

MORTALITY CHANGES AND THEIR INTERRELATION WITH SOCIO-  
ECONOMIC PROCESSES IN AGRARIAN SOCIETIES: EVIDENCE  
FROM STUDIES OF FAMILY UNITS OF PRODUCTION

Mario Bronfman\*

Susana Lerner \*

Rodolfo Tuirán \*

\* Center for Demographic and Urban Development Studies,  
El Colegio de México.

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Due to the complexity and wide scope of the issue, theoretical approaches to study demographic dynamics and agrarian structure have faced particular problems in operating with arguments and hypotheses of a high level of generalization involving grand universal assumptions. Some of the traditional approaches, incorporating many variables with no hierarchization or articulation among them, if not inadequate, are of little relevance to explain interrelations or to establish frameworks for theoretical analysis. Although common dimensions which define the features of agrarian structure (land tenure, size of land, technological levels, work processes etc.) are important in themselves and allow for the very general description of aspects of the structure, they have gained significance and relevance when studied as part of a specific social and historical context. The same argument applies when analyzing demographic events.

Neither agrarian nor urban societies are homogeneous categories. Their particular geographic, political, institutional and socio-economic feature vary over time and space, and therefore their processes and stages of transformation assume different forms of concrete expression. Therefore, the patterns of settlement of population, the patterns of social and labour mobility, health and medical practices, as well as the prevalence or changes in values and norms related to reproductive behaviour, among other socio-demographic phenomena, respond not only to the particular features conferred by their social specificity, but also to the sequences and temporalities in which these 'events' occur. 1/

The complexity of this issue has led much recent research toward the identification of specific agrarian contexts. The family or domestic group according to its class position, is being defined as a social context or 'social space' where the processes of production and/or reproduction of the population takes place, therefore becoming a relevant level of analysis. 2/

Recent studies have contributed some empirical evidence on this interrelation, questioning theoretical assumptions taken for granted in the

literature, enriching our knowledge on the state of the art, and opening new priorities on research topics in this area. Studies on the family structure, its composition and organization within agrarian contexts are a good starting point to illustrate the way in which the increase in population numbers that characterizes a large number of agrarian societies in the last decades has affected families, both in their own immediate space and the social contexts wherein they are found.

#### Effects of Mortality Decline on Family Structure

Studies carried out in some agrarian micro-regions of Mexico 3/ have shown the way in which the present family 'space' has been extended and transformed through the larger coexistence of different vertical and collateral nuclear groups 4/ as a result of the rapid decline of overall mortality, especially the fall in infant mortality, and the continued prevalence of high levels of fertility. Though a vertical pattern presently dominates in the extended groups in the Mexican regions of the study (see note 4), it would seem obvious that under high mortality conditions, like the ones that prevailed in the past, this vertical pattern has not been prevalent. 5/ This example will demonstrate the way in which high mortality of the past influences: a) the reduction of common residence time among two or three related generations, and b) the decreasing number of generations of siblings that would have actually succeeded the corresponding one of their parents, or the limited number of married children of their descendants living with their parents.

From this extremely limited 'familial time', the existing household 'space' in the past could easily have been identified and confused with the residential space, that is, with the so-called residential domestic groups defined by the traditional census criteria (having a common residence and sharing the same budget); also in the case of the father's absence, it is possible to assume that children broke into separate nuclear units and had little relation among them. On the contrary, in low mortality conditions, the survival of the father and/or his partner allows for a wider family space, with the increasing multiplication of nuclei integrated by the siblings and with the persistence of social relations among them and their groups of origin. In this case, given a larger 'familial time', the family space exceeds the residential space of the parent's domestic group: in the majority of cases, this family space includes the

vertical pattern, that is, a group comprising by the parent's central nucleus and at least one descent nucleus and an increasing number of nuclear groups of descent living in different residential units, among which different relations of co-operation and reciprocity prevailed.

Findings of the Mexican study mentioned demonstrates that at 30 years of age, more than 70 percent of the heads of domestic groups interviewed have living parents. 6/ In another study on Africa, Locoh estimated that at 30 years of age, 85.3 percent of men have lost their parents under the hypothesis of high mortality levels ( $e^m_o = 30.07$  years of age), against 51.2 percent according to the hypothesis of lower mortality ( $e^m_o = 65.47$  years of age). More interesting are the conclusions about the number of male births a peasant man requires to replace him at his 60th anniversary: with the high level of mortality, 4 male births are necessary in order to have at least one of his sons replacing him, and 8 if he wants 2 sons in his social position; in the case of higher life expectancy, the number is 3 male births for one son and 5 male births for two sons in his place. 7/

Part of these findings have questioned the apparently increasing nuclearization observed in certain agrarian societies or in specific social groups within them, defined as a general trend in the large majority of the studies on the issue. The Mexican evidence shows that nearly 50 percent of the heads of nuclear groups do not have surviving parents, and at least 28 percent of them are in a stage of their life-cycle in which there are no possibilities of forming extended groups with descent nuclei (that is, with the heads of nuclear groups younger than 30 years of age). 8/ A similar conclusion was reached in another study that shows that during the eighteenth century in the Haute-Provence, in France, the relative proportions of nuclear families were 53 percent to 16 percent under the same criteria. 9/ Therefore, it seems even more important to attempt to explain the significance and relevance of the process of nuclearization or extension in the formation of family arrangements, as well as the modifications which this process brings about in the social relations among groups in peasant societies.

Taking into account at least the demographic influences, one conclusion should be that before arguing for the existence of an increasing proportion of nuclear domestic groups, it is necessary to distinguish, at first, if nuclearization arises from the fact that these family heads have no surviving parents, or are themselves in the stage of their demographic

life-cycle where their children are neither forming their own nuclear group, nor remaining within the extended arrangements.

However, this distinction should also be underlined when introducing other elements like age of family head, class condition and possibilities of supporting an extended family. According to the above mentioned study in Mexico, it appears that under the impossibility for a large number of descent nuclei of a common coexistence within the group of origin, the greater possibilities of forming nuclear groups were found among family heads of younger generations whose parents have no access to land (salaried or self-employed workers) or those whose parents have limited access to land. Similar results are found in other studies where prevalence of the extended family in traditional societies has been analyzed. The level of economic resources necessary to support this family pattern and the complex domestic relations within it are strongly determining factors. Only a minority of families conform to this type of arrangements. 10/

In the same sense, it is interesting to add that in the case of extended domestic groups directed by young family heads, the extension is partly a result of the demographic events occurring in the family of origin: widowed mothers, young collateral members whose family head or parents have died, orphans, divorced or other isolated members of their family of origin are integrated to extended groups. Again, this pattern of family structure reflects the difficult conditions of survival prevailing in some socio-economic contexts that inhibit or reduce the possibilities for nuclear arrangements. At the same time, it implies a greater complexity of extended family arrangements directed by young family heads. In some of the Mexican agrarian micro-regions, more than 80 percent of the extended groups of young family heads, and also the same figure for all such families belonging to the proletariat or paid worker class, are composed of members of the head's family of origin (mainly a widowed mother with her own siblings). 11/

A similar situation is described in Togo agrarian society, between native and migrant populations subject to different demographic conditions. 12/

Changes in the life-cycle of the family and its extension in time can also lead to a transformation and multiplication of the events occurring within it. Children can enter and leave the father's family groups a greater number of times, the duration of his own marriage and that of his

children expands, the probability of couple's breaking-up increases, etc. That is, different practices correspond to different periods and sequences of events or, at least, different ways to perform the traditional rules and practices that governed society.

The results and arguments mentioned hereby support our hypothesis of the presence of a new practice in the formation of residential domestic groups as a result of mortality decline. Today new generations form their nuclear cells and separate from their parents' domestic groups, and only one child remains within the group of origin; also this child may bring in other members that lead him to separate out his own family. This new practice means the multiplication and dispersal in space of the related nuclear groups.

Different formations can be produced from the residential eruption of the family space, as a result of the increasing probability of survival of parents, children and grand-children, and according to the conditions and options given in each society. At least two different patterns can be recognized: on the one hand, the maintenance of the same family space through the nucleation and multiplication of groups outside the community. On the other hand, as is the case in one of the Mexican regions under study an extension of the family space within the locality's frame, that is, in the same geographical space. <sup>13/</sup> It is important to stress that in the latter case, the simple residential family concept is insufficient to explain the real family space and can lead to erroneous conclusions about important family arrangements. Therefore, we emphasize the need to consider and redefine the family, as an analytical category, according to the given social relations among related domestic groups. <sup>14/</sup>

What seems more important is the possibility of identifying, through structures and patterns of family arrangements found in specific contexts, their correspondence to residential and marital patterns, different working processes and productive relations and biological and reproductive practices among others. All these are produced by changing social and demographic conditions. Without prejudging for the moment the weight of one or another of these previous conditions on the changes, it is important to emphasize how in specific situations - spatial and temporal - demographic conditions can impose a new articulation in social practices, thereby exerting an influence on other structures or levels of society.

In this sense, Godelier<sup>15/</sup> has demonstrated how the rules of marital

exchanges in an Australian aboriginal population can either disappear, or acquire a different form if a demographic shortage occurs, and how the return to previous demographic conditions does not necessarily mean that the rules and social practices can be revived in the same manner. According to the author, the complexity of demographic analysis lies in the fact that 'each type of social relation, each structural level, is subject to specific demographic conditions in its functioning and its reproduction in time'.16/

In the same line, another author has underlined the place of the aleatory (stochastic) demographic events in marital strategies. In the case of the Bearn communities, he points out how these strategies are designed around the preservation of patrimony. It is through these strategies that they seek to face chance events occurring within the family, which can jeopardize their fundamental principle: the transmission and prevalence of patrimony.17/

In his analysis of some aspects of the relationship between the life-cycles and the economic mobility of households in rural Bangladesh, Cain 18/ examines the sequence and timing of events in elements such as the number of living children and timing of male births and death of household heads. These are considered uncertainties (or aleatory demographic events) that people face in order to maintain or lose the familiar patrimony and, in general, these are related to the economic welfare of the social unit. Finally, in his study on the Polish peasants of the eighteenth century, Kula 19/ illustrates the control and direction that feudal lords exerted on the reproduction of the families under their dependence. He demonstrated thereby how the demographic structure and its reproduction can be controlled from outside, according to specific objectives.

The above mentioned examples illustrate the relevance of reintroducing the notions of specific temporalities of population processes through the demographic conditions to which the population, or certain groups, have been subdued. They also demonstrate, and support our hypothesis, that it is enough to incorporate as a 'mediation' the changes in the temporality of demographic events, so that certain social practices are altered. This is the case of the timing and pattern in mortality decline and its sequence with fertility decline or with other demographic events. Nevertheless, the latter does not mean to ignore that we are dealing with events that are,

above all, subject to transformations of other material survival conditions, as well as to superstructural influences. These events not only lead to modifying the familiar space, but also influence other 'records' of society.

Let's clarify and specify the above taking as an example the characteristics of the 'ejidatarios' (mini-fundia or farmers that have the right to use and bequeath the land they have been granted) in the agrarian zones of Mexico. The increase of life expectancy of these peasants, particularly that of the father or head of the domestic group that gained access to the land during the agrarian distribution, implies maintaining in his hands the power over the means of production for a longer period of time. At the same time, the increased survival of children that reach adulthood, that is, the age when they form their own families and obtain or share the father's rights, represents an increase in the number of persons who can occupy a similar social position within the household. Therefore, the timing and sequence of at least two demographic events - increased survival and maintenance of fertility levels - lead to a transformation and questioning of the power and property structure, as well as the control of means of production and practices of reproduction within the family.

Among the specific conditions that have characterized land distribution and agrarian development in countries like Mexico are the limited size of plots originally granted to the great majority of 'ejidatarios'. There is also a concentration of large tracts of land in only a few hands to prevent land fragmentation. This means that replacement conditions of access to land for a good number of peasant children is absolutely impossible. It may be also that plots are drastically reduced in size and/or strongly modified. All this is accompanied, as has been emphasized, by a semi-proletarianization process among peasant producers.

A very good example of this process of fragmentation and of limited access to land has been demonstrated by Arizpe<sup>20</sup> in two Mexican communities. The author notes that by 1928 in one of the communities the original endowment did not exceed an average of 2.5 hectares per family - this figure being smaller than the estimated area needed to guarantee the simple reproduction of a productive unit. This low endowment reflects, in part, the original high density of population. In contrast, the size of plots in the other community was substantially larger, reaching an average of approximately 6.2 hectares. In the long term, the survival of a greater

number of children affected the inheritance practices and the fragmentation of land: in the first community, by 1956, the average land extension had been reduced to only one hectare, whereas in the second, in spite of the immigration of a large family group, the plots reached an average size of 2.5 hectares. When analyzing the possibilities for some Mexican peasants and their collateral relatives to recreate an important part of the conditions of their parents' social reproduction, (i.e. to have access to land or to the 'sistema ejidal') the greater semi-proletarianization process observed is partially the result of a demographic and generational effect. The fact that the youngest peasants are much more involved also in salaried activities, is due to the physical requirements for such activities. Also, there is a saturation of the production system (for example, the possibility of incorporating other peasants to the 'sistema ejidal') and the survival and active presence of the older peasant generation (the one that received the land during the agrarian reform in the case of Mexico).21/

As we have mentioned, the greater survival probabilities of parents, children and grand-children leading to modification of the household space is not inconsistent with or independent of the particular conditions of the social context wherein it is found. Extended family arrangements in agraria zones of Mexico arise out of difficulties experienced in the creation of autonomous groups, such as limits on access to land or salaried permanent jobs, lack of sufficient remunerated income as means of securing the group's essential survival conditions and the availability of housing. These factors, among others, are more important in determining the family structure than the self-will or 'traditional practice' of such family organization. In the Mexican agrarian context it is not the need of a greater or additional family labour force by the members of the descent or extended nucleus that leads to the formation of extended arrangements. It is the rotation in the use of family labour of the head's nuclear group that enables him to satisfy the working requirements of his economic unit of production.22/ The limited reduced proportion of family groups in a stage of disintegration (due to the couple's breaking up or the children's departure) would seem another element underlying the great difficulties in the maintenance of this type of arrangement.

Another relevant matter is to consider that most of the social structures, such as the type of family arrangements, do not operate in a homogeneous way for the whole population. There is a differential access to

the means of production, the resources and input used in production, the opportunities to enter in other social relations within and outside the agricultural sector and, in general, the differential access to economic and social services (credit, commercialization channels, educational and health services, among others). These imply that modifications of different 'social spaces' do not necessarily lead to different structures and behaviours, but have always a different significance and articulated structure in themselves and with other processes.

In this sense, it should be recognized that mortality decline in agrarian contexts, characterized by an intensive process of social differentiation, also means that different social groups do not participate or benefit equally from the decline. Different studies of Mexico and other Latin American countries explain this situation of inequity before death. 23/ Specific social class position implies differential access to sanitary infrastructure, health system, diseases, nutritional levels, technological availability, etc. These aspects obviously relate to other conditions. All these facts, as mentioned in the studies, express at the same time the differential impact of the various actions and policies developed among geographic areas and social groups. Polarization has intensified since mortality decline and has reached a limit that is not being overcome by a substantial increase in the welfare of the majority of the pauperized population living in agrarian zones.

In the preceding paragraphs, we have pointed out the importance of considering the impact of demographic transition and especially the impact of rapid decline in mortality on family structure. This has produced a proliferation of nuclear family units leading to the expansion of the household space and to the modification of social practices within and outside this space.

#### Effects of Mortality Decline on Other Behaviour

The system of social relations among groups that define the real family space can develop both within and outside communities and can flow beyond the rural limits or remain within them. When the division of one or more of the nuclear components appears to be accompanied by a migratory movement outside the community, nuclearization with respect to the group of origin does not necessarily mean a rupture with the original family space, especially when both parents, or at least one of them, survive. On the contrary, the case could arise where nuclear components leave their

original place and settle in the same community and maintain, extend or restrict their relations with the group of origin. Also, both trends can be represented. In any of the cases, it would mean an extension of the family space, a wider network of exchange and reciprocity, expressing above all one of the principal features of the agrarian change and development: the coexistence of different types of economic organization, the greater link between the domestic economy and the market economy, as well as the influence of the latter in the former. It should be understood that the practices, and resulting exchanges, between the residential and interaction groups (see note 22) are different according to whether the interaction groups are inside or outside the community.

This thesis emphasized the importance of considering two processes closely interrelated to each other: the spatial mobility and the occupational diversification of the members in the domestic unit. Both processes are an essential part of the strategies of the domestic group to guarantee the survival and reproduction of the economic unit of production as well as the family group's survival.

Different studies have suggested that spatial mobility and occupational diversification among members of the domestic unit form part of the adaptative mechanisms which the peasant economy utilizes to adjust the availability of labour to the working requirements of the family unit.

Proletarianization thereby becomes a mutable procedure during the individual and family life-cycle, insofar as domestic economies can combine both strategies in rural and urban settings. In this sense, one of the most relevant findings in the Latin American region is the fact that the changing processes in the agrarian sector have not necessarily led to the definite proletarianization of the labour force, but that this process has adopted different modalities that go from the semi-proletarianization, the peasant restructure, to a total proletarianization. In a certain way, these modalities respond to the tendency observed in the rural labour markets with respect to the increasing and accelerated replacement of permanent laborers for temporary ones, as well as the lack of dynamism of the urban-industrial sector which determined a lower capacity of absorption of labour force. Therefore, due to the fact that the capitalist sector has not been able to totally assume the reproduction of rural labour force, there still remains an important space for the development of multiple forms of domestic economy.

Some authors have advanced the thesis that the pervasiveness of peasant economy has been functional with respect to the logic of reproduction of dependent capitalism. For example, it has been suggested that the preservation of small holdings permit the presence of an important labour force reservoir that the capitalist sector only utilizes at specific times of the year, saving thereby the cost of production and part of the reproduction cost of this labour force. Likewise, the reproduction of one of the largest sectors of population has been supported by peasant economy, avoiding thereby, from a social point of view, the waste of productive forces due to the capitalist sector's inability to integrate them productively.

In the peasant economy, these trends have reinforced the link between the family group and the land, in spite of the exhaustion and deterioration of the productive conditions of their land. The occupational diversification process accomplishes thereby the function of maintaining part of the members of the family group as a productive force within the confinements of its unit, at the same time that the rest of the family undertakes off-farm activities in order to obtain additional income that the domestic group needs to maintain conditions conducive to the reproduction of the productive unit and the subsistence of the family group.

In this process, migration has been a fundamental mechanism and a strategy. The earning of an off-farm salary and the search for alternative sources of income has generally resulted in the population's spatial movements. What seems important to stress is the fact that both spatial mobility as well as occupational diversification of the family members are not independent from the conditions that allow for an increase in children's survival and life expectancy of parents.

Regarding the different patterns which characterize migratory movements in Latin America, there is a certain consensus in the idea that these patterns have not only responded to specific forms that the transformation processes of the agrarian structure assume in different contexts, but they also obey certain elements of the family environment which explain why specific groups or individuals migrate whereas others, with similar characteristics, do not. The relation between structural conditions and migration or between the family and migration is not unilateral. Each of the units implement particular reproduction mechanisms according to their material resources and to the type and intensity of the external pressures.

These strategies can, at the same time, assume different forms and nuances according to the size and demographic dynamics of the family groups on which the reproductive unit is based.

Recent studies demonstrated how the selectivity of migration - as a survival strategy of domestic economy - links with the stage of the vital cycle wherein the family group is found. In her study of population movements Arizpe observes the manner in which different group members during the life cycle replace each other in obtaining additional income. This task usually results in spatial movements toward other contexts. These movements are defined by Arizpe as 'replacement migration'. In the 'mini-fundista' unit, the father is the first one to migrate. He is then replaced by the elder sons and daughters who tend to remain in the zones of destination as they have almost no chance to inherit a piece of land, due to its intense fragmentation and to the institution of inheritance rights, like the 'last-born'. These migrants regularly send a certain amount of money to the family group of origin. Younger sons and daughters that remained in the unit at the beginning, taking care of agricultural chores, as they start growing older assume the responsibility to provide the domestic group with complementary income, thus relieving their parents and elder sibling of this duty. Due to their future security of inheriting a patrimony according to the 'last-born' right, the youngest children make only temporary movements, to guarantee the essential survival of the family nucleus.

Similar conclusions have been reached through a different study wherein it has been demonstrated that migration is a mechanism that permits the reproduction of the domestic unit through the acquisition of complementary income, and contributes to diminish the costs of consumption through the departure of some of the members of the family group.<sup>24/</sup>

None of the studies undertaken in Latin America and perhaps other regions have, up to this moment, explicitly analyzed the interrelation between mortality changes and the processes mentioned as part of the peasant economy. Nevertheless, when studying the migration patterns, as in the case of the replacement movements found, implicitly it is possible to visualize, that a general and different replacement process is going on in which, undoubtedly, the increasing life expectancy of parents and their offspring is playing an important role.

In a recent study<sup>25/</sup> of temporary movements in a sugar cane economy area in Mexico, the following became evident: a) the excessively young ages found among the actual migrants involved in this seasonal group (almost half of them were between 14 and 24 years old);<sup>26/</sup> b) the still younger age when realizing their first temporary movement (more than 70 percent were 15 years old and 18 percent had their first movement between 0 and 9 years of age)<sup>27/</sup> and also the young age to form their own families (53 percent had their first union between ages 15 and 19 and 90 percent had it before they were 24 years old)<sup>28/</sup> and c) the close relation found among these migrants, with respect to the way of supporting their family unit of production (minifundia plots worked during the rainy season), where, due to their age, less than half of the sugar cane temporary workers with access to land are family workers without payment in their units of production at their places of origin.<sup>29/</sup> These observations support the replacement or changing process that is taking place both at the family level and at the economic and social levels, that are influencing the semi-proletarianization of a majority of the younger members, the maintenance or recreation of wider and different family arrangements and relations and in general the persistence of the peasant economy in many societies. Moreover, the decline in mortality coupled with high levels of fertility has played an important role in the widening and redefinition of this replacement process as well as in many other changing processes of these societies. The most important conclusion derived from this paper is the need for major efforts in the empirical research regarding the social dynamics of peasant communities, taking into account demographic changes as well as the specific socio-economic processes of each society and giving priority to the economic unit of production and the family as levels of analysis.

NOTES: 1/Several authors have discussed and illustrated some of the theoretical and methodological problems regarding sequences and temporalities of events and variables in socio-demographic analysis (T.K. Hareven, 'Family time and historical time', Daedalus 106(2), Spring, 1977; H.Zemelman, 'Problemas en la explicacion del comportamiento reproductivo (sobre las mediaciones)' in Reflexiones teorico-metodologicas sobre investigaciones en poblacion, El Colegio de Mexico, Mexico, 1982; A. Quesnel and S. Lerner, 'Problemas de interpretaciones de la dinamica demografica y de su integracion a los procesos sociales', Seminario PISPAL sobre Problemas de la integracion del Analisis Demografico en la Investigacion Social, Brasil, 1983).

2/The relevance of the family as economic unit of production and as a theoretical category in sociodemographic analysis is being emphasized in many recent studies. See, among others, S.Wargon, 'The study of household and family units in demography', Journal of Marriage and the Family, 35(3), August, 1974, pp. 560-564; T. Burch et al., La Familia como unidad de estudio demografico, San Jose, Costa Rica, CELADE, 1976; W. Brass, 'Cooperative research project on demography of the family', CICRED (mimeo) 1980; S. Lerner, 'Poblacion y familia o grupo domestico', II Reunion Nacional de Investigacion Demografica en Mexico, CONACYT, Mexico, 1980; S. Torrado, 'Sobre los conceptos de 'estrategias familiares de vida' y 'proceso de reproduccion de la fuerza de trabajo', Taller PISPAL sobre Estrategias de Sobrevivencia, Buenos Aires, 1980' M.C. Olivera, 'Notas acerca da familia nos estudos demograficos', VII Reunion del Grupo de Trabajo sobre Proceso de Reproduccion de la Poblacion, Mexico, 1982.

3/S.Lerner and A. Quesnel, 'La estructura familiar como expresion de condiciones de reproduccion social y demografica', VII Reunion del Grupo de Trabajo sobre el Proceso de Reproduccion de la Poblacion, CLACSO, Mexico 1982.

4/The vertical pattern in extended families comprises by the central nucleus (father and/or mother and unmarried children) and at least one nucleus of descent (children of the central nucleus and/or their partners and respective children). Forty five percent of the total number of domestic groups conform to extended arrangements and more than 80 percent of these correspond to this pattern (Lerner and Quesnel, loc. cit., footnote 3, pp. 26-27). Similar results have been reached in other studies with regard to the proportion in extended arrangements in agrarian areas (M.Torres, Familia, trabajo y reproduccion social. Campesinos en Honduras, PISPAL, El Colegio de Mexico, 1982; M. Cain, 'The economic activities of children in a village in Bangladesh', Population and Development Review, Vol. 3, No. 3, (September, 1977), among others). The collateral or horizontal pattern in extended families will include, aside from the central, another nucleus composed by brothers or sisters of the family head or the spouse. When reference is made to vertical or collateral nuclear groups, its structure by definition is nuclear and its composition has the same meaning as described above.

5/In the zone under study, which is located in the state of Yucatan, it was observed that general mortality at the state level has declined from 34.2 per 1000 in 1930 to 8.3 per 1000 in 1975 in the entire state. The birth rate until 1976 has been estimated as, approximately, 44 per 1000 level but has declined slightly since then. (CONAPO, Breviarios, Mexico Demografico, 1981-1982.)

6/CONAPO, ibid, footnote 5, p. 18.

7/T. Locoh, 'Consequences de la baisse de la mortalite sur l'evolution des structures familiales africaines', IUSSP, Mexico, 1977, pp. 2-3.

8/Lerner and Quesnel, 'La estructura familiar ...', loc. cit., footnote 3, pp. 29-30.

9/A. Collomp, 'Familles nucleaires et familles elargies en Haute-Provence au XVIIIe. siecle (1703-1734)' Annales, ESC, 1972, No. 4-5.

10/M. Levy, 'Aspects of the analysis of family structure', (in) A. Coale et al., Aspects of the analysis of family structure, Princeton University Press, 1965, quoted by M. Torres, 'Cambios en el comportamiento reproductivo y su vinculacion con los cambios en la estructura agraria en America Latina'. Congreso Latinoamericano de Poblacion y Desarrollo, Mexico, 1983.

11/Lerner and Quesnel, 'La estructura familiar ..', loc. cit., footnote 3, p. 28; S. Lerner and P. Livernais, 'Fecundidad y diferenciacion social,' CEDDU, mimeo, El Colegio de Mexico, 1984, p. 54.

12/A. Quesnel, 'Deplacements, chagements sociaux economiques en economie de plantation. Le Plateau de Darges' (Togo), IDEP, ORSTOM, 1981; D. Benoit et al., 'Household structures in rural populations of South Togoland', X Congreso Mundial de Sociologia, Mexico, 1982.

13/Under the mortality and fertility conditions of the mentioned region (see note 3), the average number of possible survival descent would be 6, figure corresponding to the average size of the living descent achieved.

14/For example, in our study in Mexican agrarian contexts, two approaches or redefinitions were identified. The first one, defined as the residential domestic groups respond to the conventional practice in socio-demographic censal studies; the second one is formed by the so-called interaction domestic groups, which include the domestic related groups living in separate housing units within or outside the community (head's and wife's family of origin, collateral family of both, as well as the descent groups).

15/M. Godelier 'Modos de production, relaciones de parentesco y estructuras demograficas' in Economia, fetichismo y religion en sociedades primitivas, Siglo XXI, Mexico, 1974, pp. 123-256.

16/Ibid., p. 226.

17/P. Bordieu, 'Les strategies matrimoniales dans le systeme de reproduction', Annales, ESC, No. 4-5, 1972,

18/Cain, loc. cit., footnote 4.

19/W. Kula, 'La seigneurie et la famille paysanne en Pologne au XVIII siecle', Annales, ESC, No. 4-5, Paris, 1972.

20/L. Arizpe, 'Migracion por relevos y reproduccion del campesinado', Cuadernos del CES, No. 26, El Colegio de Mexico, 1980.

21/Lerner and Quesnel, 'La estructura familiar ...', loc. cit., footnote 3.

22/These results lead us to question the direct and mechanical relation that is generally assumed between the size of the group and the needs or requirements of familiar labour force of the descent nucleus that form extended arrangements; this relation would only function in the cases of nuclear families and under certain specific conditions.

23/H. Behm, 'Determinantes socioeconomicos de la mortalidad en America Latina'. Reunion de U.N./W.H.O. sobre Determinantes y consecuencias de la mortalidad, Mexico, 1979; Lerner and Quesnel, 'La estructura familiar ...', loc. cit., footnote 3; E. Menendez, Poder, estratificacion, salud, Ediciones de la Casa Chata, Mexico, 1981; M. Bronfman and R. Tuiran, 'La desigualdad social ante la muerte: clases sociales y mortalidad en la ninez', Congreso Latinoamericano de Poblacion y Desarrollo, PISPAL, Mexico, 1983.

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STERILIZATION AND SOCIAL CLASSES IN MEXICO:  
THE RECENT EXPERIENCE.

Mario Bronfman\*  
Elsa López\*  
Rodolfo Tuirán\*

\*Center for Demographic and Urban Development Studies,  
El Colegio de México.

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relation to fertility.

In 1970 sterilized women constituted 8.9% of contraceptive method users. This percentage increased in the following years, reaching 23.5% in 1979 and 28.1% in 1982. This increase, of 216%, is the most remarkable change registered by the contraceptive patterns of the Mexican female population. In other words, no decrease or increase of the other methods show such magnitude. This way, female sterilization has become the second most used method, in terms of its prevalence. It will undoubtedly turn to be the first one in the future if the present trends continue. The irreversible character of this method, by imprinting its permanent effect on fertility regulation, leads us to deem important to describe and analyze the characteristics related to the dissemination of female sterilization.

The reader will observe that the total number of sterilized women varies in some tables. This is due to the diversity of contexts. The figure 1,421,800 corresponds to the total of sterilized women between 15 and 49 years of age, regardless of their marital status, and it was used to compose tables 1 and 3. The figure 1,323,200 corresponds to the total of women between ages 15 and 49 who underwent sterilization during the period 1970-1981 (see tables 2 and 3). The third figure, 1,314,400 refers to the total of sterilized married women between 15 and 49 years of age. Finally, the figure 1,276,900 corresponds to women between ages 15 and 49 who underwent sterilization during the period 1970-1981, excluding those who were categorized under the social class of capitalist agriculturiers, or those which,

due to a lack of information were not included in any social class, (see tables 1, 4, 5, 6, 7 and 8). Some minor differences in totals are due to losses in cases where no answer was received for variables included in the corresponding tabulations.

During the twelve years preceding the National Demographic Survey (1970-1981), about 1 million 300 thousand female sterilizations were carried out. This figure underestimates the total number of sterilizations executed during the period under consideration, since only surviving women habitually residing in the country and between 15 and 49 years of age were taken into account at the moment when the survey was taken. Almost the total of sterilizations were carried out during the years 1976 through 1981 (86.5%); in the same way, it can be noticed that the volume of surgical operations for the years 1980-1981 duplicated that for the years 1976-1977. The importance of this increase becomes evident through the verification that for each operation carried out during the two-year period 1970-1971, sixteen were executed during 1980-1981 (table 1).

As was to be expected, from the total of sterilizations, the majority is concentrated in women with 5 or more children (54.5), following, in order of importance, those who have between 3 and 4 children (36.8%), and finally, those who have 2 or less children. Table 2 shows the relationship between the number of children and the class correspondence of the sterilized population. In the majority of social groups, the described pattern can also be observed,

Table 1

PERCENTUAL DISTRIBUTION OF FEMALE POPULATION WHO UNDERWENT STERILIZATION  
ACCORDING TO INSTITUTION

YEAR	IMSS	MINISTRY OF HEALTH	ISSSTE	I N S T I T U T I O N					TOTAL
				OTHERS GOVMT.	PRIVATE CONSULTATION	OTHERS PRIVATE	NA		
70-71	2.9	1.9	2.2	5.7	1.6	—	—	—	2.4
72-73	2.9	—	4.6	7.8	4.3	8.9	21.6	—	3.4
74-75	5.2	4.6	9.6	8.8	13.7	1.1	—	—	7.7
76-77	25.6	9.8	22.3	24.9	14.7	18.4	—	—	20.8
78-79	27.4	28.8	20.8	36.4	23.3	24.6	—	—	26.1
80-81	36.0	54.9	40.5	16.4	42.4	47.0	78.4	—	39.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(BASIS)	(684200)	(129300)	(111200)	(38500)	(338400)	(17900)	(3700)	(1323200)	

Source: National Demographic Survey, 1982.

Table 2

PERCENTUAL DISTRIBUTION OF WOMEN WHO UNDERWENT STERILIZATION FROM 1970,  
ACCORDING TO THE NUMBER OF CHILDREN, BY SOCIAL CLASS

Number of children	1	2	3	4	5	6	7	8	9	10	11	TOTAL
0-2	23.3	24.6	6.7	5.4	5.0	6.5	14.6	13.7	-	2.3	-	8.6
3-4	44.1	48.2	30.4	30.7	41.9	29.3	28.0	37.6	5.9	24.1	43.9	36.8
5 & +	32.6	27.2	62.9	63.9	53.1	64.2	57.4	48.7	94.1	73.6	56.1	54.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BASIS	(20100)	(144500)	(93900)	(70000)	(484000)	(91500)	(88100)	(106800)	(42300)	(75800)	(56300)	(1273300)

Source: National Demographic Survey, 1982.

although with some variations. The two social groups escaping the prototypical distribution are the bourgeoisie and the new petite-bourgeoisie. In these classes, the largest concentration is registered in those women with 3 and 4 children, and the extreme categories are quite balanced.

By studying the relationship between the sterilized female population according to the date of sterilization and the institution which provided it, it can be seen (table 3) that, between 1970 and 1981, somewhat over half of the operations were carried out by the Mexican Institute for Social Security (IMSS) (51.6%) and one fourth of them were executed by private practitioners. The Ministry of Health and the Mexican Institute for Social Security and Services for State Workers (ISSSTE), together, did not account for one fifth of the final female operations carried out during that same period. In total, the government sector executed 73% of the sterilizations.

The summary accounts given above do not display some interesting information such as:

1) Between 1970-1971 and 1974-1975 the IMSS decreased its relative participation to almost one half (from 61% to 35%), even though it increased the absolute number of its surgical operations; simultaneously, the private practice increased such participation to more than twice (from 17% to 45%). In contrast, both the Ministry of Health and the ISSSTE show relatively small participation

Table 3

PERCENTUAL DISTRIBUTION OF FEMALE POPULATION WHO UNDERWENT STERILIZATION,  
ACCORDING TO YEAR AND TO INSTITUTION, MEXICO, 1982

YEAR	IMSS	MINISTRY OF HEALTH	ISSSTE	OTHERS GOVMT.	PRIVATE CONSULTATION	PRIVATE OTHERS	NA	TOTAL	BASIS
70-71	61.2	7.7	7.8	6.7	16.6	--	--	100.0	(32400)
72-73	44.2	--	11.4	6.8	32.3	3.6	1.8	100.0	(44600)
74-75	35.0	5.8	10.4	3.3	45.2	0.2	--	100.0	(102500)
76-77	63.6	4.6	9.0	3.5	18.0	1.2	--	100.0	(275300)
78-79	54.3	10.8	6.7	4.1	22.9	1.3	--	100.0	(345300)
80-81	47.0	13.6	8.6	1.2	27.4	1.6	0.6	100.0	(523300)
TOTAL	51.6	9.8	8.4	2.9	25.6	1.4	0.3	100.0	(1323200)

Source: National Demographic Survey, 1982.

percentages in irreversible methods for the same years.

2) The IMSS's participation becomes important again in 1976-1977, especially for the volumes of population which begin to engross the group of final method users. During the mentioned years, the IMSS carried out two thirds of the female operations, while the private sector maintained an important average (18%). In the following years (1978-1981), it is possible to observe an interesting change: the relative decline of operations executed by the IMSS, together with the percentual growth of those carried out by the Ministry of Health and by the private sector. This fact can be associated to the evolution followed by the different social classes concerning the total of sterilizations carried out. We will later on retake this association. Previously, we will try to characterize the profile of female operations, according to age and social class.

All social classes show an homogeneous pattern with respect to the period in which the female sterilization concentrates. As said, this was during 1976-1981, and for the majority of social groups, over 80% of the sterilized female population underwent operations during those years. Women of the bourgeoisie are an exception to this modality; in this group women decided for this method earlier than in the rest of classes. Around one fourth of the total operations for this group took place during the period 1970-1975. Other groups, such as the new petite-bourgeoisie, the "free" non-salaried labor force and the non-typical proletariat

in non-manual tasks underwent their operations before the year 1976. The overall pattern for the period, however, is determined by other social groups which concentrate an overwhelming majority of sterilizations in the last six years of the period. Such is the case of the two fractions of the typical proletariat (88.2% and 89.8%), the fraction of the non-typical proletariat in manual tasks (89.4%) and the traditional petite-bourgeoisie (87.0%), as well as that of the agrarian proletariat (97.2%) and the poor and semi-proletarian peasants (93.4%) (see table 4).

This information seems to support the hypothesis proposing the existence of class-related differential modalities in the prevalence of sterilization. In general terms, it can be affirmed that among the non-agrarian groups sterilization in these last years has selectively intensified for the more stable sectors of the proletariat, while for agrarian groups the same has happened with respect to the more numerous and less favored classes of the social structure.

Analyzing the relationship between social class and year of sterilization from another perspective (table 5), it can be observed that for all the two-year periods, the typical proletariat in larger settlements constituted the social group which concentrates the largest rate of sterilizations. However, the oscillations have been important, since between 1970-1971 this class grouped 48.5% of the total operations, while between 1974-1975 this percentage decreased to 29.0%. It remains a noticeable fact that the weight

Table 4

PERCENTUAL DISTRIBUTION OF FEMALE POPULATION WHO UNDERWENT STERILIZATION  
 ACCORDING TO YEAR OF STERILIZATION AND SOCIAL CLASS

YEAR	1	2	3	4	5	6	7	8	9	10	11	TOTAL
0 - 71	1.5	2.6	1.1	2.7	3.1	3.8	0.6	4.7	-	-	-	2.4
2 - 73	4.0	3.7	4.3	4.0	2.8	2.2	3.0	3.6	-	5.0	2.8	3.2
4 - 75	17.4	10.9	7.7	11.9	6.0	4.0	7.3	12.6	26.9	1.3	-	7.8
6 - 77	19.4	18.2	17.5	15.0	25.7	22.0	29.2	15.4	-	0.7	47.1	21.2
8 - 79	1.5	20.3	26.5	26.3	24.6	29.5	40.1	23.4	33.1	30.7	8.5	25.4
0 - 81	56.2	44.3	43.0	40.3	37.9	39.3	20.1	40.3	40.0	62.7	41.6	40.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BASIS	(20100)	(144500)	(93900)	(70000)	(484000)	(91500)	(88100)	(106800)	(42300)	(75800)	(56300)	(1273300)

Source: National Demographic Survey, 1982.

Table 5

PERCENTUAL DISTRIBUTION OF FEMALE POPULATION WHO UNDERWENT STERILIZATION  
 ACCORDING TO SOCIAL CLASS AND YEAR OF STERILIZATION

YEAR	1	2	3	4	5	6	7	8	9	10	11	TOTAL	BASIS
70-71	1.0	12.3	3.2	6.1	48.5	11.3	1.6	16.2	-	-	-	100.0	(30900)
72-73	2.0	13.5	10.0	7.1	33.8	5.0	6.6	9.5	-	8.5	4.0	100.0	(39800)
74-75	3.5	15.9	7.2	8.3	29.0	3.7	6.4	13.6	11.4	1.0	-	100.0	(99600)
76-77	1.5	9.7	6.1	3.9	45.9	7.4	9.4	6.1	-	0.2	9.8	100.0	(270800)
78-79	0.1	9.1	7.8	5.7	37.2	8.1	11.0	7.8	4.4	7.3	1.5	100.0	(320400)
80-81	2.2	12.5	7.9	5.5	35.9	7.0	3.5	8.4	3.3	9.3	4.5	100.0	(511800)
TOTAL	1.6	11.3	7.4	5.5	38.0	7.2	6.9	8.4	3.3	6.0	4.4	100.0	(1273300)

Source: National Demographic Survey, 1982.

of this group for the total of sterilizations in all the two-year periods is always larger than the one for the total of the population. Besides, any analysis should confer importance to what happened in this group, given the dramatic evidence provided by the absolute values: about 500,000 women from this fraction of the proletariat are irreversible sterile, and one fifth of them are under 30 years of age.

The bourgeoisie is another social class in which sterilization is the predominant method, even in larger rates than the ones for the recently analyzed group (39.8%). Nevertheless, its importance in terms of absolute values is sensitively smaller: 24 sterilizations in the typical proletariat for each one in the bourgeoisie.

With respect to the relation between the institutional place for sterilization and its evolution in time among the different social classes, our information only allows to point out toward some parallelisms, the causal linkages of which must be given proof of in future works. (See tables 3 and 4.) In this sense, it is worth noticing the following coincidences:

a) as the weight of sterilization of the bourgeoisie and the new petite-bourgeoisie increases, the ones carried by the private sector also increase.

b) the years when the typical proletariat and the agrarian proletariat register the highest percentages of participation in

the total of sterilizations are also the years in which the IMSS hegemonizes interventions.

c) during the last years, the decline in the relative participation of the IMSS is compensated, besides of by the private sector, by the Ministry of Health. Coincidentally, in these years there is an increase in the participation of the "free" non-salaried labor force and of the peasants.

A more detailed analysis of this process should search into the relations between what has just been described and the explicit fertility policies, or else, it should infer from this information the existence of implicit policies.

In order to deepen into the modalities of female sterilization we set ourselves to know the relations between the moment in which a sterilization is carried out and the birth of the last child born alive; more specifically we intend to identify the coincidence or not of both moments.

Table 6 shows, for the group of women who underwent sterilization during the period 1970-1981, the date of birth of the last child and the date of sterilization.

As already mentioned above, during this period about 1,300,000 sterilizations were carried out. From these, approximately 40,000 (3%) correspond to women who had their last child before

Table 6

PERCENTUAL DISTRIBUTION OF STERILIZED WOMEN ACCORDING TO THE BIRTH YEAR OF THE LAST CHILD BORN ALIVE AND TO THE YEAR OF STERILIZATION, 1970-1981

	70	71	72	73	74	75	76	77	78	79	80	81	TOTAL
70	100.0 (0.6)												7,900 (0.6)
71	15.1 (0.2)	84.9 (1.2)											17,900 (1.4)
72	4.4 (0.04)	40.0 (0.4)	55.6 (0.6)										13,500 (1.1)
73	27.8 (0.5)	9.2 (0.2)	1.3 (0.02)	61.7 (1.1)									23,000 (1.8)
74	- (-)	3.7 (0.1)	11.9 (0.4)	13.4 (0.4)	71.0 (2.2)								40,400 (3.2)
75	0.7 (0.03)	6.4 (0.3)	5.4 (0.2)	5.4 (0.2)	4.7 (0.2)	77.4 (3.2)							53,500 (4.2)
76	1.6 (0.1)	4.8 (0.3)	4.1 (0.3)	18.5 (1.3)	3.0 (0.2)	10.0 (0.7)	58.0 (4.1)						89,700 (7.0)
77	2.4 (0.3)	0.7 (0.1)	3.3 (0.5)	3.2 (0.4)	2.6 (0.4)	11.2 (1.5)	12.0 (1.6)	64.5 (8.8)					173,500 (13.6)
78	5.3 (0.7)	3.9 (0.5)	0 (-)	4.1 (0.5)	6.9 (0.9)	2.5 (0.3)	2.3 (0.3)	12.9 (1.7)	62.2 (8.3)				170,700 (13.4)
79	0.2 (0.02)	2.3 (0.3)	1.2 (0.2)	2.6 (0.3)	5.8 (0.8)	1.7 (0.2)	0.6 (0.07)	1.9 (0.3)	6.1 (0.8)	77.6 (10.2)			168,500 (13.2)
80	0.9 (0.2)	0.7 (0.1)	5.6 (1.0)	5.2 (0.9)	1.8 (0.3)	2.0 (0.4)	2.3 (0.4)	8.5 (1.5)	4.8 (0.8)	3.5 (0.6)	64.7 (11.3)		223,200 (17.5)
81	- (-)	1.9 (0.4)	0.7 (0.2)	2.4 (0.6)	4.2 (1.0)	- (-)	5.5 (1.3)	0.9 (0.2)	2.6 (0.6)	3.4 (0.8)	7.2 (1.7)	71.2 (16.4)	294,800 (23.1)
TOTAL (70-81)	(2.7)	(4.0)	(3.3)	(5.9)	(6.0)	(6.4)	(7.8)	(12.4)	(10.6)	(11.6)	(13.0)	(16.4)	1,276,600 100.0

(1) There are 42,600 sterilized women for the period 1970-1981, who had their last child borne alive before 1970. These were eliminated from this table, but for the total of sterilized women during this period -3.1%, they cannot in any way affect the results shown here.

(2) Percentages in parentheses have been estimated for the general total. Source: National Demographic Survey, 1982.

the period 1970-1981. These do not appear in the table, but their number bears no importance as to affect distributions.

The main conclusion reached through the reading of the table is the close relation between the date of sterilization and that of the last birth. The concentration in the diagonal indicated by such coincidence is of approximately 870,000 women, representing 68% of the total women who underwent sterilization during those years. This is not modified when analyzed according to the number of children that women had, as shown in table 7. Against what could be supposed, the rate of simultaneous sterilizations becomes larger as the number of children decreases.

From the total of simultaneous operations, over half of them were practices in women with 5 or more children (53.9%), and more than one third in women with 3 and 4 children (36.9%). Also, the postponed female operations, which were not practiced in the same year of delivery, follow the same modality with respect to the number of children (see table 8).

Considering the whole group of sterilized women, independently from the moment and the years when they were operated, and if they are distributed according to the first contraceptive method used, it can be observed that an important number of them did not use any method before. In other terms, 49.3% of women who underwent sterilization started fertility-control with a final character method (see table 9). This fact must, undoubtedly, be deepened into.

Table 7

PERCENTUAL DISTRIBUTION OF WOMEN WHO UNDERWENT STERILIZATION SIMULTANEOUSLY TO THE LAST BIRTH, ACCORDING TO THE NUMBER OF CHILDREN BORN ALIVE.

	NUMBER OF CHILDREN			TOTAL
	0-2	3-4	5 & +	
SIMULTANEOUS	72.8	69.0	66.8	68.1
NON-SIMULTANEOUS	27.2	31.0	33.2	31.9
TOTAL	100.0	100.0	100.0	100.0
BASIS	(109000)	(465700)	(702200)	(1,277,690)

Source: National Demographic Survey, 1982.

Table 8

PERCENTUAL DISTRIBUTION OF FEMALE POPULATION WHO UNDERWENT STERILIZATION  
 ACCORDING TO NUMBER OF CHILDREN BORN ALIVE AND TO SIMULTANEITY  
 OF OPERATION AND LAST BIRTH

Number of children	Simultaneous	Non-simultaneous	Total
0-2	9.1	7.3	8.5
3-4	36.9	35.5	36.5
5 & +	53.9	57.2	55.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
	(869600)	(407300)	(1.276.900)

Table 9

PERCENTUAL DISTRIBUTION OF WOMEN WHO UNDERWENT STERILIZATION  
AS A FIRST METHOD, ACCORDING TO SOCIAL CLASS

FIRST METHOD	SOCIAL CLASS											TOTAL
	1	2	3	4	5	6	7	8	9	10	11	
FEMALE OPERATION	50.0	48.1	50.3	60.2	43.4	57.0	56.6	31.9	62.4	62.8	56.6	49.3
PILLS	25.8	27.1	21.3	27.2	40.3	21.9	25.3	44.3	11.7	35.0	36.1	32.7
INJECTIONS	6.6	3.8	8.3	2.1	3.6	5.1	8.5	3.8	0.7	-	0.9	3.9
IUD	-	7.5	5.3	3.9	10.7	9.3	5.1	12.7	25.2	2.2	6.4	8.8
OTHER NON-TRADITIONAL METHODS	-	7.9	2.2	5.3	1.0	5.7	-	6.7	-	-	-	2.6
TRADITIONAL METHODS	17.6	5.6	12.6	1.3	1.0	1.0	4.5	0.7	-	-	-	2.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BASIS	23,500	151,400	96,900	77,400	512,200	99,900	92,800	111,000	44,400	85,500	67,300	1,362,300

Source: National Demographic Survey, 1982.

For this, available information from the taken surveys should be utilized and, more important, "ad-hoc" research must be designed which allows answering qualitative questions. It is, for the least, attractive that women who had never before done anything to regulate their fertility chose to begin doing so through a method which, besides being irreversible, carries along the traumatic charge associated to any surgical operation, especially so for one with mutilating characteristics.

NOTE: The composition of social classes used in this paper was taken from Bronfman, Mario and Rodolfo Tuirán: "Social inequality before death: social classes and infant mortality", Memories of the Latin American Congress on Population and Development, Mexico, PISPAL-UNAM, 1984.