

UTILIZATION OF HUMAN RESOURCES THROUGH INDUSTRIALIZATION¹

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THE industrial system is rampant in the modern world. Its effects spread to the most isolated regions in some form or degree. Its system of communications and organization of world markets, and the political power that its productive system makes possible, have produced an interdependence of all peoples everywhere. The process is by no means complete, nor is its final fruition in any particular form determinate and inevitable. Even the results so far effected are not entirely clear or their implications commonly understood. Yet one elementary fact stands out: the isolated primitive or peasant community has everywhere lost part of its insularity. The true primitive represents a small and diminishing species. The self-sufficient peasant is shaken by forces beyond his control and perhaps even further beyond his understanding.

The impact of the industrial system on primitive and archaic cultures is a crude empirical phenomenon. It makes irrelevant or academic much of the well-meaning debate about interfering in other cultures. The question in most areas of the world is not whether change under external influence ought to be allowed, but rather the form and degree of change, the interests taken into account, and the human as well as material costs of transition.

Ironically, the arguments in behalf of sealing off the effects of new productive organizations and processes, in order to preserve as much as possible of traditional values in the far places of the world, arrive approximately at the same policy as that

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of the most cynical "exploiter," who seeks to use native labor but to keep native societies otherwise outside the industrial system. If the effective utilization of human resources for the achievement of health, longevity, and heightened levels of material well-being be the goal, then education strictly "adapted" to *native* needs, wage labor as purely supplementary to primitive modes of production, and public health measures that do not change fertility patterns represent serious compromises in the short run and mixtures of doubtful stability in the long run.

In the present paper some general comments about the nature of the industrialization process are followed by a discussion of labor mobility as a particular aspect of this process, with some field research evidence on a few points.

THE CASE FOR INDUSTRIALIZATION

The most general case for industrialization rests upon the range of goods and services made available for human consumption. As a productive system, it tends to free both supply and demand from traditional restraint, and to entail a dynamic rather than a static relation between man and nature.²

The particular case for industrialization of primary relevance here rests upon enhanced opportunities, through specialization, for utilizing special qualities and aptitudes of producers. Human beings both constitute necessary means and determine the ends of productive efforts. As means, or, following the title of this session of the Conference, as resources, human beings may be considered as coming within the general case for optimum utilization. The duality of the human role in this scheme com-

² This abbreviated and therefore dogmatic formulation rests upon the abstract characteristics of the industrial mode of production and neglects many concrete problems and variations in experience. For example, differences in systems of control of production and allocation of products, and the problems of "balanced economies" as opposed to regional specialization are not irrelevant in the concrete instance but cannot be explored here. It may be maintained, however, that given certain characteristics of the industrial system—for example, utilization of advanced technology and of specialization of labor—other characteristics are inherent and in considerable measure independent of particular goals and procedures—for example, a reasonably elaborate system of exchange and of effective incentives to insure labor mobility and the development of skills. It follows that the case here does not assume or depend upon the institutional structure of liberal capitalism.

plicates the issue, however. Inherent in the nature of human society are limitations to efficiency in the utilization of human resources for production, for in no society can production be the sole social function and in no human being can it be the sole motive. Within those limits, industrialism is that system of production which most effectively uses differences in aptitude and interest.³

LABOR AS A FACTOR IN INDUSTRIAL DEVELOPMENT

Usual Approaches to Industrialization Theory. Industrialization may be viewed with partial accuracy as a process involving an increasing range of resources exploited, an increasing amount and type of goods produced, and an increasing efficiency of capital and technique employed. From this point of view the process may be studied as a dynamic relationship among certain elements or "factors," which in their combination presumably determine both the pattern and rate of economic development.

To the extent that social scientists have investigated basic economic transformation as distinct from economic relations within fairly established institutional conditions, attention has been turned primarily to questions of capitalization, organization or enterprise, resources, and markets.⁴ It may be fairly said that none of these is irrelevant to the analysis of industrialization, but that even in combination they do not comprise an adequate set of directives for research. The demographer will urge the importance of population, the political scientist

³ Again, this formulation is abstracted from a host of concrete issues and problems: for example, the extent to which various categories of human laborers as means (or, in some economic formulations as "costs") of production share in determining the ends of production; the "dilution" of skill that accompanies some forms of specialization and the attendant problems of motivation; the multitudinous human problems of mobility and its accompanying uncertainty.

⁴ See, for example, Clark, Colin: *THE CONDITIONS OF ECONOMIC PROGRESS*. London, Macmillan and Co., 1940; League of Nations, Economic, Financial and Transit Department: *INDUSTRIALIZATION AND FOREIGN TRADE*. Geneva, 1945; Mandelbaum, K.: *THE INDUSTRIALISATION OF BACKWARD AREAS*. Institute of Statistics, Monograph No. 2, Oxford, Basil Blackwell, 1945; Sombart, Werner: *Capitalism*, in *ENCYCLOPAEDIA OF THE SOCIAL SCIENCES*, 3: 195-208; Weber, Max: *THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM*, trans. by Talcott Parsons. London, George Allen and Unwin, 1930.

will call attention to the direct and indirect effects of governmental forms and policies, the sociologist will insist on the relevance of variable social structures, and economists of various persuasions will press for the inclusion of transportation, technology, and financial organization.

It is neither possible nor necessary here to attempt a complete analytical framework for the study of industrialization. It is, however, possibly useful to suggest a rough classification of factors necessarily included in such a framework, and then proceed to a particular and particularly neglected element in the process.

With some modification and amendment, the recent work of Chang on the theory of industrialization⁵ may serve as a guide to the factors strategic to the study of the industrialization process. These may be classified as (1) generating factors—entrepreneurship, technology, and capital accumulation; (2) conditional factors—resources, population, and social institutions; and (3) connecting factors—transportation and markets.

It should be noted that the classification, and even the terminology, is in some degree arbitrary. "Population" and "social institutions," for example, are in combination capable of interpretations in terms sufficiently broad to include both generating and connecting factors. A more important consideration, however, is the dynamic interdependence of these variables, and particularly of those labelled "conditional." If in the beginning of the process of industrialization they may be regarded as conditions, they are not static. Resources are always relative to the prevailing state of the useful arts. Population in its size, composition, and distribution enters the economic system both as the source of labor supply and the consumer of products; it is moreover subject to changes touched off by economic transition that may either foster or impede

⁵ Chang, Pei-kang: *AGRICULTURE AND INDUSTRIALIZATION*. Cambridge, Harvard University Press, 1949, especially pp. 77-90. The "factors" suggested here differ from Chang's treatment principally by addition. Chang does not deal with capital accumulation, transportation, and markets, and he treats "social institutions" as given.

further changes toward industrialization. Social institutions similarly may be viewed as both barriers to and sources of change. In the study of complex phenomena, simplification is both necessary and hazardous.

It is with the role of social institutions and their attitudinal counterparts that the present discussion is primarily concerned, not only because the focus is on "the utilization of human resources," but also because the institutional and organizational features of societies have been more often assumed as "given" than they have been directly studied by students of the industrialization process. And among the institutional conditions necessary for successful industrialization—for example, particular forms of control of property, conditions of specialization, organization of exchange, and solutions to the problem of political order—it may be appropriate to emphasize the importance of *mobility* of the factors of production and especially of labor.

Even with regard to the geographical location of industry, it is rare that raw materials, sources of power, and available labor are in handy juxtaposition. Moreover, capital must be transferable out of agriculture, commerce, and traditional handicrafts into manufacturing and related activities, and workers must be moved to new places of employment and, more importantly, to new types of employment. If this latter movement is the central feature of "utilization of human resources through industrialization," it is also a major source of difficulty in the process.

Labor Mobility in Theory and Fact. In the studies and theories of economic development, the problems of labor supply have been largely neglected. This neglect has arisen in part from an exclusively quantitative, demographic approach to manpower or "labor force," in part from a naive view of economic motivation.

It is evident that a supply of labor judged to be numerically adequate for industrial expansion on the basis of apparent unemployment and underemployment in agriculture will not an-

swer the problem of labor supply unless that labor is in the right place, possesses appropriate skills, and can be induced to enter new places and types of employment.

The question of "economic motivation" is central to the appraisal of labor mobility. This question has not often been raised with reference to the transition from non-industrial to industrial employments, even with regard to the older industrial economies. Economic theorists and their sociological critics have alike concentrated on the motivation of the capitalist or industrial enterpriser. Wage theory in economics has been more concerned with the demand-price of labor—that is, labor as a cost of production—than with the supply-price of labor—that is, the determinants of the worker's willingness to offer his services.⁶ Yet to the extent that the willingness of primitive or peasant to enter industrial employment cannot simply be taken for granted, it is of theoretical and practical importance to examine the question.

There has been some recent interest in this occupational shift, emphasizing the theoretical importance of wage differentials in effecting the transfer. The ability of industry to outbid the agricultural sector of the economy for labors then rests upon the greater productivity of industrial labor (made possible by higher capitalization and efficiencies of scale and organization, and related to the greater elasticity of demand for manufactured products) and subsequently also upon the displacement of farm workers through mechanization.⁷ Wage differentials, expressed in the labor market, thus become the effective device for securing geographical mobility, movements within the same general sphere of production and level of skill, and the acquisi-

⁶ See Moore, Wilbert E.: Theoretical Aspects of Industrialization, *Social Research*, 15: 277-303, September, 1948; reprinted as an Occasional Paper of the Institute of World Affairs.

⁷ See especially Chang, *op. cit.*, pp. 51-57, 176-194; Ahearn, Daniel J., Jr.: THE WAGES OF FARM AND FACTORY LABORERS, 1914-1944. New York, Columbia University Press, 1945, Chap. VIII, Wages, Production, and Productivity; Schultz, Theodore W.: AGRICULTURE IN AN UNSTABLE ECONOMY. Committee for Economic Development Research Study. New York, McGraw-Hill Book Co., 1945, Chap. IV: Distribution of the Labor Force and Earnings, and Chap. IX: Underemployment and the Attendant Low Earnings in Agriculture.

tion of new and higher skills required by the industrial system of division of labor.⁸

The efficacy of wage differentials rests upon clear if often implicit institutional and motivational assumptions. Those assumptions may be briefly stated as a flexible competitive system at least with regard to occupational placement, made effective by a mobile, financially acquisitive orientation of the worker.⁹ It is the absence of these conditions that characterizes non-industrial societies, and gives rise to questions of the relevance of their general and particular structural features as they relate to the possibilities of industrial development.

On the basis of a fairly detailed review of available evidence on labor recruitment and utilization for modern forms of economic activity in newly developing areas, the critical importance of institutional and attitudinal variables can be maintained.¹⁰ The nature of that evidence may be summarized here by a bare and consciously alliterative classification of relevant factors: the bane of barriers, the prevalence of pressures, and peculiarities of positive incentives.

Perhaps the most impressive, if scarcely surprising, set of social factors that impinge on economic development are those that constitute barriers to innovation. Among these are: igno-

⁸ With regard to the acquisition of skills, even the pure theory of wages requires a recognition of frictions and time-lags occasioned by the necessity of training. For a fuller discussion of these problems, including the "theory of correct occupational distribution," see Moore, Wilbert E.: *INDUSTRIAL RELATIONS AND THE SOCIAL ORDER*. New York, The Macmillan Co., 1946, Chap. XI: The Sources of Labor Supply.

⁹ It should be emphasized that these assumptions are not stated as the requirements for an industrial system of division of labor, but only of the requirements for the validity of the theory of wages as *the* effective incentive to mobility. However, the claim on empirical grounds that wages do not constitute an adequate incentive for the recruitment of industrial workers in non-industrial societies would not destroy the validity of the requirements of wages and occupational competition as features of the *industrial* system. Indeed, it may be asserted that competitive occupational placement is essential to a full development of individual capacities and skills in production (whatever the competitive incentives may be) and that wages or some equivalent means of exchange and distribution are an essential counterpart of specialization of productive activities. In turn, neither of these propositions has any necessary implication for the effect of wage *differentials*.

¹⁰ An abbreviated summary of the comparative materials on industrial labor recruitment has been published. See Moore, Wilbert E.: Primitives and Peasants in Industry, *Social Research*, 15: 44-81, March, 1948; reprinted as an Occasional Paper of the Institute of World Affairs. A fully documented review will comprise a major portion of the final report on the research project.

rance, whether of the existence of alternatives or of the skills and techniques to make them effective; the loss of security, usually assured in non-industrial societies through established relationships to means of production (especially land) and established patterns of social obligations (especially through kinship structures); dislike of industrial disciplines, particularly those of time and impersonal authority; and preference for customary standards, including bases of prestige and esteem, and for customary types and levels of consumption. The existence of customary as distinct from expanding standards and aspirations is a remarkably common problem in early stages of industrial development, whether in twentieth century Java or eighteenth century England. It gives rise to absenteeism, turnover, and complaints that the workers are irrational. Similarly, nepotism and other particularistic intrusions (including ethnic distinctions upheld by enterprisers themselves) constitute a pervasive problem in the expansion of Western economic patterns.

Accumulated experience indicates that at the start of the industrialization process workers are, in terms of crude physical analogy, more often pushed than pulled into factory or other wage labor. This is again scarcely surprising in view of the prevalent social barriers to mobility. Among the more common and effective pressures several may be indicated: land shortage and the coercion of hunger, which may be accentuated by particular consequences of the outside impact, such as partial dispossession of native populations, mortality control without fertility limitation, displacement of handicraft products by cheap manufactured goods; direct and indirect manpower allocation by superior power, including direct coercion through various devices ranging from slavery to "industrial draft," and indirect coercion through taxation payable only by wage-earned money. Hunger and force constitute effective stimuli to new activities, but only so long as the hunger or the coercive sanctions last, and only for unskilled, gang labor. Whether the devices used to accomplish the initial change may be withdrawn

in favor of more positive incentives, on the principle of the "entering wedge," clearly depends on the whole functional complex of factors surrounding the change.

Even positive incentives, whether or not mediated through wages, have many peculiarities as they are applied in predominantly non-industrial economies. Wages, for example, are functionally dependent upon markets where goods and services are available. Those goods and services are themselves likely to be most effective as incentives if they readily fit traditional patterns of consumption. Moreover, the new opportunities are likely to be sought most eagerly by disaffected and dissident elements in the pre-industrial setting. On the other hand, the idea of free and universal mobility by merit is exceptional and seems to have something of an explosive quality as it penetrates traditional social structures.

It is for this reason that an attempt was made to increase the be stated as predictive principles "other things being equal," but that in the concrete case other things are notably unequal and that a more empirically relevant analysis must take into account the interdependence of analytically separable factors.

It is for this reason that an attempt was made to increase the precision with which the intersecting variables could be analyzed, through a direct field investigation specifically oriented to hypotheses on labor mobility in newly developing areas.

SOME RESULTS IN MEXICO

Because the reports on the recruitment of labor for modern economic enterprise are replete with explanations after the event and notably lacking in quasi-experimental controls regarding allegedly important factors, it was considered appropriate to undertake one direct field investigation in an attempt to clarify detailed relationships. On the other hand, it is clear that the results of any local field study beg many questions relating to major cultural and organizational differences, which can only be approached on the basis of comparative analysis.

Mexico was selected as the general area for the field study

for several reasons: (1) political independence and active governmental programs looking to industrial development; (2) the co-existence of modern manufacturing plants and tribal villages, with a "culture," whether Spanish or Indian, substantially different from that of the older industrial countries; (3) the practical considerations of proximity and availability of trained field workers native to the country and familiar with local conditions.¹¹

The investigation was made in the "Zone" of Atlixco in the State of Puebla, where modern textile plants and Indian villages are in close proximity (Fig. 1.). The "Zone" includes the market and small-manufacturing city of Atlixco itself, a city of 17,000 population and the seat of a municipio of 34,000, and thirty surrounding municipios with a population of over 189,000. Outside of the immediate area of Atlixco, the region is a predominantly agricultural and trading area, with only five other population centers over 4,000 in population.¹²

The data of the investigation consist of:

(1) Completed schedules based on interviews with adults in two villages, the villages themselves selected in order to provide quasi-experimental controls on the basis of uniformities and

¹¹ The field investigation was carried out by the Museo Nacional de Antropología under the general supervision of its Director, Dr. Daniel F. Rubín de la Borbolla. Sr. Ricardo Pozas Atciniega was primarily responsible for the actual work in the villages and factories; he was assisted for a short time by Sr. Juan de Dios Rosales.

Arrangements for the study were made through personal conferences and correspondence. The local area selected for study was determined after preliminary investigation in three possible areas, which in turn were chosen as meeting the general requirement that "Indian" villages should be located within the potential labor market area of one or more factories. Interview schedules and instructions were prepared by the writer, translated and modified by the Mexican researchers in view of their knowledge of local idiom and problems of investigation, and further modified on the basis of pre-testing incident to the final selection of the area for the study.

We believe that the selection of a "native" area for study in strict accordance with the theoretical problem being investigated, and the conduct of the investigation centering around a uniform interview schedule supplemented by the more common descriptions of social organization are rare but appropriate procedures.

¹² The five are, in order of size, Cholula de Rivadavia, 8,400, famous for its numerous churches built on the sites of destroyed Aztec temples; San Martín Texmelucan, 7,600; Izúcar de Matamoros, 7,000; Huejotzingo, 4,900; Metepec, 4,300, a factory town in the municipio of Atlixco and the locale of part of the field investigation. Population figures are based on the Mexican Census of 1940. See Estados Unidos Mexicanos, 6º CENSO DE POBLACIÓN, 1940, PUEBLA. México, D.F., Secretaría de la Economía Nacional, Dirección General de Estadística, 1947.



Fig. 1. "Zone" of Atlixco, with location of important population centers and the villages of San Baltasar Atlimeyaya and San Juan Huiluco.

differences. These schedules represent interviews with 365 persons in San Baltasar Atlimeyaya (Municipio of Tianguismanalco), which had a population of about 1,200 in 1940, and 227 persons in San Juan Huiluco (Municipio of Huaquechula), which had a population of around 600 at the last census.

(2) Completed schedules based on interviews with 500 workers in the large textile factory at Metepec (Municipio of Atlixco) and 100 workers in the small factory of La Concepción in the city of Atlixco.

(3) Descriptive data incident and supplementary to the systematic interviews, including the historical and ecological setting of the region and characteristics of social organization in the villages and the factories.

(4) Data derived from the 1940 Census, which provides a variety of results by local areas and allows comparisons within the "Zone" and of the area investigated with the rest of the country.

Space does not permit detailed description of data collected, procedures of analysis, or presentation of more than a very few of the results. With regard to the region as a whole, its "mixed" social character may be seen from a few comparisons with all of Mexico. There is in the "Zone" of Atlixco a higher proportion of the gainfully occupied population (excluding unpaid family workers) engaged in "industry" than in Mexico as a whole—13 per cent as compared with 11. On the other hand, the proportion of population over 6 years of age that is illiterate is higher in the local region than the national average—61 per cent and 55 per cent respectively—and by a combined index of Indian cultural characteristics the area is decidedly more "backward" than the national average.¹³

The two villages studied intensively provide some interesting comparisons. They have common cultural traditions (essentially Aztec), a common Indian language (Nahuatl or Mexicano), and common dependence on agriculture and related activities, partly self-sufficient, partly oriented to the sale and barter market in Atlixco. Each has benefited from the *ejido* (land reform), although unequally, and they are about the same distance from Atlixco (approximately 15 kilometers) and served by a bus line that goes directly to the village on the two market days each week.

¹³ Data on industrial employment and literacy are derived from the RESUMEN GENERAL and PUEBLA volumes of the 1940 Mexican Census, previously cited. The index referred to cannot be explained here, except to note that it is based on language (Indian exclusively, bilingualism, Spanish exclusively) and various degrees of adaptation to European-style clothing, cross-classified. The basic data are derived from the 1940 Census. The same data are used in a somewhat different way in an especially valuable book by Whetten, Nathan L.: RURAL MEXICO. Chicago, University of Chicago Press, 1948, pp. 360–369.

The contrasts are, however, also significant. San Baltasar Atlimeyaya is located on the lower slopes of the famous volcano Popocatepetl, and is reached by a narrow, rough, and mountainous road. San Juan Huiluco on the other hand lies scarcely a kilometer from the Pan-American highway, over which there is frequent bus service from the south to Atlixco. Not only is it thus more closely linked to the city, but it lies in close juxtaposition to the Puebla State Agricultural School at Champusco, which occupies the central portion of the old *hacienda* of that name, in the breaking up of which San Juan Huiluco was a major beneficiary in *ejidal* lands.

The soils of the mountain village are poor, although adequately watered by irrigation. The soils of the village in the lowlands are good, and sub-tropical climate permits a wider variety of products. Agricultural specialization and market orientation are evident. Although detailed census data are not available for the two villages, data for the municipios of which each is a part and of which each may be regarded as representative indicates that land ownership by males gainfully occupied in agriculture is higher in the mountainous area than on the plain. By contrast, 48 per cent of those interviewed in Huiluco were members of the *ejido*, whereas only 21 per cent were beneficiaries of the land reform in San Baltasar.

Literacy in the two villages does not differ markedly, either as shown by the census for their respective municipios (where illiteracy is indicated as approximately 70 per cent) or as shown by the direct field investigation (about 60 per cent of those adults without work experience outside their villages). Both villages have public schools and local units of the *sindicato* (union of farmers and beneficiaries of the land reform). On the other hand, the municipio in which San Baltasar is located is remarkably more "Indian" in character than the municipio including San Juan.¹⁴ This is confirmed by the results of the direct interviews, which showed that Nahuatl was the mother

¹⁴ The respective index values (on the basis of 5.0 indicating complete Indianness) are 3.6 and 2.2. See preceding note.

tongue of 96 per cent of those interviewed in Baltasar, whereas Spanish was the primary tongue of 51 per cent of those interviewed in San Juan.

By all these tests and a number of others, San Juan Huiluco, the village in the lowlands near the highway, is somewhere midway between the "folk" culture of San Baltasar Atlimeyaya and the "urban" culture of Atlixco, or, better, Puebla or Mexico City.¹⁵ The small predictive value of such unilinear progressions is shown up sharply in the present investigation. It is from the folk community, the relatively isolated and seemingly homogeneous village, that men go out to seek work, many of them continuing to live in the village but not forming part of it along traditional lines. Their lives are bound up with the factory and its affairs at least as much as with the local village. And, contrary to expectation on the basis of experience in other transitional areas of the world, they generally regard the change as permanent, whether desirable or not.

Of the adult males who live in San Baltasar, some 17 per cent work outside the village, and of these 86 per cent are engaged in factory work. In San Juan, only 3 per cent work outside the village, and none is engaged in factory employment.

By inference from the divergent characteristics of the villages, it is the pressure of poverty and not the degree of approximation to urban ways of life in general that accounts for the marked difference in results.

This inference is given direct confirmation by the fact that well over half of the replies to an "open-ended" question on reasons for seeking factory work emphasized "necessity" in comparison to a little over a third that indicated a preference for factory labor.

Although in a more detailed report it will be possible to show many relationships for which space is not available here, one somewhat oversimplified conclusion may be emphasized: within the traditional order of non-industrial societies the barriers

¹⁵ See Redfield, Robert: *THE FOLK CULTURE OF YUCATAN*. Chicago, University of Chicago Press, 1941, especially his concluding chapter (XII), *The Folk Culture and Civilization*.

of labor mobility are so substantial that acute sensitivity to minor differences in financial advantage should not be expected. Industrial wages are likely to be "high" only in relation to serious poverty, as the new worker is typically unskilled and cheap labor gives a competitive advantage to enterprises in newly developing areas. At least in the shorter or longer transitional period, the shortage of land and the loss of markets for handicraft products are likely to be as important in motivating the search for new opportunities as are more positive incentives. Education may facilitate the transition and is of crucial importance in completing the process through providing both the aspirations and the technical means for mobility.¹⁶ Hunger and dissolution of ancient ways are also effective sources of change.

One final and tentative comment may be made. Although the proposition so far defies exact proof or disproof on the basis of available data, all indirect evidence is consistent with the view that the Mexican land reform (the *ejido*) was a "conservative" step in its relation to further economic modernization. The visitor without a sense of Mexican history is likely to be impressed with the stability of the Indian communities, many of which appear to be little changed since the pre-Columbian era. However, the fact is that many of the "primitive" patterns of life were re-established as recently as 15 years ago, and many more since the Mexican Revolution of 1917-1920. It appears at least plausible that the land reforms have, aside from their aims regarding the incorporation of the Indian into the national life, succeeded in accentuating agricultural underemployment and the isolation of the native village from the forces of modern life, good or bad.

Although Mexico is not commonly considered to be overcrowded, it does have substantial unused human resources. If

¹⁶ In this regard, in San Baltasar a significantly higher proportion of those with outside work experience were literate than those who had always worked within the village (67 per cent as compared with 40 per cent). Unfortunately, however, the question concerning where the individual had learned to read and write was inadequately worded to distinguish between those who had learned to read in primary school as children and those who had learned to read "in school" as adult factory employees under the adult literacy campaign. Education may have been the result as well as the cause of mobility.

further industrialization is an effective way of utilizing those resources toward improved standards of health and material welfare, pressures as well as incentives would seem to be necessary to effect the transition, and measures designed to alleviate pressures without changing traditional patterns (or even recreating them) are likely to represent a short-sighted policy.