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## CENTRO LATINOAMERICANO DE DEMOGRAFIA

A.J. Jaffe

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POPULATION, WORKING FORCE,  
AND ECONOMIC GROWTH.  
A PRELIMINARY OUTLINE

BIBLIOTECA "GIORGIO MORTARA"  
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## I. INTRODUCTION

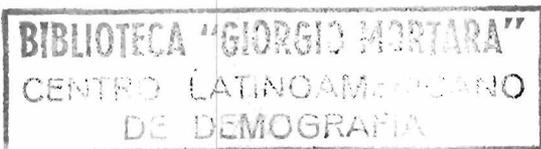
In order to achieve economic development a country →the leaders and the people- must want it very much and be willing to accept many sacrifices and changes in order to obtain such development.

Assuming that they do want it, at least one generation of time is needed in order to achieve substantial progress.

I am assuming that a country desires economic development, and accordingly am presenting a model limited to the human side of economic development. I shall say nothing about the fiscal, monetary, investment, taxation, or other aspects of the financial side. Also, I am excluding natural resources from my model.

I am commenting in general and without reference to any specific country. Obviously, the application of this model to a specific country would require fitting it to the specific nature, history, customs, geography and natural resources, political situation, etc. of that nation.

Next, let me explain that this model is derived from empirical observations and reading about a limited number of countries. Accordingly, and of necessity, I must generalize from limited observations. Furthermore, I do not have all the data at hand, and must depend on my memory for some of the facts which I shall present. I can only wish that I had more hard data on which to base this model. Such data now exist and can be compiled, but I do not have the resources needed. Perhaps others can amplify and change this model as the empirical evidence will indicate.



Finally if some of this sounds familiar to you, please bear with me. I do not claim to be presenting for the first time in history, a brand new model which has no antecedents.

## II. GROWTH OF THE POPULATION AND THE WORKING FORCE WITH IMPLICATIONS FOR EMPLOYMENT

In all the following discussion I am assuming that economic growth and social change are occurring.

Conceivably in a static society there can be growth in population and working force and even employment of sorts without any of the changes occurring which I am about to describe. In such a situation all the factors bear a constant and unchanging relationship to each other. Hence, let us assume significant economic growth and social change and then examine the changing relationships among the various factors.

The most obvious fact is that in general the working force increases more or less as does the population of working force age, however the latter is defined. Furthermore, employment as so loosely defined by international standards, automatically increases also. This is so if for no other reason than that everyone alive, by definition is obtaining a livelihood somehow; obtaining a livelihood in turn is equated with employment. True, under-employment as a separate measure is stressed, but let us reserve that for subsequent discussion.

The working force, by definition is the product of the number of persons in a specific age-sex group, multiplied by the working force participation rate of that group. Hence, let us ask: what factors modify working force participation rates?

In the agricultural sector, by and large, no factors are obviously operating to affect the work force rate. The agricultural work force and employment change much as the rural or farm population changes. This is so if for no other reason than that we do not know the size of the agricultural working force. By

definition actually all males above age 10 or 15 are automatically included. And almost all females are excluded (in the Latin American countries anyhow) in the official statistics of economic activity. My best estimate is that in all parts of the world close to 100 per cent of the farm population actually carries on some activities during the course of any month, which contribute to the family livelihood. Hence, with economic development the true working force participation rates among the farm population can only decrease.

The nonagricultural -or urban- sector is different as far as working force participation rates are concerned. In practically all urban centers the larger part of the workers are employees and dependent on some one else hiring them. Indeed, the more modern the economy, the larger the proportion of the working force will be employees. This tendency may be more pronounced for women than for men.

Generally, almost all men between the ages of about 20 and 60 will be in the urban working force regardless of the level of economic development. Where there is little development in general fewer men will be employees. Also, more youngsters and older men will be in the working force -i.e. higher participation rates- but they will be self employed or unpaid family workers. Where there is great economic development fewer boys and older men will be in the working force, and in general more men of all ages will be employees.

Among women the picture is somewhat more complex. At a low level of economic development very many of the urban women are either engaged in services, especially domestics, or are self employed or unpaid family workers. Since no census does a good job of counting these women workers it is difficult to say precisely what the working force participation rates may be. The women who are

employees in the more modern part of the nonagricultural sector are generally counted fairly accurately. However, few women are so engaged in countries at low levels of economic development.

As economic growth proceeds --and I mean real economic growth, an average annual rate of at least twice that of the rate of population growth-- more children attend school for more years. When the girls have completed primary grades, and certainly when they have completed secondary school, they want jobs as employees in the modern sector. Indeed, the more education the woman has the more likely she is to be in the working force. Therefore, accompanying economic growth and increased schooling is a greater supply of women in the working force, at least in the modern --employee sector. Hence, there is greater pressure on the economy to furnish more jobs.

How much unemployment there may be at any given moment of time depends on the demand-supply situation at that time.

The countries about which I am talking are the economically developing ones. In such countries the urban sector of women workers divides into two groups then: a) the modern, well paid employees, and b) the traditional poorly paid self employed, unpaid family workers, and service workers. Even with large economic growth the second sector is large, if for no other reason than because of population growth and the rural to urban migration to be discussed subsequently. This, the traditional sector, is also the part of the working force among whom we find underemployment. This too will be discussed subsequently.

To return to increased education we find that the working force participation rates for younger women and men, said under age 20, decrease as the youngsters remain in school. Nevertheless, their greater participation in the working force

at later ages means that during the course of their lifetime, they spend more years in the working force as their educational levels increase. Hence, the working force increases both as population and the work force participation rates increase. (To a much less extent this applies to men also). Either the economy supplies more and more jobs of a type desired by these better educated persons, or social and political unrest results.

Now let us examine the relationships of work force participation, education, and fertility and population growth. Increased education is followed directly by increased work force participation and lower fertility. The lower fertility, in part at least, results from the women leaving home to work. Insofar as women work at home (e.g. sewing clothing or engaged in other home industry) their birth rate remains high. Economic growth, however, means the opening of jobs in factories, offices, modern stores, etc. away from the home. And the better educated women go for these jobs. Hence, the two factors reinforce each other to produce lower fertility.

Furthermore, lower fertility in itself is conducive to higher working force participation rates. If the woman has only two or three children and is better educated, she has the time and desire to enter or re-enter, the working force once her children have reached the age of ten to fifteen years. In the U.S. for example, very large numbers of women in their later 30s, 40s, and 50s, are re-entering the working force as their children reach secondary school or college levels.

Therefore, decreased fertility in the modern nonagricultural sector, will itself result in a larger supply of women seeking jobs, i.e., greater working force participation rates. Subsequently we shall review these factors in relation to population growth.

We should note also that economic growth which increases the demand for workers, also increases the supply. This is immediately seen when a sign for "fifty workers wanted", brings out five hundred applicants. The more people believe that jobs are available, the more will offer their services for hire - i.e., enter the working force. This is particularly true for women.

We summarize then: in the agricultural sector economic growth will have but little impact on the working force. The size of the working force will increase about as fast as the population of working force age does.

In the non-agricultural sector the working force increases faster than does the population of working force age because of the increase in working force participation rates accompanying economic growth. This is particularly true for women, and is related to increased education. These increased rates in turn, tend toward lower fertility and ultimately slower population growth. In the mean time the urban -or nonagricultural sector of the economy- must furnish jobs at a rate faster than the growth in the population of working force age. Failure to do so will result in significant increases in underemployment, and social and political unrest.

## III. RURAL TO URBAN (OR AGRICULTURAL TO NONAGRICULTURAL) MIGRATION

We mentioned previously that economic growth involves increased schooling. Indeed, even some countries which are experiencing little economic growth insist that they are making more educational facilities available. At present, in all of the developing countries, the urban children have access to more schools than do the rural children. And many more of the urban children do attend. Nevertheless, in many countries significant numbers of rural children, the sons and daughters of farmers and farm laborers, do attend school for several years. What are the implications of such increased schooling for the working force?

To begin, the more educated leave the farm for the city and nonagricultural jobs. This takes place apparently soon after leaving school, during the teens and up to about age thirty or so. At the older ages there is relatively little such movement. This migration is in addition to any migration which might result from pressure on the land, e.g. the unavailability of empty land or of jobs in agriculture.

We may note that in some countries today there is a large rural to urban migration partly because there are no, or few, job opportunities or insufficient land, in the rural areas, and there seem to be opportunities in the urban areas. Such mass migrations include both the unschooled and the schooled.

However, even when land is available for farming, those with more schooling -- say those who have finished primary school, leave for the urban sector and seek nonagricultural jobs.

This movement is increased insofar as the rural youth hear of a growing demand for employees, as generated by a growing economy.

The result is to increase the pressure on the modern nonagriculture sector to furnish more and more jobs. If these jobs become available all is well, temporarily at least. If not, social and political unrest can result.

Now what happens in the agricultural sector? As we shall point out subsequently, the traditional agriculture must be modernized if true economic development is to occur. But such a modern agriculture will evolve only with difficulty, if at all, if the farmers are illiterate. True, plantations can be operated successfully if the managers are well educated and the farm laborers are largely uneducated. But to have large numbers of small farmers successfully producing for the commercial market means that these farmers must have some reasonable amount of education, perhaps primary schooling.

The spread of schooling, however, tends to drain off the more educated, leaving only the illiterates and very poorly educated to operate the farms. If these people were satisfied to work as plantation laborers, successful modern farms could be operated. If, however, they insist on being self employed farmers, it will be extremely difficult to convert them into successful modern farmers who produce efficiently for the market place. In this case the government must provide large scale advice and expertise as well as capital.

Furthermore, insofar as the more educated leave the farms, the agricultural -or rural- birth rate will continue to be high, and population will continue to increase rapidly. In order to reduce fertility in the rural areas new modes of behaviour must be introduced. Such new modes will be introduced only by the better educated. As long as the rural population retains its traditional ways of behaviour, the birth rate will continue to be high.

Why do the more educated leave the farms? Why do they not remain and become successful modern farmers? I believe that several factors are operating: a) the structure of land ownership, b) the lack of capital, c) the lack of a good road system so that the produce can be brought to market, d) the lack of a good market place, e) the higher -or apparently higher- pay immediately available in the urban areas, f) the social amenities of the city, g) etc. In some countries efforts have been made to induce these higher educated to remain in agriculture, with apparently little success.

In summary, economic growth in the nonagricultural sector in particular, together with increased schooling, leads to greater migration from the rural to the urban areas. This puts greater pressure on the nonagricultural sector to provide jobs, It also results in the rural birth rate remaining high.

## IV. ROLE OF MODERN TECHNOLOGY, INCLUDING LABOR PRODUCTIVITY

One of the important characteristics of an under-developed country is its low level of labor productivity -i.e. the small volume of output per worker. Economic growth thus means that each worker produces greatly increased amounts of goods or services, and hence each person can have more to consume. Therefore, one of the main aims of economic development is the achievement of increased labor productivity.

Let us first look at agriculture. Generally, in developing countries far too many persons are engaged in agriculture. With modern agricultural techniques less than 10 per cent of the working force can produce the agricultural products needed by an entire nation. We find in these developing countries, however, 40 per cent, 50 per cent and more engaged in agriculture.

In this situation we generally find a small commercial sector and a large subsistence, or semi-subsistence sector. (Note that all workers in the subsistence or semi-subsistence sector, can be designated as under-employed, if one so wishes). The proportions vary from country to country, of course. Indeed, if a country raises considerable products for export the commercial sector may be the larger part. Furthermore, in some countries agriculture may be so organized that most farmers raise part of their crop for export and part for personal consumption.

Labor productivity is always low, except perhaps for the sector which sells in the world market. In the subsistence sector it is almost zero.

What happens when modern agricultural practices are introduced?

If sufficient land is available, the increased use of machinery can result in great increases in output without any change in the size of the agricultural work force. Obviously, this would occur in the commercial sector only. Of course, if the demand for agricultural products should increase very rapidly, more workers might be needed in the commercial sector. If there is considerable economic growth in the non-agricultural sector the demand for agricultural products will increase much faster than does the population; it will increase at least at the rate at which total consumer income increases. Note that the distribution of income is important in this regard. I suspect that the greater the equality of distribution the greater will be the demand for agricultural products. This will be discussed in more detail subsequently. Ultimately, of course, if the population becomes wealthy, a smaller proportion of the consumer income will be spent on food, and the demand for food products will slow down.

In summary, the change in the size of the work force in the commercial sector will depend on: a) the amount and type of machinery introduced, b) the rate of growth of total consumer income, and c) income distribution.

In passing we should note that the growth of agricultural exports will also affect the working force in commercial agriculture, for those countries in which exports are important.

The volume of agricultural production can also be increased by using more scientific methods, i.e. better seed, more fertilizer, etc. This will result in greater output per hectare. Generally, these methods do not require more manpower. Hence, the introduction of both improved methods and machinery will raise production in the commercial sector to whatever the demand may be, without increasing the size of the working force.

In the meantime, if the rural population is increasing rapidly, the subsistence sector may continue to grow. I think that it is unlikely that the commercial sector will grow rapidly enough to absorb the entire growth in the rural population of working force age. If opportunities for employment in the non-agricultural sector are increasing rapidly the increase in the rural population may be drained off to the cities. If such opportunities do not exist, and there is no land for further subsistence agriculture, the increased population may be forced to leave for urban areas and add to the city slums. If there is empty land available, the subsistence sector may increase simultaneously with any increase in the commercial sector.

In non-agriculture generally there are two sectors: a) that engaged in traditional activities such as hand crafting of goods, tiny retail outlets, street vendors, personal services, etc.; and b) that engaged in the modern sector using modern machinery or modern practices such as banks, radio and television stations, etc. Let us review the role of modern technology in each of these two sectors. Workers in the traditional part can be designated as under-employed if one wishes to do so.

The traditional part of non-agriculture experiences but small, if any, increases in labor productivity. Many occupations have been carried on almost unchanged for as long as anyone can remember. The street pedlars who carry their produce, or the barber who uses only a pair of scissors are examples.

Some occupations have been slightly affected by modern technology. For example, a furniture maker may have installed an electric power saw while continuing to perform all other operations by hands. Dress makers may have foot operating sewing machines. Metal workers may use modern soldering irons. The

street peddler may obtain a cart with bicycle wheels which makes it easier to push. All such innovations, however, have but a very small influence on increasing labor productivity in this sector.

Furthermore, the traditional sector generally provides lower earnings than does the modern sector, because the output per worker is so little. Even the introduction of a small amount of modern equipment is not enough to raise output per worker and earnings, to the level which the truly modern sector can provide. A large part of the work force in the traditional sector are self-employed or unpaid family workers. If the family earns a passable living it is only because all the members work, and not because the head of the family earns very much.

Hence, the size of the working force engaged in traditional non-agriculture depends on: a) the demand for their goods and services, and probably more important, b) opportunities for employment in the better paying modern sector. To a large extent then, changes overtime in the numbers of workers engaged in the traditional sector will depend on the increase in the urban population of working force age and the growth of opportunities in the modern sector. Technological change is very unimportant.

Education also plays a role in determining the size of the traditional work force. The better educated youth, especially those who have completed secondary schooling, prefer not to enter this sector. If they cannot find better paying jobs in the modern sector, they may prefer unemployment. Whether unemployed or forced to work in the traditional sector, social unrest results.

Obviously, there is no very sharp separation of the traditional and modern sectors. Many occupations and industries combine aspects of both. The construction industry, for example, may combine some modern machinery, with

extensive hand labor. Nevertheless, we can learn more about the role of modern technology by looking at the modern industries and occupations.

To begin, output per worker does increase rapidly from year to year in this sector. The rates of increase may vary from 2 to 10 per cent per year. There is considerable variation from one industry to another, however, and it is difficult to generalize about the entire modern sector.

The sequence of events may be described in general terms as follows. When a new plant, factory, or other modern enterprise is started, it immediately produces far more output per worker than did any traditional activity. For example, suppose a super-market is opened. It will sell far more goods per person employed than do the small retail stores. Output per worker jumps up. From then on, output per worker tends to change as the total volume of production of the industry and the plant change. For example, if one shoe factory is opened up and then produces the same volume of shoes year after year, output per worker in that shoe factory will not increase much. However, if the factory manufactures more and more shoes every year, labor productivity will increase. Similarly, if the entire shoe industry expands production -i.e, more new factories open up, each equipped with the most modern machinery- labor productivity increases. One of the reasons why different industries have different rates of growth in labor productivity is simply the differential rate of growth of output.

The latter in turn, is dependent on the amount of demand for the various products. Increased consumer demand for some products will arise from the general growth of the economy, together with more nearly equilization of income distribution and of course, consumer fads and preferences. For other products increased demand will arise from government purchases. For still other products, the needs

of industry itself, for raw materials or semi-finished products, or services such as xerox or computers, will create a demand leading to increased output. In a stagnant economy, of course, none of this happens.

How is the demand for labor affected by technological change? In general, vast increases in output are possible with no increases in national employment. This results as follows. A new plant opens up and hires say, one hundred workers. Where do these workers come from? Many are persons who shift from lower paid jobs to the better paid jobs in the new enterprise. Some will be self-employed or unpaid family workers in agriculture and non-agriculture. Some may be persons who formerly were not in the working force, as sometimes happens when a new factory hires women. A few of these 100 will be persons previously unemployed and new entrants into the working force.

In a country where very large numbers are engaged in agriculture and the traditional sector of non agriculture, shifts out of these two sectors may supply all the labor needed by very many new enterprises, except, of course, the small number of technical and managerial persons needed. Hence, there can be large growth in the national economy without increasing the number of employed.

However, if the economy grows fast enough, in particular the modern part of non-agriculture and if population growth -i.e. the number of persons of working force age, does not increase too rapidly, then eventually, there will be a demand for additional workers. My off hand guess is that for Latin America as a whole, an economic growth rate of well over 10 per cent per year in constant currency, for at least a couple of decades, is needed to achieve significant increases in employment and decreases in unemployment and under-employment. I estimate this because: a) population growth is high, 3 per cent

or more per year in some countries, b) labor productivity may be increasing 3 per cent or more per year in various countries, c) the various factors mentioned before act to raise the working force participation rates, and d) there is a tremendous number of unemployed and under-employed who must be absorbed into the modern sector of non-agriculture.

How does the introduction of modern technology interact with the growth of the economy? To begin, developing countries generally suffer from an unfavourable relationship between the availability of capital and the availability of labor. The former is expensive, and the latter, labor, is cheap. Technological innovations which radically alter the production process and the cost functions, then spur economic growth. This can happen as follows. Capital investment in the new production processes results in lower unit costs while at the same time raising the marginal productivity and the real wages of labor. Decreased costs of the products plus increased wages thus act to increase consumer demand, and spur output even further.

This is the way technology would interact with the growth of the economy if there are no factors operating against it. If for example, government policy makes it very expensive to import new technologies and machinery, or wages are not raised, or the fruits of the lower unit costs are drained off in profits which are not reinvested, then the new technology will not necessarily stimulate increased economic growth.

In regard to wages, government set and enforced minimum wages can help spur the process. The minimums must be set high enough to result in significant increases in real wages. If this is done the higher wages will spur the entrepreneur to make his operations more efficient. In so doing he can reduce unit costs still

further, and if the product is elastic as most are, reduced prices will result in increased output. In the meantime output per worker will increase (as the entrepreneur operates more efficiently) and employment in that plant may not increase. However, the increased purchasing power of these workers (resulting from the higher wages) will stimulate employment in other industries, e. g. commerce, services, and agriculture. As the growth in the various parts of the economy influence and stimulate each other, there will be general growth in employment throughout the economy.

To summarize: initially new technology and machinery will not increase employment while increasing output very greatly. Eventually, however, as the economy grows, and more machinery is introduced, employment will also increase. Of course, some increases in employment will occur as a result of the growth in population of working force age, but such increases are likely to be minimum. And the more consumer purchasing power is increased, the sooner will there be significant increases in employment in the modern part of the non-agricultural sector. One should allow about a generation of time for this process to produce visible and significant results.

## V. INTER-RELATION OF AGRICULTURE AND NONAGRICULTURE

As we have tried to develop previously, these two parts of a nation are inter-related with each other, both from the population and economic viewpoints.

On the population side, birth rates are generally higher in the rural than in the urban areas. Mortality sometimes is also higher in the rural areas. Generally the rate of natural increase is higher in the rural and agricultural part of a nation. Formal education and schooling are more available in the urban areas; the urban people are more schooled. This contributes to their lower birth rate. Also, the urban women are better schooled and have more opportunities to find jobs away from their homes, these two factors in combination act to reduce the birth rate.

The urban areas are more prosperous than the rural; modern economic growth insofar as it occurs in a nation, occurs in the urban sector. As for the rural or agricultural population, many of the workers are subsistence or semi-subsistence farmers, and earn very little. As a result there is considerable rural to urban migration. The rural exodus never really reduces the size of the agricultural work force because of the high population growth. On the other hand, the entrants into the urban areas add to the pool of unskilled labor, and act to depress wages, unless strong minimum wage laws are enforced. The depressed wages in turn, slow down the growth of consumer purchasing power and thus act to slow down economic growth overall.

This in turn, will feed back, slow down the spread of more and more schooling, and help maintain higher birth rates. Which will ultimately flood the labor market with more unskilled workers and continue to depress wages.

We have also seen that the more educated farm youth leave the farms, and that there are many structural blocks which discourage these more educated from remaining in agriculture. Thus, the bulk of the farmers continue to be un- schooled and inefficient producers who use no modern farm machinery nor practices. They remain poor consequently.

Therefore, on the economic side, it is necessary for the agricultural population to become purchasers of goods and services produced in the nonagricultural sector. As commercial farmers they purchase machinery, fertilizer, and other capital goods; as consumers, the very many items which they do not now consume.

In a country where half of the working force is engaged in agriculture, however, it is not possible for all the farmers to become successful commercial farmers. Only when the proportion of the work force engaged in agriculture is around 10 per cent or 20 per cent, will the urban market consume sufficient agricultural produce to make the farmers economically better off. Hence, vast migrations of agricultural to nonagricultural, or rural to urban, are necessary part of economic growth in agriculture.

At the same time job opportunities in the modern sector of nonagriculture must be increasing very rapidly in order to drain off the underemployed in the traditional part, and the very large numbers of excess farmers -the underemployed farmers. As these job opportunities increase the urban population consumes more and more agricultural products. This permits increased output per farmer, and a decrease in the number of farmers.

This movement from rural to urban together with the increased opportunities for schooling in the urban areas and the urban way of life, in turn reacts to lower the birth rate among these migrants from rural areas. Only if they are forced to live by themselves in poverty ghettos and are cut off from communication with most of the urban influences, will their birth remain high, i.e., say as high as in the rural areas.

In the rural areas the increasing prosperity and schooling of the population will result in a lowered birth rate. Hence, population growth will slow down some day, and so will the increase in the population of working force age. This, in turn, will make it easier to provide jobs in the modern sector of non-agriculture.

In summary, the agricultural and nonagricultural sectors are each dependent on the other for economic growth. And in the process of economic growth, the rate of population growth will decrease (via the intervening variables previously mentioned).

## VI. IMPORTANCE OF INCOME DISTRIBUTION

In previous discussion we assumed that economic growth was going on, and consequently that there were increases in consumer demand and consumption. We also pointed out that without increased consumer demand, the rate of economic growth would slow down.

(Of course, a very large export business and/or the consumption by the government of military and civilian goods can maintain economic growth rates as measured by statistics of National Accounts, even if the working force does not increase its consumption greatly. This leads to other problems, however, to be discussed subsequently).

The total amount of consumer demand is a function both of the total amount of income, and the way income is distributed among the families. A very unequal income distribution will curtail consumption.

Whether a completely equal distribution would result in the maximum consumption I do not know. Such an equal distribution, however, would curtail savings and capital formation, unless all savings were undertaken by a government.

At present (1970) family income may be less equally distributed in the developing countries than in the developed ones. Furthermore, there is no sign that family income is becoming more nearly equally distributed with economic growth. This situation tends to slow down the rate of economic growth in the developing countries, because of curtailed consumer demand. In addition it may help to maintain higher birth rates if a very large part of the population remains at the poverty level -i.e. at the lower end of the income distribution

curve. Insofar as the birth rate remains high, and insofar as there is continued migration from the rural to the urban areas, there will continue to be large number of families at the lower end of the income distribution curve, thus perpetuating the vicious cycle.

It is possible, of course, that even with a very unequal income distribution, the work force participation rates for women could increase very greatly, and thus cut the birth rate. If 75 per cent or more of the women of child bearing age were steadily employed away from home, the birth rate would fall considerably. But to have such a large proportion employed, either there must be governmental pressure on the women to take jobs, or they must be fairly well educated, or both.

Government pressure on women to take jobs might work, of course, only if jobs are available. If the demand is low and there is a more than sufficient supply of man workers as is generally the case in developing countries, it is difficult to raise very much, the volume of employment of women.

Hence, we conclude that a more nearly equal distribution of family income together with increased average, or per capita income, are necessary conditions for maintaining economic growth and curtailing population growth.

There are various ways whereby governments can achieve a more nearly equal income distribution; even the income distribution in the U.S. is more nearly equal than in most (or perhaps all) developing countries. Some: taxation policies; enforced minimum wages set at high levels; provision of free social services, especially medical and housing, etc.

Let us return to discussion of some of the possible effects of unequal income distribution. Suppose employment levels were to be maintained by means of exports and/or government purchases while at the same time having a very unequal income distribution. Such a situation would result in social and political unrest. Obviously, low per capita income plus unequal income distribution will result in even more unrest. If this unrest is carried far enough as was the case in Mexico and its 1910 revolution, the death rate will rise high enough to cancel the birth rate. This happened in Mexico between 1910 and 1920. With peace restored the death rate fell and the rate of natural increase rose rapidly.

## VII. FEEDBACK ON FERTILITY AND POPULATION GROWTH

To some degree this topic is simply a summary of the previous discussion. If economic growth has been going on for some time -I should say at least a generation- then we have: a) a much more urbanized population; b) a better educated population; c) more women in the working force because, in part at least, they are better educated; d) a greater desire and ability, to consume more goods and services ranging from television sets to restaurant meals.

These factors, in turn, change the psychology of the individual and the culture. It no longer is fashionable to have many children. The society looks more favorably upon the two child family than it does upon the six or eight child family. The individual family also prefers to have fewer children because the parents are more interested in other matters, whether it be a job or the increased consumption of goods and services.

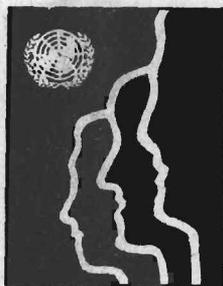
Accompanying such economic growth is decreased mortality. Consequently many more of the children born, live to adult age. If the family wishes to limit the number of children which it will rear, birth control then becomes necessary. The availability of birth control techniques is then a necessary, but not sufficient condition, to reduce the birth rate. By birth control I mean any and all devices and procedures including the various techniques discovered and used long before the pill.

The process of economic growth thus transforms the entire society so that people want fewer children, and the culture condones such beliefs: Indeed, the individual family has confidence in its belief that fewer children are desirable only to the extent that the society or culture agrees with it. If the culture

favors larger numbers of children, the individual family is likely to have money; to have but few children is counter to the culture and families do not wish to appear to be atypical. They follow the culture.

With a considerably lower birth rate population growth slows down, despite decreases in mortality. Fifteen to twenty years following the decrease in the birth rate, the population of working force age slows its growth rate. Even if there are increases in the working force participation rates, as there are likely to be accompanying economic growth, the increase in the numbers of persons seeking jobs, will be much smaller. At this point, lower rates of economic growth - perhaps even 3 or 4 per cent per year, may suffice to supply full employment.





**CENTRO LATINOAMERICANO DE DEMOGRAFIA  
CELADE**

**Sede: J.M. Infante 9. Casilla 91. Teléfono 257806  
Santiago (Chile)**

**Subsede: Ciudad Universitaria Rodrigo Facio  
Apartado Postal 5249  
San José (Costa Rica)**