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THE PROCESS OF PROLETARIANIZATION AND
FERTILITY TRANSITION IN BRAZIL

Paulo de Tarso Almeida Paiva

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Paiva, Paulo de Tarso Almeida

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THE PROCESS OF PROLETARIANIZATION AND
FERTILITY TRANSITION IN BRAZIL

VERSÃO PRELIMINAR

Paulo de Tarso Almeida Paiva

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1 - INTRODUCTION

Based on available empirical evidence, I believe one could assert that aggregate levels of fertility in Brazil have started to decline rapidly after a relative stability for a period of 40 to 50 years. While a decline of approximately 5 percent occurred between the 1930's and 1950's, the decline for the period of 1960/1975 seems to be around 30 percent. Furthermore, it seems that this decline has even intensified since the end of the 60's in all the regions for which evidence is available.⁽¹⁾ Thus, fertility trends suggest that some change occurred that would have induced destabilization in fertility levels in the long run.

In this paper, I attempt to relate fertility transition in Brazil to institutional changes. I try to argue that the process of proletarianization does not mean only a change in social relations of production, but also changes in the access to the means of subsistence. And I try to point out that the development of a market for subsistence means might be the basis of fertility destabilization. Thus, one should look at markets for both labor and goods in order to understand the possible interrelations between proletarianization and fertility transition.

This paper is organized as follows: section 2 presents some aspects of institutional control of fertility in the pretransitional period and their changes over time along with fertility transition; section 3 attempts to indicate the causes for high fertility levels in Brazil's pretransitional period; and section 4 describes the conditions for stability. Finally section 5 looks at the institutional changes leading to fertility destabilization, and section 6 presents some concluding remarks.

2 - SOME ASPECTS OF SOCIAL REGULATION OF FERTILITY

One of the most interesting aspects of the study of human reproduction is that in the pretransitional period in some developed regions, as in England, the fertility level was lower than the economically highest possible level, given the availability of resources.⁽²⁾ This occurred without practicing what we now call deliberate birth control and permitted maintenance of standards of living higher than those in other regions. In the developing countries, on the other hand, pretransitional fertility can generally be characterized as high and stable as compared with the European experience.

Attempts to interpret the pretransitional regime of fertility can be summed up in three different groups of hypotheses. The first is that which suggests a system of demographic homeostasis commanded by mortality.⁽³⁾ According to Lesthaeghe, this:

"demographic regime consists not only of a particular combination of mortality, fertility, nuptiality, and migration parameters through which population size, density, and growth are brought in line with resources, but also of a set of mechanisms capable of restoring a balance when the system is upset by exogenous shocks".⁽⁴⁾

Wrigley has used the concept of unconscious rationality, an explicit parallel to Smith's invisible hand.⁽⁵⁾

The second type of interpretation has focused on structural aspects of the form of production organization as a determinant of demographic behavior. Tilly, for instance, has remarked that:

"the European peasant household (or the peasant community, or both) operated as an effective population-control mechanism, closely matching the opportunities for marriage and procreation to the number of persons the land could support".⁽⁶⁾

Several authors have pointed to the role the organization of domestic production plays in determining family size. This is commonly done by means of analyses of labor value of children.⁽⁷⁾ Caldwell suggests that:

"high fertility is advantageous to the peasant family as a whole and to its most powerful members. As long as the internal relations of the familial mode of production remain intact, marital fertility will not be restricted for the purposes of limiting family size".⁽⁸⁾

This author based his argument not so much on economic aspects of household production, but on the superstructure, stressing the use of authority and power in order to maintain the mode of production.⁽⁹⁾

A third approach would consist of those contributions emphasizing the role of institutions in molding pretransitional reproductive behavior, and criticizing both the other interpretations in terms of demographic homeostasis and of structural determination.

On the one hand, Lesthaeghe has pointed that the demographic dynamics is a part of "a broader homeostasis relating to the entire social system".⁽¹⁰⁾ As he says:

"...Pretransitional demographic homeostasis can be seen as a result of the continuity and the degree of integration of a social system in which resources (including access to and use of the reproductive potential) are appropriated as a function of age and descent as traditional props of authority and control. In primitive societies, the establishment of exchange systems resulting from appropriation of resources and from division of labor is sufficient for a shift to occur in the demographic regulatory process from positive to preventive checks. At a given level of technology, a high level of social integration with a more efficient exchange system leads to a greater preponderance of preventive checks by spreading risks over a larger population base. A strong communal control system and a fairly monolithic cultural code secure the maintenance of preventive checks, not so much as a goal in their own right, but as a logical result of the overall maintenance of the prevailing social structure".⁽¹¹⁾

Diversely from Caldwell, who centers his analysis on the family, Lesthaeghe emphasizes the community as a whole. On the other hand, other authors place doubts on the specific character of the peasant society. Macfarlane, for example, doubts the existence of the classical peasantry in England after the twelfth century.⁽¹²⁾ And Richard Smith, based on the English case, tried to show the effect of the institution of service on household formation.⁽¹³⁾ He reduces the weight of children as a source of family labor, since sending them to work as servants in other farms was a common practice. Smith argues that:

"In early modern England we now know that there existed a kinship system that gave no more weight to paternal than maternal kin in marriage - a product of the late age at which both men and women entered into the conjugal household, which was usually an economically

independent unit. That society also possessed a mobile labor force with only muted sex segmentation, for both men and women were able to function with relative freedom in the sale of their labor and the management of their resources. Children were not necessarily an important source either of labor or of security in old age".(14)

I would like to discuss some aspects that seem to be neglected in the literature. Considering the developing countries, as is the case of Brazil, a curious observation is that fertility levels remained stable in the long run. If the hypothesis that children bring economic advantages to their parents in the organization of family production is validated, then an increase in average family size would be expected in the long run, on the condition of increasing standard of living. The hypothesis of economic balance between costs and benefits of children in family production may explain why fertility was high, but it cannot explain why it remained stable. For this stability, other elements would be necessary.

In this paper, I will try to argue that the lack of market relations in the access to subsistence means could have played an important role in this stability. The consumption pattern of a typical peasant family, producing its own consumption goods, is not very diversified (it includes mainly food, clothing, and housing). This family has access to these goods through its own work. It is protected against market fluctuations (price variations). In the case where its production is relatively diversified (including rice, beans, maize, chickens, eggs, etc.), even harmful weather conditions may not substantially affect its consumption level.

Thus, it seems that lack of monetary relations in purchasing subsistence goods may be an important factor for the stabilization of fertility levels. Furthermore, the argument for economic advantages of children in family production must be qualified. From the parents' viewpoint, the net balance of each child would not be the same all through the family's life cycle. The first children, who would be surviving their parents death at adult ages, would give greater contributions than those more recently born who would still be very young at the moment of the family's disruption. Thus, from the strictly economic viewpoint, there would be an optimum family size given the average ages at first marriage and at the parents' death. Such an adjustment could be

thought of in a rationality context, by the maintenance of the social structure reproduction, perhaps, following Lesthaeghe's suggestions.⁽¹⁵⁾ In this case, some institutional arrangements, conditioning several demographic events such as family control of labor, practice of marriage at a specific age, existence of nuclear or extended family, migration patterns, etc., might be affecting the stability of family size.

In regard to the transitional period, divergence in literature stems mainly from interpretation of the pretransitional period. And this is so, because predictions whether fertility would fall or increase depend on the interpretation adopted for the previous period. Several authors have put emphasis on change in the social relations of production as a basic element for the understanding of fertility transition. Caldwell states, for example, that:

"the study of fertility transitions is the study of the transformation of familial production into production through the labor market, of traditional society into modern society".⁽¹⁶⁾

Tilly sees that the same process "tended to weaken the peasant system of population control".⁽¹⁷⁾ This author goes further predicting:

"that the poor, economically dependent populations of the world are repeating the demographic experience of the proletarian segments of Western rural population under conditions of more complete proletarianization and more thorough penetration of capitalism than occurred in the rural West".⁽¹⁸⁾

It seems to me that the hypothesis that proletarianization might be conducive to high levels of fertility in present day developing countries would depend on showing that pretransitional fertility was low as it was in Europe. Or alternatively, if proletarianization invariably leads to increased fertility, this is not a relevant socioeconomic process for the study of fertility transition.

Caldwell's viewpoint is different from that of Tilly's. He suggests that transition from prevalence of family organization of production to capitalist organization of production would lead to destabilization and decline of fertility.⁽¹⁹⁾ Caldwell's hypotheses for transition remain centered mainly on the analysis of the superstructure and are based on a reversal in wealth flows from parents to children. He suggests that the "Westernization" process leads to a decline of the value of children.⁽²⁰⁾

The inconsistency of the argument that proletarianization would lead to increase or decline in fertility

is very important when one attempts to apply theoretical treatment to the different modes of production in specific demographic regimes.⁽²¹⁾ That is to say that each mode of production has its own demographic dynamics. And this is so, too, because children are seen as a source of labor. Proletarianization has been understood as a process of transformation of labor relations.

I would like to point to other dimensions of proletarianization that could be important for the understanding of fertility transition. Firstly, it seems to me that the crucial question is not whether proletarianization determines "a priori" the fall or rise of fertility. The point is that this process destabilizes fertility levels as has been stated by Caldwell.⁽²²⁾

Secondly, we should consider that we are speaking of a population segment living at a given level of subsistence with a pattern of consumption showing little diversification. Under such circumstances, the relation between family size and available resources is quite relevant. Thus, the form of access to means of subsistence may have a significant impact on the consumption level of a family. Irrespective of labor market organization, it is important to analyze the effects of the development of subsistence goods market. Access to subsistence goods through the market exposes the family to price fluctuations and eventually to change in its consumption pattern. Monetization of subsistence destroys the stability of the pretransitional regime. There is not necessarily a simultaneous development in both markets by which families with domestic labor organization but purchasing their subsistence goods at the market would not keep their typical reproductive behavior.

In this paper, I will try to show that fertility destabilization in Brazil occurred mainly through changes in the population's access to subsistence goods. These processes, however, have occurred in well-determined historical contexts. In the Brazilian case, I argue that changes in labor contracts (from family contracts to individual contracts), monetization of the access to subsistence goods, and diversification of consumption patterns contributed to rapid transformations in the population's reproductive behavior, leading to an intensification of fertility decline.

3 - SELF-REGULATION OF FERTILITY IN BRAZIL: SUBSISTENCE ECONOMY

As they appear in the literature, fertility levels in Brazil indicate a lack of large-scale use of contraceptives surely until 1950. Thus, variation of average number of children per woman at the end of her reproductive period would be given by variation of birth intervals which, among other factors, depend on physiological aspects, levels of foetal and infant mortality, and breast-feeding habits. Crude birth rates would depend on age structure of the population, mortality levels of women during their reproductive period, and marriage rates, if illegitimate birth rates were negligible or constant.

High fertility levels in the pretransitional period seem to be affected by demographic and economic factors; the demographic conditions being the levels of mortality and the mass immigration of the late nineteenth century.

Mortality estimates of the Brazilian population indicate that life expectancy at birth at the end of the nineteenth century ranged from 27.3 to 33.9 years of age.⁽²³⁾ From the economic viewpoint, the population would only increase with such a mortality pattern, if a father at his death could already count on his child to replace him in his food-producing activities, i.e. at age 30, his son would be approximately 10 to 12 years of age. Thus, the Brazilian population would have shown a marriage pattern at very young ages. It seems that mortality has been the determining variable in the demographic processes in Brazil.

Mass immigration may have affected both mortality and fertility levels, although it is difficult to estimate its effects; i.e. an increase in the sex ratio (total number of men per total number of women) of the adult population (20-49 years of age) could induce women to get married at younger ages irrespectively of mortality levels and, thus, positively affect fertility in the absence of deliberate fertility regulation. This ratio seems to be almost stable in the Brazilian demographic censuses (it varies from 1.01 in 1872 to 0.98 in 1970). It remains possible that this ratio increased in the regions receiving immigrants or even an increase of

this ratio only among immigrants which could have affected fertility rates, if they tended to get married only within their ethnic groups.

There are indications of differences between fertility levels in Brazil and those in the countries sending immigrants. Tilly⁽²⁴⁾ notes that fertility levels in preindustrial Italy, France, Spain, and Portugal were relatively low, and this might be due to the high proportion of peasants in the population of these countries at the time. Most immigrants in Brazil came from these countries (Portugal, Spain, and Italy). One can assume that, once in Brazil, these immigrants maintained the reproductive behavior of their home countries and that, as time passed, they adjusted themselves to Brazil's specific conditions. It seems more reasonable, however, to assume that the immigrants showed a higher fertility pattern, irrespective of the existing pattern in their home countries. As a matter of fact, data gathered by Balhana⁽²⁵⁾ for Colônia de Santa Felicidade, near Curitiba, points to it. For example, data found for Italian women at Santa Felicidade in 1888-1909 show that their mean age for the first marriage was 20.7 years old, while for their compatriots who stayed in Italy it was 25.1 in 1881-1885, and 24.8 in 1896-1900. In the final decade of the nineteenth century, the average number of children per woman was 9.9 for Santa Felicidade and 4.6 for Italy.

Sawyer has estimated general fertility rates for native and immigrant women living in São Paulo, showing that fertility levels for the immigrants were always higher than those for the natives.⁽²⁶⁾ It is likely that a similar difference has also occurred at the end of the last century.

These data seem to indicate that conditions for marriage at younger ages were established in Brazil at the end of the nineteenth century. Based on the estimates of crude birth rates, it seems that age-specific rates of fertility in the country as a whole would be relatively high and there is no evidence of wide use of contraceptives. Perhaps this could be considered a typical natural fertility situation. It seems that this situation held for most of the Brazilian population up to the beginning of the 60's.

During this period, a significant proportion of the population remained in rural areas and, as a consequence,

average levels of fertility in Brazil reflect a greater significance of this population segment. Thus, a study of organization of agricultural production would enable us to understand those possible relations between population and economy which would have affected Brazilian population growth, in general, and fertility levels in particular, from the end of the nineteenth century to the first half of the twentieth century.

I will try to show how in two typical situations of an exporting agricultural economy (coffee and sugar) labor organization could have stimulated the maintenance of a natural fertility pattern. The reasoning for this is basically that the institutional setting in these economies would favor the maintenance of a high fertility pattern and the price mechanism would not have directly or decisively affected the population's standard of living in terms of inducing the couples to decide on family size. Such a high fertility level is not supposed to mean the highest possible biological level. As a matter of fact, the available estimates of total fertility rates for Brazil (see Table 1) suggest that, on the average, fertility has remained between the highest levels ever observed for human populations and those for deliberately controlled fertility.⁽²⁷⁾

Still, it is worth saying that this discussion is not intended to explain fertility levels, but suggest some hypotheses on self-regulation of fertility in Brazil. In this essay, self-regulation should be understood as a long run maintenance of a fertility pattern which is not determined by decision-making on a desired family size or limited by the Malthusian ceiling. If fertility were limited by the standard of living in the long run, mortality levels should not decline as they did in Brazil.

In the coffee economy of São Paulo, labor was organized under the system known as colonato. In this system, labor was contracted not only with the worker, but also with his family. According to Holloway, the family income was divided into two parts: monetary income and non-monetary income.⁽²⁸⁾ Money wages derived from three different sources: (i) annual care of a given number of coffee bushes, according to family size; (ii) coffee harvesting under labor contracts which also included the colono's family who were paid for each alqueire (a unit of land measure equal to approximately 5 hectares) worked, and: (iii)

daily work around the farm which was less important from the viewpoint of the colono's monetary income. The non-monetary part of his income was derived from a tract of land assigned by the landowner, where the colono could cultivate his own crops (e.g. maize and beans) and raise domestic animals as well as use it as his place of dwelling free of any charge.

In the second half of the nineteenth century, the coffee economy was in expansion and one of its major problems was the lack of labor force.⁽²⁹⁾ By the end of the century, the economic expansion was supplied with labor through international immigration which was strongly subsidized in the case of the coffee economy.

The colonato system has reduced the cost of living of labor force and possibly avoided pressures on money wages.⁽³⁰⁾ Some of this system's characteristics suggest that it may have affected family size positively.

Firstly, family income could only increase with family size. On the one hand, this was due to the fact that the labor contract was made with the family and the money wages were based on tasks performed (number of coffee bushes and alqueires worked). Thus, the larger the family, the higher the money wage. On the other hand, under domestic production of food a larger family would be better off due both to economies of scale and division of labor. In both cases, incremental costs of domestic production would be reduced with family size. Naturally, family size does not grow indefinitely so as to achieve diminishing returns to scale, unless the tract of land for cultivation is too small. Research is needed on the amount of land available to each family and its relation to the number of children in Brazil. However, as almost all pertinent literature refers to abundance of land, it does not seem reasonable, from the historical viewpoint, to think of a reduction of family size due to lack of land in São Paulo in the second half of the nineteenth century.

Second, some of those immigrants sent to the coffee farms had to pay with their work a part of their own transportation costs (share with indebtedness, as defined by Balán).⁽³¹⁾ This represented a financial burden to the colono which could only be paid up with the results of family production. In this system of production, the most convenient (or the only alternative) to do so was through increased family production

(more children working), since the other alternative, (increased productivity through technological innovation, for example) seems not to have been feasible to the colonos at that time.

Third, restraints on population growth due to lack of land are not likely to have occurred in the expanse of the coffee economy. To the contrary, economic factors (availability of land and expanding labor demand) and the organization of social relations of production would have favored early marriage and its consequence, high fertility levels, in the lack of deliberate birth control. Thus, a better standard of living and greater economic opportunities would have encouraged more and earlier unions. Reliable indicators of the standard of living at that time are not available. Misery and low wages in the coffee farms are referred to. Rezende shows data on wage rates of the three money-wage activities and concludes that "the coffee economy constituted an ingenious mechanism that allowed itself a fantastic expansion in a situation of unlimited labor supply". (32) The standard of living of the colonos cannot be inferred only from their wage levels, since a considerable portion of the goods of their consumption basket was supplied by domestic production. The surplus of food production was marketed by the colonos. In spite of low wage levels, it was quite probable that the colonos' standard of living was not placed next to the lowest physiological level. As a matter of fact, Holloway concludes that:

"my discussion on the relation between wages and cost of living should consider on the one hand, the importance of non-wage income, since foodstuffs and dwelling probably account for approximately 70 percent of the cost of living for a worker's family; and, on the other hand, the limited number of goods the colono had to purchase. Using price of food as an indicator of the cost of living, one could consider that the coffee colonos momentarily benefitted from higher market prices of maize and beans, as they were also producers of foodstuffs. Producing much of their own food, the colono's family was largely protected against higher food prices. Finally, a fluctuation of money-wages... would imply a less than proportional fluctuation of total income". (33)

Since the colonos' food production was relatively diversified, we might conclude that they may not have faced any production crisis and that assuredly their standard of living has always been above the lowest physiological level. In these

circumstances, a larger family may have played an important role in the colono's family income.

Fourth, another factor that may have favored earlier marriage and larger offspring was the employers' own interests. It is well known that labor was a crucial factor for coffee production. The coffee farmers were aware of this fact. One might conclude that the employers encouraged their employees to get married, since, in this condition, the worker could "potentially" have personal habits that were more compatible with stability and productivity. The system of family labor contract is an indication of the employer's preference for married workers. Another indicator of this is the widespread custom of inviting the landowners to serve as godparents for the workers' children. Perhaps, a boss would not accept many such invitations, if he disapproved of large families.⁽³⁴⁾

The institutional setting of labor in the sugar economy in the Northeast is likely to have shown similar results from the demographic viewpoint. In this region, however, the evidence is that of a demographic pressure. According to Furtado:

"in some subregions, in the second half of the nineteenth century, symptoms of population pressure on land resources became evident. The development of cotton farming in the first few decades of the nineteenth century had favored a diversification of economic activities, contributing to an intensification of population growth. In the 1860's, when the sharp rise in cotton prices was caused by the Civil War in the United States, cotton production was intensified and some regions, such as Ceará, were to experience for the first time a period of prosperity. Such waves of prosperity contributed, however, to the creation of a structural unbalance within the subsistence economy, to which the population always reverted in subsequent stages. That structural problem had become extremely serious at the time of protracted drought from 1877 to 1880, when the region's cattle disappeared completely and about 200,000 human beings starved to death"

Although there is not any evidence, fertility levels were likely to have reacted to production crises and droughts in the period before internal migrations. According to Rezende,⁽³⁶⁾ the way of life on the sugar farms, however, may have favored more numerous offspring. Access to land for food crops and permission to live on the farmland free of charge may have decreased the cost of living of labor force. However, evidence on the standard of living

suggests that this population was probably nearer to the physiological minimum for survival. In this case, and more than any other factor, the high level of mortality may have conditioned an earlier marriage pattern. More recently, in the 1930's, the average expectation of life at birth for the population in the Central Northeast (Northeast States from Ceará to Alagoas) was 34.7 years of age.⁽³⁷⁾ One could admit that, during periods of crisis in the second half of the nineteenth century, the expectation of life at birth may have reached even lower levels.

Labor organization may also have favored higher fertility levels. If the current sharecropping system is an extension of labor organization in the sugar farms, the same conclusions drawn by Ozório de Almeida on the relation between sharecropping and family size could be applied in this case:

"...the sharecropping system in the Northeast constitutes an institutional arrangement which regulates a specific set of transactions between sharecroppers and landowners. Landless peasants gain access to the land and to services of food storage during times of need. Landowners, for their part, obtain access to family labor thanks to the superimposition of the lifecycles of individual members. Indebtedness is intrinsic to this relationship... The short-term effect consists of providing an incentive to increase the contribution of family labor and specialization in the commercial harvest. Its long-term impact apparently encourages increase in family size, both through the reduction in costs of large families as well as by the increase in benefits not only for the sharecroppers, but also for the landowners. Consequently, the sharecropping system appears to be linked to high fertility".⁽³⁸⁾

With the decline of mortality, however, increased family size could have aggravated the demographic pressure and perhaps provoked a Malthusian check by an increase in mortality or a decline in fertility, unless this population's standard of living was above the minimum physiological level. Nevertheless, in this region, population adjustment seems to have occurred through outmigration which intensified in the first half of the twentieth century. The outmigration of predominantly young adults must have hindered the growth of family size or the faster multiplication of family households, enabling the maintenance of approximately the same family structure in working activities as that historically existing at the time mortality was higher.⁽³⁹⁾ Thus, outmigration might have avoided

a decline in the standard of living, thus making possible the stability of fertility levels.

In brief, it seems that the basis for early marriage and high levels of fertility in Brazil was consolidated during the second half of the nineteenth century, through the spread of subsistence agriculture in the coffee and sugar economies. Although there is no evidence, such a pattern is likely to have occurred in the independent subsistence economies as well. In case the hypothesis of high mortality and abundance of land as contributors to earlier marriages is validated, it would be possible to extend such an argument to the subsistence economy as a whole.

In short, in such an economy, subsistence goods were not obtained through the market. A typical basket of consumption goods showed little diversification, and most of its items were produced domestically. The goods obtained through the market were most frequently bought at the farm's store, through the system of "caderneta" (personalized notebook for registering purchases), by which no monetary transactions were made. In this case, it is quite difficult to suppose that the couple could make a trade-off between having a child or purchasing other goods as is supposed by the theory of demand for children. The assumption that total number of children is not a result of the couple's deliberate decision on family size is more plausible.

From the viewpoint of economic theory, the relevant variable is the total number of surviving children at adult age, henceforth called family size. Family size depends on the number of live-born children and the probability of survival to adult age. High mortality levels (life expectancy at birth of about 30 years of age) not only would induce people to get married earlier, but would also restrict family size. Unfortunately, there are no estimates of marital fertility for Brazil in the period, and available life tables at the regional level were constructed for Brazil only for the demographic census of 1940 and later years. According to these estimates, the probability of survival to 15 years of age in the 1930's in Brazil would be 0.689 and 0.713 for male and female populations respectively.⁽⁴⁰⁾ If we speculate that the probability of survival to age 15 was equal to 0.6 at the beginning of the century for a typical family of the subsistence economy sector, total fertility of this family

would need to be 8.3 for 5 children to reach age 15. Under these mortality conditions, to increase the number of survivors to age 15 from 5 to 6 children, the total fertility rate would have to increase from 8.3 to 10 live-born children. Available data on total fertility in Brazil do not show large variations in the short run (see Table 1). As a matter of fact, this suggests that family size would only increase with the decline of mortality.

Thus, there are two plausible alternatives. Firstly, the fertility level was controlled by the level of subsistence (Malthusian ceiling), and economic conditions for increased family size would not be sufficient to change the standard of living. Secondly, in spite of the economic conditions from the subsistence production organization, opposing forces indirectly maintaining fertility levels below the highest possible level would be acting.

These questions should be investigated for certain population groups in quite specific regions and periods. In the following section, an attempt will be made to analyze some aspects relating to stability of fertility in the period after 1930, in order to suggest hypotheses for future investigation.

4 - CONDITIONS FOR STABILITY OF FERTILITY LEVELS

Fertility levels for Brazil refer to total fertility rates that are decennial averages indirectly estimated from census data covering a period of forty years (see Table 1).

A very slight decline is observed for the country as a whole, from 6.5 children per woman in the 1930's, to 5.8 in the 60's, i.e., a decrease of 11 percent in 40 years. This trend, however, seems to have been remarkable in the last decade of the period. While the decline was of 5.0 percent between the 30's and the 50's, it appeared to be of 6.0 percent in the last decade alone. Thus, one could say that fertility remained relatively stable at the national level. An analysis of the age structure of population shows the same stability as well.⁽⁴¹⁾

Of course, the national level is the weighted average of the fertility levels of different population strata. It is possible that, for some strata, fertility levels may have changed remarkably or even fluctuated during the period.⁽⁴²⁾

Regions	Total Fertility Rate					Average number of surviving children (1)				
	1930-40	1940-50	1950-60	1960-70	1960-70 1930-40	1930-40	1940-50	1950-60	1960-70	1960-70 1930-40
Amazon	6.9	7.3	8.2	7.9	1.14	4.7	5.2	6.4	6.5	1.38
Northern Northeast	7.0	7.0	7.2	7.3	1.04	4.8	5.1	5.6	5.9	1.23
Central Northeast	7.9	7.7	7.4	7.6	0.93	4.9	4.7	4.9	5.4	1.10
Southern Northeast	6.9	7.3	7.3	7.5	1.06	4.6	4.9	5.4	6.0	1.30
Minas	7.2	6.8	6.2	6.3	0.88	5.2	5.2	5.1	5.4	1.04
Rio de Janeiro	4.2	4.0	4.5	4.0	0.95	3.1	3.1	3.8	3.5	1.13
São Paulo	5.6	5.1	4.7	4.1	0.73	4.0	4.0	4.0	3.6	0.90
Paraná	5.9	5.9	6.5	6.4	1.08	4.3	4.5	5.4	5.7	1.33
Far South	6.2	6.2	5.7	5.0	0.81	5.0	5.3	5.1	4.6	0.92
Central-West	6.2	6.4	6.7	6.5	1.05	4.7	5.1	5.4	5.3	1.13
Brazil	6.5	6.3	6.2	5.8	0.89	4.6	4.6	4.9	4.8	1.04

1) Average number of surviving children to the age 15 per woman refers to total fertility rate multiplied by the probability of survival to the exact age 15. The probabilities of survival were estimated from life tables for Brazil and the regions, considering the sex ratio at birth as 1.05.

SOURCE: a) Total Fertility Rates: 1930-40, 1940-50, CARVALHO, J.A.M., "Evolução demográfica recente no Brasil", Pesquisa e Planejamento Econômico, 10(2):527-54, August, 1980; 1950-60, PAIVA, C.A. et alii, O Novo Padrão Demográfico Brasileiro e seus Impactos sobre Alguns Setores da Política Social, 1960/70, CEDEPLAR, November, 1981; 1960-70, CARVALHO, J.A.M., Fecundidade e mortalidade no Brasil, 1960/70, CEDEPLAR, 1978.

b) Life Tables: CARVALHO, J.A.M., Analysis of regional trends in fertility, mortality and migration in Brazil, 1940-1970, Ph.D. thesis, London School of Economics, 1973.

However it seems that the variation was small for those strata with greater weights in the national average. As a matter of fact, in only three of the ten regions was variation in fertility as high as or even higher than 1 child per woman in the period. In the Amazon, there was an increment of 1 child in the total fertility rate, whereas in São Paulo and in the Far South there was a decline of 1.5 and 1.2 per woman, respectively, between the 30s and the 60s.

Regional differentials are much more striking than variations through time. The differences between the highest and the lowest total fertility rates for each of the four decades were 3.7, 3.6, 3.7, and 3.9 respectively. The regularity of such differences through time is remarkable, although a change occurred in the regions with the highest levels: the central Northeast in the first two decades, and the Amazon in the last two decades.

The lack of marital fertility rates was an obstacle to the analysis of trends in family size through time.⁽⁴³⁾

Nevertheless, an attempt was made to estimate the average number of surviving children through age 15 per woman so that the joint effect of fertility variations and infant and childhood mortality could be observed. This measure underestimates average family size, since not only married women are included in the estimates of fertility rates, but all women aging 15-49. Furthermore, if variations in the relation between total fertility rates and marital fertility rates occur, then, variations among estimates of surviving children that would not be determined by mortality trends would also occur. An example of this could be a significant change in the proportion of married women through time. This analysis is quite difficult to make, given the impossibility of comparing civil status categories in the demographic censuses. Goldani Altman and Wong have shown that the proportion of single persons decreased from 40.7 percent, in 1940, to 36.6 percent in 1970. But they noticed that, only from the 1960 census, these values became meaningful, because illegitimate unions were included in the category of "married" since then.⁽⁴⁴⁾

Despite all qualifications that can be made in the interpretation of such results, some trends are worth mentioning.

The average number of surviving children per woman for the country as a whole seems to have remained practically constant in this period of forty years (see Table 1), varying from 4.6 to 4.8, from the 30s to the 60s.

Only two regions (São Paulo and the Far South) showed a slight decrease in the average number of surviving children (less than 0.5 surviving children in average per woman). In the other three regions (Central Northeast, Minas, and Rio de Janeiro), where fertility declined, the average number of surviving children per woman increased slightly.

In the regions with increasing fertility, mortality decline would have contributed towards increasing the number of survivors. In these regions, except for the Central-West, an increment higher than 1 surviving child per woman would have occurred from the 1930's to the 1970's.

The range from the lowest to the highest estimated values, of 2.1 in the 30s, to 3.0 in the 60s, tends to widen with time. The difference, however, is smaller than that for total fertility rates. Up to the 50s, it seems that the effect of mortality on fertility rates has occurred in terms of maintaining the average family size more regionally homogeneous.

One can also observe that some regions showing total fertility rates lower than the national average had presented a higher number of surviving children per woman than the average, as is the case of the Far South up to the 50s.

Thus, these data, preliminary and imperfect as they are indicate that marked changes have not occurred in average family size in the last forty years, except, perhaps, for the Amazon Region. This observation becomes even more visible if we keep in mind that available estimates suggest a reduction of 1.5 children in the total fertility rate for the country as a whole between 1970 and 1980.

Stability in average family size all through the period seems to be striking. According to the previous section, an increase in average family size would have been expected, if an economically rational behavior in family formation was assumed in the pretransitional period. This would be even more apparent after the 30's, when a sharp decline in mortality was observed. Conversely, data from Table 1 indicate that, in some

regions, a slight decline in fertility has occurred through the period, in response to the previous decline in mortality, and this has kept average family size stable.

Then, which would have been the determining factors of such a stability? This is precisely the question which this section tries to cast some light on.

From the viewpoint of the Brazilian economic performance, one can notice that there has been an increased share of industrial output in the National Domestic Product all through this century. This trend has been consolidated since the 1930's. With this process, internal migration and urban growth have been intensified.

Up to the 60's, agricultural production increased, mainly because of expansion of cultivated areas, with no large changes of labor organization⁽⁴⁵⁾, i.e., production increased without any significant increase in productivity and through the growth of the non-wage segment of the labor force.

It seems to be exactly such peculiar dynamics of the Brazilian economy, where non-wage forms of agricultural production have increased with the expansion of capitalist production in the industrial urban sector, that made possible the persistence of the pattern of demographic growth that has been generalized at the end of the nineteenth century.

A decline in mortality would have increased the rate of population growth which, in turn, has provoked an expanse of both non-wage labor in agriculture and growth of urban proletariat.

As an example, Castro analyses this phenomenon as follows:

"Provided that labor productivity in agriculture is held constant, rapid demographic growth implies increasing available labor force for other activities. Thus, one of the most serious structural implications of demographic accelerated growth would be the possibility of a rapid urban-industrial growth, without the corresponding increase of the occupational structure... Rapid demographic growth combined with elastic supply of land implies a kind of deeply unbalanced development, in which the increase and diversification of the complex network of urban activities is not dependent on increased productivity (both for releasing labor force and widening excess surplus) in rural areas".(46)

It seems that conditions for an abundant labor supply in agriculture were then created which, combined with abundance of land, would have given room for the maintaining (or even reproduction) of the subsistence economy.⁽⁴⁷⁾ Now it was under these specific conditions that the high fertility pattern of the Brazilian subsistence economy has been established. Thus, a recurrent process seems to have been established in which the high fertility rate, parallel to the decline in mortality, has made it feasible for the reproduction of productive organization to appear, which, in turn, has acted as feedback for the high fertility rate.

An important aspect linking fertility patterns to the form of labor organization would be that most subsistence goods were produced domestically, i.e., they were not monetized. In other words, relative price variations of subsistence goods would not affect the standard of living of such families. To the contrary, those eventually selling their products on the market would be able to increase their money income in the short run as prices increase.

I believe that the most interesting issue to be investigated is whether fertility was close to the highest possible level or, if not, which were the mechanisms of regulation.

As for regional variations, it seems that different mechanisms of adjustment to possible demographic pressures, stemming from increased rate of population growth since 1930, would have occurred.

In the Central-Northeast, Southern-Northeast, and Minas, intensified out-migration would have lessened demographic pressure. In the Far South, where further reduction in size of rural establishments seems to have occurred and where family units producing goods were the specific form of organization of agricultural labor, adjustment would have been made via fertility decline.

In the agricultural frontier regions, by contrast, an increase in average family size would have occurred due to abundance of land.⁽⁴⁸⁾ In these cases, a decline in mortality, combined with an increase in fertility, would have favored an increased family size. These changes, however, were very slight.

In brief, in the subsistence economy, there seems to have been an internal articulation of factors encouraging a pattern of high fertility as well as an external articulation, through outmigration, reducing the pressures on the standard of living, both preventing a decline in fertility, except, perhaps, for the household units producing goods in the Far South. In the lack of the possible price mechanism effects, fertility levels would remain relatively constant and family size would be regulated by change in mortality. As a larger proportion of the population lived under such conditions, average indices of fertility levels have not varied significantly. It seems that access to subsistence goods by means of domestic production, and not through the market, has protected the families against inflation effects on their standard of living. Under the prevailing mortality conditions, approximately 2 children per woman would be necessary for an increase of 1 surviving child at age 15. For most regions, marital fertility should be of 7 to 8 children per woman, if data on total fertility rates of Table 1 were to be taken into account. A rise in fertility levels for the improvement of the families' standard of living, by means of an increase in domestic production through an increment of family work is not likely to occur. Thus, given mortality levels, conditions favoring an increase in family size would be insufficient from a certain size as can be seen below.

Finally, it would be worth thinking about the effects of the standard of living on fertility levels. According to general belief, the level of the standard of living has been relatively low in Brazil. Evidence, however, does not suggest a decline in this level in the long run. For example, growth rates of agricultural production were higher than those for population growth from the beginning of this century to the 1960s (see Table 2).

Agricultural production includes goods for domestic consumption as well as those for export. However, given the system of food production in Brazil (mainly in subsistence activities and other non-wage forms), one could assume that food production would not have endured prolonged crises. Thus, to think of an increased level of standard of living in the long run seems to be more plausible.

A trend towards a decrease in mortality levels, perhaps, would be another indication that the level of standard

TABLE 2 - AVERAGE ANNUAL GROWTH RATES (%) OF OUTPUT AND POPULATION 1900-1976 - (%)

Period	Total Population	Output		
		Agriculture	Industry	Total
Pre-War (a)				
1900-02/1910-12	2.14	2.31	6.25	3.96
1910-12/1920-22	2.12	3.29	5.65	3.97
1920-22/1930-32	2.05	3.30	3.51	4.04
1930-32/1940-42	2.08	2.86	7.20	4.71
1940-42/1945-47	2.32	2.42	9.18	5.49
1900-02/1945-47	2.12	2.88	6.03	4.30
Post-War (a)				
1945-47/1969-71	3.32	4.39	8.31	6.45
1971 /1976 (b)	2.45	4.70	11.10	10.80

SOURCE: (a) HADDAD, Cláudio, "Crescimento do produto real brasileiro - 1900/1947", in VERSIANI, F.R. and MENDONÇA DE BARROS, J.R., Formação Econômica do Brasil, São Paulo, Edição Saraiva, 1977, Table 4, page 153.

(b) Brasil em exame, Editora Abril, março de 1980, p.10 e 14, except for the rate of population growth which refers to the 1970/80 period, which was based on census data.

of living has not fallen. If the standard of living fell and the population lived at the lowest subsistence level, then, mortality levels would tend to increase. It is more plausible to think that in the long run the standard of living might have favored high fertility.

The Brazilian experience seems to be a good example of a specific kind of articulation of population growth with capitalist development, in which institutional conditions would affect reproductive behavior. Labor organization under non-wage forms and via family work contracts would favor the emergence of large families, as in the colonato system, sharecropping system, etc. This was also due to high mortality rates, mainly in the Northeast, which induced earlier marriage.

Access to subsistence means through domestic production has protected the families against possible impacts of price variations. The net balance of expenditure and revenue of each child was positive, but this would not occur indefinitely. While marriage at younger ages would permit having several children, it was not advantageous for the couple to have them at older ages, since the economic balance of their children would be negative. The point of equilibrium might have remained approximately from 4 to 5 surviving children per woman of 15-49 years of age, in case data from Table 1 are taken as indicators. The point I wish to make here is this: in the organization of domestic production, the costs of children were not affected by price variations, since the consumption items for their maintenance were not bought on the market. This was a factor of fertility stability. Another factor would be the net balance of each child. This balance would not be equal for all children, along the family's life cycle. It would be greater for the first children, whose contribution to the family in terms of labor would be greater. Those children who were still very young at the father's death or at the moment of the couple's break up would show a negative balance for the family. From the viewpoint of economic rationality, the couples would not continue to have children indefinitely. Thus, there would be conditions favoring the regulation of family size.

These seem to be the conditions favoring stability of average family size in Brazil until the mid-sixties.

5 - DESTABILIZATION OF FERTILITY

In this essay, I have tried to characterize quite schematically a logic in the relation between family size (understood here as the number of surviving children at a given adult age - 15 in this essay), and the system by which "peasant" households could have access to subsistence goods. It seems to me that the core of such a logic rests on the lack of monetary transactions or, conversely, in that the family reproduction was achieved directly through domestic work.

Under these circumstances, it seems to me that there was no apparent motivation for a couple to limit deliberately the number of births. On the one hand, domestic organization of production made large use of children as labor. On the other hand, having access to the means of subsistence through their own production, families have large control of their costs of subsistence. As a consequence fertility levels remained stable for a

The process of proletarianization seems to have disrupted this system in both labor organization and the consumption pattern. Proletarianization means not only the change from non-wage to wage labor, but also the monetization of all social relations. Since the second half of the 60s several changes under way in the Brazilian economic and social structure were intensified by the last economic expansion cycle. Among them, it is worth mentioning the increase of the share of wage labor in agriculture in the 70s, as shown in Table 3. One must be cautious in looking at these data since census and PNAD (National Household Sampling Surveys) figures are not perfectly comparable. Even for male labor force, whose census enumerations are more reliable, there was a change from negative to positive annual variation in the late decade.

Lopes points to other aspects of these changes in the relations of production in the Brazilian agriculture which more clearly suggest a monetization of rural family consumption.⁽⁴⁹⁾

Among such changes, it is worth mentioning first that, since 1950, there has been a decline in the absolute number of sharecroppers, tenants, and sharetenants, who, among permanent workers, are those whose remuneration is mainly non-wage;⁽⁵⁰⁾

TABLE 3 - WAGE LABOR AS A PERCENTAGE OF THE LABOR FORCE 1940-1977 - BRAZIL

	1940	1950	1960	1970	1972	1976	1977	Percentage of Annual Variation	
								70-50	77-72
<u>A - All Activities</u>									
Total	45.6	50.6	47.9	55.2	55.5	61.6	62.6	0.87	2.40
Male	46.3	48.4	45.7	51.2	55.1	60.4	62.5	0.56	2.52
Female	42.9	64.0	58.0	70.2	56.5	64.7	62.7	0.92	2.08
<u>B - Agricultural Activities</u>									
Total	33.3	34.1	25.8	25.4	28.1	32.5	35.4	-2.92	4.60
Male	35.4	34.9	26.7	26.3	31.4	35.7	39.8	-2.81	4.72
Female	20.3	24.4	17.0	17.1	16.6	20.8	22.2	-3.52	5.77
<u>C - Non-agricultural Activities</u>									
Total	69.4	75.4	73.9	79.2	75.0	78.2	78.2	0.49	0.84
Male	72.2	73.4	73.3	77.1	73.8	76.8	77.5	0.49	0.71
Female	62.7	81.1	75.7	84.0	75.3	80.9	79.6	0.35	1.11

Source 1940 - 1970 - Demographic Censuses
1972 - 1977 - PNADs.

secondly, that the household production sector, the dynamics of which is substantially different from that of the peasantry's, would still be in expansion. Thus, Lopes concludes that:

"A central aspect of its dynamics was laid on the peasantry's capacity of overwork and subconsumption, which was basically linked to its relative independence of the market. For the petty-commodity producer, living in an area where economic life is totally dominated by market relations, overwork and subconsumption are out of perspective". (51)

More important than a change in labor organization leading to wage forms is a qualitative change of the type of access to subsistence means and the consumption pattern of non-wage families. A considerable portion of rural families is constituted by small family producers, not using wage labor for their production (they only use family work). Their production, however, is highly specialized, and they have to resort to the market for foodstuff and other goods. Although from the viewpoint of labor organization these units of domestic production are similar to those prevailing in Brazil until the first half of the 60's, from the viewpoint of their consumption pattern they are quite distinct.

The changes that occurred both in labor organization and consumption pattern have disrupted the logic of articulation between agricultural production and family size. And as a consequence, fertility levels in Brazil have been destabilized mainly due to three different processes: monetization of these families' subsistence, which is now subject to price variations; diversification of the basket of goods, since money income gives access to industrialized goods; and homogenization of the unskilled labor market widening differentiated employment and unemployment opportunities for family members.

As for monetization, one could suppose that it would eliminate scale advantages and labor division which had previously encouraged higher fertility. This would imply increased costs for the subsistence of labor force in several ways: (i) directly, through the incorporation of money cost into several items of the basket of goods (e.g. housing); (ii) through increased costs of food bought on the market, to which the profits paid in the several trading stages would be added, and finally; (iii) through increased costs of foodstuff that, perhaps, could be subject to oligopoly prices at the market.

Furthermore, having to resort to the market, the family's purchasing power would be dependent with time on changes in its money income in relation to changes in prices of consumer goods.

In the case of Brazil, where food represents about 55 percent of lower-income family expenditure, there has been a dramatic change in price structure, making food relatively more expensive, mainly in urban areas.

Homem de Melo has gone further in the study of price variations of food for the consumer, by estimating price indices for family expenditure for the states of São Paulo and Rio de Janeiro and for the Southern and Northeastern Regions.⁽⁵²⁾ Data from ENDEF (a national survey of domestic expenditure) family budgets gathered in 1974/75 are the only available data for the several regions in Brazil. These data also permit the analysis of expenditure for different levels of family income. However, there is a qualification concerning the use of consumption research for a relatively longer period. Family consumption may change, mainly as a consequence of sharp variations in the structure of relative prices. Family consumption may change with time due to several other factors, such as change in family income. As for the indices of Table 4, one must also be careful, when using prices in São Paulo for other regions in Brazil. Estimates of consumer prices that have been calculated by IBGE (the Brazilian Census Bureau) for the INPC (national consumer price indices) have indicated significant price differences among the several metropolitan areas. However, regionally comparable series of food prices for the consumer covering the period in question are not available. These observations suggest that the data from Table 4 should be interpreted very cautiously.

The first observation that could be made from Table 4 is the sharp differences in price variation among the different expenditure classes within each region. Table 4 shows only three expenditure classes. Families with monthly expenditure lower than 2 minimum wages; those with monthly expenditure between 2 and 3.5 minimum wages; and those with expenditures higher than 30 minimum wages. For the Northeast, the higher class is that with more than 7 minimum wages of monthly expenditure. For 1979, in relation to 1967, as far as food prices are concerned, the poorer group of families

TABLE 4 - VARIATION OF NOMINAL PRICE INDICES OF FOOD, ACCORDING TO
EXPENDITURE CLASSES AND REGIONS, 1967-1979
(1967 = 100)

Year	< 2.0 Minimum Wages				2.0 to 3.5 Minimum Wages				> 30.0 Minimum Wages			
	São Paulo	Rio	South	Northeast	São Paulo	Rio	South	Northeast	São Paulo	Rio	South	Northeast*
1967	100	100	100	100	100	100	100	100	100	100	100	100
1968	124	122	124	124	122	120	122	122	122	119	120	120
1969	162	157	159	155	155	150	154	150	151	145	147	147
1970	197	192	193	191	190	184	187	185	185	178	180	181
1971	245	240	240	242	234	228	231	231	227	220	222	223
1972	290	285	292	300	275	267	277	280	267	261	264	268
1973	370	375	370	402	356	354	357	374	356	352	351	356
1974	510	506	509	528	488	478	487	498	479	475	476	479
1975	677	660	647	712	642	626	619	658	603	582	580	606
1976	923	905	871	1,018	866	841	824	912	818	770	773	817
1977	1,252	1,232	1,200	1,383	1,181	1,146	1,134	1,242	1,127	1,066	1,067	1,124
1978	1,737	1,723	1,660	1,925	1,678	1,655	1,618	1,768	1,643	1,593	1,576	1,631
1979	2,725	2,698	2,567	3,038	2,621	2,575	2,489	2,770	2,539	2,468	2,436	2,542

SOURCE: Homem de Melo, op. cit., p.387 a 390.

* For the Northeast, these indices refer to the expenditure class which is above the level of 7 minimum wages.

experienced an increase of 7.3 percent higher than that for the richer families.⁽⁵³⁾ For the South, this relative increase was of 5.4 percent, 9.3 percent for Rio, and 19.5 percent for the Northeast. The Northeast is the poorer region among those represented in Table 4, and it is the region where food prices for the poorer families increased relatively more than those for the richer families.

The second observation refers to the differences existing among the several regions. By observing the accumulated index for the period of 1967/79, one can verify that there has been practically no difference for the richest group both in the Northeast and São Paulo. The difference widens for the poorer ones. For the expenditure group of < 2 minimum wages, the price increase for the Northeast was 11.5 percent higher than that for São Paulo in the period. The same pattern holds for all pairs of regions and, as a hypothesis, one could state that the higher the variation of food prices among the regions, the lower the income class. Differences are also higher, when the Northeast is compared with the other regions. The relative weights of the several food items of consumption of the families with different income levels, the prices of which showed an uneven variation in the period, are built in these differences. For example, beans and manioc flower had a much greater relative participation in the expenditure group of < 2.0 minimum wages in the Northeast than in any other region or family group. These products have showed an absolute decrease in production from 1965 and, as consequence, their relative prices have increased above the average.

Thus, a sharp increase in food prices has resulted in increased costs of children, given the relative prices of food in their consumption. As they could not resort to domestic production and with their income increasing less than food prices, families in this situation would be encouraged to resort to birth control.

Considering a situation where both changes in relative price structures and rural-urban migration occur the costs of children would be expected to rise in relation to the previous situation. In case other expenditure items as costs of housing, transport from residence to place of work, public facilities (water supply, electric energy, etc.) are considered, then a

real and permanent increase in the cost of children would occur, mainly if we compare the situation of both an urban, low-income family and a rural family producing its subsistence goods. If increases in money income are not sufficient to offset this difference, then an urban family would hardly be able to support the same number of children as the rural family. This appears to have occurred in Brazil in the late 1960's and in the beginning of the 1970's, when real urban wage of unskilled workers dropped.⁽⁵⁴⁾

As for the diversification of the basket of goods, the available evidence shows an increased purchasing of durable goods among urban lower-income families.⁽⁵⁵⁾ Although evidence is not available, it is possible to suppose that this has been the case among rural families in the more developed regions. Carvalho et al.⁽⁵⁶⁾ have suggested changes on family consumption patterns that might have affected fertility behavior. Merrick and Berquó pushed this argument further by saying:

"It has been suggested that lower and middle-income families, particularly in urban areas, raised their consumption expectations during early stages of Brazil's economic boom and were beginning to realize those expectations through increased purchases of housing, consumer durables, and even automobiles. Most of these purchases were made with small down-payments and required extended installment payments that were subject to Brazil's indexing system. Unequal treatment of credit obligations and wages in the indexing process forced these families to allocate an increasing share of their monthly income to those installment payments. In these circumstances, avoiding the expense of an additional child,... given increased accessibility, knowledge, and acceptability of contraception, was an option. The rapid decline of fertility among these groups suggests that this may indeed have been their response".⁽⁵⁷⁾

More specifically in the case of low-income families, a combination of a sustained increase in relative prices of food with commitment of part of family income to indexed installments for 2 or 3 years could reduce considerably the part of family income that would be available for an additional child. Under such conditions, there seems to be a market pressure on the scarce family resources, since the children now not only fail to contribute to family income, but also show increased cost. Furthermore, new consumption items now make part of the family's basket of goods, reducing further the share of income previously dedicated to the children's direct consumption.

As for homogenization of the unskilled labor market, several points require comment. Firstly, one of the major changes occurring in labor organization was the substitution of wage labor for colonato. The system of labor contracts has changed in this transition. Formely, contracts were signed with all members of the family who worked together, and the volume of tasks and income assigned to the family would vary according to number of workers.⁽⁵⁸⁾ Now, workers have individual labor contracts. Among other things, this has brought a considerable degree of uncertainty as for labor possibilities for the children. Furthermore, this has made the labor value of children drop, and certainly it has reduced the possibilities of the children's contribution to family income, mainly in the form of support for their parents when they grow older.

Secondly, rural-urban migration has been intensified. A great bulk of unskilled construction workers (serventes) has come from rural areas. On the one hand, one can suppose that there may be an urban-rural income flow, when the parents stay in rural areas. This seems to occur very often, mainly in the upswings of urban economy, when wages tend to be higher than the minimum wage. On the other hand, the subsistence costs for the family rise when the whole family moves to urban areas. Other costs are incorporated to its budget such as transport, education, etc. There are still some barriers for the children to enter in the labor market. Most of the families living in urban areas constitute a pool of labor supply both for construction and rural activities. Their absorption will depend on seasonal movements of agricultural production and the performance of the urban economy. Thus, they are all subject to the uncertainties of the economic cycle fluctuations.

Thirdly, a tendency of unification of rural and urban labor markets for unskilled workers has been observed, given a convergence of their respective real wages. In the State of São Paulo, the rural wage was only 51 percent of the urban minimum wage in 1963 and, in 1973, it reached 95 percent of the urban minimum wage. In this period, a decline in the purchasing power of the minimum wage as well as a rise in the real value of the rural wage mainly due to extension of labor legislation to rural labor, were observed. In order to emphasize this institutional aspect in the variation of rural wages, Vieira da Cunha quotes the following from Paiva:

TABLE 5 - HOURLY WAGE FOR UNSKILLED CONSTRUCTION WORKERS AND DAILY WAGE FOR
UNSKILLED RURAL WORKERS, BRAZIL: 1966-1977

Year	Hourly Wage for Unskilled Construction Workers (Serventes) (1)			Daily Wage for Unskilled Rural Workers (Diaristas) (2)		
	Real Wage Indices (1970 = 100)			Real Wage Indices (1970 = 100)		
	A	B	C	A	B	C
1966	-	-	-	104	101	95.2
1967	-	-	-	107	112	103
1968	-	-	-	104	118	109
1969	98	97	101	102	110	105
1970	100	100	100	100	100	100
1971	103	105	94.5	110	102	101
1972	105	107	99.1	113	98.7	99.7
1973	104	107	83.3	122	91.4	97.6
1974	105	111	83.3	160	111	126
1975	111	123	88.4	169	125	135
1976	111	121	86.8	161	112	126
1977	112	117	92.6	161	109	134

SOURCE: BACHA, Edmar. "Crescimento econômico, salários urbanos e rurais: o caso do Brasil", Pesquisa e Planejamento Econômico 9(3):585-628, 1979, Tables 9,10,12 and 13. Published in Vieira da Cunha, Paulo. "Minimum Wages in Latin America: A Review", World Bank, June 1983 (Mimeo.).

- (1) Based on the IBGE series servente rates in 20 states. The reported mean is weighted according to the procedures used in Werneck (1978). As the column on the coefficients of variation indicates, there does not appear to be any systematic regional bias in the series thus calculated.
 - (2) Based on the FGV series for 16 states, excluding São Paulo and the states in the northern region. The information is for diaristas (daily workers). For São Paulo, the IEA distinguishes between diaristas and volantes. The former are workers employed on a regular basis, often they are sharecroppers in other lands. Volantes are contract workers, usually attached to a labor subcontractor and residents of small urban centers. In November of 1980 their wages were 23 percent higher than diaristas (SEADE (1981), Table 37).
- A Monetary wage deflated by the implicit deflator of GNP. This as well as the other real wages are based on arithmetic averages of monthly rates during the year.
- B Monetary wage deflated by the cost of construction index for Rio de Janeiro (FGV) or, alternatively, by prices received by agricultural producers (IBGE).
- C Monetary wage deflated by the cost of food purchases in Rio de Janeiro (diet H of FGV modified as explained in Appendix 2 of Bacha - 1979).

"From the point of view of the agricultural employer, there was a shift in the conditions for labor supply. Labor was no longer docile, available at his discretion, but began to require a previous understanding with a "contractor" and it also began to cost more, being based on official minimum salaries (without, however, really benefiting workers, since they were now obliged to pay for transport, food and the "contractor's" commission). Moreover, there was a change in the position of large rural employers. Fearing the Labor Tribunals, they began to have an additional interest in agricultural mechanization, possibly larger than the economic". (59)

Table 5 organized by Vieira da Cunha based on data from Bacha, (60) shows the variation of urban and rural real wage indices for Brazil from 1966 to 1977. It can be noted that when they are deflated by food costs, these wages tend to decline until 1973, as has been mentioned previously. From 1974, it can be noted that the recovering of rural wages is much more significant (column C). However unreliable they may be, these data suggest that there is not a trend towards reducing real rural wages in relation to the real wage of unskilled urban workers. Thus, one could safely suppose that as for the labor market, both rural and urban unskilled workers tend to be in an equivalent position. Their consumption patterns, aspirations, and reproductive behavior are likely to be equivalent. As it has been suggested previously, the reproductive behavior of these two groups would be subject to the same pressures and instability from the labor market and the goods market.

In brief, the analysis of the impact of proletarianization on fertility levels should take into account the several aspects of the changes occurring in the individual's life. These does not mean a simple alteration in the form of his earnings, and on the economic value of children. They also mean change in the consumption pattern as well as the subordination of access to essential goods to variation on relative price.

6 - CONCLUDING REMARKS

In this paper, I tried to view the fertility transition in Brazil in a context of institutional changes. It was written in an exploratory vein, indicating some hypotheses for further research. It seems to me that some points deserve attention in future studies.

First of all, it appears to me that fertility levels in Brazil were below the highest possible level that could be expected given the available resources, although they were high by international standards, in the pretransitional period. According to the interpretation of the relations between family size and domestic production, high fertility would be advantageous for the family. Since domestic production has predominated in rural Brazil for a long period, the reason why family size did not increase over time is puzzling. It is possible to argue that there were demographic and economic conditions for high fertility, the former being high mortality and larger mass of immigrants from Europe, the latter being different labor organization forms such as colonato, sharecropping, sharetenantship, etc.

The lack of market transactions in the access to the means of subsistence might be the cause for the long run stability of family size. Family subsistence was not affected by price variations nor by any kind of change in the consumption pattern.

Second, it is necessary to understand the conditions for fertility destabilization. Usually, it has been said that changes in the labor market may lead to a decline in the economic value of children, as the use of child labor becomes institutionally restricted. In this paper, I try to suggest that regardless of what happens to the labor market, changes in the marker for means of subsistence might affect fertility behavior. Specifically, as long as the families must have access to means of subsistence through the market, their consumption level is then subject to the effect of price variations; that is, the consumption level would vary as a response to changes in price structure. Given the subsistence level, there might be a pressure on the family's standard of living. As a response, families would control fertility to keep up their standard of living.

Third, in the case of Brazil, these changes took place along with other institutional changes which have provoked an intensification of the fertility decline. Diversification of consumption patterns with increased consumption of durable goods and unification of the labor market for unskilled labor in a context of rapid change in price structure may have played a role in increasing the relative cost of children and, consequently, in rapid fertility decline.

NOTES

- (*) This paper is a modified version of the "O processo de proletarianização como fator de desestabilização dos níveis de fecundidade no Brasil", presented to the Seventh Meeting of the Working Group on Human Reproduction, Commission on Population and Economic Development, CLACSO, Cuernavaca, Mexico, 1982. I wish to thank Haydn Pimenta for his valuable work on the translation of this paper. Some of the ideas presented here came out as a result of profitable discussions with Vilmar Faria, José Alberto M. de Carvalho, Elza Berquó, Francisco de Oliveira and Paul Singer. I wish to thank them and also the comments of Joseph Potter, Brígida Garcia and Maria Coleta de Oliveira on the earlier version of this paper presented to the CLACSO meeting. Finally, I would also wish to thank Donald Sawyer for his comments on the present version. The remaining errors and omissions are of my own responsibility.
- (1) The major papers that first came out dealing with evidence about the sharp fertility decline in Brazil are Elza Berquó, "Algumas indagações sobre a recente queda da fecundidade no Brasil", presented to the Sixth Meeting of the Working Group on Human Reproduction, Commission on Population and Economic Development, CLACSO, Teresópolis, Brasil, 1980, and José Alberto M. de Carvalho. "Evolução demográfica recente no Brasil". Pesquisa e Planejamento Econômico, 10(2):527-54, ago. 1980. The hypotheses about the impact of proletarianization process on fertility levels appeared first in Paulo Paiva. "Algumas hipóteses sobre as relações entre a proletarianização e fecundidade no Brasil". Anais do VIII Encontro Nacional de Economia. Brasília, ANPEC, 1980, vol. 7, p. 331-80. In English, it appears in José Alberto M. de Carvalho, Paulo Paiva and Donald Sawyer. The recent sharp decline in fertility in Brazil: economic boom, social inequality and baby bust. Mexico, the Population Council, 1981 (Working Paper nº 8) to appear also in W.P. Mauldin, ed., Fertility decline in developing countries: case studies (forthcoming). Finally, a study of the sharp decline of fertility in Brazil is Thomas W. Merrick and Elza Berquó. The determinants of Brazil's recent rapid decline in fertility. Washington, National Academy Press, 1983.
- (2) See E.A. Wrigley and R.S. Schofield. The population history of England: 1541-1871. London, Edward Arnold, 1981.
- (3) E.A. Wrigley. "Fertility strategy for the individual and the group". In C. Tilly, ed. Historical studies of changing fertility. Princeton, Princeton University Press, 1978, p. 135.
- (4) Ron Lesthaeghe. "On the social control of human reproduction". Population and Development Review, 6(4):528, Dec. 1980.
- (5) See E.A. Wrigley, cited in note 3, p. 135-6.
- (6) Charles Tilly, cited in note 3, p. 22.
- (7) For a review of this argument see Joseph Potter. "Effects of societal and community institutions on fertility". In Rodolfo A. Bulatao and Ronald D. Lee, eds. Determinants of fertility in developing countries. New York, Academic Press, 1983, vol. 2, p. 627-65.

- (8) John Caldwell. "A theory of fertility: from high plateau to destabilization". Population and Development Review, 4(2): 553-77, Dec., 1978.
- (9) See, for instance, John Caldwell. "The mechanisms of demographic change in historical perspective". Population Studies, 35(1):5-27, Mar.1981, especially p. 9-10.
- (10) Ron Lesthaeghe, cited in note 4, p. 530.
- (11) Ron Lesthaeghe, cited in note 4, p. 543.
- (12) See Alan Macfarlane. The origins of English individualism. Oxford, Basil Blackwell, 1978.
- (13) Richard Smith. "Fertility, economy and household formation in England over three centuries". Population and Development Review, 7(4):595-622, Dec. 1981. See especially p. 602.
- (14) Richard Smith, cited in note 13, p. 618.
- (15) Ron Lesthaeghe, cited in note 4.
- (16) John Caldwell, cited in note 9, p. 27.
- (17) Charles Tilly, cited in note 3, p. 22.
- (18) Charles Tilly, cited in note 3, p. 22-3.
- (19) John Caldwell, cited in note 8.
- (20) John Caldwell, cited in notes 8 and 9.
- (21) For a Marxist approach to demographic transition see, for instance, Wally Secombe. "Marxism and demography". New Left Review (137):22-47, Jan./Feb. 1983. And for a criticism to this kind of approach see Richard Smith, cited in note 13.
- (22) John Caldwell, cited in note 8.
- (23) Thomas W. Merrick e Douglas H. Graham. Population and economic development in Brazil. Baltimore, The Johns Hopkins University Press, 1979, p. 42.
- (24) Charles Tilly, cited in note 3, p. 32.
- (25) Altiva P. Balhana. "Nupcialidade e fecundidade". In: Anais do Primeiro Encontro Nacional. Campos do Jordão, SP, Associação Brasileira de Estudos Populacionais - ABEP, 1978, p. 423-53.
- (26) See Diana R.T.O. Sawyer. Mortality-fertility relationships through historical socioeconomic change: the case of São Paulo, Brasil. Harvard University, 1979, p. 230. (Ph.D. dissertation).
- (27) The highest level observed on the literature would be the marital fertility of the Hutterites (12.6 children on the average per married woman). See Ansley J. Coale. "The decline of fertility in Europe from the French Revolution to World War II". In: S.I. Behrman, Leslie Corsa Jr., and Ronald Freedman, eds. Fertility and family planning. Ann Arbor, The University of Michigan Press, 1971, p. 3-24.

- (28) Thomas H. Holloway. "Condições do mercado de trabalho e organização do trabalho nas plantações na economia cafeeira de São Paulo, 1885-1915 - uma análise preliminar". Estudos Econômicos, 2(6):145-80, dez. 1972.
- (29) Celso Furtado, The Economic Growth of Brazil. Berkeley, University of California Press, 1963, p.145-6.
- (30) Some authors suggest that there has been pressure leading to increased wages due to, for example, lack of labor. C. Furtado, cited in note 29, p. 159, and Thomas Merrick and Douglas Graham, cited in note 23, p. 85. Others attempt to show how the colonato system succeeded in maintaining low wages. See, for example, Gervásio C. de Rezende. "Trabalho assalariado, agricultura de subsistência e estrutura agrária no Brasil: uma análise histórica". Pesquisa e Planejamento Econômico, 10(1):179-216, abr. 1980.
- (31) Jorge Balan. "Migrações e desenvolvimento capitalista no Brasil: ensaio de interpretação histórico-comparativa". Estudos CEBRAP (5):5-75, jun./set. 1973. For the same topic, see also Otávio Ianni. A classe operária vai ao campo. São Paulo, CEBRAP, 1976, p. 14 (Cadernos CEBRAP nº 24) and Verena Stolcke. The "unholy" family. n.d. (mimeo).
- (32) Gervásio C. de Rezende, cited in note 30, p. 192-6.
- (33) Thomas H. Holloway, cited in note 28, p. 168-9.
- (34) E.A. Wrigley, cited in note 3, p. 118, has made a similar observation concerning the restrictions to early marriage in England. Wrigley says that, in several regions, the youth should have the landlord's permission to get married. If the landlord opposed to the multiplication of households, he could make it difficult for his workers to get married. Stolcke, cited in note 31, argues that "immigrants accompanied by their families were less prone to abandon the plantations". She observes also that landowners ideological notion of the family as solidary unit implied on the belief that "a member of the family would not run away and abandon his family".
- (35) C. Furtado, cited in note 29, p.145-6.
- (36) Gervásio C. de Rezende, cited in note 30, p. 205-9.
- (37) José Alberto M. de Carvalho, cited in note 1, p. 534.
- (38) Ana Luiza Ozório de Almeida. "Parceria e tamanho da família no Nordeste brasileiro". Pesquisa e Planejamento Econômico, 7(2):330, ago. 1977.
- (39) This hypothesis has been considered by Dov Friedlander. "Demographic responses and population change". Demography, 6(4):359-81, 1969.
- (40) José Alberto M. de Carvalho. Analysis of regional trends in fertility, mortality and migration in Brazil, 1940-1970. London School of Economics, 1973 (Ph.D. dissertation).

- (41) José Alberto M. de Carvalho, cited in note 1, p. 541-2.
- (42) Diana R.T.O. Sawyer, cited in note 26, p. 226-45, has shown evidence of fertility fluctuation in the City of São Paulo which approximately corresponds to the Brazilian economic cycles.
- (43) In a recent work, Goldani Altmann and Wong presented estimates of marital fertility for Brazil and its seven regions. These estimates indicated that the marital fertility level for Brazil would be close to 7.64 and 6.68 in 1970 and 1976, respectively. Ana M. Goldani Altmann and Laura L. R. Wong. Estimativas de fecundidade para o Brasil e suas regiões a partir de informações sobre nupcialidade e fecundidade marital. São Paulo, 1981. Seminário "Tipos de Família e Fecundidade". (mimeo.).
- (44) Ana M. Goldani Altmann and Laura L.R. Wong. "Padrões e Tendências da Nupcialidade no Brasil". In: Anais do Segundo Encontro Nacional. Águas de São Pedro, SP, Associação Brasileira de Estudos Populacionais - ABEP, 1981, vol. 1, p. 343-415.
- (45) Studying the organization forms of the agricultural production in Brazil, Lopes proposes four different types - latifundia, peasant units, petty-commodity producing units, and capitalist agricultural enterprises - three of which basically use non-wage labor. Juarez R. Brandão Lopes. Do latifúndio à empresa. São Paulo, CEBRAP, 1976 (Cadernos CEBRAP nº 26).
- (46) A. Barros de Castro. 7 Ensaio sobre a economia brasileira. 3 ed. Rio de Janeiro, Forense-Universitária, 1977, vol. 1 p. 112-3.
- (47) See Francisco de Oliveira. A economia brasileira: crítica à razão dualista. São Paulo, CEBRAP, 1975, p. 17 (Seleções CEBRAP nº 1).
- (48) On this point, see Thomas W. Merrick. "Fertility and land availability in rural Brazil". Demography, 15(3):321-36, 1978.
- (49) Juarez R. Brandão Lopes. O emprego rural no Brasil (1940-1975): uma perspectiva de classe. Ouro Preto, ABEP, 1981. Paper presented to the "Seminário Metodológico sobre a Força de Trabalho". (mimeo.).
- (50) Juarez R. Brandão Lopes, cited in note 49, p. 5-6.
- (51) Juarez R. Brandão Lopes, cited in note 49, p. 15-6.
- (52) Fernando Homen de Melo. "Disponibilidade de alimentos e efeitos distributivos: Brasil, 1967/79". Pesquisa e Planejamento Econômico, 12(2):343-98, ago. 1982.
- (53) These estimates were computed by dividing the 1979 lowest class index by the 1979 highest class index for each region.
- (54) Evidence on this point is found in Paulo Paiva, cited in note 1 and José Alberto M. de Carvalho, Paulo Paiva and Donald Sawyer, cited in note 1.

- (55) For evidences on this point, see João Saboia. As causas da difusão da posse dos bens de consumo duráveis no Brasil. Rio de Janeiro, ANPEC/PNPE, 1983 (Série Fac-Símile nº 4). For a more thorough discussion about the interrelations among income, consumption and production structures in Brazilian recent economic growth, see Regis Bonelli and Paulo Vieira da Cunha. "Crescimento econômico, padrão de consumo e distribuição de renda no Brasil". Pesquisa e Planejamento Econômico, 11(3):703-56, 1981.
- (56) José Alberto M. de Carvalho, Paulo Paiva and Donald Sawyer, cited in note 1.
- (57) Thomas W. Merrick and Elza Berquó, cited in note 1, p.83-4.
- (58) See Verena Stolcke, cited in note 31.
- (59) Ruy M. Paiva. "Os baixos níveis de renda e salários na agricultura brasileira". In C. Contador, org. Tecnologia e desenvolvimento agrícola. Rio de Janeiro, IPEA/INPES, 1975 (Série Monográfica, nº 17), quoted in Paulo Vieira da Cunha. Minimum wages in Latin America: a review. Washington, World Bank, 1983. (mimeo.).
- (60) Vieira da Cunha, cited in note 59. Originally these data were published in Edmar Bacha. "Crescimento econômico, salários urbanos e rurais: o caso do Brasil". Pesquisa e Planejamento Econômico, 9(3):585-628, 1979.