237	14	4272	10	3817	8	6659	14	6774	16
MEC: Primary Ed. Fund	4327	11	9260	19	2978	6	3415	8	1488	3	--	-	--	-
Secondary Ed. Fund	2248	6	7543	15	4987	10	2186	5	1319	3	2843	6	2436	6
Other	3239	8	950	2	4314	9	1350	3	296	1	--	-	582	1
<u>MEC DIRECT EXPENDITURES</u>	<u>29739</u>	<u>100</u>	<u>32119</u>	<u>100</u>	<u>34368</u>	<u>100</u>	<u>36774</u>	<u>100</u>	<u>38613</u>	<u>100</u>	<u>40309</u>	<u>100</u>	<u>43533</u>	<u>100</u>
<u>MUNICIPAL EXPENDITURES</u>	<u>6769</u>	<u>100</u>	<u>9917</u>	<u>100</u>	<u>7779</u>	<u>100</u>	<u>9496</u>	<u>100</u>	<u>20742</u>	<u>100</u>	<u>11234</u>	<u>100</u>	<u>9359</u>	<u>100</u>
Own Resources <sup>2/</sup>	5567	82	6124	62	6737	87	2127	22	4193	20	2097	19	2340	25
Participation Fund <sup>3/</sup>	--	-	--	-	--	-	6384	67	12577	61	6291	56	7019	75
MEC: Primary Ed. Fund	1202	18	3793	38	1042	13	985	10	3972	19	2846	25	--	-
<u>TOTAL EXPENDITURES</u>	<u>74659</u>	<u>100</u>	<u>90747</u>	<u>100</u>	<u>92311</u>	<u>100</u>	<u>89505</u>	<u>100</u>	<u>107889</u>	<u>100</u>	<u>100785</u>	<u>100</u>	<u>96480</u>	<u>100</u>
<u>STATE EX. as % of TOTAL</u>		51		54		54		48		45		49		45
<u>MEC. EX. as % of TOTAL</u>		40		35		38		41		36		40		45
<u>MUNICIPAL EX. as % of TOTAL</u>		9		11		8		11		19		11		10

<sup>1/</sup>Fifteen percent of total Participation Fund receipts; twenty percent (legal minimum) in 1970.

<sup>2/</sup>Estimated at one-third of municipality education expenditures made from Participation Fund receipts.

<sup>3/</sup>Twenty percent of municipality total Participation Fund receipts (minimum legally required to be committed to education).

CONSOLIDATED SOURCES OF FINANCE FOR PUBLIC EDUCATION IN CEARA, 1964-70  
(Thousands Cr. \$, 1971 Prices)

Source of Funds	1964		1965		1966		1967		1968		1969		1970	
	Cr. \$	%	Cr. \$	%	Cr. \$	%	Cr. \$	%						
<b>MEC Budget</b>														
Direct Expenditures	29739	40	32119	35	34368	38	36774	41	38613	36	40309	40	43533	45
Transfers <sup>1/</sup>	7777	10	20596	23	9007	10	6586	7	6779	6	5689	6	2436	3
Sub-Total	<u>37516</u>	<u>50</u>	<u>52715</u>	<u>58</u>	<u>43375</u>	<u>48</u>	<u>43360</u>	<u>48</u>	<u>45392</u>	<u>42</u>	<u>45998</u>	<u>46</u>	<u>45969</u>	<u>48</u>
State Budget (Own Revenues)	28337	38	28188	31	29460	32	25652	29	23590	22	30333	30	24583	26
Participation Fund	--	-	--	-	--	-	12203	14	29699	28	13389	13	13824	14
Education Salary <sup>2/</sup>	--	-	2770	3	8425	9	4813	5	4719	4	8968	9	9182	10
Municipal (Own Revenues)	5567	7	6124	7	6737	7	2127	2	4193	4	2097	2	2340	2
Other	<u>3239</u>	<u>4</u>	<u>950</u>	<u>1</u>	<u>4314</u>	<u>4</u>	<u>1350</u>	<u>2</u>	<u>296</u>	<u>nil</u>	<u>--</u>	<u>-</u>	<u>582</u>	<u>1</u>
<b>TOTAL</b>	<b>74659</b>	<b>100</b>	<b>90747</b>	<b>100</b>	<b>92311</b>	<b>100</b>	<b>89505</b>	<b>100</b>	<b>107889</b>	<b>100</b>	<b>100787</b>	<b>100</b>	<b>96480</b>	<b>100</b>

<sup>1/</sup> Includes Primary and Secondary Education National Fund transfers.

<sup>2/</sup> Includes State and Federal Quotas, although the latter is channelled through MEC.

Education's direct transfers to municipalities. The termination of these transfers, accounting for one-fourth of municipal expenditures in 1969, is likely to squeeze severely the municipalities unless Participation Fund receipts increase significantly. State authorities do not expect to transfer a significant amount of funds to the municipal level for education, and the municipalities are not capable of increasing their own resources devoted to education at a rate sufficient to match the loss of transfers from the Ministry of Education.

Public Expenditures by Level of Education

36. The distribution of public education expenditures among the different levels of education in Ceara follows the pattern revealed in the Northeast and Pernambuco studies. Higher education receives the bulk of total public expenditures, accounting for 44 percent of the total in 1970, followed by primary education with 37 percent and secondary education with 19 percent. The percentage share of expenditures at the different levels of education has remained relatively constant since 1964.

37. As in the case of Pernambuco, the relatively low priority which the distribution of public expenditures indicates for secondary education emphasizes the importance of private education at this level. The relatively small share of public expenditures at this level reflects the bottleneck existing for qualified students who desire middle-level training but cannot afford private education. The introduction of the new program of basic education will increase the student flow into this level and require greater secondary school expenditures by the public system.

38. The total of public expenditures at each level of education in 1970 is presented in Table 10 below according to its percentage distribution among governmental levels.

Table 10: PUBLIC EXPENDITURES AS PERCENTAGE OF TOTAL AT LEVEL OF EDUCATION

	Total	MEC Direct & Transfers <sup>1/</sup>	State	Municipal
Primary	100	27	52	21
Secondary	100	26	70	5
Higher	100	91	9	0

<sup>1/</sup> Includes earmarked transfers (Primary and Secondary Education Funds and Federal Quota of Education Salary Tax).

Source: State Balance Sheets and Federal Ministry of Education.

State expenditures account for about one-half of the public expenditures at the primary level and almost three-fourths of those at the secondary level. Compared to the Northeast average, Ceara's expenditures at these

levels constitute a smaller share of the totals, while the Ministry of Education's expenditures account for a greater share of total expenditures at each level. There has been no significant change in the distribution seen in Table 10 since 1964.

39. Table 11 below presents a breakdown of the expenditures from each level of government according to the level of education at which the expenditures are made. Over half of the state's expenditures are devoted to primary education. Secondary education receives 35 percent of state education expenditures, a share which is slightly greater than the North-east average.

Table 11: EXPENDITURES BY LEVEL OF EDUCATION

	Total	Primary	Secondary	Higher
Ministry of Education	100	18	9	73
Direct Expenditures	100	--	4	96
Transfers <sup>1/</sup>	100	77	23	--
State Expenditures	100	54	35	11
Municipal Expenditures <sup>2/</sup>	100	90	10	--

<sup>1/</sup> Includes Primary and Secondary National Education Funds and Federal Quota of the Education Salary Tax.

<sup>2/</sup> Estimated.

Direct expenditures by the Ministry of Education, however, show a relative neglect of secondary education, which accounted for only 4 percent of these expenditures in 1970 compared to 96 percent directed to higher education. The Ministry's transfers to states and municipalities, on the other hand, significantly favor primary education, which received 77 percent of the total transfers in 1970.

Type of Expenditures: Recurring and Capital

40. Almost all of Ceara's education expenditures from its own resources are used to meet recurrent costs. During the 1964 to 1970 period personnel salaries alone absorbed an annual average of 91 percent of the state's budgetary resources committed to education. During the same period, capital expenditures accounted for an average of only 5 percent of the states own budgetary expenditures on education (see Annex 7). These capital expenditures, in turn, have been approximately equally divided between the primary and higher levels of education. According to the state balance sheets, no capital expenditures have been made in the area of secondary education since 1965.

41. Federal transfers from the Ministry of Education have provided the main source of capital investments for the state, although between 50 and 70 percent of these transfers have been used by the state each year

to meet recurring expenditures. The great bulk of direct expenditures by the Ministry of Education have also gone to meet recurring costs. Data available for 1968 and 1969 show that recurring costs absorbed 90 percent of federal direct expenditures at the secondary level and 85 percent at the higher level. Like the case of Pernambuco, as a result of the large amount of funds allocated by the Ministry to the higher level, capital investments at this level have substantially exceeded the total capital outlays of the state and municipal governments at the primary and secondary levels combined.

V. EDUCATION DEVELOPMENT STRATEGY: EVALUATION,  
PROJECTS AND THEIR FINANCING

42. Consistent with the national priorities in the sector, the state's educational development strategy attaches high priority to the implementation of the new program of basic education according to the general guidelines of the Ministry of Education. But the State Secretariat of Education has more limited planning resources and its preparation of the diagnostic and the documentation of the requirements of the implementation of the new program are lagging.

43. A specific strategy in implementing the education reform is being developed for the state and municipal schools only. Until now, the municipal schools have been independent but planning for their use and for expansion will be gradually undertaken by the Planning Office of the State Secretariat. The state's intention in implementing the reform is to concentrate its financial resources on education in the urban areas and leave the rural areas under the financial responsibility of the municipal governments. This implies that the provision of educational services to the more backward areas which are the areas with the greatest needs would be delegated to the most financially constrained government organs.

44. The cost implications of such a division of responsibility would have to be derived and assessed by the state government. Already the state finances the bulk of the urban public enrollments. By concentrating further on these enrollments, the state may be able to attain higher overall enrollment ratios. But, the responsibility for the financing of education services in the poorer and more dispersely populated areas, where the least economic (or uneconomic) size schools exist and where the quality of education is lower, is left to the least financially capable governments.

45. The implications of such a policy are significant in terms of the provision of educational opportunities to the rural and urban areas. It has already been shown that the inequities in such provisions have been aggravated in the 1960's. The enrollment growth in urban areas has been about double that of rural areas (para. 14) and great differences in age enrollment ratios of the 7-14 age group have prevailed among rural and urban areas (para. 13). If the Government is to pursue a policy of more equitable education at that level, it should adopt a policy which would also drastically increase the enrollment growth in the rural areas.

46. The financial constraints under which the expansion of the education system can take place are illustrated below for the primary level, which absorbs most of the state and local funds for education. The financial requirements of enrollment expansion of 4.8 percent and 7.0 percent p.a. in the decade have been estimated. The first growth rate is equal to the one realized in primary education in 1964-70. The second, is the rate of enrollment expansion that would lead to primary gross enrollment ratio of about 70 percent in 1980.

47. The recurrent expenditures that would be required to sustain primary enrollments under the two growth assumptions have been estimated as follows:

	<u>Enrollments 1980</u>		<u>Recurrent Expenditures</u>	
	4.8% p.a.	7% p.a.	(a)	(b)
Total	<u>708,000</u>	<u>871,000</u>	<u>Cr\$48.9 m</u>	<u>Cr\$60.3 m</u>
(Municipalities - 51%)	361,000	444,000	Cr\$12.2 m	Cr\$15.1 m
(State Government - 36%)	255,000	314,000	Cr\$36.7 m	Cr\$45.2 m

These required expenditure estimates are based on 1970 municipal and state unit costs and assume no real increase in per student expenditures at either administrative level or significant improvements in the internal efficiency of the system. They assume a constant share of municipal enrollments but a decrease of the private sector's share to 10 percent of the total by 1980. The state enrollments have been relatively increased from their present share to reflect the diminishing importance of the private sector. Because of the much higher state unit costs, if enrollments were to be further re-allocated in favor of the state schools, a one percent increase in the 1980 state enrollments at the expense of the municipal ones would raise the required state primary education recurrent expenditures requirements by Cr\$300,000.

48. The above expenditure estimates are only based on the present system of five grades primary school. If it were assumed that by 1980 all state and municipal enrollments would extend through the newly established basic education cycle of eight years, additional recurrent expenditures in the order of Cr\$2.5 million and Cr\$3.1 million would be required for the states under each of the two enrollment growth assumptions, and Cr\$0.8 million and Cr\$1.0 million, respectively, for the municipality. (These estimates are based on the assumption that (a) the enrollment distribution by grade in the first five grades would not differ substantially from that in 1969 and (b) that enrollment in grades 6 to 8 would be at each grade 70 percent of those of the previous grade. This assumption on the progression rate compares with the average rates of 71 percent for grade 3 and 66 percent for grade 4 in the 1960-68 period. Distribution of grades 6 to 8 enrollments among municipal and state schools has been assumed to be similar to that of primary enrollments at large.)

49. Although it is reasonable to assume that the school mapping will lead to a more efficient use of existing physical facilities, most of the above additional enrollments would have to be accommodated in new facilities. This would imply a total annual expenditure of the order of Cr\$8.3 million and Cr\$14.5 million for each enrollment projection, estimated on the basis of Cr\$22,500 for a classroom of 34 places accommodating 68 students in two shifts. On a disaggregated basis, the annual fund requirements would be Cr\$4.4 million and Cr\$7.2 million for each enrollment growth assumption for the municipalities and Cr\$3.8 million and Cr\$7.2 million for the state. An undesirable increase in the use of the new classrooms by three shifts would reduce annual capital fund requirements by about one-third.

50. Assuming continuous trends in the expenditures for colegio level education, it is estimated that by 1980 a total of some Cr\$23.2 million would be required to sustain enrollments in state and municipal schools, of which approximately Cr\$20.8 million would be for recurrent expenditures.

51. The projected municipal and state expenditures on education based on state and municipal revenue prospects and federal fund transfers are estimated at Cr\$56.2 million and Cr\$14.2 million, respectively, for 1980. Of these, on the basis of present relative allocations for each level of education (see Table 11) about Cr\$44.0 million would be spent on basic education and Cr\$19.4 million on secondary. These funds are not sufficient to sustain the continued growth of enrollments in either basic or secondary education at a rate equal to that of 1964-70. Although the projected resource gap may lead the governments to reduce investment expenditures by introducing a third shift in school facilities, additional measures would still have to be taken to ensure fund availability that would allow the expansion of the education system to meet enrollment ratio objectives. These measures could consist of further reallocation of funds within the state in favor of a quantitative only expansion of the education system, additional federal transfers or a combination of both. While it is quite feasible that enrollment expansion will take place at slightly diminished rates of growth, when the financial constraints set in a few years, the need to improve the quality of the education offered would become even greater. This is an area where the Bank could assist the state government in implementing well designed programs that would improve the content of classroom activity, teacher quality and make education more relevant for the overaged students.

52. The Bank could support the much needed qualitative improvement of basic education on a priority basis with projects similar to those outlined in the case of Pernambuco: (a) training centers to allow an exploration of the students' practical abilities or interests (b) teacher upgrading programs, particularly for the municipio teachers who are in their overwhelming majority unqualified (para. 18) and (c) special programs for overaged children now attending regular primary school programs.

53. The teaching centers could be established in localities in such a manner that they would promote more equitable distribution of educational opportunities. Because of the lack of a plan of action and of data the cost of a project assisting the government in the provision of training centers is difficult to estimate. Conversion of existing facilities to such centers is also possible. A project in this area would have to await the results of the school mapping prior to project preparation. Assuming a project of the same magnitude as in Pernambuco (para. 68 of the case study), its cost will be in the order of US\$6.0 million. The cost of the teacher upgrading would depend on the selected program required. If, for example, a program similar to that of Pernambuco's was selected, the cost for upgrading 5,000 or 50 percent of the unqualified primary teachers would amount to Cr\$15 million at an assumed expenditure of Cr\$3,000 per teacher. Such an undertaking cannot be readily assumed by the state and more so by the municipalities of whose staff only 9 percent are qualified (Table 5). The Bank could assist the Government in this priority area in developing and financing a teacher upgrading program, particularly for the municipal governments. Finally the requirements for the special program for overaged children would be limited, concentrating on some special teacher training and curriculum planning.

54. The comments on planning of colegio level education in Pernambuco are also applicable here. The proposed education sector survey should include as much information and analysis as possible for this level of education, with regard to its efficiency, both internal and external and the requirements for its growth as related to the number of entrants at higher level institutions and of the manpower requirements of the economy. The Bank could assist the Government in the construction and equipping of schools at this level pending the identification of specific needs by the sector survey.

55. The state's educational planning unit needs strengthening. It now consists of limited personnel: three "technicos" and eight supporting staff. While it is involved in basic education planning exercises and enjoys technical assistance in its work from the Ministry of Education, it requires additional and diversified manpower and improvement in the skills of the present personnel. The State Secretary of Education, who has high regard for his planning team and its work, recognizes these needs and would welcome any opportunity leading to the strengthening of the planning team, such as participation in the educational planning courses recommended by the mission earlier in the discussion on the Northwest region's education system.

56. In the area of vocational training no comprehensive strategy exists, as in Pernambuco. The Inter-American Development Bank will assist the Government in the construction of another vocational training center to be operated by SENAI. The center would be located in an area of growing industrial importance to the state and would add greatly to the state's ability to meet the requirements for training in specific skills. With the construction of this center, it is likely that some excess training capacity in SENAI's centers may develop for a few years. Combined with available

space and equipment from the under-utilized SENAC center, the state would meet its more urgent needs for classroom space and equipment for practical courses in industrial arts, commerce and home economics by drawing a plan of use for these excess capacities, with analogous compensatory finance for the facilities and staff of SENAI and SENAC.

57. Requirements for specific vocational training which would be uneconomic to undertake in Ceara could be combined with other states' requirements and be accommodated in the proposed regional training center in Pernambuco, under SENAI (para. 72 of Pernambuco Case Study).

58. Finally with regard to farmer training whatever is written in the Pernambuco case study is more applicable in the case of Ceara, because of the state's more rural nature. PIPMO's initial undertakings of former training should be encouraged and supported along the lines suggested in the previous case study.

ENROLLMENTS AND POPULATION OF 7-14 AGE GROUP, 1970

		Enrollment	AGE							
			7	8	9	10	11	12	13	14
Primary Level	1a.	332,064	74,461	70,700	56,409	46,256	32,717	24,068	16,171	11,282
	2a.	118,882	4,047	16,568	22,385	23,018	19,097	15,556	11,129	7,082
	3a.	73,677	-	2,915	8,987	14,250	14,493	13,683	11,090	8,259
	4a.	50,007	-	58	2,445	6,811	10,309	11,236	10,828	8,325
Lower Secondary Level	1a.	26,911	-	-	-	-	5,597	6,204	7,457	7,853
	2a.	10,779	-	-	-	-	344	2,215	3,564	4,656
	3a.	4,328	-	-	-	-	-	201	1,250	2,877
	4a.	1,098	-	-	-	-	-	-	13	1,085
Sub-Total Primary		574,630	78,508	90,241	90,226	90,335	76,611	64,543	49,218	34,948
TOTAL Ginasio		<u>43,116</u>	-	-	-	-	<u>5,941</u>	<u>8,420</u>	<u>12,284</u>	<u>16,471</u>
TOTAL Primary and Ginasio		617,746	78,508	90,241	90,226	90,335	82,552	72,963	61,502	51,419
Population		1,066,271	147,072	141,820	131,315	152,325	120,810	136,567	120,810	115,557
Deficit		448,525	68,564	51,579	41,089	61,990	38,253	63,604	59,308	64,138
Index of Primary Enrollments		54.0	53.4	63.6	68.7	59.3	63.4	47.2	40.7	30.2
Index of Ginasio Enrollments		4.0	-	-	-	-	4.9	6.2	10.2	14.3

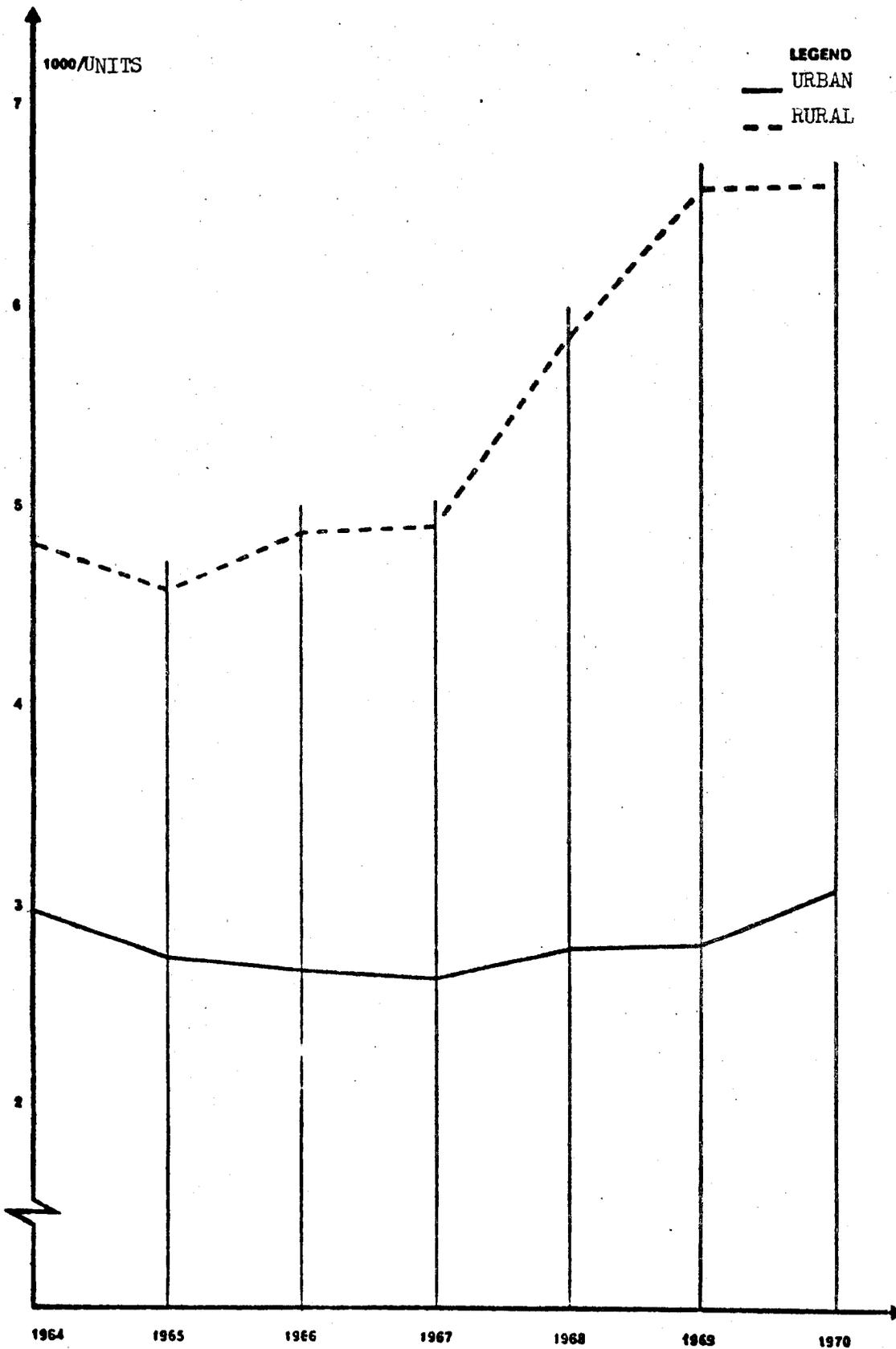
Source: Pernambuco, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife 1972.

Anos	Administrative Level								Actually Teaching			
	Total	Federal		State		Municipality		Private		Total	Qualified	
		No.	%	No.	%	No.	%	No.	%		No.	%
<u>1964</u>												
STATE	15,497	23	0.1	6,396	41.3	5,722	36.9	3,356	21.7	14,861	7,725	52.0
Capital	3,577	-	-	2,167	60.6	-	-	1,410	39.4	3,268	2,997	91.7
Interior	11,920	23	0.2	4,229	35.5	5,722	48.0	1,946	16.3	11,593	4,728	40.8
<u>1965</u>												
STATE	15,436	32	0.2	6,133	39.8	6,642	43.0	2,629	17.0	14,728	7,958	54.0
Capital	3,028	13	0.4	1,805	59.6	207	6.9	1,003	33.1	2,877	2,723	94.6
Interior	12,408	19	0.1	4,328	34.9	6,435	51.9	1,626	13.1	11,851	5,235	44.2
<u>1966</u>												
STATE	17,438	62	0.3	7,584	43.5	7,074	40.6	2,718	15.6	16,594	8,191	49.4
Capital	3,941	37	0.9	2,793	70.9	225	5.7	886	22.5	3,686	2,449	66.4
Interior	13,497	25	0.2	4,791	35.5	6,849	50.7	1,832	13.6	12,908	5,742	44.5
<u>1967</u>												
STATE	17,586	55	0.3	8,039	45.7	7,070	40.2	2,422	13.8	17,189	10,079	58.6
Capital	3,974	36	0.9	2,818	70.9	227	5.7	894	22.5	...	...	-
Interior	13,612	19	0.1	5,221	38.4	6,843	50.3	1,528	11.2	...	...	-
<u>1968</u>												
STATE	19,763	72	0.4	9,214	46.6	7,891	39.9	2,586	13.1	19,763	11,681	59.1
Capital	4,388	7	0.1	3,150	71.8	367	8.4	864	19.7	4,388	4,138	94.3
Interior	15,375	65	0.4	6,064	39.5	7,524	48.9	1,722	11.2	15,375	7,543	49.1
<u>1969</u>												
STATE	20,177	96	0.5	9,293	46.1	8,086	40.1	2,691	13.3	19,702	...	-
Capital	4,477	4	0.0	3,214	71.8	376	8.4	882	19.7	...	...	-
Interior	15,689	92	0.6	6,079	38.7	7,710	49.1	1,809	11.5	...	...	-
<u>1970</u>												
STATE	20,717	48248	2.3	9,319	45.0	8,140	39.3	2,776	13.4	20,717	...	-
Capital	4,323	80	1.9	2,859	66.1	337	7.8	1,047	24.2	4,323	...	-
Interior	16,394	402	2.5	6,460	39.4	7,803	47.6	1,729	10.5	16,394	...	-

Source: Pernambuco, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife, 1972.

PERNAMBUCO  
PRIMARY EDUCATION  
NUMBER OF SCHOOLS BY RURAL - URBAN AREAS  
1964/70

ANNEX 3



Source: Pernambuco, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife 1972

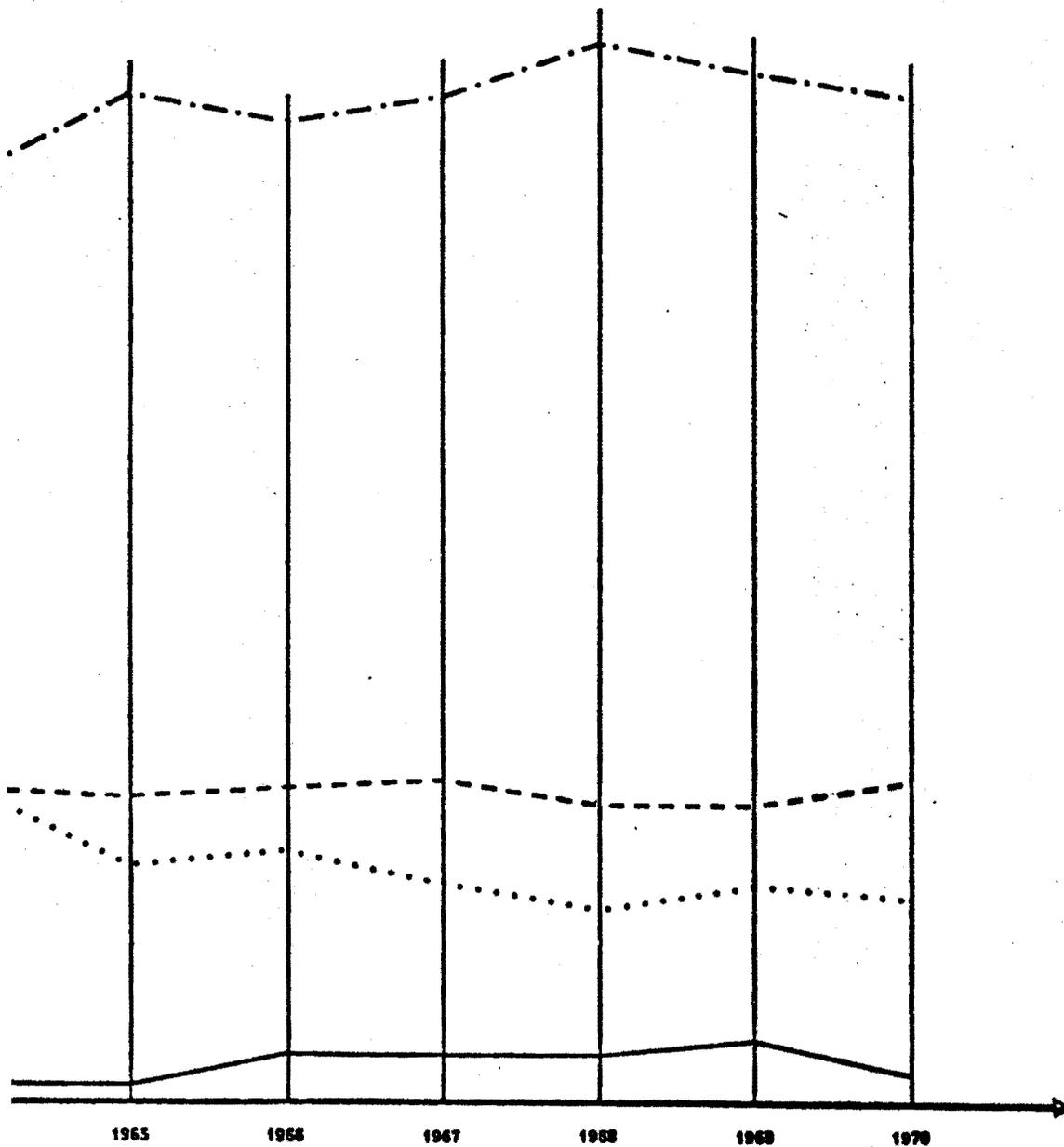
PERNAMBUCO

PRIMARY EDUCATION  
DISTRIBUTION OF SCHOOLS, BY ADMINISTRATIVE LEVEL  
1964/70

ANNEX 4

LEGEND

- FEDERAL
- - STATE
- . . MUNICIPAL
- . . . PRIVATE



Source: Pernambuco, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife 1972

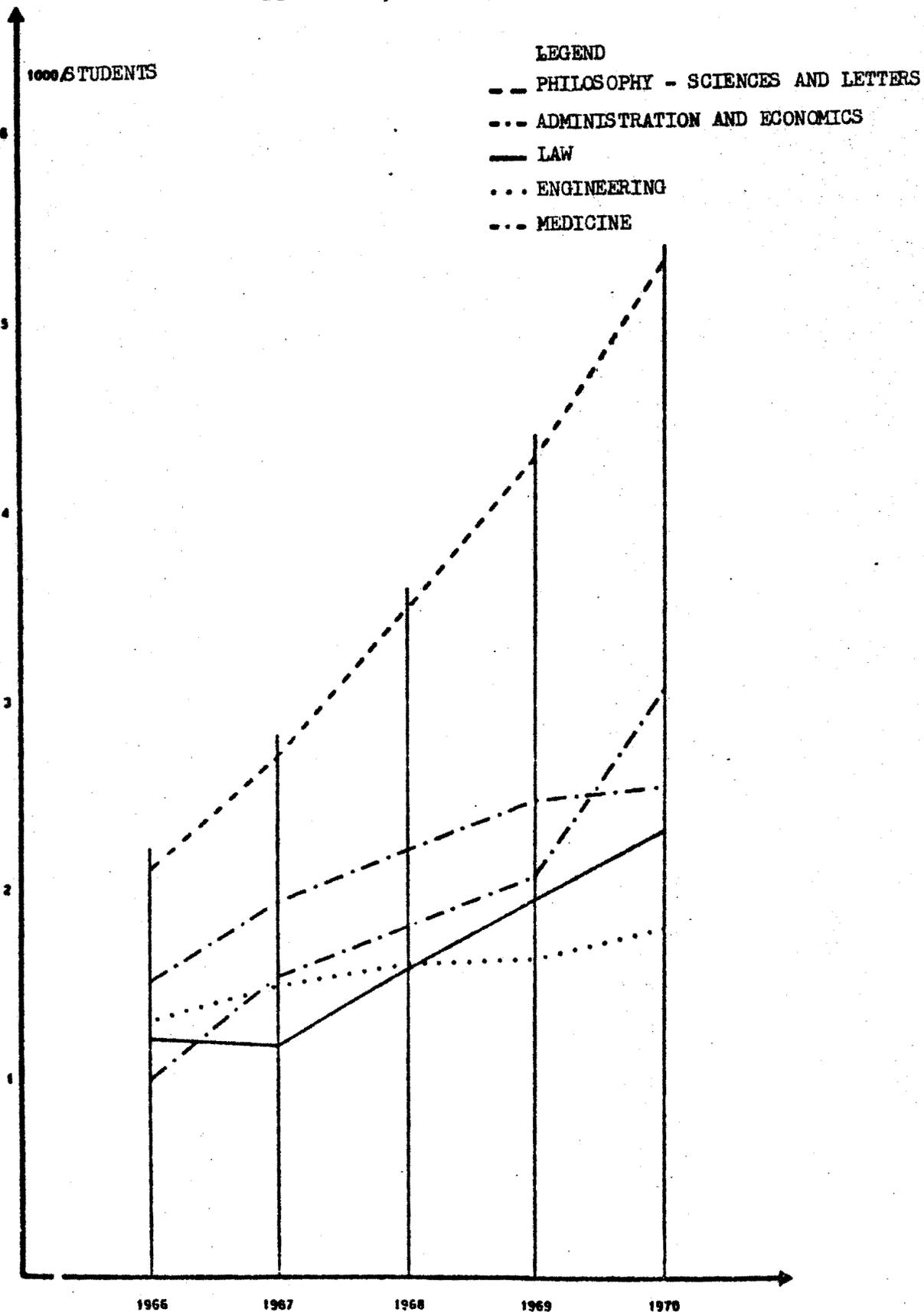
SECONDARY EDUCATION

ENROLIMENTS AT BEGINNING OF YEAR BY ADMINISTRATIVE LEVEL, 1964-70

Year	Total	Administrative Level							
		Federal		State		Municipality		Private	
		Number	%	Number	%	Number	%	Number	%
1964	81,089	2,616	3.2	18,814	23.2	5,614	6.9	54,045	66.7
1965	90,958	2,454	2.7	24,974	27.5	6,727	7.4	56,803	62.4
1966	101,762	2,969	2.9	31,728	31.2	7,691	7.6	59,374	58.3
1967	114,911	3,192	2.8	40,785	35.5	9,534	8.3	61,400	53.4
1968	132,502	3,426	2.6	48,328	36.5	12,085	9.1	68,663	51.8
1969	145,686	3,309	2.3	49,905	34.3	16,367	11.2	76,105	52.2
1970	168,088	3,963	2.4	62,463	37.2	18,876	11.2	82,786	49.2

Source: Pernambuco, Plano Estadual de Educacao de Pernambuco, Diagnostico, Volume 1, Recife, 1972.

GROWTH OF ENROLLMENTS IN HIGHER EDUCATION  
BY COURSES, 1966-1970



Source: Pernambuco, Plano Estadual De Educacao De Pernambuco, Diagnostico, Volume 1, Recife 1972

## EARNINGS AND EDUCATIONAL BACKGROUND, 1969\*

## COMMERCE AND SERVICES

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than Cr\$119	6.4 40.1	29.3 26.2	28.8 22.0	12.6 18.9	4.8 9.5	2.6 7.7	6.9 10.5	.7 3.9	.0	7.9 39.1	11,851 18.6
Cr\$120-Cr\$299	3.1 54.5	26.1 65.7	29.0 62.4	13.5 57.0	9.0 50.1	6.6 55.9	6.9 29.6	1.6 25.6	.8 9.2	3.4 48.0	33,440 52.5
More than Cr\$299	.6 5.4	5.9 8.1	13.2 15.6	10.3 24.1	15.1 40.4	7.8 36.4	20.7 59.9	7.8 69.3	13.9 30.7	1.7 12.9	18,359 28.9
Total	3.0 1,900	20.9 13,299	24.4 15,519	12.4 7,893	9.4 3,960	9.2 3,900	12.4 7,532	3.2 2,049	4.4 2,819	3.7 2,382	63,650 63,650

## INDUSTRY

Earnings	Illiterates	Incomplete Primary	Complete Primary	Incomplete Ginasio	Complete Ginasio	Incomplete Collegio	Complete Collegio	Incomplete University	Complete University	Not Declaring	Total
Less than Cr\$119	21.6 61.9	45.0 41.4	19.3 30.0	3.7 2.3	.7 7.8	.9 0.3	.0 3.4	.0 .0	.0 .0	3.9 31.5	33,365 37.5
Cr\$120-Cr\$299	9.4 37.2	43.7 55.7	21.7 50.0	5.7 37.5	3.1 50.7	7.0 35.3	1.0 31.2	1.1 6.0	6.6 19.4	5.5 44.2	46,276 52.0
More than Cr\$299	1.7 7	11.1 2.9	21.6 8	10.8 15.1	12.4 42.0	10.1 47.6	17.5 73.0	5.3 92.0	7.6 93.6	2.5 4.0	9,387 10.5
Total	13.1 11,660	40.7 36,219	30.0 21,519	6.0 5,319	3.3 2,901	2.1 2,036	2.4 2,169	1.6 598	1.8 768	6.5 5,773	88,978 88,978

\* Numbers are proportions of totals. The proportions in the upper part of the boxes correspond to the total at the end of the horizontal columns. Those in the lower part of the boxes correspond to the totals on the vertical columns denoting educational attainments.

Source: Ministerio do Trabalho e Previdencia Social - Boletim Tecnico de Setembro - Apuracao Lei de 2/3 - No. 20, Setembro 1970.

CURRENT AND CAPITAL PUBLIC EDUCATION EXPENDITURES  
BY SOURCE AND LEVEL OF EDUCATION, 1964-70

(Thousands current Cr\$)

		State <sup>1/</sup>	Federal <sup>2/</sup> Direct Expen.	MEC Trans. to State	MEC Trans. to Municipalities <sup>3/</sup>	Municipalities <sup>4/</sup>	Sudene
PRIMARY	Current	5,176	-	444	315	523	-
	Capital	183	-	426	35	58	-
SECONDARY	Current	854	185	336	-	59	-
	Capital	15	19	176	-	7	-
HIGHER	Current	18	3,367	-	-	-	-
	Capital	11	548	-	-	-	-
PRIMARY	Current	7,648	-	1,321	855	1,184	-
	Capital	139	-	1,270	95	132	-
SECONDARY	Current	506	348	1,296	-	131	-
	Capital	51	39	679	-	15	-
HIGHER	Current	24	7,063	-	-	-	-
	Capital	-	1,150	-	-	-	-
PRIMARY	Current	8,424	-	1,046	287	1,755	-
	Capital	645	-	1,521	32	195	115
SECONDARY	Current	604	614	635	-	195	-
	Capital	175	68	264	-	22	60
HIGHER	Current	1,039	12,443	-	-	-	-
	Capital	35	2,026	-	-	-	-
PRIMARY	Current	16,895	-	2,136	349	5,065	-
	Capital	821	-	1,551	39	660	-
SECONDARY	Current	1,034	964	1,208	-	660	-
	Capital	207	107	303	-	56	-
HIGHER	Current	2,436	19,547	-	-	-	-
	Capital	70	3,182	-	-	-	-
PRIMARY	Current	21,202	-	2,280	1,647	8,328	-
	Capital	1,737	-	1,713	183	1,279	-
SECONDARY	Current	1,188	1,458	890	-	963	-
	Capital	324	160	484	-	104	-
HIGHER	Current	3,267	28,610	-	-	-	-
	Capital	600	4,848	-	-	-	-
PRIMARY	Current	30,925	-	2,466	1,400	6,701	-
	Capital	1,872	-	1,118	156	1,135	-
SECONDARY	Current	14,208	1,710	618	-	763	-
	Capital	1,599	189	1,051	-	107	-
HIGHER	Current	6,205	37,404	-	-	-	-
	Capital	500	5,990	-	-	-	-
PRIMARY	Current	38,407	-	3,017	-	7,826	-
	Capital	3,395	-	1,582	-	1,318	-
SECONDARY	Current	17,850	2,561	758	-	877	-
	Capital	900	285	896	-	138	-
HIGHER	Current	8,930	51,947	-	-	-	-
	Capital	750	8,457	-	-	-	-

Includes state quota of Education Salary Tax and actual Participation Fund expenditures on education. Totals of state capital and current expenditures do not equal total state expenditures due to the inclusion in the latter of expenditures categorized as administration, training, and culture. Ministry of Education expenditures for federally-supported universities and secondary technical schools. Capital and Recurrent expenditures for 1964-67 are based on the breakdown for 1968-79. Capital expenditures estimated at 10 percent of total.

Includes Participation Fund receipts for education beginning in 1967. It is estimated that 20 percent of these receipts and 10 percent of the municipalities' own education resources are used for capital expenditures. Secondary education is estimated to account for 10 percent of current and capital expenditures. Capital and recurrent breakdown based on 1968-69 averages.



