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NEW FLORENCIA: A CASE STUDY FOR THE 1970 CENSUSES OF POPULATION AND HOUSING

ECONOMIC CHARACTERISTICS OF POPULATION IN A DEVELOPING COUNTRY: A STUDY IN METHODOLOGY

PART I

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NEW FLORENCIA: A CASE STUDY FOR THE 1970 CENSUSES OF POPULATION AND HOUSING

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UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

TO : Mr. B. R. Kalra
Ford Foundation Fellow and Research Officer,
Office of the Registrar General and Census
Commissioner of India

DATE: January 27, 1969

In reply refer to:

FROM : Benjamin Gura, Chief
International Statistical Training
and Workshop Office, ISP

Benjamin Gura

SUBJECT: Technical Publication

1. On the basis of the attached synopsis, a technical publication will be developed by you on the subject "Economic Characteristics of Populations in the Developing Countries: A Study in Methodology".

2. It is estimated that this publication will be between 50 and 150 pages and of approximately 200 words per page.

3. It is anticipated that a draft will be prepared and completed in a 3-month period covering February, March and April, in time for its initial presentation to the participants of the New Florencia Workshop.

4. On the basis of the discussions, a final version will be completed by July 1969.

5. I will serve as your adviser on this project, although appointments will be arranged for you to discuss aspects of this project with appropriate specialists. I am sure that the work will be of excellent professional caliber and I am pleased to be associated with you in this undertaking.

Attachment

ECONOMIC CHARACTERISTICS OF POPULATION IN A DEVELOPING COUNTRY: A STUDY IN METHDDOLOGY

Synopsis

1. Introduction. Study of economic characteristics of populatinn through a Census and/or sample survey. Its objectives, importance and limitations in a developing country.

2. Problems of measurement of employment, unemployment and under-employment in a developing country. Various techniques of and guidelines for the measurement and their applicability. Determinants of the size of the economically active population. Relationship between demographic, social and economic factors, and participation rates. Techniques of analysis. Historical trends.

3. Industrial composition of economically active population. Principles of formulating industrial classification scheme. Significance and limitations of data on industrial distribution in a developing country. Institutional and operational factors affecting industrial structure. Techniques of sectoral analysis. Industrial diversification and economic growth. Historical trends and models by Colin Clark, Bauer and Yamey and Simon Kuznets.

4. Occupational classification of economically active population. Principles of formulating occupatinnal classification. Its nature and scope. Sociological and economic implications of occupational classification and structure. Techniques of analysis of occupatinnal structure. Relationship between occupational mobility and spacial mobility. Historical trends.

5. Classification of economically active population by class of worker (status). Its socio-economic implications. Importance of cross-tabulation of industry and occupation by class of worker. Historical trends.

6. Agricultural working force. Problems of determining its size and composition in a developing economy. Seasonality. Household enterprise. Structural relationship between land, labour and capital in a developing economy. Effects of institutional factors such as land tenure system and pattern of land distribution on size and composition of agricultural working force. Secondary employment. Models of economic growth in a labour surplus economy.

7. Estimating manpower requirements and supply. Imbalance between demand and supply of labor force in a developing economy. Functions of employment generation in a developing economy - Investment. Self-employment through job-sharing. Methods of estimating manpower requirements through investment and output targets. Its limitations in a developing economy. Parnes' method. Occupatinn-industry matrices. Impact of changes in productivity due to changes in technology and elasticity of job substitution. Factors affecting supply of labor force. Relation between education and occupation. Timbergen's formula..

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8. Relation between population, size and structure of labor force, urbanization and economic development in a developing country. Methods of analysis.

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CHAPTER I

INTRODUCTION

Until recently it was commonly understood that the objective of conducting a census is to count human heads and collect some basic statistics of population such as age and sex characteristics. However, since some time past the scope of a census has been expanding in both developed and developing countries, and the collection of economic characteristics through a census has assumed an importance perhaps only next to that of demographic characteristics. The demographic, economic and social characteristics of population are functionally interrelated and affect one another in many diverse ways. It may, therefore, be considered apt, for deriving meaningful conclusions, to obtain the information on all the three aspects, even though we may be primarily interested in only one of them.

Before proceeding further, it seems necessary to explain what is meant by the term "economic characteristics" of population. Generally speaking, the economic characteristics refer to productive economic activities of population, i.e. the activities which result in the production of economic goods and services. In a study of basic economic characteristics, therefore, the first task is to identify the population which is engaged in productive economic activities. The study further concerns itself with the age and sex composition of such population, technically called the economically active population; the type of goods and services it produces or renders; the exact nature of economic functions it performs in the production of those goods and services; and the status under which it works. There are certain auxiliary characteristics, such as whether the person works in the public sector or private sector, the distance from the place work, etc., which can also be collected appropriately during the course of a census or survey.

The size of the economically active population or labor force and its various characteristics have a close relationship with the level of economic development. Productivity per worker is the most important indicator of economic development but, unfortunately, we cannot measure it directly. The various characteristics of the labor force, such as industry, occupation and status, are the indirect measures of productivity and reflect to what extent the labor force is utilized effectively. In this context, the study of economic characteristics of population is of special importance for a developing country. Most of the developing countries are engaged in economic planning for rapid economic development. In

these countries the human resources are not fully utilized; but economic development depends, to a very great extent, upon full utilization of these resources, for which it is imperative to know the existing stock of manpower, its productive capacity and the degree of its utilization.

The present study is methodological in scope, i.e. it attempts to suggest how best we can collect the data on the economic characteristics of population for a developing country and how best we can interpret and analyze this data with a view to drawing policy implications. For this purpose, the data for a few countries has been used to illustrate the methodology. In particular, data are quoted from the census reports of India and the United States to highlight and interpret the contrast in the economic characteristics of population between a developing and a developed country.

The Statistical Office of the United Nations has published many highly useful documents which succinctly explain the methods of conducting censuses and surveys in different countries. 1/ However, the socio-economic conditions differ so much from one country to another, especially between the developed and developing countries, that no single set of recommendations and guidelines can be meaningfully applicable to them on a uniform basis. While these recommendations are designed primarily to suit the requirements of advanced countries, some of the special circumstances and problems found in the developing countries are also hinted at in those documents and some ways and means are suggested to overcome them, but the treatment, on the whole, is rather perfunctory and suggests lack of proper appreciation of those problems, which inevitably attract less attention than they may otherwise deserve. The result is that each country tries to work out a different approach according to its own knowledge and understanding of the problems. 2/ The present study, taking account of the problems confronting a developing country, makes an attempt to suggest a methodological approach within the framework of the U.N. Recommendations.

1/ Of special note: Principles and Recommendations for the 1970 Population Censuses, New York, 1967, and Handbook of Population Census Methods, Vol. II, 79 pages.

2/ In this respect, the approach of the New Florencia Workshop, conducted by the U.S. Bureau of the Census for the benefit of the developing countries, is highly laudable and is a step in the right direction. Another advantage of this approach is that typical basic characteristics which are common to all the developing countries can be synthesized into the hypothetical model.

Unfortunately, the developing countries constitute a heterogeneous group, encompassing a variety of economic, social and cultural patterns. Nevertheless, as the very name suggests, the developing countries possess certain typical and common characteristics and traits which unmistakably distinguish those countries from the developed ones. The developing countries per se are at different stages of economic development, but, to an extent, they are all unique with respect to the more advanced countries of the world.

The situation becomes all the more complicated as we consider that no single developing country constitutes a homogeneous stratum from the standpoint of socio-economic development. It is axiomatic that the more undeveloped a country is, the more it is characterized by regional and sectoral variations in the levels of economic and social progress. To a certain extent, these disparities are both a causative factor and an attribute of underdevelopment. Under those circumstances, no single approach may be entirely suitable for the various strata of population.

The basic approach of the present study is that a certain framework of socio-economic characteristics is formulated for the developing countries. The conceptual framework is based upon certain hypotheses and generalizations which are supported, by and large, by the empirical data of some of the developing countries.

The predominant feature of developing countries is that, as indicated above, the countries are marked by dual economies, called the traditional sector and the modern sector. This is the basic hypothesis, and the framework is mostly based on the implications of the hypothesis. The traditional sector covers the bulk of the economy and it has all the symptoms of economic backwardness. Agriculture is the main occupation, in which the employment is seasonal and suffers from chronic and structural under-employment.

> "The traditional sector comprises mainly peasant agriculture, handicrafts and small-scale industry, and the financial, transport, distribution and other services associated with these activities. It is roughly coterminous with the rural village economy, although traditional handicrafts may appear in cities as well. It is characterized by high ratios of labour to capital and often also to land; by relatively slow technological progress; by little or no capital accumulation; and by low productivity per man-year. The typical form of productive organisation is the household. The modern sector, on the other hand, is composed of plantation or other large-scale commercial agriculture, milling, petroleum and refining, large-scale manufacturing, and the financial, transport, distribution, personal and other services associated with these activities. As a

> contrast to the traditional sector, the modern sector is characterised by high capital-labour ratios; by capital accumulation; by technological progress; by relatively high productivity per man-hour; and by provision of wage-earning employment." 3/

The two sectors also differ with respect to their social and cultural characteristics and milieus, which have significant economic implications. In a traditional society, a household or family, and in some cases even the entire village, is the nucleus of economic activity. The entire household functions as an organic unit, economically, socially, culturally and ethnically; and the relationship of an individual with the household is based not only upon economic but also on various non-economic and institutional factors and values as well. We therefore cannot study, either quantitatively or qualitatively, the pattern of economic activity of such a society only through the economic tools of investigation and analysis.

Thus, both for the purpose of designing a scheme of enquiry and analyzing and interpreting the results, we are constrained to adopt a dual approach and treat the traditional and modern sectors of the economy on different footings. Consistent with the above approach, the main objective of the study in methodology is to draw an analytical picture of the economic characteristics of population in such a way that they help to determine the level and the rate of economic growth. The focal point of the study should, therefore, be to determine the dimensions of the traditional and modern sectors in the economy, the rate at which the traditional sector is transforming itself into the modern sector, and how the two sectors, either individually or in totality, stand in comparison with the developed countries with respect to the level and the rate of economic growth. To study the growth implications of the economic characteristics of population is the basic theme which runs through all the chapters. Unfortunately, so far this theme has not received as much emphasis as it deserves.

3/ Employment Objectives in Economic Development, Report of a meeting of Experts (Geneva, International Labour Office, 1961), p. 27.

CHAPTER II

MEASUREMENT OF EMPLOYMENT, UNEMPLOYMENT AND UNDEREMPLOYMENT

The problem of measuring employment, unemployment and underemployment relates to identifying, in both quantitative and qualitative terms, the population which is economically active and that which is inactive. The economically active population is generally understood to comprise all those who contribute to the supply of labor for the production of economic goods and services. This is perhaps the most difficult question confronting a developing country; and the problems involved in measuring the employment, unemployment and underemployment on an objective and realistic basis are nearly insuperable.

Two Approaches:

Generally, two approaches are adopted in a census or survey to enumerate economically active population. Under the first approach, which is technically called the "usual status" or "gainfully occupied" approach, it is left to the subjective considerations of the respondent to decide whether he or she is economically active or not. It is up to the respondent whether, while making the decisions, he is guided by his immediate position or by his usual activity pattern extending up to a whole year or so. He is free to decide whether he attaches more importance, both in quantitative and qualitative terms, to his status as economically active or inactive. The second approach is called the "labor force" approach. Under this approach, certain objective criteria, being measurable quantitatively, are laid down to determine the activity status of a person. In this approach, a reference period is prescribed and the activity status is determined with reference to that period only. Ideally, a reference period is a sample of time or a norm which determines his universal position regardless of what the respondent might think about it. While this is preferable to the "usual status" approach where the norm is set by each person himself or herself, the information collected on the basis of the "labor force" approach suffers from serious limitations if the reference period is not a correct sample of time or if the norm itself is based on certain subjective criteria and hypotheses. Besides, if the criterion is not well defined and is not unambiguous, the enumerators may introduce their own biases into it. Thus, if there is a large traditional sector in which the economic conditions are too heterogeneous and vary from time to time and

tract to tract, the scope for adopting the "labor force" approach is limited, not only because our statistical knowledge under such conditions is imperfect but also because no simple set of criteria or norms, however comprehensive they may be, can be fully representative and ideal.

Closely related to the two approaches stated above are the concepts of income and work. While the concept of income is generally associated with the "gainfully occupied" approach, the work or time criterion goes with the "labor force" approach, though this need not necessarily be so. The conceptual difference in the two approaches is significant in relation to 1) persons who earn but do not work and 2) persons who work but do not earn and do not get income in cash or kind. Theoretically, both the approaches are essentially the same inasmuch as persons engaged in productive activities, i.e. activities which result in the production of economic goods and only, are treated as economically active. The small segment of population who earn without working, such as pensioners, rentiers, and recipients of social security benefits, etc., can be identified as a separate group and can be excluded from economically active population. The second category relates to unpaid family workers. While their economic activity results in the production of goods and services, income therefrom does not accrue directly and individually to the unpaid family workers. This has significant practical implications, judging from the census results of several countries. For example, in India, where the income approach was adopted in the 1951 Census of India, unpaid family workers were, in many cases, enumerated as economically inactive and not as economically active. The income and work approaches also make a material difference when a person follows two economic activities concurrently or consecutively and has to be classified further according to principal or secondary occupation, industry and statu

During the 1950 Census conducted in different countries, the approaches used for the primary classification of population into economically active or inactive were as follows: 1) in 34 countries, whether the person was engaged in economic activity during a specified time and 2) in 16 countries, whether the person was engaged in economic activity without reference to a specified time. As regards the 1960 Censuses, the information is available for a few countries only. The United Kingdom, the United States, Japan and the Philippines adopted the "labor force" approach with a week as the reference period. Pakistan adopted the "usual status" approach for cultivators and one week as a reference period for non-cultivators. In India, the "usual status" approach was adopted in the 1951 Census, but a "labor force" approach, based on a work criterion and a dual reference period for seasonal and regular work, was adopted in the 1961 Census. In the case of seasonal work, like cultivation, live-

stock, household industry, etc., a person was treated as a worker if he or she had done some regular work of more than one hour a day throughout the greater part of the working season. In the case of regular employment in any trade, profession, service, business or commerce, the person was a worker if he or she was employed for at least one day during the 15 days preceding the day of enumeration.

The U.N. Recommendation on the concept of economically active population runs on these lines: "The adoption of a specified time reference for census data on economic characteristics is fundamental to the concept of the economically active population. It is recommended that the time reference period should be not longer than one week. Where it is considered that classification on the basis of current activity over this brief time period does not reflect year-round activities, particularly where there is a highly seasonal pattern of employment and regular periodic sample surveys are not held during the year, supplementary information on 'usual' economic characteristics over a longer period may also be collected. Such supplementary information may also prove useful in enabling comparisons to be made between the results obtained when the brief time period is employed, in order to ascertain the effect of different time references."4/These U.N. Recommendations underline the fact that a short reference period is unsuitable in the case of the traditional sector of a developing country and implicitly suggest a dual reference period for traditional and modern sectors.

There are four alternative interpretations of the traditional and modern sectors, implicit in the dual approach, for the purpose of classifying population into economically active and inactive. The alternatives are: 1) seasonal and regular employment, 2) household and non-household employment, 3) agricultural and non-agricultural employment, and 4) rural and urban employment. The implications of each alternative are discussed in the following pages.

Seasonal and Regular Employment:

We may first examine agriculture because it understandably covers the bulk of the seasonal activity in a developing country. Typically, it is difficult to work out any pattern of seasonal employment as regional variations in this field are so vast and numerous that no statistical picture emerges at the country level. We get a diverse picture of busy and slack seasons in agricultural over different regions, depending upon rainfall, irrigation, crop pattern, single and double cropping, institutional factors as land tenure system and the pattern of size and distribution of holdings, and many other operational and institu-

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4/ United Nations, Principles and Recommendations for the 1970 Population Censuses, New York, 1967, p. 62.

tional factors. Furthermore, most of the enquiries on employment such as a census relate to a point in time only and do not throw much light on the degree of fluctuation in employment caused by seasonal and economic factors during the course of a year. Even the data based on sample surveys, extended over a whole year, presents an average picture, without revealing the variations over the year.

The results of the farm management studies conducted in India indicate that agricultural employment is characteristically seasonal. The seasonal fluctuations in employment are significant so that we can delineate between busy and slack seasons of employment. In terms of employment, the length of busy seasons varies, according to the study, roughly from one-third to one-half of the year. However, seasonal fluctuations in employment are more pronounced in the case of female and hired labor as compared to adult male and child labor, underlining more distinctly the seasonal character of their employment. The results further emphasize that the fluctuations are marked both by variations in the number of days worked and in the intensity of employment (number of hours worked) on the working days.

The above description is typical of the situation observed in many other developing countries. Under such circumstances, a short reference period is obviously inappropriate, since it would reflect the atypical conditions prevailing during that period only and not the usual position, unless, of course, the reference week or fortnight is staggered to an entire year which, however, can be possible through a sample survey only.

A "usual status" approach under such conditions, as suggested by the United Nations, may be more appropriate. Here a person is apt to declare his general and overall position, cutting across short-term variations in the level and intensity of employment induced by seasonal and other factors. At the same time, there is also a likelihood that he may report his current and immediate position. Thus he may report himself to be economically active during a busy season and economically inactive during a slack season. As an alternative approach, a reference to one's participation during the busy season only may give more meaningful results. This is a synthesis of the "usual status" and "labor force" approaches. It is reasonable that, in conformity with the priority criterion, a person engaged in seasonal work should be adjudged according to his performance during the busy season only. As a supplement to the short reference period, the United Nations has recommended the "usual status" approach for seasonal employment. However, the desirability and practicability of collecting economic characteristics by adopting both the "labor force" and "usual status" approaches for the traditional sector, during the course of a census, is

highly questionable. Besides, the canvassing of the same items twice upon the same respondents simultaneously or in close succession may introduce some element of conditioning, thereby impairing the chances of comparing the results.

The division of the traditional and modern sectors by the United Nations is implicitly based on seasonal and regular patterns of work. However, seasonal employment may be non-agricultural as well as agricultural, though agriculture covers the bulk of it. Regarding seasonality in the non-agricultural sector, we suffer from still greater paucity of data than in agriculture. Based on Indian experience, the seasonality in the non-agricultural sector is not such a prominent and discernible factor that it can easily form a workable hypothesis for formulating the criterion of work. Seasonality may vary not only from industry to industry but, within the same industry, it may differ from establishment to establishment and worker to worker, depending upon regional or climatic conditions, technology, occupation, status and also if the activity is pursued consecutively with another activity which is seasonal. There are also a few stray cases of seasonal employment in the intrinsically modern sector, such as the sugar industry, construction, industries connected with tourism, etc. Here too, certain occupations within the same industry could be seasonal while others could be of a regular nature, such as in a sugar factory, where the office staff may be employed on a regular basis while the employment of skilled and unskilled labor may be seasonal.

Household and Non-household Employment:

For various reasons, the entire household sector deserves to be treated on a separate footing. The major part of the household sector is covered by agriculture. The fact that agriculture is a household enterprise is generally the rule rather than the exception in the developing countries. We can distinguish between household and non-household enterprises on the basis of certain indicators. Conceptually, a household enterprise is one in which all the inputs are mainly provided by the household itself. However, this indicator is too comprehensive and difficult to apply in practice. The second indicator is that only the labor inputs are mainly drawn from the household in the form of unpaid family workers. This is also not entirely free from complications because it presupposes the knowledge of the labor input by its size and composition (status) and, further, because the concept of unpaid family labor is itself linked with that of household enterprise. The third criterion is the location of the enterprise. The enterprise (non-agricultural) should ordinarily be located within the house of the household (the place of usual residence or enumeration).

In a household enterprise, the position with regard to 1) the type of work and 2) the quantum of work is largely nebulous and it is difficult to identify the former qualitatively and to measure the latter quantitatively. In the case of regular employment, such as in a factory, office or shop, the nature of work and daily hours of employment are generally fixed, and even if we do not lay down any minimum norm of work in such cases, we can assume that a person who attended his establishment on a particular day should have been at work for certain minimum hours. However, this is not true in the case of agriculture and the household enterprises in the non-agricultural sector. Under this type of organization, nearly all persons participate to some extent in activities directed towards obtaining subsistence. Here there are no fixed hours of work and the employment is sporadic and irregular. The dimensions of the production unit (establishment) being coextensive with those of the domestic unit (household), the employment in productive work is frequently punctuated by domestic activity. The two activities sometimes may be indistinguishable, as the product may be used for family consumption. Thus the employment data for a household enterprise would be of limited and doubtful value unless qualified by a minimum norm of work in terms of daily hours of employment so that work of a trivial or casual nature is not included. The only constraint is the practicability of devising an objective norm by which we can rightly cut off at a point where the penumbra of underemployment changes into inactivity (non-work). Impelled by such circumstances, the United Nations has recommended that a family worker should contribute at least one-third of the normal work. It has been calculated that even during the busy season, the normal hours of work in agriculture in India may lie in the proximity of three to five hours per day and by fixing the minimum norm of daily work at more than one or two hours per day we may run the risk of excluding a fairly large section of the working force whose contribution towards the production of goods and services may not be insignificant. The norm, however, should, by implication, stipulate that a housewife, for example, would have to leave aside her domestic chores or leave home for a viable period, avowedly with the intention of participating in economic activity, when she would not permit her domestic obligations to interfere with her work, that is, work at this time would take precedence over domestic duties. Thus there is a need for laying down a minimum quantitative norm of work, first because of the employment conditions inherent in the household sector, and secondly because, due to the seasonal nature of the employment, the reference period is narrowed down to the working season only. The minimum norm may be expressed either in terms of 1) minimum daily hours of work or 2) a fraction of the normal working time during the reference period.

Agricultural and Non-agricultural Employment:

As a first approximation, the traditional and modern sectors can be stratified on the basis of agricultural and non-agricultural employment. Since employment in agriculture is mostly seasonal and operative at the household level, as we have noted above, all the implications of the alternatives 1) and 2) above apply to it. Pakistan had used different criteria of work for agricultural and non-agricultural employment in the 1961 census. However, the classification, seemingly based on the factor of seasonality only, obviously could not distinguish between household and non-household enterprises in the non-agricultural sector.

Rural and Urban Employment:

The employment characteristics of population in rural and urban areas are more distinctive in less developed countries as compared with the developed countries. The rural employment is characteristically traditional inasmuch as, due to the predominance of agriculture and the non-agricultural sector also being mainly agro-based, it is mostly seasonal and operated at the household level. Thus the observations concerning household and non-household sectors largely hold true for rural and urban employment also. The dual approach based on such classification would be highly convenient to apply, though with a lesser degree of refinement. If the distinction between rural and urban areas is not well defined, some portion of rural employment may be of a modern type which may deserve to be treated on a different footing. On the other hand, economic characteristics of population may be one of the criteria for working out rural-urban classification of population. To that extent, it is a constraint upon using the classification as an independent criterion for formulating the economic concepts of population in the traditional and modern sectors.

Modern Sector:

The modern sector can be visualized as a counterpart to any one of the four interpretations of the traditional sector given in the preceding paragraphs. In order to conform to international trends and United Nations recommendations, the "labor force" approach with a short reference period can be appropriately adopted for the modern sector. In this connection, it might be interesting to compare the participation rates of urban areas for the 1951 Census of India, which used the "usual status" approach, with those of 1961, which used the "labor force" approach, as

worked out in the following table.

Table I: Participation Rates of Workers in Urban Areas--India

Year	Persons	Males	Females
1951	33.54	53.12	10.74
1961	33.48	52.40	11.09

It is gratifying to note that in spite of there being a fundamental change in the definition of work for regular employment, which is a characteristic feature of the urban areas, the participation rates for the two years were remarkably close to each other. It suggests that the changes in the definition of work, both from "income" to "work" and from "usual status" to "labor force," could hardly affect the rates of participation as far as regular employment was concerned.

Underemployment:

Much of the discussion above would be equally relevant to underemployment because employment includes full-time employment as well as underemployment but excludes unemployment. Underemployment, as in the case of all forms of employment, has a lower limit in quantitative terms, which is, of course, not so well marked out in the case of the traditional sector. Qualitatively, underemployment may reach the extreme lower limit when the marginal productivity of labor approximates zero. The implication is that, by withdrawing the underemployed workers, the total output does not fall even without any changes in capital input, technology and institutional framework. The above interpretation of underemployment is, however, hypothetical and not applicable under a dynamic situation. The upper limit of underemployment, as distinguished from full-time employment, may be set subjectively by the respondents, who may be "able and willing to do more work than they are actually performing,"5/ or it may be set with reference to a subjective norm signifying full-time employment in terms of hours per day, days per week, and weeks per year.

In the case of a developing country, the mere dichotomy of population into economically active and inactive is artificial and does not exist. The data on economically active population is not of much significance unless it is qualified by intensity of employment or is at least subclassified into semi-active and

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5/ Recommendations of the Ninth International Conference of Labor Statisticians, Geneva, April 24 - May 3, 1957, Resolution III, paragraph 1.

fully active. The range of variation in the intensity of employment is by far much wider in a developing than in a developed country. To be sure, the information on underemployment can be collected only through a short reference period. It means that it is not feasible through a census but only through a sample survey to collect data on work-time disposition purporting to measure the level and intensity of the employed population in a developing country. The U.N. Recommendations for the 1970 Censuses do not suggest underemployment either as a compulsory or optional item of study during the 1970 censuses. A census refers to the total employed population without differentiating between those who are either fully or partially employed. Nevertheless, some insight into the level of underemployment can be had indirectly through the classification of economically active population by age, sex, industry, occupation and status, and, in the case of agricultural employment, by comparing it with the pattern of size and distribution of agricultural holdings. As an alternative, this information could be collected directly through a census with respect to the modern sector only. The sample surveys concerned with underemployment, particularly in the rural areas, have not met with much success either, in identifying those who were underemployed. For example, the National Sample Surveys of India had to discontinue their rural surveys on unemployment and underemployment because they failed to quantify the extent of the underemployment, with the result that no policy implications could be formulated on the basis of such estimates.

Unemployment:

All those who are not employed need not necessarily be unemployed. The unemployed constitute only that component of the non-working population "who, during the reference period, were not working but who were seeking work for pay or profit, including those who never worked before."6/ The reference period would naturally be the same as prescribed for recording the working population, as the two categories are mutually exclusive and based on the criterion that "doing work" has priority over "seeking work." We thus encounter identical problems while recording the working population in the modern and traditional sectors. There is, however, one difference between the underemployed and the unemployed persons in that while the former are mostly self-employed and unpaid family workers, the latter are in search of wage-employment.

The concept of seeking work is not an entirely subjective attitude but is based on certain prescribed indicators of

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6/ United Nations, op.cit.

economic behavior such as registration with the employment exchange, contacting the prospective employer, etc. Where, however, the respondents believe that there are no prospects of getting employment or there are no agencies through which they could exert on the employment market, the United Nations recommends that such persons should be included as unemployed if they were available for work (i.e., willing to take up employment if offered), but whose availability for work is not expressed by any overt action. However, the term available for work is entirely subjective and the response may depend upon such factors as the type of work, wage-rate at which available, place of work, etc. In India, where different criteria of unemployment were laid down for rural and urban areas under sample surveys, viz. available for work in rural areas and looking for work in urban areas, a higher incidence of unemployment was recorded for rural areas relative to urban areas, though it is generally understood that underemployment and not unemployment is the characteristic feature of the rural areas. Another difficulty is that the unemployment data based on the available for work approach may have limited practical implications, first because it may not be within the means of the government to formulate an employment program which would encompass all those who are available for work but who otherwise do not make any impact on the employment market, and secondly, again for making employment policy, it is not possible to determine the magnitude of the unemployed persons who are available for work at a given wage rate, against a given socio-economic setting.

It has been observed that the data on unemployment collected through a census or a sample survey in a developing country is generally on the low side and is characterised as "gross under-estimate" in comparison with the information collected through other sources. The other sources of information, besides field enquiries, are: 1) employment exchanges and 2) estimating the plausible gap between the demand for and the supply of labor force over a certain period.

Institutionally, the employment exchanges are the most ideal medium for obtaining information on the number of unemployed in a country. However, in operational terms, such data for most of the developing countries suffers from the following shortcomings:

1) Since most of the employment exchanges are located in urban areas, the data can, at best, be deemed to reveal urban unemployment only, though some element of rural unemployment cannot be totally ruled out.

2) Even in urban areas, all those who are unemployed are not registered with the employment exchanges. At

two intervals of time, some association has been found between the number of registrants with the employment exchanges and the number of employment exchanges existing in the country.

3) Not all those who are registered with the employment exchanges are unemployed; some of them, who are employed, are motivated to improve their prospects through the agency of the employment exchange.

4) There are multiple registrants who get themselves registered with more than one employment exchange.

It is not possible to adjust the employment exchange data, after accounting for the above factors, either intuitively or through some empirical knowledge because the magnitude of these factors varies from time to time and from one employment exchange to another.

An indirect method for working out unemployment is to estimate new entrants to the labor force and also the employment opportunities created or likely to be created on the basis of investment or output figures. The gap between the two should denote the unemployed. The main drawback of this method is that the gap, instead of persisting indefinitely, gets largely filled up through self-employment in household enterprises, without involving any additional investment.

Thus, unlike the developed countries, there can be no single, firm estimate of unemployment for a developing country. On the contrary, the range of unemployment set by the different estimates can, at best, be envisioned as a rough guide for explaining the trends in the level of unemployment.

CHAPTER III

PARTICIPATION RATES

Until now we have been concerned with the techniques of identifying the size of the economically active population. In the forthcoming paragraphs, we examine how far the size of the economically active population varies with respect to its population as between the developing and the developed countries and the factors that determine the total supply of manpower that is economically active. In the subsequent chapters we discuss various characteristics of the economically active population and the techniques of their measurement and analysis. These characteristics throw light on the productive capacity of the economically active population and the degree of its utilization.

Crude and Age-specific Participation Rates:

The size of the economically active population is the function of the total population and the labor force participation rate. Overall or crude participation rate is the number of economically active persons per 100 of population of all ages. The participation rates may be computed separately for male and female population called male and female participation rates respectively, and these may further be broken up into broad age groups called sex-age-specific participation rates, denoting the number of economically active persons belonging to a particular age group and sex to 100 persons of that age group and sex.

Significance of Participation Rates:

A high participation rate of population implies a low dependency rate and should, apparently, be a factor of economic development. The higher the participation rate, the larger is the size of the labor force engaged in efforts directed towards production of those goods and services which are reckoned as national income, and, therefore, other things being equal, the higher is the rate of economic development. In actual practice, however, the "other things" do not remain the same and there is perhaps only a marginal difference in the participation rates of developed and developing countries, as may be seen from the following table.

Table II: Crude Participation Rates in Countries Classified According to Degree of Industrialization

Degree of Industrialization	Persons	Males	Females
Industrialized countries a	42.9	62.2	24.3
Semi-industrialized countries b	39.5	57.8	21.2
Agricultural countries c	40.3	55.2	25.4

a Twenty-one countries having less than 35 percent of active males in agriculture and related activities.

b Thirty countries having 35 to 59 percent of active males engaged in agriculture and related activities.

c Twenty-one countries having 60 percent or more of active males engaged in agriculture and related activities.

Source: Demographic Aspects of Manpower, United Nations, 1962.

To understand this phenomenon, it is necessary to analyse the underlying factors which determine the participation rates for different countries.

Determinants of Participation Rates:

The participation rates are determined by the interaction of a variety of demographic and non-demographic factors, some of which are listed below:

1) Age composition of population,
2) Sex composition of population
3) Economic factors
4) Social factors
5) Rural and urban breakdown of population

The crude participation rate is the resultant of the above factors often operative in a diverse manner and in varying degrees upon different segments of population.

Demographic Factors:

In the case of the developing countries, a little over half the population is in the 15-59 age group, commonly called the labor force age group, against over 60 percent in the case of developed countries. This is a characteristic feature of population in almost all the developing countries. It is a natural

offshoot of the high rate of population growth resulting from a constant birth rate and a declining death rate, especially in the younger age groups. This increases the dependency load similar in effect to that resulting from a rising birth rate. It may, therefore, be more meaningful to compare the age-specific participation rates of developed and developing countries, as shown in Table III below.

Table III: Age-Specific Participation Rates for Selected Countries

	-15	15-19	20-24	25-29	30-49	50-54	55-59	60-64	65+	Total
United States (1960)	0.5	35.6	65.1	64.0	68.1	69.2	64.3	52.2	19.0	39.0
United Kingdom (1951)	0.1	81.2	----------	----------	----------	65.3	----------	----------	16.0	46.2
France (1962)	-	42.5	74.1	71.4	68.8	68.7	62.9	51.2	17.1	42.4
Germany: F.R. (1961)	2.5	80.1	81.8	73.9	68.1	62.4	58.4	43.5	14.2	47.7
Canada (1961)	-	37.9	68.2	63.0	62.6	62.5	58.1	48.1	17.2	35.7
New Zealand (1961)	-	64.6	72.5	61.0	62.2	62.8	57.6	39.9	11.5	37.1
Japan (1960)	-	49.8	77.5	73.0	74.5	72.9	67.4	60.1	35.8	47.1
Mexico (1960)	3.6	46.7	55.3	54.4	57.5	60.6	61.7	63.4	59.5	32.4
Brazil (1950)	5.8	50.9	54.5	54.2	54.5	---52.2---		---39.2---		33.0
Ghana (1960)	-	57.2	70.0	73.0	80.1	84.1	83.5	77.8	57.8	40.5
U.A.R. (1960)	8.2	39.5	47.9	45.7	51.0	50.0	49.5	42.1	30.0	30.1
Ceylon (1953)	2.9	37.4	55.8	63.2	67.6	69.1	67.1	59.7	47.2	37.0
Thailand (1960)	9.5	80.7	87.4	90.4	92.1	---87.7---		---51.2---		52.7

	-15	15-34	35-59	60+	Total
India (1961)	8.0	-------66.2--------	----73.8-----	---49.5---	43.0

	-15	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
Iran (1956)	4.5	46.4	48.9	53.1	58.1	55.1	---53.8---	41.4	32.0
Indonesia (1961)	3.9	48.5	53.9	58.3	66.0	68.0	---64.7---	49.7	35.9

Source: International Labour Office, Year Book of Labour Statistics, Geneva, 1965

The above table is significant for analyzing variations in the participation rates in developing and developed countries. The table reveals an important phenomenon that while the crude participation rates are slightly lower in developing countries as compared to those prevailing in developed countries, the rate of participation in each age group is either uniform or even higher in the developing countries. However, since people in different age groups have different employment tendencies, the relatively low overall participation rate is the consequence of a high proportion of population being in age groups of low participation. This is, of course, partly offset by the employment of the young population and of older persons.

Standardized Participation Rates:

Another method to eliminate statistically the impact of the vast disparity in the age composition between developing and

developed countries upon the crude participation rate is to standardize such participation rates. After the rates are standardized, the remaining discrepancies or divergencies still obtained in the participation rates between the two sets of countries can be attributed to economic, social and other non-demographic factors. This process consists of selecting the population age-sex structure of a typical area or country and weighing the labor force participation rates of the various age-sex groups in each area or country by that standard composition instead of its own.

Let s_i = labor force of any age group
p_i = population of that age group
l_i = s_i/p_i, or the percentage of the population of that age group, which is in the labor force--the "labor force participation rate"
r_i = p_i/P, or the standard or fixed ratio of the number of persons, to the number 14 and older
L = percentage of the population of both sexes in the labor force
$\bar{L}$ = the same percentage standardized

$$\bar{L} = \frac{(l_i \cdot r_i)}{r_i} = (l_i \cdot r_i) \quad (\text{since } r_i = 1.0) \quad 7/$$

While the disparity in the participation rates between developing countries and developed countries is on account of dissimilar age structures and, to a lesser extent, due to disparate social and economic conditions, the variations in participation rates within the developing countries themselves are generally the result of social and economic factors. Thus, within homogeneous demographic settings, the participation rates can be treated as more or less standardized for age and sex and the pattern of variation examined in relation to certain social and economic factors.

Female participation rates are universally lower in relation to male participation rates due to the traditional role of females as housewives. An excess of female over male population will tend to pull down the overall participation rate, but since the sex ratio varies within a narrow range, its effect upon the participation rate is rather insignificant. All the same, the crude participation rates can be standardized for sex also in the same manner as for age.

7/ Clarence D. Long, The Labor Force under Changing Income and Employment, Princeton, 1958, p.50.

Economic, Social and Cultural Factors:

It may be observed from Table III that the participation rates for population of less than 15 and more than 60 years of age are distinctly higher for developing countries than for developed countries. The male working force belonging to the 15-59 age group generally varies proportionately with the size of the male population in this age group and the rate of participation does not display much variation over time or for different regions. In the case of female population and of population of less than 15 and more than 60 years of age, economic, social and cultural factors play a more effective role in determining their participation in economic activity. The reasons are partly demographic also, inasmuch as the objective is to reduce the dependency burden by engaging children in economic activity. The other reason is that agricultural and other household activities afford the employment of children in household enterprises. This brings the population within the fold of labor force at a relatively early age which deprives it from the benefit of education and training. Plausibly, this may, to some extent, help to relieve the economic distress but, perhaps, the society has to pay a higher price for keeping the population at a low level of efficiency and intellectual growth. For practically the same reasons the older population, too, continues to be attached to the labor force, especially when there are no provisions for social security against old age.

The female participation rates in developed and developing countries extend over a wide range. The employment of women is still not socially acceptable in many developing countries or their field of economic activity is traditionally limited to the household sector. Insofar as there is scope for employment of females in the household sector, such as in household cultivation or industry, the rate of female employment is high, the level of activity in other spheres being depressingly low. In some developing countries with Moslem population there is some cultural bias against the female population taking part in economic activity, and the female participation rates are exceedingly low in these countries. Similarly, cultural patterns prevailing in many Latin American countries are inconsistent with female participation in economic activity.

Labor force participation rates denote the supply of labor which comprises the employed and the unemployed. The participation rate for the employed would be lower than the labor force participation rate to the extent those seeking employment do not become employed. A persistently high rate of population growth may result in an excess of labor supply in relation to the demand for it. However, an increase in population tends to reduce the

income per capita, which means a decreasing rate of saving, investment and employment. This may create a gap between the supply of and the demand for labor, and the gap, which denotes the unemployed, may be widened if more persons offer themselves for work in order to maintain the family income at the previous level. The size of the working force is reduced to the extent those who are willing to work remain outside it. The trend may, to some extent, be held in check if the country resorts to forced savings or the surplus labor gets partially employed through a labor intensive arrangement or through self-employment in a household enterprise. In the latter case, while the size of the working force may remain high, the output per worker may decline and the same downward trend may set in. As Table III points out, the participation rates for males in the working-force age groups are comparatively higher in developing than in the developed countries which suggests that, the unemployment being negligible, the working force in the developing countries approximately equates with the labor force.

Factorial Analysis of Participation Rates:

The effect of various determinants of the participation rates may be analyzed through time series as well as cross-sectional data. It has been generally observed that the historical series of labor force are unsecular, if not erratic, and the data for no single country shows uniformity of trend in labor force participation rates. The reasons are partly statistical resulting from changes in the concepts adopted at each census or survey. This is more true in the case of developing countries where the unpaid family labor constitutes a significant part of the labor force. The data on female employment which predominantly belongs to this category is comparatively more sensitive to conceptual changes. This inhibits comparability of data on female employment and it is, therefore, pertinent to restrict the comparison to male employment only. It has generally been experienced that any attempts made with a view to preparing comparable series of total working force by eliminating the effects of conceptual changes have not met with much success.

Nonetheless, some broad historical trends in the participation rates of the majority of the developed countries are noticeable which, of course, serve as no more than a rough guide to the changes anticipated for the developing countries. The substantive ones among them are listed here. First, the changes in the age structure of population have uniformly tended to upgrade the crude participation rate. Second, there have been substantial declines in the percentage of young population (below age 20) and of elderly persons in the labor force. Third, the activity rates for males in the 20-64 age group have practically remained constant over the

decades. Fourth, with the relative decline in the importance of agriculture and other household enterprises, the employment rates of the women, who were mainly engaged in these enterprises, also went down. On the other hand, the growing importance of the services sector, together with changes in social attitude and emphasis on education, stimulated the demand for female labor in clerical occupations and helped to sustain the female participation rates in many advanced countries at a fairly high level.

For determining the function of participation rates, our approach is inevitably limited to cross-sectional analysis of data at a point in time only. Since the age structure is an overwhelming factor in influencing the participation rates between developing and developed countries, which may vitiate the comparability between the two, it is desirable to standardize the rates for drawing meaningful conclusions. It is evident that the variations in the standardized participation rates would reflect the effect of social and economic factors only and their functional relationship can be worked out, treating social and economic factors as independent variables and the standardized participation rates as dependent variables, by applying certain statistical techniques of analysis such as simple, multiple and partial correlations. Some of the non-demographic factors believed to affect the participation rate are: literacy, education, income, industrial and occupational structure and status of the labor force. The marital status of women exerts some influence on their economic activity. Some of these factors suffer from multi-collinearity due to the complexity of their interrelationships. For example, education, income, industry and occupation could be interdependent and their combined effect on the activity pattern may be to exaggerate the degree of correlation In such cases it may be appropriate to use partial correlation rather than multiple correlation, so as to eliminate the effect of associated factors on the participation rate.

On the basis of a cross-sectional analysis of standardized participation rates of various States of India, it has been observed that while the effect of certain social factors like education was peripheral, the industrial structure was perhaps the most powerful factor influencing the participation rate. Through linear regression analysis, it was calculated that for every one point shift in the ratio from agricultural to non-agricultural employment, there was a decline to the extent of 0.3 points in the participation rate, though the coefficient could work to a greater or lesser degree with respect to different age groups and for males and females. The effect of education is perceptible mostly in younger age groups, so that its impact on the overall participation rate is not as significant as it is presumed to be.

Such regression coefficients are valuable in predicting the future course of participation rates. Another method designed to yield the same purpose is based upon the following two assumptions:

1) The developing countries would, in pursuance with demographic and non-demographic changes, adopt, on a future date, a participation rate now obtained in the developed countries.

2) The developing countries would record over time the rate of change in their participation rates similar to that experienced by the developed countries.

There is no doubt that there can be no easy acquiescence into accepting either of the above-mentioned assumptions unreservedly, because no one can be sanguine about the future trends in various demographic and non-demographic factors and their relative contribution to towards shaping the future participation rate of a developing country.

Rural-Urban Breakdown of Participation Rates:

A more sophisticated method may be to project rural and urban participation rates separately and apply them to the projected populations of rural and urban areas. For the reasons stated earlier and as the following table illustrates, the participation rates for the rural areas are appreciably higher than those for the urban areas.

Table IV: Participation Rates in Broad Age Groups by Rural and Urban, India, 1961

Age Groups	Rural			Urban		
	Persons	Males	Females	Persons	Males	Females
0-14	9.2	10.6	7.3	2.6	3.6	1.6
15-34	70.3	91.1	49.8	49.5	76.9	15.8
35-59	76.0	97.5	52.3	63.7	93.3	22.9
60+	52.0	79.9	24.3	35.2	58.4	11.4
Total	45.1	58.2	31.4	33.1	52.4	11.1

Source: Census of India, 1961.

Virtually the same non-demographic factors are at play between the rural and the urban areas as there are between the developing and the developed countries, the only difference being that the crude participation rates in the latter case are further compounded by disparate age structures.

We can assume constant participation rates for the rural-urban areas, the changes in the crude overall participation rates being solely determined by the future redistribution of rural and urban populations. However, the female participation rate of the 20-64 age group in the urban areas is largely indeterminate and it is hazardous to speculate about the prospective rising trends in it, depending as it does upon the new social patterns consistent with the employment of women outside their homes.

Limitations of Participation Rates in a Developing Country:

We have noted a paradoxical situation that while the crude participation rates of developed countries have a slight edge over those of the developing countries, mainly due to the differences in the age composition of the population, both age-specific and standardized participation rates are appreciably higher in developing than in developed countries. In the context of developing countries, the participation rates are, therefore, of limited significance, if not misleading, in reflecting the economic conditions of a country and the extent of utilization of human resources.

Theoretically, economic growth is a measure of two derivatives, i.e. participation rate and productivity per worker. Even though the two variables are not contradictory in their functional role, the empirical data points out some inverse correlation between them. As we shall see in the subsequent chapters, the major economic characteristics of economically active population, such as industry, occupation and status, have a bearing upon the productivity per worker. In other words, the difference between the developed and the developing countries, in the matter of utilization of human resources, lies not so much in the size of the economically active population relative to total population, as in its content. It is, therefore, important that, for drawing meaningful conclusions, the data on participation rates pertaining to a developing country should be qualified by its various characteristics stated above.

The participation rate of a country is a highly complex phenomenon, characterized by a multiplicity of factors unique to that country, which pull the rate toward different directions. Hence, any estimates regarding the future changes in the participation rate, in particular for a developing country, either for the total population or for each age and sex component, are essentially arbitrary in character and are liable to be invalidated by subsequent empirical results.

CHAPTER IV

INDUSTRIAL CLASSIFICATION OF ECONOMICALLY ACTIVE POPULATION

Principles of Industrial Classification:

Industry denotes the branch of economic activity in which a person works. The United Nations has evolved an international classification of industries called the International Standard Industrial Classification (ISIC). The classification is used for international comparisons as well as being adapted for national purposes.

The unit of industrial classification, according to ISIC, is an establishment. The classification of each unit is determined by the principal product produced or handled, or service rendered, by the unit. All establishments engaged in the same or similar line of economic activity constitute an industry. Commodities or services having certain common characteristics either in their production or usage are grouped together to form an industrial classification.

The establishment "is, ideally, an economic unit which engages, under a single ownership or control, in one, or predominantly one, kind of economic activity at a single physical location--e.g., an individual farm, mine, factory, workshop, store or office." 8/ Thus, the concept of establishment has the following basic attributes: 1) singleness of control, management or ownership; 2) singleness of economic activity; and 3) singleness of location. In practice, however, these attributes are sometimes in conflict with one another, in which case it becomes difficult to apply them strictly. The ISIC has laid down some criteria to deal with such a situation, at least by relaxing some of the principles. Another type of difficulty that may usually be encountered, particularly in developing countries, is that the relationship of certain individuals with an establishment may be tenuous or of a purely casual nature, in which case it may be difficult to determine the establishment to which they belong.

8/ United Nations, International Standard Industrial Classification of All Economic Activities, New York, 1958, p. 2.

The United Nations describes the nature of the ISIC in these words:

> "The ISIC is a classification by kind of economic activity (or industry) and not by kind of occupation or commodity. The classification does not draw distinctions according to kind of ownership, type of economic organization or mode of operation. Thus, establishments engaged in the same kind of economic activity are classified in the same group of the ISIC, irrespective of whether they are owned by incorporated enterprises, individual proprietors or governments or whether or not the parent enterprise owns other establishments. Similarly, manufacturing establishments are classified according to the kind of economic activity in which they engage, whether the work is performed by power-driven machinery or by hand or whether it is done in a factory or a household." 9/

The ISIC divides the whole field of economic activity into nine divisions with one-digit code numbers. Each division is subdivided into ten major groups which are identified by two-digit code numbers. Each major group, in turn, has ten groups, each group being assigned a three-digit code number. The following are the Divisions of the ISIC:

Division 0: Agriculture, Forestry, Hunting and Fishing
Division 1: Mining and Quarrying
Divisions 2-3: Manufacturing
Division 4: Construction
Division 5: Electricity, Gas, Water and Sanitary Services
Division 6: Commerce
Division 7: Transport, Storage and Communication
Division 8: Services
Division 9: Activities not adequately described

Industrial Pattern of Developed and Developing Countries: A Picture in Contrast:

The industrial distribution of economically active population has a definite relationship with economic development as may be seen from Table V. The table is based on the three-sector model commonly used by Western economists for analyzing the industrial structure of a country.10/

9/ Ibid.

10/ Colin Clark, The Conditions of Economic Progress, p. 493, and A.G.B. Fisher, The Clash of Progress and Security, 1935.

Table V: Percentage Distribution of Economically Active Population by Sectors--Selected Countries

Country	Agriculture	Manufacturing	Services	Total
United States (1964)	6.6	33.8	59.6	100.0
United Kingdom (1951)	5.1	49.0	45.9	100.0
France (1962)	19.8	37.6	42.6	100.0
Germany: F.R. (1964)	11.3	48.8	39.9	100.0
Canada (1961)	12.1	33.1	54.8	100.0
New Zealand (1961)	14.4	36.7	48.9	100.0
Japan (1960)	32.3	29.5	38.2	100.0
Philippines (1962)	57.4	13.2	29.4	100.0
Mexico (1960)	54.2	18.9	26.9	100.0
Brazil (1960)	51.6	24.8	23.6	100.0
Ghana (1960)	58.0	14.2	27.8	100.0
U.A.R. (1960)	56.7	11.9	31.4	100.0
Iran (1956)	54.8	19.6	25.6	100.0
Ceylon (1953)	52.9	12.7	34.4	100.0
India (1961)	72.9	11.4	15.7	100.0
Indonesia (1961)	68.0	7.5	24.5	100.0
Malaya (1957)	57.5	12.6	29.9	100.0

Source: International Labour Office, Year Book of Labour Statistics, Geneva, 1965

The table reveals a contrasting picture of the distributive pattern between the developed and the developing countries. The developed countries underline a more diversified distribution of their labor force among various industries. Agriculture barely covers one-fifth or even less and the remaining labor force is either evenly shared by the manufacturing and services sectors or the services sector claims the bulk of it. With minor variations, most of the developing countries display a common pattern of industrial structure. About one-half to three-fourths of the labor force is engaged in agriculture and the activities ancillary to agriculture. The services sector is the next most important sector as far as the labor force is concerned.

The contrast between the developed and the developing countries is not only in terms of sectoral distribution of the labor force and relative size of each sector; the industrial composition or product mix of each sector differs substantially between the developed and the developing countries. Agriculture in developed countries is more diversified in terms of highly developed activities like dairying, aviculture, sericulture, pisciculture, fruits and vegetables, and meat production. In manufacturing, metal and engineering industries, chemical industries, structural and machinery producing and other heavy

industries have acquired, in the course of time, greater importance over consumer goods industries. Similarly, the services sector is characterized by professions, liberal arts and public services. In less developed countries, on the other hand, agricultural activities are mostly devoted to production of cereals or to plantations. In manufacturing, consumer goods industries, notably textiles, sugar and other agro-based industries, are still more prevalent.

Industrial Diversification and Economic Development:

Diversification of the industrial structure in a developed economy is the concomitant of economic development. The diversification, inter alia, implies and involves:

1) Better techniques of production through the introduction of improved technology
2) Improved form or organization of production units
3) Better trained and skilled manpower of a technical and non-technical nature
4) A more or less equalized product and income per worker in the different sectors
5) Ability to meet and sustain an effective demand for more diversified types of goods and services

All the five attributes are interrelated and interdependent. One of the principal consequences of the first four factors is an increase in real income and output per worker by the employment of a unit of labor. Through higher real income and productivity, the economy touches an equilibrium of demand for and supply of a more diversified and broad-based product-mix.

The industrial structure found in the developed countries about one hundred years ago was not very different from the position in which the developing countries now are. The economies were predominantly agricultural and the share of manufacturing and services sectors was relatively much smaller. With the introduction of improved technology, there took place a large-scale shift of the labor force from agriculture to manufacturing and subsequently to services. The shift was largely motivated and facilitated by higher productivity per worker in the manufacturing sector relative to that in agriculture and further in the services sector as against that in manufacturing. The higher productivity in the latter sectors could be sustained through the relatively higher effective demand for their goods and services in response to a high income elasticity of demand for the goods and services of these sectors. In other words, the rate of expansion in the demand for these goods and services was proportionately more than the rate of increase in incomes.

The introduction of improved technology in agriculture raised the labor productivity so that the same or even larger amounts of agricultural products could be raised by the employment of a comparatively smaller number of persons and the rest could be released from the land, without impairing the total output, for employment in other sectors. Thus the agricultural claim on manpower diminished; at first the decline was absolute but soon it became relative. Similarly, the continuous application of improved technology in manufacturing released surplus labor which could be profitably reemployed in the services sector where there was comparatively less scope for technological improvement. The new production techniques involved division of labor and specialization which were supported by an extended market through a new system of exchange and distribution of goods and services. The employment of the new entrants in the labor force was more in tune with the new industrial pattern.

The economic trends in the developed countries during the last few decades testify that the services sector has expanded at a much faster rate than the other two sectors. The accelerated growth of the services sector took place under the impact of three different factors. First, the relative effective demand of the consumers for services rose more rapidly than that for manufactured goods. Second, the share (cost or value added) of services in the production and distribution of agricultural and manufactured goods increased disproportionately. Third, there was a limited scope for mechanizing some of the services such as those of sales, personal services, public services, etc.

In a developed economy all industries in one sector tend to be at a given level of technology and follow practically the same organizational pattern. The industries are more diversified in terms of producing a more varied assortment of goods and services but otherwise do not differ much and are structurally more compact in adopting uniform techniques and forms of production. On the other hand, an industrial sector in a developing country comprises a very disparate and heterogeneous group of industries, not because the industries are more diversified but because the methods of production and the organizational setup vary from industry to industry and even from establishment to establishment within the same industry. Therefore, intra-industry variations in productivity may be as pronounced as inter-industry variations.

Both in terms of form and technique of production of goods and services and the requisite skills, each sector can be subdivided into two segments, viz. the traditional or unorganized sector and the modern or organized sector. The ratio of the organized to the unorganized component may, of course, vary from one sector to another.

While agriculture proper (cultivation of crops) continues to be overwhelmingly traditional, conducted through the cultivation of family farms as a household enterprise, the activities ancillary to it, such as plantations, dairy, fishing, etc., are run partly as household enterprises and partly on a commercial scale. Manufacturing is conducted concurrently at the household level as household industry and at the non-household level in a factory, firm or workshop as a joint, corporate or cooperative enterprise. The services sector is an omnibus and residuary sector, enfolding such developed activities as transportation through railroad, air and other power-driven vehicles; commercial and business houses and department stores; public and professional services, etc., on the one hand and transportation through animal and human power; hawking, peddling and other petty trading; personal services like those of maid and other domestic servants; sanitary services, general labor and industries which are insufficiently described in a census or survey on the other hand.

General labor is a characteristic feature of a developing economy and, by its very nature, it is not assignable to any particular industry code. It is clubbed with services and the sector gets spuriously inflated though a portion of the general labor could be legitimately appropriated by the other two sectors, especially agriculture. General labor in rural areas has close affiliations with agriculture either as landless agricultural labor or as petty land owners who, during lean periods, take recourse to miscellaneous occupations outside agriculture, particularly in the services sector.

The general thesis put forth by Colin Clark and Professor A.G.B. Fisher that the industrial shift is associated with economic progress has been contested by Bauer and Yamey on the grounds that the statistical or empirical support for the generalization is weak. In particular, the quantitative significance of the tertiary sector is not accompanied by rising incomes but is rather symptomatic of underdevelopment.11/

Pattern of Industrial Growth in Developing Countries:

Historically speaking, the sectoral distribution of the labor force in developing countries has remained static for over a century. The ratio of the agricultural to the non-agricultural labor force has remained practically the same since the time when the repercussions of the Industrial Revolution started being felt in the developing countries. During this period, the developing

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11/ Peter T. Bauer and Basil S. Yamey, The Economics of Under-Developed Countries, Chicago, 1957, pp. 40-42.

countries were passing through the historic phase of "de-industrialization" through the decay of handicrafts and other traditional industries at the hands of factory-made goods imported from abroad. This period recorded a higher proportion of workers in agriculture, which suggests that many workers dislodged from industry moved back to agriculture, while others swelled the services sector as domestic servants, petty traders, general laborers, etc. Thus the growth in the services sector was spurious and poverty-induced and was accompanied by stagnation in construction, trade and transport.

By the turn of the twentieth century, things started changing, though differently in urban and rural areas. In urban areas new industries emerged in the modern sector. As the pace of industrial development gained momentum, the marginal workers in services shifted to more remunerative occupations in the non-agricultural sector. Through interaction with the industrialized countries, there developed many urban centers for the export of raw material and for marketing of manufactured goods imported from outside. The surpluses generated in the manufacturing sector helped to build an infrastructure of transport and communication network, trade, health, education and professional services. The State also helped in making its contribution to the building up of the infrastructure. As a matter of fact, there took place an all-around rationalization of economic activity in the urban areas resulting in higher income and productivity.

The rural areas had a different story to tell. While urban areas faced foreign competition but started recovering by the turn of the twentieth century, the rural areas suffered, in the beginning, at the hands of imported goods and, later on, from the goods produced in the urban areas. In fact, the entire non-agricultural component of rural areas got its sustenance from agriculture and it languished when agriculture stopped releasing any surpluses. Socially too, the village communities were interlocked through barter and caste systems and the non-agricultural sector, especially personal services, degenerated along with the old social setup.

The demographic factors started making their impact more profoundly in agriculture than in the rest of the economy. Agriculture had to bear the bulk of the pressure of population, which started growing abnormally due to a falling death rate and a constant birth rate. The consequent growth of surplus labor had to be absorbed in agriculture as the chances of its employment elsewhere started receding. While much of the urban industrial structure was built up with the help of agricultural surpluses, the agricultural labor force had to adjust with static land and capital resources.

To focus attention on the pattern of industrial growth of the labor force in developing countries, we present below a table giving the industrial distribution of the working force for rural and urban areas of India in 1951 and 1961.

Table VI: Percentage Distribution of Workers in Broad Industrial Categories by Rural and Urban--India

	Agriculture	Manufacturing	Services	Total
Rural:				
1951	82.3	6.7	11.0	100.0
1961	82.8	6.8	10.4	100.0
Urban:				
1951	13.8	25.8	60.4	100.0
1961	12.1	29.3	58.6	100.0

The table may depict the situation typical of most of the developing countries. The table presents a sharp contrast of the industrial structure prevailing in rural and urban areas and the divergence in the rates at which the economies of the two areas are developing. The rural economy has been losing the indigenous social and economic overheads but has not generated surpluses to create new social and economic overheads so essential for a self-sustaining economy. To this extent, the economic dependence of rural areas upon urban areas should have increased. The following two tables further corroborate the conclusions drawn from the above analysis.

Table VII: Percentage Distribution of Labor Force and Net Domestic Product by Economic Sector--Selected Countries

Country	Year	Agriculture		Industry		Services	
		LF	NDP	LF	NDP	LF	NDP
United States	1950	13	7	37	40	50	53
United Kingdom	1951	5	5	49	47	46	48
Germany: F.R.	1954	21	11	46	56	33	33
Canada	1951	19	16	36	38	45	46
New Zealand	1951	18	27	35	30	47	43
Brazil	1950	61	35	13	18	26	47
Mexico	1950	61	20	17	24	22	56
India	1961	74	46	11	17	15	37
Japan	1954	45	22	22	31	33	47
Pakistan	1951	79	61	8	6	13	33
Thailand	1947	86	60	2	11	12	29
Turkey	1950	86	54	7	13	7	33

Source: International Labor Review, Vol. LXXIII, No. 5, May, 1956, p. 518; and Census of India, 1961.

LF = Labor Force
NDP= Net Domestic Product

Table VIII: Percentage Distribution of Workers and Real Income by Sectors--India

	Agriculture		Manufacturing		Services	
	Workers	Income	Workers	Income	Workers	Income
1950-51	72.95	48.93	10.21	16.68	16.84	34.39
1960-61	74.02	46.17	10.81	16.51	15.17	37.32

Table VII indicates an identical pattern of sectorwise distribution of income and labor force in developed countries which implies that there is a balanced and rational distribution of labor force and other resources. Average productivity of labor in each sector being equal, there is an optimum level of labor productivity for the entire economy. Though during the transitional stage of economic growth the output per worker was higher in the non-agricultural sector as compared to agricultural sectors, the disparity was gradually narrowed down with the shift of the labor force from the agricultural to the non-agricultural sector and the economy stabilized at an optimum level of output per worker. The table underlines the extent of the imbalance from which the developing economies suffer from the point of view of the utilization of human and other resources. About 70 percent of the labor force is engaged in agriculture, which contributes hardly 40 percent of the net domestic product. The services sector is at the other extreme in which hardly 15 percent of the labor force appropriates about 40 percent of the net domestic product. The disproportionate distribution of the labor force results in gross underutilization and low overall productivity.

The temporal change in the sectoral distribution of the labor force and incomes shown in Table VIII has more serious implications. Though the table relates to India only, the majority of the developing countries may not be behaving very differently. The table suggests that the disparity between the distribution of income and workers, which was already high in 1951, became accentuated in 1961. The proportion of workers in agriculture went up but its share in the national income went down. It has been estimated that the net earnings per agricultural worker, which were 36.97 percent of the earnings of non-agricultural workers in 1951, were further reduced to 31.37 percent by 1961. Thus, the intersectoral disparity was deepened, which tended to reduce the overall productivity, check the rate of economic growth and create class conflicts. The picture is slightly distorted because each sector is not a homogeneous stratum. If each sector could be further stratified into modern and traditional sectors the dimensions of the disproportionate growth could be better appreciated. The table reveals the sordid fact that the different sectors have been pulling apart from one another and have been functioning as water-tight compartments. This phenomenon seems to run counter to the hypothesis developed by W. Arthur Lewis and G. Ranis for the developing countries. a/

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a/ The growth models framed by W. Arthur Lewis and G. Ranis are based on differential wage rates in the traditional and modern sectors. These models and others will be discussed in Chapter VII.

It is worthwhile to examine the disquieting situation in some detail. It seems that each sector generates some built-in forces which curb interaction between different sectors. Consequent upon the increasing rate of population growth there has been a corresponding increase in the labor force supply. Only a fraction of the labor force growth could gain employment in the modern sector and the rest of it had to be absorbed in the traditional sector. The modern sector is marked by an employer-employee form of organization and the employment in that sector is subject to the economies of input-output relationship. There are various socio-economic factors which could inhibit the intersectoral mobility of labor. The situation could be further aggravated if, through better bargaining power, the labor in the modern sector could maintain wages at a high level. This could prompt the employers to introduce automation and other capital-intensive techniques of production. Thus both employers and employees join together to block the entry of surplus labor into the modern sector. The surplus labor has no recourse but to join the traditional sector as self-employed or family workers. In this sector there is no fixed relationship between labor input and the input of other factors nor between the input and output of labor, the labor input being mostly in the form of unpaid family labor. This may, of course, mean less work and output per worker, but the economic imbalance or the burden of dependency becomes diffused and shared by all. In such a society, no single person dies of starvation, but in case he dies, it is a precursor to a famine.

Agriculture serves as a cushion with a built-in provision to withstand and absorb the strains and the stresses of an imbalanced economy. We cannot, of course, overlook the negative side, since such a provision in the institutional framework perpetuates the existence of economic imbalance.

This may be a lesser evil in comparison to a situation in which the surplus labor remains totally unemployed, which may either precipitate the breakdown of the traditional sector or threaten to disrupt the entire non-agricultural sector. At any rate, women and child workers, who constitute a viable portion of the agricultural working force, would have remained unemployed on account of social restrictions if there were no household sector to afford them productive employment. Intersectoral mobility of labor may be hampered because of vast disparities in capital requirement, technical and professional skill, cultural and caste patterns obtained in different sectors. Sectoral immobility may be coupled with spatial immobility, the latter comprising rural-urban and interregional immobility. We have noted in the preceding paragraphs a hard fact that economic growth has mostly been urban-oriented and that sectoral shift is generally not possible unless it is accompanied by a corresponding shift from rural to urban areas. However, various hazards of migration, involving rural-urban

as well as interregional migration, such as housing shortage, disintegration of family and other social, cultural and linguistic affiliations, competition from city dwellers, may impede sectoral shifts. Regional disparities in the levels of development are both an attribute and a causative factor responsible for the slow rate of economic development.

Thus, the modern sector creates barriers to insulate itself from the repercussions of structural imbalance in the economy. It refuses to allow itself to share with the agricultural sector the benefits of higher income and productivity consequent upon introduction of improved technology and increased demand for goods and services produced in this sector. While much of the surplus income, if any, produced in agriculture is absorbed in the non-agricultural sector, due to the high income elasticity of the demand for its products and services, there is no feedback of surplus income from non-agriculture to agriculture, and its dispersal is mostly confined to the manufacturing and services sectors only.

It may be neither entirely desirable nor practicable to completely water down the technology with a view to achieving equality of incomes and maximum utilization of human resources. The use of technology in the modern sector has two functions to perform, viz. a technical function and an economic function. The first one is concerned with starting new industries which call for the application of new technology. For example, production in heavy industries is contingent upon the introduction of advanced technology. The second function entails the development of a more economical production process through the improvement of present technology. Here there can be a tie between comparative economic advantages and disadvantages of using labor intensive vs. capital intensive techniques of production. In an economy where there is a large traditional sector signifying surplus labor, it may be less advantageous and profitable to resort to capital intensive techniques of production. The surplus labor may, therefore, by implication, inhibit the introduction of improved technology and condemn it perpetually to a low level of income and productivity. On the contrary, the developed countries had started from different premises, at the time of the industrial revolution. Introduction of improved technology ensured that capital intensive techniques of production were more economical than labor intensive techniques, a phenomenon which testifies that there was no surplus labor in the economy. In this context, the introduction of improved technology was the key factor or the prime mover which set the ball rolling in the upward direction.

Concluding Remarks--Limitations and Suggestions:

We have tried to analyze the process of industrial change in relation to economic growth for India and a few other developing

countries with the help of the data on industrial characteristics of the labor force, supplemented by such further information as could be available. However, we are conscious of the many pitfalls involved in making use of the data either for drawing comparisons between the developed and the developing countries or for recording change over time for any single country. In this respect, the tripartite sector model is largely unsuitable for the developing countries and the inferences drawn from such a model can be misleading unless some of the factors mentioned earlier are duly taken into account. In fact, the main problems in using the tripartite model stem from the basic limitations of the ISIC or of adaptations of it in its application to the developing countries. We learn from the ISIC what commodities are produced or services are rendered in a country, but it does not indicate how those commodities are produced or the services are rendered. To that extent, the classification fails to throw light on the growth implications of industrial distribution outlined in the beginning of the chapter.

All said and done, industrial structure, particularly the agricultural - non-agricultural ratio, is by far the most effective and powerful indicator, however imperfect it may be, of the utilization of human resources and the level of economic development. In order to get the right perspective and to meet the requirements of the developing countries, it may be logical to complement the data on industrial characteristics by adopting one of the following alternatives:

1) Instead of a three-sector model it may be appropriate to base the analysis on as detailed a classification as possible.

2) Each sector may be bifurcated into traditional and modern components on the basis of technology. For this purpose the description of industry would have to be more detailed both at the time of enumeration and at the time of tabulation. For example, the industrial description would need to be supplemented further as to whether the type of production is with or without the use of power-driven machinery or whether the articles are manufactured in mills or somewhere other than in mills. In some industrial classifications of developing countries provision is made for such a distinction.

3) With the exception of a few industrial categories, such as production of highly technical machinery, air and railroad transport, public services, etc., other industries may be subdivided into household and non-household enterprises. The criterion may be either the type of labor input or the location of the industry or both.

4) The industrial characteristics of economically active population may be tabulated separately for rural and urban areas. The analysis should be based on such breakdown to draw a comparative picture for rural and urban areas. Unlike developed countries, the divergence in the industrial structure of rural-urban areas of developing countries is distinct and generally represents traditional and modern components of the economy. Comparisons may be drawn regarding the size and distribution of the labor force among the different sectors in the rural and in the urban areas.

5) The industrial characteristics may be cross-tabulated by those of occupation and class of worker so that instead of analyzing the industries in isolation, the analysis is done in conjunction with other related variables and the conclusions which are drawn are qualified by those variables.

CHAPTER V

OCCUPATIONAL CLASSIFICATION OF ECONOMICALLY ACTIVE POPULATION

Nature and Scope of Occupational Classification:

We may start this chapter with an excerpt from an old census report of the United States:

> "The most nearly dominant single influence in a man's life is probably his occupation. More than anything else, perhaps, a man's occupation determines his course and his contribution in life. And when life's span is ended, quite likely there is no other single set of facts that will tell so well the kind of man he was and the part he played in life as will a detailed and chronological statement of the occupation, or occupations, he pursued. Indeed, there is no other single characteristic that tells so much about a man and his status--social, intellectual, and economic--as does his occupation. A man's occupation not only tells, for each workday, what he does during one-half of his waking hours, but it indicates, with some degree of accuracy, his manner of life during the other half--the kind of associates he will have, the kind of clothes he will wear, the kind of house he will live in, and even, to some extent, the kind of food he will eat. And, usually, it indicates, in some degree, the cultural level of his family."12/

The above statement elevates an occupation to the status of a factor which plays a basic role in determining the human behavior in society. However, the statement, though it may be true in many respects, does not define what an occupation is. As a matter of fact, there is no unanimity about the conceptual connotation or interpretation of the term "occupation" and the criteria underlying an occupational classification. As the above excerpt indicates, the sociologists give a much wider interpretation and emphasis to the term occupation. The occupational classification, according to them, implies stratification of population into homogeneous groups based on certain socio-economic characteristics, such as education, earnings, status, prestige,

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12/ Alba M. Edwards, Population: Comparative Occupation Statistics for the United States, 1870 to 1940, Washington, D.C., 1943, p. xi.

intellectual attainment, etc. The economists, on the other hand, focus on the "content" of an occupation and define it in terms of the nature of the work done and the type of economic functions performed by a person in the production process. One occupation is differentiated from another insofar as the economic functions performed in the first occupation are different from those in the second.

Occupations having certain common characteristics and features in terms of their economic functions are aggregated into groups and subgroups to form an occupation classification. The occupational classification formulated by the International Labor Organization, called the International Standard Classification of Occupations (ISCO), is implicitly based on this criterion, although the ISCO does not conform fully, with respect to some of its constituent groups, to the principles embodied in this approach.

We may here distinguish between an industry and an occupation. An industry, as we defined in the previous chapter, is composed of all establishments engaged in the production of the same or similar commodities or in the performance of a certain service. The production of a commodity or the rendering of a service encompasses a number of economic functions, and each constituent function may be performed by different persons. While some of the functions may have a unique association with the production of a particular commodity or service, there may be some other functions which may not be related to a particular commodity or service but which, in varying degrees, may be common to all industries. For example, a farmer, a spinner or a shopkeeper may only belong to agriculture, manufacturing and trade respectively, but a clerk, an accountant or a driver may belong to any industrial group. Thus, while in the case of an industry the unit of classification is an establishment, it is an individual in the case of an occupation.

The following are the Major Groups of occupations formulated under the ISCO:

Major Group 0:	Professional, Technical and Related Workers
Major Group 1:	Administrative, Executive and Managerial Workers
Major Group 2:	Clerical Workers
Major Group 3:	Sales Workers
Major Group 4:	Farmers, Fishermen, Hunters, Loggers and Related Workers
Major Group 5:	Miners, Quarrymen and Related Workers
Major Group 6:	Workers in Transport and Communication Occupations
Major Group 7/8:	Craftsmen, Production-Process Workers, and Labourers Not Elsewhere Classified
Major Group 9:	Service, Sport and Recreation Workers
Major Group X:	Workers Not Classifiable by Occupation

The above classification is apt to give the impression that it is not entirely free from industrial bias. For example, some of the groups, such as sales workers, farmers, miners, transport workers and service workers, reflect more industrial overtones than may be warranted by an occupational classification. In other words, the workers in these groups are classified according to the commodity produced or the service rendered. Only their entrepreneurial or clerical component is shown separately under the respective occupational headings.

Functional Classification of Occupations:

An attempt has been made below to roughly spell out the different kinds of economic functions implicit in different occupations and to determine their distinguishing features. The broad functions are:

1) Decision-making functions
2) Intermediate functions
3) Supervisory functions
4) Skilled (operative) functions
5) Semi-skilled functions
6) Unskilled functions (general labor)

There is a general division of economically active population into two broad categories, viz. technical and non-technical. This may, to some extent, have a semblance to white-collar and blue-collar occupations, though the two do not run exactly on parallel lines. The distinction based on blue-collar and white-collar workers is unrealistic in a developing country like India where farmers and service workers, who constitute about 75 percent of the labor force, belong neither to the blue-collar nor to the white-collar occupations. The demarcation between technical and non-technical functions that has been made here is, of course, very broad and as it is used in common parlance. Roughly, the technical workers are directly engaged in production which requires the use of tools, machinery or equipment. The non-technical functions, on the other hand, are of a general nature and are only indirectly concerned with production and generally do not require the use of tools, machinery or equipment. The above categorization of functions would be uniformly applicable to the technical and non-technical occupations. Their subclassification under the two headings may run as follows:

Functional Classification of Occupations

TECHNICAL FUNCTIONS

Decision-making functions:
Engineers
Architects
Physical Scientists
Life Scientists
Physicians, Surgeons and Dentists
Aircraft and Ship Pilots

Intermediate functions:
Technicians
Nurses and Other Health Technicians
Surveyors
Draftsmen

Supervisory functions:
Foremen
Inspectors
Supervisors

Skilled functions:
Craftsmen
Operatives
Drivers, Fuel-driven Vehicles

NON-TECHNICAL FUNCTIONS

Decision-making functions:
(i) Professionals:
Teachers, University
Accountants and Auditors
Social Scientists
Jurists
Artists
Authors

(ii) Administrative, Executive and Managerial Functions:
Administrators
Executives
Managers
Working Proprietors

Intermediate functions:
Teachers, Secondary
Intermediate Administrators, Executives and Managers
Shopkeepers, Merchants and Agents
Religious Workers
Social Science Technicians

Supervisory functions:
Office Superintendents
Section Heads
Inspectors
Supervisors
Station Masters and Postmasters

Skilled functions:
(i) Clerical Workers:
Teachers, Middle and Primary
Clerks
Typists
Office Assistants
Conductors
Communication Operators

(ii) Sales Workers

(iii) Service Workers, Other than Domestic Servants

Functional Classification of Occupations (Continued):

TECHNICAL FUNCTIONS	NON-TECHNICAL FUNCTIONS
Semi-skilled functions:	Semi-skilled functions:
Artisans	Messengers
Drivers, Animal-driven Vehicles	Attendants
	Postmen
	Pedlars and Hawkers
	Waiters
	Domestic Servants
	Watchmen
	Cleaners
	Unskilled functions:
	General Labor
	Porters

The distinction between the different types of economic functions is more qualitative than quantitative and the explanation for the different functions given here is rudimentary. The decision-making functions involve an ability to design, create, plan, analyze and organize productive activities by the use of reasoning, imagination and specialized knowledge, training and experience. The intermediate functions include decision-making functions of comparatively lesser significance as well as some of the managerial and supervisory functions. Supervisory functions require an ability to inspect and coordinate the functions of those engaged in skilled, semi-skilled and unskilled functions so that those functions are performed in the right manner. The skilled, semi-skilled and unskilled functions relate to the actual performance, in the prescribed manner and speed, of the production processes, mainly of routine and repetitive nature but otherwise requiring dexterity and "know-how" in varying degrees.

The above classification represents a hierarchy of functions implicit in different occupations. These functions are the contents of occupations and mark the basis for distinguishing high-level functions from low-level functions in terms of their relative contribution towards the production of economic goods and services. In this way, the entire labor force can be stratified with reference to the nature of work performed. The extent to which the hierarchy of functions exists depends upon the division of labor and specialization involved in the production of goods and services.

The occupations are not only hierarchical but spectral also. The spectral proliferation of occupations is attributable partly to division of labor and specialization and partly to industrial diversification. A spinner and a weaver in a textile mill are

an example of the division of labor, and their occupations belong to the same level, but not the same kind, of skilled functions. On the other hand, the identification of electrical engineers and electronic engineers as two separate occupations is more due to industrial diversification than to specialization.

It is imperative that the list of occupations be periodically revised and brought up to date, particularly at the time of each census. The Census Bureau of the United States is currently engaged in the task of revising the Index of Occupations through a sample tabulation of the 1960 schedules. The occupations which are redundant or obsolete are discarded and others which, among other considerations, have become numerically significant are included in the Index. Another objective is to reduce the numerical importance of n.e.c. groups by devising some new occupations for allocating some of the workers included in those groups.

The diversity in economic functions, whether hierarchical or spectral, determines to what extent the occupations are mutually substitutable. Occupations within the same class have a broad functional homogeneity as compared to those belonging to two different classes. Therefore, the degree of substitutability is the highest between two minor occupational groups, much less between two major groups, and practically non-existent between two divisions.

Sociological Interpretation of Occupational Classification:

The above approach seems to be more logical as compared to grouping and ranking occupations on the basis of certain socio-economic factors, as attempted by the sociologists. In principle, the socio-economic values associated with an occupation or a group of occupations are not the contents but the attributes of that occupation or that group. Unlike the contents of an occupation, these attributes or implications tend to be changing from time to time and from one country to another. The ranking between different occupations based on income or social prestige, for example, may undergo change according to the economic forces of demand and supply affecting their earnings or the new social values attached to those occupations. Similarly, it is important to differentiate between occupation and education. In actual practice, there is no one-to-one relationship between occupation and education, and a person educated in one field of specialty may actually be working in another field. It is what a person actually does and not what he is capable of doing that determines his occupation. In an adaptation of the ISCO developed by Professor Harbison and expanded by Professor Parnes for use in the Mediterranean Regional Project, various occupations were categorized into four classes according to the number of years of education and training required to qualify

for those occupations.13/ However, the requirements of education and training may not be universally applicable on a uniform basis and may differ from country to country.

While grouping the occupations, different sociologists have taken into account different sets of socio-economic factors. Therefore, in practical terms, it is difficult to identify precisely the factors which predominantly characterize different occupations and determine their relative contributions for the purpose of grouping and ranking them. In the ultimate analysis, it may not be possible to construct a single classification or ranking of occupations based on diverse socio-economic characteristics.

The best course is to keep the occupations distinct from other characteristics, rather than mixing them up. Only then is it possible to study their interplay and their implications. One way is to cross-classify occupational data, as classified according to their job content, with other variables, such as income, education, etc. Cross-tabulation between occupation and education may, for example, reveal the extent to which there is, as there may be, a divergence between the type of work done by the labor force and the work for which it was trained. Similarly, the comparison between occupational and earnings data would indicate whether or not the differential earnings between various occupations are in proportion to their job content. Ideally, if occupation is the function of education, and earnings the function of occupation, then there should be a linear correlation between education and earnings. Such a study on a time-series or cross-sectional basis would also suggest if there are any major shifts in the educational requirements or earnings of different categories of occupations without affecting their job content. The results of a study into the relation of education and income, conducted on a time-series basis, suggests that "the value of investment in education will continue to remain great as long as unskilled jobs are eliminated faster than the number of unskilled workers decline, and the demands for technically trained people increase faster than the supply."14/ On the other hand,"Glick has noted the regular relationship between education and income and implicitly formulated a model of income and education exchange, pointing out that in the aggregate the increment of total life income received by an additional year of schooling more than compensates for the costs involved."15/

13/ Herbert S. Parnes, Forecasting Educational Needs for Economic and Social Development, Paris, 1962, 113 pages.

14/ James Morgan and Charles Lininger,"Education and Income: Comment," The Quarterly Journal of Economics, Vol. LXXVIII, May, 1964.

15/ Robert W. Hodge, "The Status Consistency of Occupational Groups," American Sociological Review, June, 1962, p. 338: from Paul C. Glick and Herman P. Miller, "Educational Level and Potential Income," American Sociological Review, 21 (June, 1956), pp. 307-312.

Any shift in job content would entail a corresponding shift in the educational requirements, and while the reverse is not equally true, a major shift in job content would, in effect, mark the emergence of new occupations in place of old ones. As the economic functions performed by a person change substantially, so does his occupation, regardless of whether he changes his establishment.

Problems of Occupational Classification in Developing Countries:

While it may be more logical to classify occupations on the basis of "job content" rather than through certain socio-economic attributes of occupations, we unfortunately face many hazards when we try to apply the principle in the developing countries. In these countries, the division of labor is not yet fully developed, especially in the traditional sector, and the same person may perform a wide range of functions in the production of a commodity or the performance of a service which, in a developed country, may be performed by different persons. For example, the activities of a single person may encompass all the entrepreneurial functions of deciding what to produce, when, where and how, as well as the actual production functions up to the stage of the end product, and even extending further to its marketing. Thus it may be difficult to classify a person working in a small enterprise and engaged in the production of coarse cloth, for example. The occupational status of such a person becomes multi-functional and submerged into and determined by his industry. The industry and occupation of a person may, under such circumstances, just coincide and become indistinguishable. It may be worthwhile to note that during the early decades of census taking and tabulation in India, and this being equally true of many other developed and developing countries, the economic distribution of workers displayed an amalgam of industrial and occupational characteristics.

The following table, based on the 1961 Census of India, reveals to what extent the occupations have industrial affiliations.

Table IX: Percentage Distribution of Employed Persons in Major Occupational Groups by Major Industries--India, 1961

Occupation	Agriculture*	Manufacturing	Construction	Trade	Transport	Other Services	Total
Professionals	1.1	3.3	1.6	0.6	0.9	92.1	100.0
Administrators	1.2	10.0	5.5	5.7	2.7	74.6	100.0
Clerical Workers	2.0	13.5	2.9	14.4	10.3	56.5	100.0
Sales Workers	0.1	1.4	0.0	97.3	0.1	0.8	100.0
Farmers	98.2	1.6	0.0	0.0	0.0	0.0	100.0

Table IX (Continued):

Occupation	Agriculture*	Manufacturing	Construction	Trade	Transport	Other Services	Total
Miners	94.3	5.0	0.5	0.0	0.0	0.1	100.0
Transport Wkrs.	0.8	3.1	1.9	1.0	87.6	5.3	100.0
Craftsmen	0.6	88.4	6.9	0.7	1.2	1.9	100.0
Service Workers	0.8	2.6	0.4	0.7	2.1	93.1	100.0
General Labor	1.7	7.4	4.9	1.5	6.1	78.1	100.0

*Figures include Mining.

Source: Census of India, 1961, Vol. 1, II-B(ii), Table B-V.

It can be seen that there is a tendency for the workers belonging to practically all occupational categories to be agglomerated in particular industries, which underlines the fact that the distinguishing feature between different occupations is industrial rather than functional in character. Farmers and miners are associated with extractive industries, sales workers with trade and commerce, transport workers with transport, and service workers with service industries. The association is partly functional and partly due to the fact that the nature of occupational categories is more industrial than occupational. Strangely enough, even professional, administrative and clerical workers tend to be concentrated mainly in the services sector. These workers, together with service workers, however, represent a more diversified picture of the services sector as compared to other sectors. If the position as revealed by the table is correct, there is hardly much significance behind the two-fold classification of workers by industry and occupation for the developing countries. In this respect, the position in the United States, as disclosed by Table X below, is materially different from that in India.

Table X: Percentage Distribution of Employed Persons in Major Occupational Groups by Major Industries--U.S.A., 1960

Occupation	Agriculture*	Manufacturing	Construction	Trade	Transport	Other Services	Total
Professionals	1.3	18.3	2.4	6.3	3.1	68.1	100.0
Farmers	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Managers	1.5	16.4	6.9	53.5	6.2	15.2	100.0
Clerical Workers	0.8	22.5	1.8	33.9	11.4	29.3	100.0
Sales Workers	0.1	14.1	0.3	82.8	0.9	1.4	100.0
Craftsmen	1.9	39.2	23.4	17.2	10.8	7.0	100.0
Operatives	3.7	62.8	2.8	13.5	10.4	6.4	100.0

Table X (Continued):

Occupation	Agriculture*	Manufacturing	Construction	Trade	Transport	Other Services	Total
Private Household Workers	0.0	0.0	0.0	0.0	0.0	100.0	100.0
Service Workers	0.2	5.2	0.3	34.3	2.2	57.3	100.0
Farm Laborers	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Laborers, not Farm and Mine	4.1	33.5	20.8	17.0	13.0	11.1	100.0
Occupations not Reported	0.3	9.8	0.8	6.0	1.7	80.9	100.0

*Figures include Mining.

Source: U.S. Census of Population, 1960, Occupation by Industry.

The table suggests that the occupations are more extensively distributed by cutting across various industrial categories. Even craftsmen and operatives are spread out in categories other than manufacturing alone.

Historical Trends of Occupational Change:

Unlike the industrial composition of the labor force, the historical data on the occupational composition is not available for most of the countries, and it is not possible to work out long-term trends or changes in the occupational structure. For illustrative purposes, the following table presents the percentage distribution of the labor force of the United States by broad occupational categories from 1870 to 1966.

Table XI: Trends in occupational patterns for the United States (Percentages of total labor force).

Year	Professional	Managerial	Clerical	Sales Workers	Craftsmen, Operatives and Laborers	Farmers	Service Workers	Total	
1870	3.3	4.6	2.5	(a)	26.6	47.1	7.8	100.0	(b)
1880	3.8	4.6	3.0	(a)	30.5	43.7	6.2	100.0	(b)
1890	4.9	5.9	4.3	(a)	32.4	36.8	6.4	100.0	(b)
1900	4.3	5.8	3.0	4.5	35.8	37.6	9.0	100.0	
1910	4.7	6.6	5.3	4.7	38.2	30.9	9.6	100.0	
1920	5.4	6.6	8.0	4.9	40.2	27.0	7.9	100.0	
1930	6.8	7.4	8.9	6.3	39.6	21.2	9.8	100.0	

Table XI (Continued):

Year	Profes-sional	Manage-rial	Clerical	Sales Workers	Craftsmen, Operatives and Laborers	Farmers	Service Workers	Total
1940	7.5	7.3	9.6	6.7	39.8	17.4	11.7	100.0
1950	8.6	8.7	12.3	7.0	41.1	11.8	10.5	100.0
1960	11.4	8.5	14.9	7.4	39.7	6.3	11.8	100.0
1966	12.6	10.0	16.0	6.4	36.7	5.2	13.1	100.0

(a) Included under Clerical occupations
(b) Figures do not total 100 percent; the difference represents persons not classified by occupation.

Sources: Figures up to 1960 from A.M. Farrag, "The Occupational Structure of the Labour Force," Population Studies (London), July, 1964. Figures for 1966 from Paul M. Ryscavage, "Changes in Occupational Employment Over the Past Decade," Monthly Labor Review, August, 1967.

Some obvious trends in the shift of occupational distribution are discernible. The most significant shift is in the category of farmers which, during a period of 100 years, dwindled from nearly 50 percent to only 5 percent. The steady decline in the relative importance of farmers has been counterbalanced by an upswing in practically all other categories. The table indicates a secular growth in professional, managerial, clerical and, to a lesser extent, in sales occupations, all these occupations being commonly known as white-collar occupations. Put together, they constituted 45 percent of the labor force in 1966 as against about 10 percent 100 years ago. The percentage growth in the number of craftsmen, operatives and laborers, that is, in the blue-collar occupations, is irregular. There was a consistent upward trend up to 1920, which began tapering off thereafter, and this downward trend is still persisting. The percentage increase in service workers is sporadic and not as marked as is noticeable in other categories. The clerical workers, who are mostly women, have recorded the highest growth rate in terms of the percentage increase, followed in descending order by professional, managerial and sales workers. The above changes in the occupational structure of the United States are highly spectacular and dramatic; this has lent color and variety to the occupations, and it will be interesting to look for further changes in them in the future, especially in the case of clerical occupations.

Determinants of Occupational Change:

The mechanism of occupational change functions through 1) changes in the industrial structure and 2) changes in the

internal composition of an industry. With industrial diversification, there is a redistribution of the labor force among new and old industries. A new product-mix demands a new technology and, in many cases, a new and diversified spectrum of occupations to handle those products and services. With the emergence of the printing industry, for example, we get such new occupations as compositors, typesetters, lithographers, engravers, etc.

The second factor relates to intra-industry changes, or changes in the "factor mix," as distinguished from inter-industry changes, or changes in the "product mix." These changes, which are implicit with respect to new industries, can be introduced profitably in old industries following the shift of the labor force from old to new industries. Thus, industrial diversification is indirectly the main cause for intra-industry changes. The intra-industry changes are characterized by the expansion of the unit of production, which, inter alia, has the following implications:

1) There is an improved technology and an improved technique of production. Extended division of labor and specialization are the essential ingredients of the improved technology and technique of production. Each stage of the production process, as crystalized into distinct economic functions, assumes the status of a different occupation. At an advanced stage, some skilled occupations may give place to operative and semi-skilled occupations, while some of the unskilled ones may be eliminated altogether. Simultaneously, technical occupations stimulate the need for various non-technical occupations, such as those of clerks, typists, secretaries, bookkeepers, cashiers, accountants, office attendants, salesmen, etc. However, since many of these occupations cannot be mechanized, there is a greater scope for increase in the number of workers engaged in these occupations relative to their technical counterparts.

2) The expansion of the unit of production comprises not only horizontal but vertical growth as well. To a great measure, the vertical growth in occupations is necessitated by horizontal growth. The multiplicity of production functions and the consequent proliferation of technical and non-technical occupations gives rise to the need for supervisory functions. There is further amplification of vertical division of labor as the decision-making functions culminate into separate occupational groups of a technical and non-technical nature. The more an establishment or a unit of production expands, there is a more than proportionate increase in the number of workers in that unit who are engaged in high-level or intermediate occupations, such as professionals, engineers

and administrators. Another reason for the increased demand for engineers and other high-level technical personnel is that with improvement in technology, there is a greater demand for such personnel while the demand for craftsmen and other workers contracts. A third reason is that high-level and intermediate functions cannot be mechanized to the extent the skilled and semi-skilled functions can be.

Occupational Structure and Economic Growth:

It is evident that the changes in the occupational structure and other concomitant changes, with which we have been concerned above, are growth-oriented and foster higher productivity. On this, Professor Harbison of Princeton University advances the following hypothesis:

". . . that the accumulation of high-level manpower is related to change and innovation in economic, social and political activity, i.e., to the progressive introduction over time of new ways of producing goods and services and new patterns of social and political life. According to this hypothesis, human capital formation is associated with both economic, social and political development. In a static, traditional society one would expect that the proportion of persons in the high-level category could be relatively constant. But, as the traditional society begins to modernize, it must accumulate high-level manpower to staff a new and expanding government service, to introduce new systems of land use and new methods in agriculture, to develop new means of communication, to carry forward industrialization, and to build a system of education. Changes in all these fields require persons with professional and technical skills and organizing ability."16/

The occupational structure, as already indicated, is the combined result of inter-industry as well as intra-industry changes. It therefore reflects a more comprehensive and reliable picture of manpower utilization, and the level of technology and economic development, than could be obtained merely from the data on industrial structure.

16/ Frederick H. Harbison, "High-Level Manpower, Productivity and Economic Progress," Paper for Conference on Labor Productivity under the auspices of the International Economic Association, September, 1961, pp. 15-16.

Occupational Structure of India and the United States--Comparisons and Contrasts:

We may now examine a comparative picture of the occupational distribution of workers in India and the United States through Tables XII, XIII and XIV. The purpose is manifold: 1) to judge how far the dissimilar levels of economic development of the two countries, as being the case, are reflected through the occupational distribution of workers; 2) to determine the direction and the course of occupational change which the developing countries might pursue, inasmuch as the occupational structure of the United States could and should serve as a model; and 3) to verify the technical soundness of the occupational classification and the underlying principles as a theoretical framework insofar as it can be successfully employed in achieving the first two objectives.

Table XII: Occupational Distribution of Workers, Including Agricultural, India and the United States

	India (1961)		United States (1960)	
	Workers	Percent	Workers	Percent
Professional, technical and kindred workers	3,274,018	1.7	7,223,241	11.1
Administrative, executive and managerial workers	2,626,267	1.4	5.253,203	8.1
Clerical and kindred workers	3,865,837	2.1	9,457,918	14.6
Farmers, farm managers and farm laborers	132,195,567	72.1	3,947,900	6.1
Sales workers	6,875,613	3.7	4,643,784	7.1
Craftsmen and operatives	19,964,250	10.8	20,673,910	31.9
Private household workers	1,533,196	0.8	1,716,131	2.6
Other service workers	3,209,433	1.7	5,455,706	8.4
Laborers other than farm and mine	9,312,874	5.0	3,093,222	4.7
Unclassified	423,829	0.2	3,181,548	4.9
TOTAL	183,280,884	100.0	64,646,563	100.0

Sources: For India, Census of India, 1961, Vol. 1, II-B(ii), Table B-V. For the United States, U.S. Census of Population, 1960, Occupation by Industry.

The table indicates that there are vast differences in the occupational structure of the two countries, which suggests that there is a close relationship between occupational distribution and the level of economic development. The most striking feature is the predominance of farm workers in India, which completely distorts

the comparative picture of relative numbers in other occupational groups. This has the overriding effect of depressing the relative importance of all other groups, and merely this fact is sufficient to explain why the percentages for other occupational groups are so low. However, this overwhelming feature in the occupational structure stems from the industrial composition of the labor force, since farm workers are almost synonymous with workers in the agricultural sector. We can therefore interpret the occupational data through the principles of industrial change. The proportion of workers in other groups is invariably higher in the United States than in India, with the exception of non-farm labor. As Table X for the United States indicates, most of the professional, technical, managerial, craftsmen and other high-level and skilled workers belong to the non-agricultural sector. That table further suggests that there is some correlation between the expansion of the manufacturing sector and the increase in the number of craftsmen and operatives and that the high-level workers are mostly linked with the growth of the services sector. What future pattern the occupations in the developing countries will adopt will, therefore, be mainly determined by the probable changes in their industrial structure.

It may be more realistic to analyze the occupational categories through Table XIII, which gives the percentage distribution of non-farm workers among major occupational groups.

Table XIII: Occupational Distribution of Non-Farm Workers in India and the United States (Percentages)

Occupation	India (1961)	United States (1960)
Professional, technical and kindred workers	6.4	11.9
Administrative, executive and managerial workers	5.1	8.6
Clerical and kindred workers	7.5	15.5
Sales workers	13.4	7.6
Craftsmen and operatives	39.0	34.0
Private household workers	3.0	2.8
Other service workers	6.2	8.9
Laborers other than farm and mine	18.2	5.0
Unclassified	0.8	5.2
TOTAL	100.0	100.0

Sources: For India, Census of India, 1961, Vol. 1, II-B(ii), Table B-V. For the United States, U.S. Census of Population, 1960, Occupation by Industry.

As may be seen, the percentages in the two countries under consideration come much closer to each other, and those for sales workers and craftsmen and operatives are higher in India than in the United States. When we examine the above two tables together, we find that the picture of the industrial structure in terms of the total economy is more lopsided in India than it was in the United States a hundred years ago, but when we restrict our study to the non-agricultural sector (non-farm workers) only, we come across many facets of modern economic growth which were not in existence in the United States at that time. We may now venture to see if we get a different picture of occupations in the non-agricultural sector through the following table.

Table XIV: Occupational Distribution of Non-Farm Workers in India and the United States (Percentages)

Occupational Group	India (1961)	United States (1960)
I. Technical functions	40.9	37.5
1. Decision-making functions	0.8	3.2
2. Intermediate functions	0.8	2.3
3. Supervisory functions	*	0.7
4. Skilled functions	17.0	31.3
5. Semi-skilled functions	22.3	0.0
II. Non-technical functions	59.1	62.5
1. Decision-making functions	4.4	11.5
(i) Professionals	0.9	3.0
(ii) Administrative, executive and managerial functions	3.5	8.5
2. Intermediate functions	1.3	1.4
3. Supervisory functions	0.1	0.1
4. Skilled functions	25.1	32.5
(i) Clerical functions	7.4	19.6
(ii) Sales functions	11.8	4.9
(iii) Service functions	5.8	8.0
5. Semi-skilled functions	8.7	5.9
6. Unskilled and unclassified functions	19.0	10.5
TOTAL	100.0	100.0

*Included in category 4.

Sources: For India, Census of India, 1961, Vol. 1, II-B(ii), Table B-V. For the United States, U.S. Census of Population, 1960, Occupation by Industry.

The highlights of the table are as follows:

1) With respect to both technical and non-technical occupations, the functional distribution of workers is more hierarchical in the United States than in India. For every worker performing high-level, intermediate or supervisory functions, there are ten skilled, semi-skilled or unskilled workers in India and only five in the United States. As explained in the preceding pages, this phenomenon in the United States is inevitable and consistent with more efficient utilization of the labor force. It is conceivable that in India the bulk of the occupational mobility is horizontal, either within the same industry or from one industry to another. It is not vertical and does not entail any improvement in "job content," and the level of skill and efficiency also remains more or less the same. For example, an agricultural laborer may change over to the position of general laborer, porter, domestic servant, peddler or hawker, cutting across different industrial sectors.

2) The hierarchical discrepancy between the two countries is much greater in the case of technical workers than in the case of non-technical workers. For every engineer or technician, there are approximately thirty craftsmen or operatives in India and only six in the United States. Similar ratios for non-technical workers work out to 1:10 for India and 1:4 for the United States. As a corollary to this, strangely enough, the ratio of technical to non-technical workers is slightly higher in India than in the United States. Thus, there is a greater maldistribution of technical than of non-technical workers in a developing country. Against this, as in the United States, due to the application of technology it was possible to achieve rationalization of technical functions to a much greater extent than could be possible for non-technical functions.

3) Both in India and in the United States the hierarchical growth of workers is more in non-technical than technical occupations. On the face of it, it is difficult to explain this phenomenon. The reasons are perhaps partly historical and partly inherent in the nature of the technical and non-technical functions. The hierarchical relationship is rather rigid in technical functions and is contingent upon the level of technology, while such a relationship in terms of supply and demand functions is flexible in non-technical occupations.

4) It is difficult to interpret supervisory workers, whether technical or non-technical, since in neither country are such workers classified separately.

5) The distribution of workers between skilled, semi-skilled and unskilled functions is much more adverse in India than in the United States. The operatives are considered to be less skilled than the craftsmen, but for the purposes of the present classification, the two categories have been combined under the skilled functions. Therefore, the semi-skilled technical workers are contemplated to be non-existent in the United States, while in India the artisans working in household industries are classified as semi-skilled. As regards the non-technical skilled functions, the ratio is higher in the United States than in India. To some extent, the percentage of sales workers for India is not quite genuine, because a sizable part of the sales workers may deserve to be classified as semi-skilled rather than skilled workers.

6) The numerical extent of unskilled workers is by far much greater in India than in the United States. In the United States the bulk of the unskilled includes unclassified workers, though it is ironical that such workers in the United States should by far outnumber those in India. One explanation can be that while in the United States the class of general labor is conspicuous by its absence, in India the general labor and the unclassified run as complementary to each other.

To conclude, the labor force of the United States, in terms of hierarchical distribution, is relatively engaged in more productive economic functions as compared to that in India. In the context of the total economy, the new occupational pattern of non-farm workers cannot be attained without a major industrial redistribution. In other words, the labor force of a less developed country may have to be re-orientated to the production of a new product-mix similar to that of the United States, insofar as the new product-mix could be and should be visualized as the ultimate economic goal.

The table affords, in many respects, a better perspective about the utilization of the labor force in the non-agricultural sector and, in this respect, helps to remove some of the wrong impressions created by the industrial distribution of the labor force. The difference in the occupational structure of the two countries is not only hierarchical but spectral as well. However, the frailty of the table lies in the fact that it does not reveal the latter type of differences. The spectrum of occupations at each level of the hierarchy is more broad and varied

in the United States than in India. In order to appreciate the growth implications of the occupational structure, it is essential that not only the vertical but also the horizontal distribution of occupations be taken into account.

NEW FLORENCIA: A CASE STUDY FOR THE 1970 CENSUSES OF POPULATION AND HOUSING.

PART II.

CHAPTER VI

CLASSIFICATION OF ECONOMICALLY ACTIVE POPULATION BY STATUS

We have noted in Chapter IV that "establishment" is the ultimate unit for industrial classification of economically active population. The classification is not concerned either with the size or the composition of the establishment. We further noted in Chapter V that, to a great extent, the nature, size and the composition of an establishment are interrelated in terms of occupational characteristics. Similarly, the status of the labor force impinges, not only upon the industrial characteristics, but also on the internal composition and organization of different enterprises and the level of their efficiency.

Status denotes the economic or institutional relationship of an individual with the establishment. Before we can examine the nature and the socio-economic implications of status characteristics of the labor force, it becomes pertinent to classify different kinds of relationships called the classification of the labor force by status. The status classification evolved by the United Nations classified economically active population into the following four main status categories: 1/

(a) Employer: a person who operates his or her own economic enterprise or engages independently in a profession or trade, and hires one or more employees. Some countries may wish to distinguish among employers according to the number of persons they employ.

(b) Own-account worker: a person who operates his or her own economic enterprise or engages independently in a profession or trade, and hires no employees.

(c) Employee: a person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece-rates or pay in kind.

1/ Principles and Recommendations for the 1970 Population Censuses, United Nations Statistical Papers, Series M, No. 44, New York, 1967, p. 59.

(d) Unpaid family worker: a person who works a specified minimum amount of time (at least one third of normal working hours), without pay, in an economic enterprise operated by a related person living in the same household. If there are a significant number of unpaid family workers in enterprises of which the operators are members of a producers' cooperative who are classified in category (e), these unpaid family workers should be classified in a separate subgroup.

Conceptual Problems of Classification by Status:

Apparently, the above classification on the basis of status seems to be well defined and well demarcated, and should not present many problems similar to those met with industrial or occupational classifications. However, more often than not, it is not an easy task to determine the status of a person or persons in an establishment for classifying each one of them under one of the four main categories. This could happen because of the following two reasons:

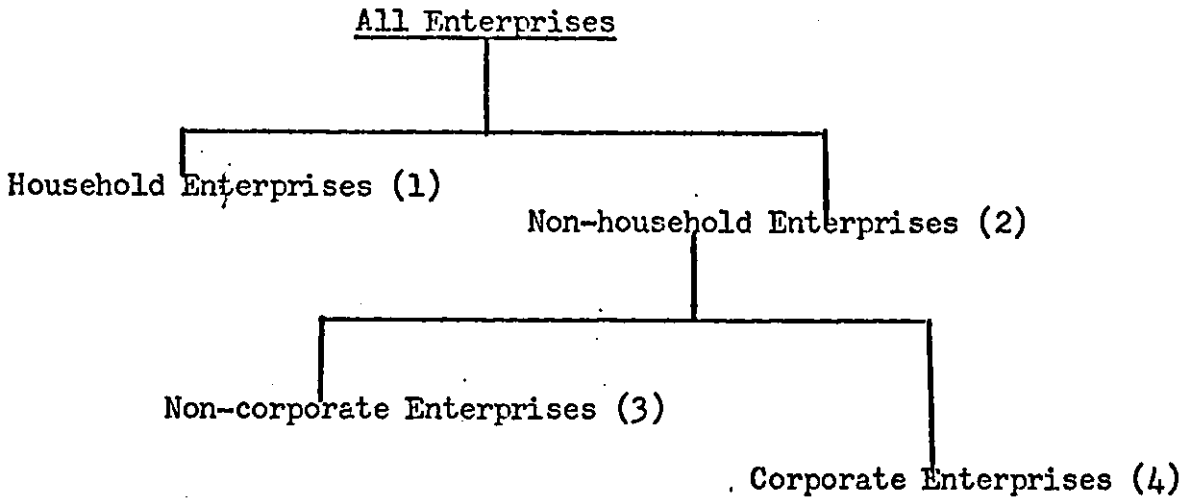
(1) The relationship of an individual with the establishment may be of a casual or tenuous nature;

(2) An individual may hold a multiple status.

As regards the first, a variety of arrangements could be entered into to undertake an economic activity with the result that the status of persons engaged in such activity is not so well marked out. The ambiguity arises usually in deciding whether a person is an own-account worker or an employee. It happens because it is difficult to determine the establishment to which that person belongs. For example, a porter working in a railway station may be remunerated by the passengers and not by the railway establishment. In such a situation the porter may be designated as an own-account worker, but since his activity is operationally linked with that of the railway transport, the porter could as well be treated as an employee of the railway establishment. Whether the porter is an own-account worker or an employee would also determine his industry. An own-account worker owns the establishment in which he works, and if he has no fixed place of work, he carries his own establishment with him wherever he goes to work, but an employee works in another person's establishment. As such, the porter as an own-account worker would be classified as working in road transport and as an employee in railway transport as his industry. There can be many such instances where the relationship of certain individuals with the establishment is casual and vague so that it is fairly difficult for the enumerators to figure out the establishment to which they belong. This sort of situation leaves too much in the hands of enumerators who use their own judgement in interpreting the instructions.

The situation referred to in (2) above could generally be encountered in household enterprises of developing countries. In a household enterprise, with the exception of employees, the other status groups are not easily distinguishable from one another. It is not possible to determine the status of persons belonging to the same household as precisely as of those who come from outside to work. If in such an enterprise the labor is drawn entirely from within the household, it cannot be said with certainty that all the working members of the household are unpaid family workers or that the head of the household, assuming that he runs the enterprise, is an own-account worker and the rest are family workers. The U.N. Recommendations stipulate that an own-account worker hires no employees, but whether or not he can engage family workers is left vague. Further, if the labor is drawn partly from within the household and partly from outside, as is normally the case, who is considered to be the employer - the head of the household or all the family workers? And, in any case, how can the status of the head of the household be established; should he be classified as a family worker, an employer, or an own-account worker? If the hired labor is employed on a casual basis and for a short duration during certain part of the year, how is it going to change the usual status of the head of the household from that of self-employed? The head of the household, which is more a social than economic concept, need not necessarily be the person who runs the enterprise. It could be run by any adult member of the household or the greater likelihood is that the enterprise might be run collectively by all the working members of the household.

There can be no ready answer to the above questions. The problem arises when we try to determine the economic entity of an individual within the household by overlooking the fact that the entire household functions as a socio-economic unit. Although such enterprises might occasionally draw labor and other input resources from outside, these are essentially self-sustaining units from an economic point of view. On the other hand, non-household enterprises are marked by employer-employee relationship. Here there are practically no own-account or family workers. Thus, the units of production become subdivided into two groups, i.e., household enterprises and non-household enterprises. The essential feature of a household enterprise, as stated above, is that the own-account labor or family labor is the only or the main element present in the labor input. The corporate enterprises are on the other extreme in which the presence of own-account workers or unpaid family workers, even though in a very small number, would preclude such enterprises from being treated as corporate enterprises. The above discussion may be summed up by means of the following diagram:



Explanation:

(1) Wholly or mainly operated by unpaid family workers or own-account workers.

(2) Wholly or mainly operated by employers and employees.

(3) Mainly operated by employers and employees.

(4) Wholly operated by employers and employees.

The above is a broad framework of enterprises in terms of status characteristics.

As we tend to move away from the strictly household enterprises, not only the proportion of employees begins to increase, the relationship of the other status groups to the enterprise also undergoes change. Specifically, the unpaid family workers may tend to lose their characteristic features and get identified with the categories of either employers or employees. However, the status of certain individuals in the enterprise shall remain amorphous and defy proper categorization so long as their relationship with the enterprise is not based on purely economic criteria.

We may now review the data on status characteristics to examine how the four categories on status work empirically. The following table furnishes percentage distribution of economically active population by status for a few selected countries.

Table I: Percentage Distribution of Economically Active Population by Status--Selected Countries

Country	Employers and Own-account Workers	Employees	Family Workers	Others and Status Unknown	Total	Percentage of Agric. Labor Force to Total Labor Force
United States (1960)	11.3	82.7	1.0	5.0	100.0	6.6
United Kingdom (1951)	7.3	87.8	.2	4.7	100.0	5.1
Germany (F.R.) (1961)	12.1	78.0	9.9	---	100.0	11.3
France (1962)	18.7	71.7	8.5	1.1	100.0	19.8
Canada (1961)	14.5	82.4	2.5	.6	100.0	12.1
New Zealand (1961)	15.0	83.9	.2	.9	100.0	14.4
Japan (1960)	21.9	53.5	23.8	.8	100.0	32.3
Philippines (1960)	42.8	27.2	23.0	7.0	100.0	57.4
India (1961)	15.8	12.8	1.9	69.5	100.0	72.9
Ceylon (1953)	33.1	61.2	5.7	---	100.0	52.9
Malaya (1957)	34.3	56.0	8.2	1.5	100.0	57.5
United Arab Rep. (1960)	29.9	49.4	18.5	2.2	100.0	56.7
Ghana (1960)	61.5	19.9	12.6	6.0	100.0	58.0
Brazil (1950)	32.2	50.6	17.0	.2	100.0	51.6
Pakistan (1961)	52.2	20.2	24.4	2.9	100.0	79.0
Thailand (1960)	29.8	11.8	57.7	.7	100.0	86.0
Iran (1956)	41.2	44.4	9.7	4.4	100.0	54.8
Mexico (1960)	34.2	64.1	1.0	.7	100.0	54.2

Source: Yearbook of Labor Statistics, 1965, International Labor Office, Geneva

The table presents the combined figures for employers and own-account workers. Instead, a new column for "others and status unknown" has been added to include those which could not be classified by status categories. The employers were combined with own-account workers because many countries did not collect information for employers separately and in some other countries this information was not collected for the entire labor force. In India, for instance, the agricultural labor force was not classified by status and, hence, was included under "status unknown". In some countries such as Pakistan, this is a residuary figure after the other two categories of employees anf family workers are accounted for.

It may be seen that the percentages for employers and own-account workers and family workers are higher for developing than for the developed countries. The higher figures for employers and own-account workers are on account of the predominance of own-account workers in the developing countries. The table indicates that while about 60 to 70% of the labor force in the developing countries is in agriculture, there is no corresponding consistency in the

proportions either for the own-account workers or for the family workers. As a result, these two categories run complementary to each other and the data can be largely interchangeable. The table underlines the fact that the percentages for employees give a fairly reliable picture and show close inverse relationship with the proportions of agricultural labor force. The coefficient of correlation for the two variables works out to -0.8 which is significant at 1 percent level. The higher percentage for employees for Ceylon, Malaya and Brazil may be partly attributed to plantations which are generally carried on in large commercial estates rather than through family cultivation. Thus, except for the employees, the classification in respect of other status categories laid down by the United Nations could not work satisfactorily in practice and no purposeful data could be collected on the basis of the classification

Socio-economic Implications of Status Classification:

How can we then go about collecting meaningful data on status classification of economically active population? The answer lies partly in spelling out what we expect to achieve through the analysis of the status classification of economically active population. To be meaningful, the data on status classification should throw light on the following two major aspects of economic change:

1. The status pattern of the labor force should show close correspondence with its industrial structure. With industrial diversification the new industries that are established call for an organizational set-up different from those of the old industries and it is inevitable that, together with other concomitant changes, the category of employees should grow at the cost of other categories. In general, the class of family workers should show the greatest decline followed by own-account workers. The position regarding the employers is indefinite; perhaps their number should increase in the beginning but decrease subsequently. However, the conceptual difficulties preclude us from testing the validity of the above hypothesis.

2. The status characteristics should enable us to identify the dimensions of the household and non-household components of each industrial sector. Our efforts are aimed at delineating between different forms of enterprises based on status characteristics of labor force. As an illustration, the following table furnishes percent distribution of economically active population by status, cross

classified by major industrial categories for the United States and Pakistan.

Table II: Percentage Distribution of Economically Active Population, by Status, in the Major Industrial Categories

Country and Industry	Employers and Own-account Workers	Employees	Family Workers	Others	Total
United States (1960):					
Agriculture	57.2	32.7	6.3	3.8	100.0
Mining	3.9	87.6	.1	8.4	100.0
Manufacturing	2.0	92.4	.1	5.5	100.0
Construction	17.0	71.3	.4	11.3	100.0
Utility Services	1.4	96.5	.0	2.1	100.0
Commerce	14.4	79.9	1.6	4.1	100.0
Transport and Communications	4.6	91.0	.2	4.2	100.0
Services	10.3	85.9	.5	3.3	100.0
Armed Forces	--	100.0	--	--	100.0
Persons seeking work for the first time	--	--	--	100.0	100.0
Unclassified	2.0	89.4	.2	8.4	100.0
Pakistan (1961):					
Agriculture	52.6	14.0	30.5	2.9	100.0
Mining	19.6	79.0	1.4	--	100.0
Manufacturing	57.6	32.7	9.7	--	100.0
Construction	64.6	32.6	2.8	--	100.0
Utility Services	3.0	96.8	.2	--	100.0
Commerce	78.6	15.1	6.3	--	100.0
Transport and Communications	44.8	52.2	3.0	--	100.0
Services	36.5	59.2	4.3	--	100.0
Unclassified	39.6	22.0	38.4	--	100.0
Unemployed	--	--	--	100.0	100.0

The table indicates that in the United States, except for agriculture, the other industrial categories consistently show more than 75% of the labor force as employees. On the other hand, in Pakistan there are large variations from industry to industry with respect to all the status categories. For some of the industrial categories such as commerce, manufacturing and construction, the percentage for employees is relatively much lower in Pakistan than it is in the United States. It suggests that even in the non-agricultural sector the economic activity is conducted mainly on a traditional basis. In

cumulative terms, in Pakistan, not only the workers are mainly concentrated in those industries where the proportion of employees is low, but in each industry there are proportionately fewer employees as compared to those in the United States.

The socio-economic implications of the above two factors are not far to seek. The family enterprises constituted by own-account workers and unpaid family workers draw labor and capital inputs from within the household. The unit of production (establishment) has, therefore, to be small, with low level of technology and limited division of labor. The extent of high-level and skilled manpower is negligible and the quality of technical know-how is poor. The production, being restricted to a few industries, is mainly for self-consumption and there is a limited extent of market for the surplus produce. The level of technology being low, the factor proportions are not rigid and there can be various combinations of labor and capital. Since there is very little wage employment, the employment by the establishment is not subject to cost-benefit ratio.

There is no agglomeration of production units in urban areas. The production is undertaken within rural and semi-urban environments and the economic activity is the result of the interaction of economic and non-economic forces and values. While it affords productive employment within the family moorings, particularly to women and children, it inhibits the mobility of labor and keeps the population bound to the traditional way of life. Since the labor force is decentralized into small units of production, it is difficult to enforce labor laws, though the need for instituting such laws is comparatively much less severe.

Historically, agriculture stands as an exception to the above generalization. As Table II indicates, only 1/3 of the agriculture labor force of the United States were employees in 1960, and the rest belonged to other status categories. Thus, agriculture is still conducted in family units while the levels of technology and productivity are no less advanced and developed than in other sectors of the economy. Due to the factors inherent in agriculture, the family farms have empirically proved to be an ideal form of organization in agriculture and can be run more profitably than as corporate enterprises.

The status as a factor is one of the cooperants in the process of economic development. By and large, growth in the number of employees is covariant with other growth factors and higher productivity. It is a reliable indicator of economic development since, like occupation, it is inextricably associated with inter-industry as well as intra-industry changes. It should help to spotlight those sectors and areas where production techniques are undertaken on modern lines. This identification in a dual economy will serve as a framework for formulating appropriate concepts for a socio-economic inquiry, and will help to judge the related characteristics of the labor force in right perspective.

The implications of other status groups are not so clear. The position occupied by employers is numerically too insignificant and operationally indiscernible to merit separate categorization. Even if the members of a household enterprise may occasionally engage hired labor, this factor should not be so strong enough to alter their basic status from own-account workers to that of employees. While the household sector is predominantly characterized by own account and family labor, the corporate enterprises and public services are entirely constituted by employees. Though institutionally, the corporate enterprises are based on employer-employee relationship, in operational terms, the functions of the employers are taken over by the employees. It is, therefore, not surprising that quite a few countries, including the United States, have done away with the category of employers. In practice, the own-account workers and the family workers belong to the same level of organization and should largely be interchangeable.

Alternative Approaches for Occupational Classification:

It appears that the approach of the United Nations of classifying economically active population into four status categories cannot be employed quite usefully. At the same time, there is no ready solution to the problem of status classification in a developing country. Many factors play their part in the determination of economic status in this type of setting. We cannot, however, arbitrarily set up categories and throw individuals and households into them. There must be a logical reason for doing so. As stated earlier, the problem arises because this type of enterprises functions as an organic unit, not only economically, but in many non-economic ways as well. As we try to go farther down up to the individual level to make an artificial division of them on the basis of status, we naturally face many difficulties. In doing so, any conceptual approach that we hazard to adopt may partake of some element of arbitrariness. While conforming to the U.N. classification in principle, the following alternative approaches could be adopted to resolve the dilemma.

In an enterprise where the majority of workers are drawn from within the family and are not remunerated individually according to the amount of work done by them, the head of the enterprise should be deemed to be own-account worker and the rest of the working members of the family as unpaid family workers, notwithstanding the fact that there may be a sprinkling of employees employed by the enterprise on casual or regular basis. As against this, in an enterprise where the employees outnumber family members who are economically active, the head of the production unit would be deemed to be an employer. The other members, being related to the head, like any other persons, would be treated as employees if they received wages or salary. They would be deemed to be employers if they shared in the economic activity of the employer. If, however, such workers did not perform the functions as an employer

nor were they remunerated as employees, they could at best be categorized as family workers. It can, however, be taken for granted that the chances of a person being classified as a family worker in such a type of enterprise should be rather meager.

Thus, under this approach, the question of status classification of an individual within an establishment and the classification of the establishment according to the status characteristics of the workers at the aggregate level are interrelated and interdependent. As the organizational setup of an establishment changes, there takes place a simultaneous change in the status classification of each economically active person within that establishment. The classification of enterprises, for using it as a framework for status classification of economically active population, is itself based upon the status classification of individuals within each type of enterprise. This leads to circular thinking and is, therefore, not a very practical approach. More or less this kind of approach was adopted in India in the 1961 Census, where the definition of family worker in the non-agricultural sector was related to the concept of household industry, but the concept of household industry itself was based upon the status composition of the enterprise. According to the instructions, a household industry was one in which the majority of the workers were unpaid family workers.

In order to give effect to the above approach, it is expedient to adopt a different hypothesis which may be based upon the factors other than the status characteristics. As a practical measure, a distinction may be made either between agricultural and non-agricultural employment or rural and urban employment, assuming that agricultural or rural enterprises are conducted mostly at household level through self employment and employment of unpaid family labor. The persons in agricultural or rural sectors might be classified either as own-account workers, unpaid family workers, or employees, according to the following two alternatives:

(1) The person who runs an enterprise, with or without the assistance of other members of his or her own household and that of the hired labor, should be classified as own-account worker only. The rest of the members of the household, not being directly paid for their work, and the hired labor, would be classified as unpaid family workers and employees respectively. As a slight modification to the above approach, the Population Commission at its Fifth Session suggested that if it proves impossible in some countries to distinguish employers from own-account workers, they should be consolidated into a single

group of self-employed persons. 2/

(2) The above alternative presupposes that we can distinguish own-account workers from family workers in a household enterprise (i.e., agricultural or rural enterprises). Since such an assumption is largely untenable, and assuming that functionally there is no difference between own-account workers and unpaid family workers, all the three categories might, as a second alternative, be combined into one and termed either as "self-employed" or "others" so as to distinguish them from employees. 3/ It is ironical that we should not collect separete information on own-account workers and family workers precisely in those sectors where they should mostly obtain.

2/ United Nations, Report of the Population Commission (Fifth Session) op.cit., p. 12.

3/ In countries where agricultural labor force is subdivided into cultivators and farm laborers under the occupational classification, it will be unnecessary to make the above classification by status because farm laborers are synonymous with employees and cultivators with "others".

CHAPTER VII

AGRICULTURAL LABOR FORCE

The basic objective of this chapter is to explore ways and means of determining the dimentional size of agricultural labor force and its salient characteristics insofar as those characteristics have a bearing upon the magnitude of its productive employment. For various reasons, agricultural labor force merits separate and detailed study. In most of the developing countries, agricultural employment covers 60% to 70% of total labor force. Apart from the size, the agricultural labor force has some peculiar features and characteristics which require special tools of investigation and analysis. The third reason is that due to the low rate of mobility, the agricultural employment is marked by regional variability. Last but not least, in agriculture, unlike in other sectors, land, as an additional factor, plays a crucial role in the employment of agricultural labor force.

Measurements of Agricultural Labor Force:

This aspect has been dealt with in some detail in Chapter II along with the measurement of the total labor force. The main conclusions that we arrive at can be summed up here. First, due to the factors inherent in agriculture, the technique of measurement of agricultural labor force should be different from that of the other sectors. Agricultural employment, as distinguished from non-agricultural employment, is one of the hypotheses, implicit in the dual approach, for classifying economically active population in a developing country. Second, employment in agriculture being characteristically seasonal, the reference period for recording the activity pattern has to be long enough so as to fully or mainly cover the busy season or seasons in agriculture. Third, since agriculture is mostly conducted as a household enterprise through self-employment and unpaid family labor, it renders the criterion of income unsuitable in the case of those to whom the income from land does not accrue directly. In this respect the criterion of work has an advantage over the criterion of income. Fourth, the employment at the household level being mixed with domestic work, it is necessary to devise some minimum norm of productive employment in qualitative and quantitative terms. The norm should stipulate that for a person to be classified as economically active in agriculture, he should be engaged in productive activity, that is, the activity which results in the augmentation of agricultural resources, for at least a minimum prescribed period of time during the current or last agricultural working season.

Level of Productive Employment:

The level and intensity of employment can be studied directly in the course of a survey by asking questions on labor time disposition or the gross or net income from land. Judged from the past results, there are many conceptual and practical problems involved in collecting this information for a developing country. The level and the intensity of productive employment in agriculture can be studied indirectly by correlating labor with other inputs like land and capital. To make an inventory of capital resources and capital formation in agriculture is again beset with many conceptual and practical problems and there is practically no developing country for which such estimates are available for the agricultural sector on a reliable basis. Land is perhaps the most effective and conveniently measurable factor influencing the level of productive employment of agricultural labor force. It is also one of the key factors in determining the capital formation in agriculture. The size of a holding, as the unit of production in agriculture, is one of the greatest constraints upon the introduction of improved technology. The relationship between the land and labor is based upon a number of structural and institutional factors. The structural and institutional relationship of land and labor has many facets and input and output implications. The relationship, inter alia, involves:

1. Land-man ratio;
2. Pattern of land distribution;
3. Land tenure system;
4. Occupational composition of agricultural labor force; and
5. Productivity per worker.

The most logical method of studying the various forms of relationships is through agricultural households because an agricultural household is the ultimate structural and institutional unit, that is, unit of operation as well as the unit of rights in land. The entire land operated by a household constitutes a household operational holding. It is the easiest way of locating the technical unit of operation (establishment) in agriculture because, generally speaking, the household operational holding conforms, in most cases, to a technical unit as well.

Land-man Ratio:

The factor proportions of land and labor are derived from their dimensional size at the aggregate level. The proportions can be studied statistically by working out the extent of labor input per unit of land (per acre or hectare) or the average size of a household operational holding by overriding the pattern of land distribution. There is an inverse correlation between the average size of an operational holding and the labor input per acre. The

following table presents average size of operational holding for some selected countries.

Table III: Average Size of Operational Holding for Selected Countries

Country	Area (in hectares)
Australia	1841.78
Denmark	15.81
New Zealand	231.56
U. S. A.	122.60
American Samoa	2.18
China (Taiwan)	1.27
Colombia	22.60
Iran	6.05
India	2.65
Pakistan	2.35
Puerto Rico	14.44
Vietnam	1.33

Source: Report on the 1960 World Census of Agriculture, FAO of the United Nations for India, 16th Round of the National Sample Survey, 1960.

As compared to developed countries, the land-man ratio in developing countries has been deteriorating for the last many decades. While there has been no appreciable increase in cultivated area, the size of the agricultural labor force has been growing abnormally. The general phenomenon underlying the growth of agricultural labor force is, firstly, the rate of total labor force growth, which is mainly the function of population growth, and secondly, the extent to which the additional labor force is absorbed in the non-agricultural sector. One of the most striking and distressing features of the economies of practically all the developing countries is that both the population and the labor force are growing at such high rate that only a fraction of them can be absorbed in the non-agricultural sector with the result that the bulk of the increment has to be absorbed in agriculture. According to the projections made for FAO's Indicative World Plan for Agricultural Development (IWP), the agricultural population of the developing countries is likely to increase by 40 percent in absolute terms between 1962 and 1985, although declining as a proportion of the total population from 65 to 53 percent. The increased pressure of population on land works

by way of (1) subdivision of holdings through the law of inheritance; (2) employment of the additional members of the family growing in size. Based on different hypotheses, there have been various estimates of surplus labor in agriculture which can be shifted to the non-agriculture sector without adversely affecting the total output. The size of the surplus labor would be still larger if the possibilities of improvement in technology and organizational setup are taken into account.

The existing holdings are not only small and uneconomic, they are under the constant threat of being further subdivided. It has been observed that the number of operational holdings in India increased by 4.5 millions between 1953-54 and 1960-61 although there was no significant increase in area.

Measures have been adopted in many countries for prevention of subdivision of holdings or the parcels of a holding. The legislation generally provides that no holding shall be subdivided through transfer, partition or lease with the result that the size of the holding is reduced below the specified limit. However, there are practical difficulties in the enforcement of these provisions especially those which regulate partitions. Partitions which are prohibited by law and, hence, cannot be done through courts, are done informally among the co-sharers. It is also not easy for courts to decide such cases without rendering one or more of the co-sharers landless. The measures seek to insulate the agricultural economy from further increase in pressure of population but are obviously not so effective since they strive against social and economic forces.

Pattern of Land Distribution:

In the case of most of the developing countries, the land-man ratio or the average size of an operational holding may be misleading for the reason that the land is not equally distributed among all the workers or the agricultural households. On the contrary, there is an inequitable distribution of land among agriculture workers and households resulting in gross underutilization of agricultural manpower. In India, for example, about 48% of the workers cultivate 57% of the holdings of less than 5 acres each, covering among themselves only 15% of the cropped area. It can be assumed that these workers should be severely or moderately underemployed if we do not take into account the non-farm employment. The under-utilization of agriculture labor force resulting from adverse land-man ratio is further accentuated by inequitable distribution of land among the cultivating households. In Latin American countries agriculture is dominated by large "latifundia" that control most of the land while most of the farm population subsists on "minifundia" which are generally subfamily farms of very small size. According to the studies sponsored by the Inter-American Committee for Agricultural Development (ICAD), in Argentina, Brazil,

Chile and Perú, 60% to 80% of the total farm area is appropriated by less than 1% to 4% of the farm units (latifundia).

The pattern of the distribution of operational holdings generally tends to closely follow the pattern of the distribution of ownership holdings. Historically speaking, the pattern of the distribution of land is still the relic of tenurial settlements made by the State since early periods. The distribution was further skewed by disparity in social and economic opportunities enjoyed by different sections of population and the absolute right of transfer and mortgage enjoyed by the landowners.

While the above pattern of land distribution emphasizes the numerical importance of small holdings, it strikes a positive note that the plight of the small holders can be mitigated through land redistribution. The redistribution of land could immediately reduce the underemployment of the small holders, without there being any addition to the total cropped area. Programs for land redistribution have been initiated and implemented in a number of developing countries. The programs generally provide for imposition of ceiling on agricultural holdings through legislation and the acquisition by the Government of the land above the prescribed ceiling limit for redistribution among the small holders, tenants, and the landless. It has, however, been a general experience that the implementation of the legislation for land redistribution is fraught with many obstacles. It was observed in India, for instance, that with the intention of circumverting the ceiling provisions there took place large-scale transfers and partitions of large holdings. These mala-fide transfers were generally made in favor of other members of the family without involving any actual change in ownership or cultivation. The following table indicates how the distributive pattern of land changed from 1953-54 to 1960-61 mainly as a reaction to the ceiling legislation.

Table IV: Percentage Increase (+) or Decrease (-) of Agricultural Operational Holdings and Area in 1960-61 Over 1953-54 by Size Class of Operational Holdings - India

Size Class (acres)	Percentage Change	
	Operational holdings	Area
Up to 0.99	+ 8.59	+ 19.71
1.00 - 4.99	+ 19.11	+ 18.91
5.00 - 9.99	+ 5.34	+ 4.27
10.00 - 14.99	+ 8.38	+ 7.52
15.00 - 29.99	- 4.13	- 4.64
30.00 - 49.99	- 6.68	- 8.43
50.00 and above	- 23.54	- 30.30
All sizes	+ 10.21	- 2.70

In order to safeguard against mala-fide transfers, a provision was made (1) to disregard transfers by applying the legislation with retrospective effect, and (2) to apply the ceiling to the entire land held by a family so that the ceiling limit is computed on the total land held by all the members of the family.

Land Tenure System:

Land tenure system determines to what extent and under what legal and institutional rights the land is owned or held for the purpose of cultivation. The first aspect relates to pattern of land distribution which has been dealt with above. Under the second aspect, the land might be held under a variety of arrangements ranging from complete ownership to mere squatting. The ownership denotes that the land is held on occupancy basis, i.e., with right to cultivate the land on permanent, heritable and transferable basis. There can be certain deviations from complete ownership under which the right of inheritance and/or transfer might be totally or partially restricted. On the other hand, the land may be held under a temporary lease on payment of rent to the landowner. Such leases, called tenancies, can take various forms extending from those held by tenants-at-will to permanent tenancies. The rent may also be payable as a fixed amount in cash or in kind or as share of the produce, or the lands might be held rent-free on rendering certain services to the landlord or the community.

Thus, the basic difference between a landowner and tenant is not that while the landowner holds land from the Government, the tenant holds it on payment of rent to the landowner. The right of occupancy is the principal criterion for distinction between the two agricultural classes. A person holding land directly from the Government on a temporary lease may be called a tenant. Similarly, the cultivation of land on permanent and heritable basis may tantamount to ownership in spite of the fact that the cultivator might not hold legal title of ownership and might pay rent to the landlord. If, in a country, there is a great diversity of interests in land and the tenancy system results in the creation of many leases and sub-leases, it may be a stupendous task for the enumerators to classify tenurial interests in land according to the nature of rights. In such circumstances, the following classification may yield practically the same results:

1. Tenures and tenancies owned or held from Government; and
2. Tenures and tenancies held from private persons or institutions on payment of rent, in money, kind or share of produce.

The following table shows percentage distribution of holdings and area by type of tenure for some selected countries.

Table V: Percentage Distribution of Holdings and Area According to Type of Tenure for Selected Countries

Country	Ownership or Ownerlike Possession		Rented		More than one Form of Tenure		Other Single Forms of Tenure	
	Number	Area	Number	Area	Number	Area	Number	Area
Colombia	62.4	72.4	23.4	7.3	8.2	6.1	6.0	14.2
Iran	33.3	26.2	55.9	62.2	10.8	11.6	--	--
New Zealand	62.5	43.3	20.4	17.8	12.3	20.8	4.8*	18.1*
Pakistan	52.1	43.0	19.3	27.5	28.6	29.5	--	--
United States	57.1	30.9	19.8	14.5	22.5	44.8	.6*	9.8*
India	76.8	--	7.7	--	15.5	--	--	--

* Operated by Managers

Source: Report on the 1960 World Census of Agriculture, Food and Agriculture Organization of the United Nations. For India, Census of India, 1961.

The table indicates large variations between different countries in distribution of holdings and area according to owned and self-cultivated, pure tenancies and partly owned and partly leased in.

Taking a historical view, the separation of cultivation from ownership took place under the impact of the following three factors:

1. Settlement of large estates on a feudal basis under which the feudal chiefs acquired ownership of lands by reducing the actual owner-cultivators to the status of tenants and share-croppers.

2. Where the land was settled with the actual cultivators on occupancy basis, due to the unrestricted right of transfer and mortgage, the land in many cases passed on, gradually and imperceptibly, into the hands of the non-cultivating rent receivers and the actual cultivators were reduced to the status of tenants. Quite often the landowners themselves leased out the land to tenants and themselves became non-cultivating owners.

3. Where large tracts of uncultivated and wastelands were held by proprietors, these were brought under cultivation by settling tenants on them.

The disadvantages of the tenancy system are too well known. It militates against the principles of efficient cultivation and social justice. In security of tenure and exorbitant rents erode the will and the capacity of the tenants to undertake productive work for agricultural improvement. The institution of landlordism creates class stratification and functions as a source of social and political power structure. It is therefore, the avowed policy of all developing countries to undertake agrarian reforms by which the actual tillers are brought into direct relationship with the State by the elimination of intermediaries. The tenants acquire the ownership of the lands either without any payment or on payment of some purchase price. In some countries interim measures are adopted to confer security of tenure and fixity of rent on tenants pending the settlement of land with them on ownership basis.

The agrarian reforms provide the social, economic and institutional framework for agricultural development and social justice. By and large, these measures adopted in many developing countries have worked smoothly and satisfactorily. The most serious problem encountered in the implementation of tenancy reforms is that, on account of the weak bargaining power of the tenants and the right of resumption of land given to the landlords for their personal cultivation, the open tenancies are converted into disguised or informal tenancies under which the lands are ostensibly deemed to be under the personal cultivation of land owners and the tenants are reduced to the status of farm laborers.

Occupational Composition of Agricultural Labor Force:

The occupational composition of agricultural working force partly depends upon the definition of the term "agricultural production" or "agriculture" as an industry. If we can confine the scope to cultivation of rotational crops there is practically no diversity in the occupational distribution of agricultural labor force of a developing country. In this context, the occupational terms commonly used are cultivators or farmers, covering owner-cultivators and tenant-cultivators, and farm or agricultural laborers. If, however, the term "agriculture" or "agricultural holding" covers, besides crop production, plantations, livestock and poultry farms, fishing, etc., many new and kindred occupations such as planters, insect rearers, foresters, fishermen, etc. will get into it. To obviate this, a more general term such as operator or holder might be used to include all those occupations which form part of agriculture proper as well as those which are ancillary to it. However, both operationally and institutionally, the crop production differs so vastly from ancillary activities, especially in the case of a developing country, that it may be desirable to treat the two on separate footings in the course of an inquiry of agricultural labor force. For example, crop production is conducted on individual holdings through family labor and hired labor while cultivation of plantations is conducted in

large estates where the organizational setup is based upon managers and paid workers similar to that obtained in non-agricultural industries. It is also not possible to classify workers of holdings according to the types of crops grown because, unlike developed countries, agricultural production is generally not specialized in developing countries and a landholder is prone to grow a variety of crops for self-consumption. It is further desirable that service workers in agriculture such as extension workers should not be treated as part of the agricultural labor force.

The enumeration of a person as cultivator or farmer is contingent upon his performance of certain economic functions, viz., undertaking supervision or decision taking as to what, when and how to produce, etc., undertaking the risk of cultivation and contributing physical labor. Performance of physical labor, though an important element in cultivation, does not tantamount to self-cultivation unless it is accompanied by supervision and risk taking. A farm laborer, on the other hand, performs physical labor only on payment of wages in cash or kind.

The cultivators and agriculture laborers characteristically belong to the same socio-economic stratum and interact upon each other in many diverse ways. There are, however, in evidence large regional variations in the composition of agricultural labor force for which many economic, social and institutional factors are responsible. In recent years, apart from the demographic pressure which pushes up the number of cultivators for employment as family workers, large transfers of land in anticipation and as a result of ceiling on holdings are an immediate cause in boosting up the number of cultivators.

It is rather hazardous to interpret the factos which determine the dimensional growth of farm labor class. Farm labor is not the most vulnerable class in the countryside and its number is affected by a variety of factors often moving in opposite directions. The supply of agricultural laborers may increase in areas with rising pressure of population on land. Here also the situation may be more complex than imagined. It is not easy to predict whether the preponderance of small cultivators-cum-farm laborers will manifest itself in census or survey results in the form of increase in the number of cultivators or farm laborers. Here again, the abundance of family labor on small holdings may press down the demand for farm labor. But since the supply of farm labor is more or less inelastic, the decreased demand for it may only have the effect of depressing wages. Farm labor may still continue to compete with family labor but at a lower leve. And this has, perhaps, been the major migrating class from rural to urban areas.

Farm laborers are affected by various agrarian measures no less than the other sections of the rural population. If there are large-scale ejectments of tenants, these relegate them to the

position of agricultural laborers, but these have frequently resulted in interchange of tenancies on different holdings. The demand for farm laborers is generally considered to be more in regions in which land is distributed unevenly and measures directed toward redistribution of land may, therefore, reduce the demand for farm laborers. The land tenure data show that there is some inverse relationship between the extent of area leased out and the number of farm laborers. Where cultivation of land through tenants is not generally practiced either by custom or is prohibited by law, the number of farm laborers is invariably high.

Productivity per Worker:

Based on cross-sectional analysis of data, there are a few patterns of productivity per worker which emerge out of the various forms of relationships between land and labor discussed above. These patterns can be categorized as (1) intra-regional variations, (2) inter-regional variations, and (3) inter-country variations, in productivity per worker. The variations can be studied by correlating productivity per worker with productivity per acre.

The labor input per acre is much higher on small as compared to large holdings. Despite this, there is nothing conclusive to suggest that, within a region, the productivity per acre is significantly higher on the smaller than larger holdings. Analyzing the farm management data in India, Dr. Erven J. Long observes: "With the exception of the highly specialized case of some of the plantation crops, productivity per acre would appear to be about the same for all sizes of farms or perhaps to diminish as size of farm increases." 4/ Thus, because of the differential rates of labor input per acre between large and small holdings, the productivity per worker in small holdings tends to fall approximately in proportion to that in area. "Aggregate country data indicate that average production per agricultural worker is one-fifth to one-tenth as great on small holdings as on latifundia."5/

As regards inter-regional variations, empirical data suggests some inverse relationship between yield per acre and average size of holding for different regions of a country/and which means the same thing, a positive correlation between yield per acre and labor input per acre. Here, perhaps, the average size of holding in a region is small or labor input per acre is high because the yield per acre is more, although the reverse of it is not equally true. Areas of high yield resulting from better quality of soil,

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4/ Viewpoints on Economic Aid - A Supplement to the American Review, July 1963.

5/ Agrarian Structure in Seven Latin American Countries. Solon Barraclough and Arthur Domike. LTC Reprint No. 25, Nov. 1966.

assured rainfall, irrigation facilities, etc. could provide livelihood to larger number of families and taking a long-term historical perspective, there has been a shift of population from low yielding areas to high yielding areas within the same country. The pressure of population in high yielding areas continued to rise through subdivision and fragmentation of holdings. Thus, the inter-regional variations in yield per acre are, to a large extent, neutralized in terms of productivity per worker through higher intensity of employment per acre in high yielding areas. In other words, within a country, inter-regional variations in productivity per worker are much less pronounced as compared to those in productivity per acre. However, it cannot be denied that some regional disparities do persist and regional differences in the value of output per worker and per holding can still be discernible. Inter-regional mobility of labor, necessitated by regional variations in the levels of economic development, could be hampered by diversities of language, culture, climate, technology, and agricultural practices and crops.

Coming to the difference between countries, the following table presents productivity of their agricultural population by Continents for pre-war and post-war periods.

Table VI: Productivity of the Agricultural Population by Continents and for the World, Pre-war and 1947-48

Continent	Yield per Hectare			Yield per Person in Agriculture		
	Pre-war (metric tons)	1947-48 (metric tons)	1947-48 as Percentage of Pre-war	Pre-war (metric tons)	1947-48 (metric tons)	1947-48 as Percentage of Pre-war
World average	1.24	1.30	1.05	0.42	0.42	1.00
North and Central America	1.07	1.50	1.40	1.80	2.57	1.43
South America	1.28	1.39	1.09	0.58	0.48	.83
Europe	1.51	1.39	.89	1.04	0.88	.85
Oceania	1.06	1.20	1.13	1.94	2.38	1.23
Asia	1.26	1.20	.95	0.24	0.22	.92
Africa	0.77	0.73	.95	0.12	0.12	1.00

Excludes USSR.

Sources: FAO, Monthly Bulletin of Foof and Agricultural Statistics, Vol. 2 No. 9 (Sept. 1949) arranged in order of yield per hectare in 1947-48.
Studies in Economic Development - Bernard Okun and Richard W. Richardson

The table indicates that variations in yield per hectare between developing and developed countries get further accentuated on the basis of yield per person. Contrary to the situation obtained within a country, the inter-country disparities in yield per acre are not narrowed down through higher intensity of employment in high-yielding areas. The table further holds out that such differences in productivity per worker between the developed and the developing countries are widening on account of mounting pressure of population on land in the developing countries. While, by and large, yield per acre in the developing countries is rising through introduction of improved technology and capital formation, this is not accompanied by an equivalent rise in productivity per worker. Unless a high yield per hectare is accompanied by a corresponding high yield per worker, the economy, to be self sufficient and self sustaining, will not yield surpluses (and also the marketable surplus) for re-investment within and outside agriculture.