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**Impact of Selected Development Programs  
on Demographic Behaviour:  
Examples from Latin America  
and Asia**

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May, 1985

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## Introduction

Over the past few decades a broad, and fairly consistent, picture has emerged from the writings of political scientists, agricultural economists, sociologists, anthropologists, and historians on the processes of modernization and change in less developed, rural societies. Due to rapid population growth land-labour ratios in Third World countries have been declining rapidly. This is especially true in Asia, but even in Latin America and Africa, the availability of readily cultivable land has been dwindling, as has that of other crucial resources necessary for the assurance of an adequate livelihood for the population as a whole. Cultivation is thus expanded to more marginal frontiers and greater quantities of labour are applied per cultivated land unit. This situation, according to classical economists such as David Ricardo, leads to eventual stagnation, as the marginal return to additional labour decreases and food costs rise with the increasing costs of production. As a result of these forces, real wages decline and land rent increases.

In the modern world, remarkable technological progress has been made in the development of high-yielding varieties of rice and wheat, chemicals, machinery and irrigation, which has helped to forestall, if not to prevent, the move towards Ricardian stagnation. In spite of such developments, continuing population growth has kept agricultural labourers' incomes at subsistence levels, hardly adequate for the maintenance of a stationary

population. Economic surpluses have been largely consumed by wealthy landowners in the form of increased rent.

Development research, for the most part, has been less concerned with demographic outcomes than with population growth as a major determinant of social and economic conditions. Hayami and Kikuchi (1981), in fact, identified population pressure on land as the driving force for change in agrarian structure in Asia today. In the present paper, it is argued that the micro-approach is a useful tool for understanding and interpreting these processes, and examples are given of micro-studies which have served to elucidate the complex interrelationships between development and agrarian response. Such studies, summarized in the second section of the paper, also offer insights into the relevance of various theoretical frameworks, such as the neo-Marxian view of capitalist emergence of polarity between distinct social classes, to rural realities in Third World societies. The principal purpose of the paper, however, is to take such research one step further in order to examine the demographic impact of modernization and change in Third World rural societies, using evidence from three recently completed studies in micro-regions of the Philippines, Peru and Argentina. These studies, outlined in the third section of the paper, show how complex are the effects of technological innovation at the village level, and how in-depth observation of local institutions, social and economic structures and traditional bonds and relations often lead the researcher to different conclusions than were hypothesized at the outset.

Polarization vs stratification; a review of the evidence

The neo-Marxian view of the impact of modernization on rural society holds that polarization occurs as traditional institutions, based on mutual help and patron-client relationships, are replaced by the market economy or capitalist expansion. Some of the small peasants are forced to sell their land to become landless labourers, while others accumulate more land and become commercially-oriented farmers. Society thus becomes polarized into a class of wealthy market-oriented farm operators, on the one hand, and a rural proletariat on the other. This view also maintains that labour-saving technological change augments this "great transformation" (Polanyi, 1957) by favouring the large landowners, who already have irrigated or highly productive land, ready access to inputs and technical assistance, and close connections with the money economy and credit facilities. Peasants, stripped of their traditional forms of subsistence and protection from previous patrons, eventually rise in revolt in desperate efforts to regain their lost rights. (Griffin, 1974; Scott, 1976, 1984)

Evidence for the neo-Marxist view is provided by several evaluative studies of the impact of the Green Revolution in Asian rural societies. (Pearse, 1977; Palmer, 1977; Gordon, 1978) Pearse, in an exhaustive discussion of this process, argued that it was the progressive farmers who were most benefitted by the new agricultural technology because they easily understood the

opportunities being offered, and recognized a profitable venture when they saw one. Poor cultivators, on the other hand, though no doubt impressed by their neighbours' higher yields, were constrained from following their example by lack of land, capital and connections. The small farmer also suffered from diseconomies of scale and a disadvantaged bargaining position, whether for goods and services or for better prices for his products.

More recent village studies have questioned the general applicability of the polarization hypothesis in Third World societies. A micro-study of a village in Central Java, for example, found that traditional labour relationships still prevailed in spite of a strong commercial orientation among large landowners. (Hüsken, 1979) Sharecropping, once seen as a strategy of "shared poverty" by which the village divided "its growing economic pie into a greater number of traditionally fixed pieces and so [held] an enormous population on the land at a comparatively very homogeneous, if grim, level of living" (Geertz, 1963:100), had not only survived the intensification and commercialization of agriculture during the 1970s, but had actually increased in prevalence. "Far from disappearing, sharecropping turns out to be on the increase in the village (although partly in a new and harder form) and there seems to be no problems in incorporating this pre-capitalist relation of production into the newly developing commercial village economy." (Hüsken, 1979)

For a number of important reasons given by the author, sharecropping remained an attractive arrangement for both the landlord and the landless farmer. For example, the landlord obtained the labour of the sharecroppers and their families at a cost much less than he would have had to pay day-labourers since the sharecropper received only a small share of the yield, paid only after the harvest. In times of crop failure the only cost to the landlord was a slightly higher share of the reduced yield, but costs of labour were borne by the sharecroppers. For the landless peasant, on the other hand, the sharecropping contract assured him longer periods of work and qualified him for other types of assistance from the landlord.

Several other Asian village studies by Hayami and Kikuchi (1981), which described the impact of technological change on labour arrangements and local institutions, came to similar conclusions. Cases of clear-cut polarization were rather exceptional. "Peasant stratification" was much more common: "a multiplication of peasant subclasses in a continuous spectrum ranging from landless laborers to non-cultivating landlords within the social mode of the peasant community in which villagers are tied to one another in multi-stranded personalized relations in contrast to the impersonal market relations which accompany polarization". (Ibid.:214)

Many other recent village studies have found the polarization framework inappropriate to describe the impact of development

programs on rural areas. Roumasset and Smith (1981), for example, observed that labour intensity and the percentage of hired labour were increasing simultaneously in certain areas of the Philippines where high-yielding rice varieties were being adopted. In an intensive study of 45 farmers in Laguna area, they found that while the new technology resulted in increased landlessness, a transition in the organization of rice production prevented polarization from taking place. Instead, an "evolutionary" stage emerged whereby the wealthier farmers hired landless workers for particular operations which required highly intensive labour such as weeding and transplanting. These labourers became more specialized and organized themselves into highly skilled teams of hired workers. Farm operators, on the other hand, were pushed up the "agricultural ladder" and spent more time in management and less time in unskilled tasks.

Economic diversification and demographic response: three case studies

The three unpublished studies, described below, provide further examples of micro-level analyses of the impact of technology and agrarian reform on agricultural development and rural institutions. While they also take high population growth as given, they go on to examine the demographic responses of village families to changing social, economic and political circumstances. These studies also provide contrasting evidence to polarization theory and illustrate, to varying degrees, how

capitalist development has often led to diversification (Hackenberg, 1984) or "structural heterogeneity" (Aramburu, 1984).

The first study, conducted in the Philippines by Robert A. Hackenberg (1984), reports change over a ten year period. Two surveys were conducted, one in 1970 and another in 1980, in two rural areas of Southern Mindanao. Although the surveys included large samples of over 2,000 population, the author's anthropological insights from observation of the region on a more or less continuous basis throughout the decade give the analysis the richness and intensity of an in-depth micro-study.

Hackenberg begins with a discussion of the polarization-stratification dichotomy, but goes beyond those development specialists, mentioned previously, to conclusions regarding the fertility implications of the two frameworks. He hypothesized that the first, polarization, would lead to reduced child-bearing among the large, landless peasant class because children's labour would have no value in the competitive wage economy. "On the contrary, the entire cost of socialization will now fall upon the single adult male wage-earner, thus motivating fertility limitation." (Hackenberg, 1984:6) Under the stratification framework, on the other hand, high fertility would be encouraged, because farm operation would have expanded to incorporate a variety of arrangements between the various classes of cultivators, including a majority of tenured labourers. In the effort to gain as many contracts as possible, the landless peasant



would require a large labour force, and high fertility would result.

Hackenberg's study postulated a third option, namely, diversification, which, he maintained, is found in many of the frontier areas of Southeast Asia. Diversification occurs when certain essential prerequisites are present: development of agriculture (in this case Green Revolution high-yielding rice and irrigation); appropriate technology; effective marketing opportunities; and state policies of land reform, agricultural credit and an effective rural-based family planning program. In 1980, such conditions prevailed in Southern Mindanao, an area which had been settled by homesteaders from other parts of the Philippines from as early as 1903. Peak in-migration occurred during 1939-1960, accompanied by considerable investment in roads and communications. As land was cleared for corn and rice cultivation, the timber industry expanded simultaneously.

At the time of the baseline survey of 1970, the two municipalities, Magsaysay and Matanao, were distinguished by different levels of development. Magsaysay was the first village in the area to accept miracle rice and hand tractors, and its population of Ilocano migrants were skilled in irrigated rice technology. Matanao, on the other hand, was a hilly upland area where Cebuano migrants grew three crops of corn per year and where prospects of soil depletion seemed imminent. Since both populations originated in very high fertility areas, it was

hypothesized at the time of the baseline survey that Magsaysay households would be more motivated to decrease their fertility than Matanao families due to their greater progressiveness and desire to better their circumstances.

The baseline survey found no important differences in fertility, but this was attributed to the fact that the land had been settled only recently and the age structure of the population was very young. Moreover, the Green Revolution was still at an early stage of development. It was therefore decided to undertake a second survey ten years later in order to more adequately test the fertility hypothesis. Over the interim period, three major government programs were introduced which seemed to make the hypothesis of fertility differences even more probable:

Land reform was imposed on rice and corn cultivators, requiring the transfer of holdings in excess of seven hectares. For rice farmers, the possible loss of land was compensated by increased yields with the new technology. For the corn growers of Matanao, however, there were no offsets. The second major benefit of the decade was subsidized government credit in the form of crop production loans to rice (but not to corn) producers. Finally, a nationwide family planning program with free contraceptive services at the village level was initiated at the beginning of the decade...The impact of these institutional measures would serve to hasten the differentiation of Magsaysay and Matanao along the dimensions predicted. (Hackenberg, 1984: )

Surprisingly, however, the effects of land reform were more pronounced in Matanao than in Magsaysay in terms of the changes produced in cropping patterns, levels of living and fertility. Because the producers of certain crops, including rice, sugar, coffee and coconut benefitted from the reforms whereas corn

producers failed to do so, major shifts to other cash crops took place in Matanao, leaving only one-third of the farmers exclusively in corn production. Magsaysay, on the other hand, maintained the same cropping pattern, although rice was increasingly substituted for corn on low income farms. Land reform also altered the distribution of tenure relationships in both localities because of various stipulations which made it mutually advantageous for landlords and tenants to sever their ties. For example, a labourer was entitled to a certain share of the farm operator's crop without paying any of the operating costs, whereas lessors and amortizing tenants had to pay the full costs of the farms they cultivated in order to receive title to their farms after 15 years. The landlord, on the other hand, was subject to reform only for the portion of land which was tenanted; he was therefore motivated to remove the tenants before his farm was assessed by Agrarian Reform authorities.

The proportion of tenants and leaseholders therefore decreased while that of labourers increased markedly. Whereas, theoretically, such structural changes would be seen as a move towards polarization, levels of living improved in both Matanao and Magsaysay. Income distribution also improved considerably due to overall production increases from the high-yield varieties of rice and substantial increases in labour force opportunities. Also notable was the increase of female employment on the farms over the ten year period. Moreover, there appeared to be little scope for child labour with the increasing specialization of adult manpower.

Actually, the socioeconomic table of organization in Magsaysay and Matanao has been simplified by the removal of a substantial stratum of tenants, lessors, and amortizing owners. They have been replaced by a combination of tenured and contract labor under simple share and wage arrangements. Stratification appears to reduce efficiency in much the same way as the bazaar economy (Geertz 1963b) reduces the efficiency of commerce by adding participants who each share in the profits. Diversification, on the contrary, creates a variety of non-redundant positions each of which fulfills a production, marketing, or logistic function required by the structure of high technology rice cultivation. (Hackenberg, 1984: 43)

These social and economic changes also produced significant migration and fertility effects. Over the ten year period both areas experienced a net loss of population, with a high outmigration of 20-29 year-olds of both sexes. It was assumed that this group had gone to the cities in search of jobs. The greatest loss in terms of complete households was in the highest income areas of Magsaysay and Matanao, indicating that these expanded their horizons to business prospects elsewhere. There was also a fairly high replacement rate of such departures by new arrivals in both areas.

In contrast to the original hypothesis, but not too surprising in the light of the significant progress in living conditions over the 1970-1980 decade, fertility fell by more than 50% in both communities. The crude birth rate fell from 46 to 21 per thousand in Magsaysay, and from 45 to 26 per thousand in Matanao. Total fertility rates for all women fell from 7.4 to 3.3, and from 7.5 to 4.1, in Magsaysay and Matanao, respectively. Total marital fertility also declined from 9.4 to 6.5 and 10.3 to

7.7 in the two areas, indicating the impact of the national family planning program which was directed mainly to married women. Interestingly, too, the use of effective contraceptive methods, including IUD, pills and sterilization, was higher in the study areas than elsewhere in the Philippines. Hackenberg attributes this contrast to the orientation of these farmers to technological innovation. "Progress along one dimension of modernization is a good predictor of the position of a community on others. It is not surprising, then, that these are the communities with exceptional records for effective family planning". (Hackenberg, 1984: 57)

Education was also increasing in the two areas, and this was accompanied by a "breathtaking shift downward" in nuptiality rates, particularly in the younger age groups. Whereas in 1970 women aged 20-24 had, on average, 6.1 years of schooling, in 1980 the same age group had attained 9.8 years. The average level of schooling attained by these females was 6 years in 1970, compared to 10 years in 1980 in both Magsaysay and Matanao. Hackenberg's observations also led him to reject the hypothesis that child labour was an alternative to elementary or secondary school, since children engaged in military service after school and arrived home too late in the evening to engage in productive tasks. Moreover, children of the farm labourers did the least work of all social classes and those of the high income families did the most.

The second study, of four rural regions of Peru, focused on agricultural households and combined survey and anthropological

techniques. (Aramburú, 1984) The four regions represented different levels of development, and maximum variation in ecology, natural resources, land tenure, crops and cultural characteristics. One of the areas, Canete, had undergone considerable transformation as a result of the 1969 Agrarian Reform Law, under which the tenants on cotton farms, previously owned by professional agronomists and businessmen from nearby Lima, obtained free title to their land. They engaged increasingly in the production of food crops which were sold to the ready Lima market. These events favoured the consolidation of small and medium farms, with a fairly equitable distribution of farm size and a heavy year-round demand for agricultural labour.

The second area chosen for study, Bajo Piura, had undergone a different kind of change as a result of the introduction of pump irrigation in 1905 and a new variety of cotton in the 1930s. These developments required large capital investments, mechanization for land preparation and new agricultural inputs. Whereas the traditional variety of cotton was a permanent crop which could be harvested year-round, the new one was seasonal and was harvested once annually. Since the new variety was less pest-resistant, the large landowners put pressure on the small traditional farmers to stop producing native cotton. This created severe problems for the small farmers, unable to take advantage of the new variety, for which large amounts of capital were required, and, at the same time, facing reduced year-round employment opportunities. Thus, a handful of large haciendas came to control

about 93% of irrigated land; 87% of farms, on the other hand, owned only 7% of agricultural land. In Bajo Piura there were several violent peasant uprisings after the introduction of agrarian reform in 1969, by which the privately owned estates were to be cooperativized and given to previous owners. The small-holders advocated instead land redistribution and fragmentation of the old haciendas, but their efforts were largely unsuccessful.

The other two areas selected for the study were two quite different regions of Puno. The first was the tropical area of Tambopata, where the agricultural frontier had expanded through the spontaneous colonization of immigrating Andean peasants. The agrarian landscape consisted of small and medium farms devoted to coffee production. Family labour was the most important source of year-round employment but seasonal male workers were engaged during the coffee harvest.

Finally, the Altiplano of Puno, was a traditional sheep-rearing area 4,000 meters above sea level, where drought and frost were frequent visitors. Large haciendas controlled a major share of the land: only 0.6% of farms were over 500 hectares in size, but these owned 68% of total land. Peasant revolts had characterized the Altiplano since the mid-nineteenth century, the main issue being the unequal distribution of land:

A persistent and usually quiet pressure on the cooperativized estates continues, and takes the form of illegal trespassing of the peasant's cattle to take advantage of the better pastures that these firms

control. The administrative staff of the coops...are either unable or unwilling to prevent this, perhaps because they understand the dramatic need for land of the poor peasants in the Highlands and their potential capacity to react violently. (Aramburú, 1984: 36)

Demographic and economic responses to the changing or stagnant conditions described above are referred to by Aramburu as "survival strategies", a term popularly used in recent Latin American literature.\* In theoretical discussions of these strategies migration is generally given greatest weight, fertility receives somewhat less attention and mortality virtually none. Aramburu's analysis basically corresponds to this weighting of demographic variables, perhaps because migration is so prevalent in rural Peru and because it was the most important concern of his original studies. However, he pays considerable attention to economic strategies as well, giving the analysis added depth and insight.

Migration, whether permanent or seasonal, was infrequent in Canete and Tambopata, both of which may be considered as developing areas in contrast to the more stagnant conditions in Bajo Piura and the Altiplano. Total emigration rates were 11.8% in Canete and 13.9% in Tambopata, of which about 4% were composed of temporary absences for educational purposes. The immigration of persons seeking jobs, land or other opportunities had been, and to some extent continued to be, significant in both areas. Canete, in particular, hired permanent wage labourers. Economic specialization, coupled with the opportunities already mentioned,

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\* For a critique of this literature see Vlassoff, 1983.



had created considerable stability and population retention in the regions, although access to markets was somewhat problematic in Tambopata.

Bajo Piura and the Altiplano, by contrast, were characterized by widespread migration, both permanent and seasonal. Permanent migration was a common strategy in both areas: Bajo Piura migrants moved to the cities of Arequipa and Lima, Altiplano peasants largely to Tambopata. Whereas seasonal migration was rare in Bajo Piura, occurring mainly between small parcels and large estates at harvest time, it was very prevalent in highland Puno, especially to coastal rice plantations or colonization zones during the winter. Such migration provided the main source of cash for Altiplano peasants. Economic diversification thus characterized families in the depressed areas: 26% of Bajo Piura household heads, and 33% of those in the Altiplano, had two or more quite different occupations. Their small plots had to provide for subsistence needs as well as whatever could be grown for sale. These activities were, of necessity, augmented by off-farm employment in nearby towns and villages, cottage industries and seasonal wage labour.

Fertility responses and variations were somewhat less apparent in the developing and stagnant areas. Fertility was measured in terms of number of surviving children rather than number of children ever born. Hence, varying levels of infant and child mortality were not taken into account, and these may indeed be confounding factors in comparisons between regions. Crude

birth and death rates indicated highest fertility and mortality in tropical Puno and lowest fertility and mortality in Canete. Differences in crude birth rates, however, were not large (36 per thousand in the former; 31 per thousand in the latter). Numbers of surviving children followed a different pattern: Bajo Piura had the highest average (4.5), Canete was second with 4.1, and Tambopata and the Altiplano, 3.7 and 3.6, respectively. These variations are perhaps not surprising, given the more isolated and hazardous environmental conditions in the Puno highlands and colonization area. There was also some evidence that late marriage and abortion were deliberate fertility-reducing strategies among poor Altiplano peasants. Crude death rates did vary considerably, Tambopata having the highest rates and Canete the lowest. No information on contraceptive practice was gathered in the survey, but Aramburú concluded that fertility considerations were not particularly salient to most families in the majority of areas, with the possible exception of highland Puno.

Education was found to be an important determinant of fertility differentials within all regions, and, regardless of the level of regional development, formal education was a priority for most families. In the more developed areas educational expectations for children focused on specialized technical education in agriculture (in Canete) and in transport and trade (in Tambopata). Sons, in Canete, were "a source of constant innovation and modernization of productive activities on the

farm". (Aramburú, 1984:47) In the Altiplano and Bajo Piura, "Any available income was used to support students away from home in what was felt were the best available educational opportunities for them". (Ibid.:36) In contrast to Canete and Tambopata, education was geared to more general higher-level studies and not to agricultural training:

Thus, expectations were placed outside agriculture and the peasant way of life. This strategy was confirmed by the fact that most permanent migrants were young sons and daughters who left their parent's home as soon as they completed their secondary education. (Ibid.:37)

Not surprisingly, family structure was quite different in the developing and stagnant zones. In Canete, extended families were more common, with considerable reliance on family labour. In Tambopata, only one-fifth of families were extended, but this was because the area was colonized primarily by young couples whose families were still young. In the Altiplano, there was a strong tendency towards nuclearization and family fission, facilitated by the emigration of dependents and the practice of independent household formation at marriage. In Bajo Piura, on the other hand, extended families were more prevalent (58% of total families), patrilocal residence after marriage being the cultural norm. This system was found to be a mechanism to prevent further land fragmentation and to provide economic security for parents in old age. The stability of seasonal employment opportunities during cotton harvest was an important factor in the maintenance of the extended family system, cotton being harvested by hand with all family members participating. By contrast, the Altiplano

families had less opportunity for dependable seasonal employment since most of the land on the large estates was used for sheep grazing. Family members in the Altiplano therefore actively encouraged others to migrate. The large majority of migrants were accompanied or assisted by other family members or close relatives. While money and presents were indeed sent home, remittances were not very significant and served mainly to maintain links with parents and relatives. "This strategy can be of great importance as a mechanism that permits returning home and still having access to land and housing, should the urban pursuit of a job fail". (Aramburú, 1984: 34)

A study in Argentina (Forni, 1984), carried out at the time the Peruvian data analysis was taking place, provides an interesting comparison. In many ways, the findings are similar, in spite of the relatively large differences in population characteristics, ecology and economic development between the two countries. Two rural areas of the province of Santiago del Estero, Rio Hondo and Robles, were selected for the study because both had been affected by modernizing processes, yet fertility was higher than overall provincial and national levels. Although both areas had experienced outmigration, they nonetheless had retained a significant proportion of their populations and maintained considerable stability and identity.

Rio Hondo is a vast, dry area, traditionally devoted mainly to subsistence farming, domestic cattle raising, and the sale of

soya, sorghum and beans. In the 1940s sugar took hold in the nearby province of Tucuman. At the same time, the first Peronist government began to reform labour relationships, including provisions for labour union formation, cash payment of salaries, and social services for workers. Secure wages made an important difference to seasonal workers from Rio Hondo, who obtained in a few months sufficient income to last a whole year. The sugar season was therefore "eagerly awaited year after year". (Forni, 1984: 10) Teams, often consisting of families, were recruited by the sugar plantations, preserving "the unity and mutual cooperation of the family group under the father's authority". (Ibid.) During the 1950s sugar production in Tucuman declined in importance relative to other plantations in the country, but new opportunities for seasonal labour emerged in the form of a winter tourist centre in the nearby city of Termas del Rio Hondo. With increasing mechanization of cane harvesting, the demand for labour fell off, accelerating seasonal migration, especially of youth, to cities and tourist areas. Nonetheless, migrants maintained strong links with the rural residence and contributed substantially to its economic maintenance.

Robles, by contrast, was located in the Rio Dulce's irrigation area, and was a major food producer both for subsistence and for the local urban market. Irrigation had led the large farmers or "settlers" to convert from cotton production to food crops, the latter requiring large amounts of capital and manpower during peak periods. The better off farmers benefitted

from these developments more than the small peasants, who had to diversify their activities in order to maintain their small plots. Many of the poorer families worked for wages on the large farms, sometimes renting their land to the capitalist farmers as well. Small farm settlements grew up, populated by these "part-time peasants" (Forni, 1984:15) who worked for wages, while maintaining subsistence plots of their own.

In the Rio Hondo area, the study focused upon the migrants to the Tucuman plantations. These seasonal workers made extensive use of family labour to maintain the household economy. Typically, the head and elder son migrated to Tucuman to work in the cane harvest, and supplemented this with work in other seasonal labour markets during the rest of the year. Children under 15 worked on the domestic plot, and other offspring migrated for longer periods to work in tourist areas or urban centres. Women also participated in agricultural work and in the production of handicrafts. Thus temporal migration, combined with economic diversification, was the dominant family "survival strategy", yet it served to permit even those households in particularly precarious economic conditions to remain in their native area.

In irrigated Robles, three types of families were studied: independent peasant households, peasant wage-workers and settlers with market orientation. The first two cases were fairly similar in terms of their heavy reliance on family labour. In the case of independent peasant households, however, the labour was heavily

concentrated in family plots rather than in wage work. Moreover, children under the age of 15 were less likely to work either on the family plot or for others. Work was mainly in the home, with permanent outmigration being common among higher parity children. Among peasant wage-workers, on the other hand, as in Rio Hondo, seasonal migration was the norm.

The settlers, originally peasants, had advanced considerably in socioeconomic status, due to their ability to take advantage of irrigation to expand their land area and productive capacity. Migration was primarily of children to urban areas for educational purposes. By contrast, the families of peasant wage-workers had low educational levels, consistent with the need to use as many family members as possible to maintain a minimum level of living.

The province of Santiago del Estero, where the two study areas were located, had a higher fertility level (Total Fertility Rate (TFR) =4.8) than the national mean (TFR=3.0). The two study areas had even higher fertility: both areas taken together had a TFR of 5.4 children. There were considerable variations, however, among the four peasant groups described above. In the dry area, the seasonal migrants had highest completed fertility: women aged 45-49 had borne, on average, 7.6 children. These were followed closely by the wage-earning peasants in the irrigation area, with 7.2 children. The independent small peasants and the settlers had considerably lower family sizes, 4.8 and 5.1, respectively. An examination of spacing patterns provided some evidence of birth

control practices among the latter two groups as well. Forni concluded that the wage earning peasants adopted high fertility as:

...a survival strategy oriented toward the maximization of income and resources of all members of the domestic group; in contrast with this defensive strategy, the settlers [are] in a situation propitious for the use of non natural methods for control of the natality in order to reduce the number of children, because in their productive strategy (they have arrived, in general, to a degree of capitalization which allows them to hire transitory workers for seasonal...tasks) the work of all the members of the family is not so important as in the anterior case. (Forni, 1984:74)

An interesting finding in relation to fertility in this study was the high preponderance of males in small peasant families, both in higher age groups and (apparently) at birth. Among peasants sex ratios at birth were of the order of 111 males per 100 females. While some have suggested female infanticide in this culture with demonstrated strong son preference, Forni found no evidence of this practice and was unable to provide an explanation.

In terms of family structure, the settlers of the irrigated area had the greatest proportion of nuclear families (83%), but the tendency towards nucleation was strong in all groups: 69% for wage workers in the dry area, 67% for those in the irrigated area and 58% for Robles peasants. Strong kinship ties were thus retained through seasonal contributions and remittances from children working elsewhere. As in Peru, these served to assure continuing good will between migrants and home communities.



## Summary and Conclusion

While the brief summary presented above cannot do justice to the wealth of interesting data and insights of the original studies, certain conclusions can be reached concerning the usefulness of the micro-approach for understanding the impact of development policies on social, demographic and economic behaviour. The studies provide a rich body of descriptive data on rural communities and families and their adjustments to changing agrarian circumstances. In some cases, these circumstances have altered for the better as a result of far-sighted and effective policies; in others, they have deteriorated for the majority of peasant families as a result of the imposition of new sets of conditions which have benefitted only a small minority of relatively wealthy landowners.

The in-depth analyses, described here, provide a variety of perspectives on demographic behaviour including historical contexts, policies affecting agricultural production and agrarian structure, changes in educational patterns, and demographic responses including fertility and family planning, migration, marriage and family structure. In drawing on these interrelationships, the relevance of single theoretical models or broad generalizations has been questioned. Most notably, the polarization hypothesis was shown to be largely inadequate to encompass the complexity of rural dynamics in contemporary Third World societies. Peasants reacted in a number of innovative ways

to changing circumstances and opportunities, processes more appropriately described as "diversification", "stratification" or "structural heterogeneity".

These studies have illustrated the amazing resiliency of peasant classes to adopt not only to positive structural changes in their environment but also to extreme hardships and adversity. In the poor areas of Peru, for example, families adjusted to deteriorating conditions by assisting members to migrate and by encouraging younger offspring to escape rural poverty by investing in urban-oriented education. These children retained close emotional, and to some extent, economic ties with their families, permitting them easy re-entry to their home communities when this should become necessary. In Argentina, too, the poorest families diversified their economic activities to become part-time peasants, combining home production with wage employment in order to survive. The image of an isolated, abandoned and hopeless proletariat is not found in the majority of cases cited here. Even landlessness was not necessarily symbolic of worsening economic circumstances. In the Philippines, for instance, tenants willingly gave up their land in order to engage in what they viewed as more profitable forms of income generation such as contract labour and share and wage arrangements.

These studies also illustrated the complexity of demographic responses to developmental policies. In the Philippines, for example, hypothesized fertility differences between two rural

areas, in which differing responses to developmental programs were predicted, did not result due to a variety of unanticipated social and economic adjustments among families in both areas. On the basis of survey data alone, the researcher would have been hard pressed to explain why fertility declined to almost identical levels in the "experimental" and "control" regions of Magsaysay and Matanao. Micro-level observation facilitated such interpretation, by showing how peasant families adjusted their economic activities to take advantage of agrarian reform rather than stagnating under traditional productive arrangements. Demographic behaviour, both in terms of fertility and migration, was also altered to respond to the new economic climate.

All studies showed a tendency for those areas experiencing favourable economic trends, such as Magsaysay, Matanao, the settled irrigated areas of Robles, Canete and tropical Puno, to retain population to a considerable extent. This seems to indicate that effective agrarian policies can have a positive stabilizing impact in rural areas, a finding of considerable importance in regions such as Latin America where heavy rural to urban migration is a serious problem. Our studies clearly indicate that the provision of employment in the agricultural sector makes the countryside a more attractive destination than generally supposed.

Though fertility was still relatively high in the studies, there was evidence that this, too, was adapting to changing

circumstances and opportunities. Fertility was apparently linked, in most cases, to the economic role that children could play, ranging from high fertility among wage-workers in Argentina, where the size of the family labour force was a determinant of economic survival, to relatively low fertility in the Puno Altiplano, where conditions were so poor that children were probably more of a drain on scarce resources than a potential asset. In the Philippines, a combination of favourable economic and social circumstances made the availability of family planning a welcome option for rural families.

Family structure was also clearly linked to the perception of economic opportunities. In areas where family labour was required, such as in the more developed areas of Peru, extended families were common; in poorer areas where little employment existed, nuclearization was the norm. In all areas, however, migration played a key role in the assurance of family welfare, whether for bare survival or for the maximization of benefits. Migration was clearly linked to the perception of opportunities in the place of origin: migrants from Canete invested in technical education to allow them to improve productive activities at home, while those from poorer rural areas pursued non-agricultural education to prepare themselves for urban jobs.

A universal finding of all the studies was the overriding value attached to education. Although the ends to which it was directed varied considerably, it was seen as the means for

altering unfavourable circumstances or for bettering already favourable trajectories. Education was also related to demographic change, whether in relation to migration as in Peru, or to delayed age at marriage and child-bearing, as in the Philippines.

Finally, the importance of economic factors in determining rural change, whether in terms of agrarian, social or demographic response, has been clearly demonstrated. We have seen how economic circumstances have determined, in large measure, the variety of strategies used by rural families to mitigate traditional lifestyles and to survive in the modern world. The studies described in this paper have helped to elucidate these linkages, by focusing not only on the micro-effects of policy interventions at the household level but also on the larger economic and structural changes which determine these outcomes.

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