

THE STRUCTURE OF THE PHILIPPINE LABOR FORCE*

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1. Introduction

The population of the Philippines has been growing very rapidly during the last decade at an average annual rate of increase of 3.06 per cent between census years 1948-1960, and at an even higher rate in recent years. This level of population growth is one of the highest rates in the world.

The total population recorded in the 1960 census was 27,087,685 living in a total area of 299,681 sq. km., or an average of 90 persons per sq. km.

The very rapid growth of the population raises problems for the government; food supply, education, health facilities, housing programs, and policies on the labor force.

The aim of this paper is to study some of the many aspects of the labor force so as to give a better picture of the changes, structure, distribution, and composition of labor in the country. It is hoped that this study of the influence of demographic and economic factors on the size, pattern, and length of participation in the labor force will contribute to the accumulation of knowledge required for improving economic planning to bring about more rapid industrialization. It is hoped that the findings may provide the authorities with background facts to pass measures for increasing farm workers' productivity and to curb the rise in rural underemployment.

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Most of the data used in this study are the estimated figures derived from a 0.5 per cent sample of the population enumerated in 1960 which was made possible by a grant from the Population Council to the Statistical Center, University of the Philippines, in 1962. It is obvious that all figures appearing in most of the tables are subject to sampling error. Supplementary data were taken from other sources, such as: Census of the Philippines, United Nations publications (Demographic Year Book, Statistical Year Book, Food and Agricultural Organization) and other publications.

2. General Trend of the Labor Force

In most of the literature and discussions we find out that the Philippines is always classified as one of the "underdeveloped countries" or "developing countries" like most countries in Asia, Africa and Latin America, whereas most countries in North America, Western Europe and Australia are called "developed" or "advanced countries". To know what the background or the basis of that classification is, below are some criteria of an underdeveloped country:

- i. low per capita income (less than \$400 per year);
- ii. a half or more of the male force is engaged in agriculture and related activities;
- iii. high illiteracy.

Aside from these conditions, other characteristics of an underdeveloped country are: high percentage of dependent children, very high birth rate, etc.

Since all these characteristics are true for the Philippines, (except for illiteracy) the inclusion of the Philippines among the developing countries is justifiable.

It was mentioned above that one of the characteristics of an underdeveloped country is a high proportion of the population in the dependent ages. "Dependent population" is here de-

defined as the proportion of the population below working ages (15 years) and population belonging to the retirement ages (65 years and over) per 100 persons of working ages.

The dependency ratio in 1939 was 87; 90 in 1948 and then rose to 94 in 1960. This change is mainly due to the rise in the proportion of young people in the population since the proportion of persons 65 years and above is relatively very small.

How great is that dependency ratio of the Philippines compared to advanced countries?

If the same definition was used to compute the dependency ratios, then the United States of America will have 68 dependent people per 100 persons of working ages in 1960, and the United Kingdom 53 (computed from data in Demographic year Book 1961).

The high proportion of dependent people is of course disadvantageous for the country, signifying a greater burden to the working population, or in other words: a reduction in the level of per capita income.

In both the 1939 and 1960 censuses the concept of "gainful worker" was used. The distribution of the employed population in 1939 and 1960 classified according to the branch of economic activity and sex is presented in Table 1.

It appears likely that there were shifts in occupational status, or more particularly, there were movements of people out of agriculture during that period. To provide a more direct measure of this movement out of agriculture the rate of change was computed for both employed and agricultural workers, using the formula:

$$\frac{P_1}{P_0} = e^{rt}$$

where: P_1 = population at the end of the period

P_0 = population at the beginning of the period
 r = rate of change
 t = length of time.

(Here, it is assumed that the increase in employment due directly to demographic factors is equally spread over agricultural and non-agricultural activities).

The rate of change of the male employed between 1939 and 1960 is 1.67 per cent. Assuming the population engaged in agriculture had been growing at the same rate of natural increase as the total employed population, then there would be about 4,518 thousand farm workers in 1960, or an increase of 1,336 thousand. But the actual data shows that there were only 1,215 thousand additional farm workers from 1939 to 1960. It may therefore be assumed that there was movement out of agriculture during the last two decades, which caused an increase in the proportion of non-agricultural sectors. But this shift of occupational status is not pronounced. The movement out of agriculture was small.

For the female population, there was an apparent sharp shift in occupational status. However, this apparent shift was largely fictitious, due to an inconsistency in enumerating the female labor force. In the 1960 census, housewives were excluded from the labor force, but they were included in the 1939 census classification. As a consequence, the number of female reported as farm workers dropped from 1,268 thousand in 1939 to 765 thousand in 1960.

3. Labor Force Participation: Economic Activity of the Male Population

The size and the structure of the labor force is influenced by social, economic, demographic, and cultural factors. One of the most important demographic factors which influences the size and structure of the labor force is age.

It was shown earlier how the age factor determines the size of the population in working ages which of course affects the size of the labor force. This is obvious since age affects the capacity or the ability of the people to work.

A well-known measure of the population participation in the labor force, freed from the influence of age composition, is age-specific activity rate, and defined as the percentage of economically active persons among the population of a given age group. Table 2 and Graph 1 show the pattern of male age specific activity rates for the Philippines as a whole and some selected regions.

In general, relatively few boys under 15 years and only a slight majority of those 15-19 years of age engage in economic pursuits due to circumstances such as: schooling, training, lack of skill, etc.

In the late teens and early twenties the participation rate rises sharply and runs more or less constantly during the middle adult years.

It starts declining near the retirement age.

3.1 Economic Factors

The general age pattern of the participation rate has been explained briefly above. The following discussion will deal with the influence of economic conditions on the pattern of age specific activity rates.

TABLE 1

DISTRIBUTION OF THE EMPLOYED POPULATION
BY BRANCH OF ECONOMIC ACTIVITY IN THE
PHILIPPINES: 1939, 1960¹

Branch of Economic Activity	Economically Active Population (x 1000)		Per Cent	
	1939	1960	1939	1960
MALE TOTAL	4,219.3	5,990.1	100.0	100.0
Agriculture, Forestry, Hunting, Fishing	3,182.3	4,397.0	75.4	73.4
Mining & Quarrying	46.6	22.6	1.1	0.4
Manufacturing	334.0	385.8	7.9	6.4
Construction	—	175.0	—	2.9
Electricity, Gas, Water & Sanitary Services	—	11.9	—	0.2
Commerce	216.0	263.2	5.1	4.4
Transport, Storage, Communication	202.5	196.2	4.8	3.3
Services	237.9	445.1	5.6	7.4
Activities Not Adequately Described	—	92.4	—	1.5
FEMALE TOTAL	1,888.5	1,954.3	100.0	100.0
Agriculture, Forestry, Hunting, Fishing	1,268.5	765.1	67.2	39.2
Mining & Quarrying	0.4	1.0	*	0.1
Manufacturing	267.4	451.9	14.2	23.1
Construction	—	2.0	—	0.1
Electricity, Gas, Water & Sanitary Services	—	.9	—	*
Commerce	103.7	242.5	5.5	12.4
Transport, Storage, Communication	1.1	4.0	0.1	0.2
Services	247.4	466.0	13.1	23.8
Activities Not Adequately Described	—	20.9	—	1.1

*Less than 0.1 per cent.

¹ Source: 1939: Statistical Year Book. U.N. 1961.
1960: Bureau of the Census and Statistics

The three regions,² I, V and VIII, will be examined in this analysis since they possess different economic characteristics.

Region I (Manila) is known as an urban area where the economic activity of its population is concentrated on industry, commerce, services, transportation and the like.

Region VIII (Eastern Visayas) is an agricultural area; almost 80 per cent of the total employed males are dependent on farms and related activities (hunting, fishing, forestry, etc.).

Region V (Southern Luzon and Islands) is also an agricultural area but less so as compared to Region VIII. Less than 60 per cent of the total employed males are farmers or related workers. The participation rates of these three regions are shown in Table 2 and Graph I.

The age-specific activity rate of Region I starts from a very low point, i.e. 3.2 per cent at age group 10-15 years, then rises sharply and reaches a peak at age group 40-45 years. From this point it declined to the retirement ages (36.6 per cent at age group 65 years and over).

For region VIII, the participation rate starts from a relatively high level, 20 per cent above the starting point of Region I. The participation rates remain well above those of

² For operational purposes the 55 provinces of the Philippines at the time of the last census were grouped into ten regions as follows:

- Region I: Manila
- Region II: Ilocos and Mt. Province
- Region III: Cagayan Valley and Batanes
- Region IV: Central Luzon
- Region V: Southern Luzon, Mindoro, Marinduque and Palawan
- Region VI: Bicol and Masbate
- Region VII: Western Visayas
- Region VIII: Eastern Visayas
- Region IX: Southwestern Mindanao and Sulu
- Region X: Northeastern Mindanao

Region I and stop at a point far above those of Region I (71.3 per cent are still in the labor force at age 65 years and over).

In Region V, this "moderate" region exhibits age specific start working at an early age. This may be attributed to lack activity rates between those two "extreme" regions. The comparison of the participation rates between Region I, and Region V and VIII can be summarized as follows:

at age group 10 to 29 the participation rate of Region I is much lower than that of Region V and VIII;

at ages 30 to 49 they are more or less at equal level;
in the 50's the level of participation rates of Region I is slightly lower compared to Region V and VIII and in the 60's it is much lower.

These differences may have different explanations. In Manila the young people start working at a rather late age, for most of them spend their young ages schooling and training. As for the oldest group it is customary for them to rely on pensions or income received from relatives or other sources during the rest of their lives. Furthermore, older persons are demand for their services.

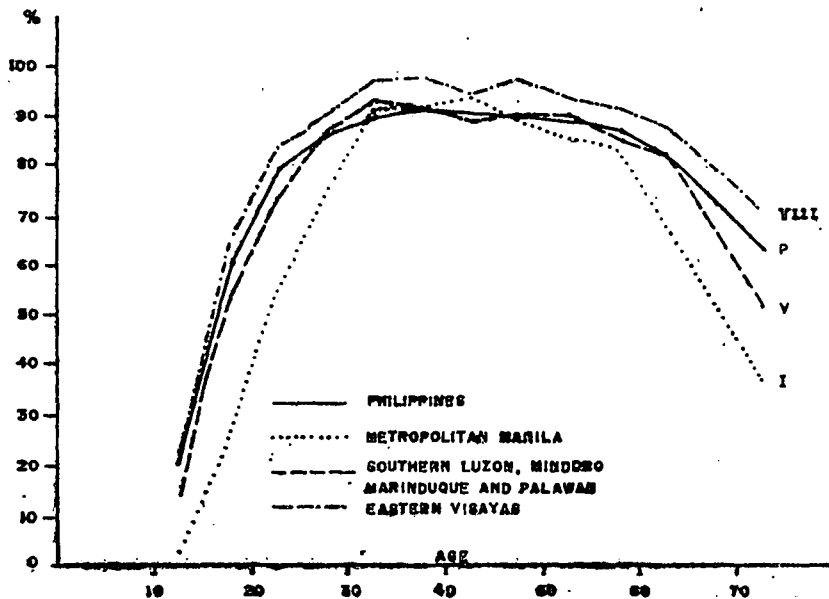
In agricultural areas, however, most of the young people of higher educational facilities, lack of funds for the continuation of education or the need to increase the income of their discouraged from seeking job in Manila because of the reduced families, and most of all social factors. At late ages they still have to continue working to maintain their families. Moreover, some types of farm work are less strenuous than regular employment for wages. In any case they do not usually have any retirement income or any other "savings". This is why the age-specific activity rate in agrarian areas is still at a high level during late ages;

TABLE 2

MALE AGE — SPECIFIC ACTIVITY RATES AND GROSS
YEARS OF ACTIVE LIFE, PHILIPPINES: 1960

Age-Group (years)	Years in Age-group	Age-Specific-Activity-Rates (%)				Years of Active Life — 5x Age-Specific-Activity-Rates			
		Phil- ippines	Reg. I Metrop. Manila	Reg. V Southern Luzon	Reg. VIII Eastern Visayas	Phil- ippines	Reg. I Metrop. Manila	Reg. V Southern Luzon	Reg. VIII Eastern Visayas
10 — 14	5	20.5	3.2	12.9	23.6	1.025	.160	.645	1.180
15 — 19	5	59.7	24.8	52.7	63.8	2.985	1.240	2.635	3.190
20 — 24	5	79.3	54.7	73.6	83.4	3.965	2.735	3.680	4.170
25 — 29	5	86.7	73.1	87.3	90.8	4.335	3.755	4.365	4.540
30 — 34	5	90.9	91.7	93.4	97.3	4.500	4.585	4.670	4.865
35 — 39	5	91.4	92.2	91.9	98.2	4.570	4.610	4.595	4.910
40 — 44	5	90.0	94.4	89.9	94.4	4.545	4.700	4.495	4.720
45 — 49	5	90.1	89.4	90.5	97.6	4.505	4.470	4.525	4.880
50 — 54	5	89.8	85.9	90.1	93.5	4.490	4.295	4.505	4.675
55 — 59	5	87.3	83.3	85.8	91.5	4.365	4.165	4.290	4.575
60 — 64	5	82.3	68.3	82.4	87.7	4.115	3.415	4.120	4.385
65 — over	—	62.2	36.6	52.0	71.3	—	—	—	—
GROSS YEARS OF ACTIVE LIFE						43.4	38.1	42.5	46.1

ECONOMIC ACTIVITY RATES, SELECTED REGIONS
 MALES: 1960



GRAPH I.

3.2. Gross Year of Active Life

The gross years of active life represent the average number of economically active years for those men or women of a given generation who do not die before reaching retirement age. This average number can be computed simply by summing the products of age specific activity rates and the number of years in the corresponding interval. (Here we consider 65 years as a retirement age).

The gross years of active life for the Philippines and some selected regions are shown in Table 2. The results show that during their life time, the male population of the Philippines spend 43.4 years in economic activity. Comparing again the three regions I, V and VIII, we conclude that the people in the farm area spend more years of their lives, even prior to age 65 in economic pursuits than their counterparts in "industrial" areas. As shown in the table the gross years of active life in these regions are 38.1, 42.5 and 46.1 years respectively.

3.3 The Occupational Status Differences

This analysis of occupational differences will exclude Manila, since it comprises only an urban area which apparently has a unique pattern of economic activity.

The other 9 regions then are grouped into 3 major sectors which represent Northern, Middle and Southern Philippines:

- A. Luzon and Islands (Regions: II + III + IV + V + VI).
- B. Visayas (Regions: VII + VIII).
- C. Mindanao and Sulu (Regions: IX + X).

To simplify the analysis, the occupational status is classified into two categories only: agricultural and non-agricultural.

The occupational status differences in these 3 "Regions" A, B, and C, will be studied first.

The hypothesis is that the occupational structure in the Philippines as a whole (Region I excluded) is homogeneous, or that there are no occupational differences in these "regions". It means that the occupational proportions in "Regions" A, B, and C should be the same. If the hypothesis is true then by using probability concepts the expected/theoretical frequency in each cell of the table can be found:

$$e_{ij} = \frac{(n_{i.})(n_{.j})}{n..}$$

where e_{ij} = the expected frequency in i^{th} region and j^{th} occupation.

n_i = total number in i^{th} row.

n_j = total number in j^{th} column.

$n..$ = the overall total.

For example:

The next step is to test whether the values observed differ significantly from the theoretical values, using the X^2 statistics:

$$X^2 = \sum_{i=1}^3 \sum_{j=1}^2 \frac{(e_{ij} - n_{ij})^2}{n_{ij}}$$

Compare this X^2 with the value tabulated in X^2 -table with $(r-1)c-1$ degrees of freedom (r = number of rows; c = number of columns), then use the following test criterion:

reject the hypothesis if $X^2 > X^2 .95$

accept the hypothesis if $X^2 < X^2 .95$

Computing X^2 for the data in Table 3 will give an answer $X^2 = 1,228.21$. For 2 degrees of freedom $X^2 .95 = 5.99$.

TABLE 3

OBSERVED AND THEORETICAL NUMBERS OF EMPLOYED
MALES BY OCCUPATION IN EACH MAJOR REGION

R E G I O N	OCCUPATIONAL STATUS		
	Non-Agriculture	Agriculture	Total
A. Luzon and Islands	4334 (3165.8)	8855 (10023.2)	13,189
B. Visayas	1795 (2086.1)	6896 (6604.9)	8,691
C. Mindanao & Sulu	789 (1666.1)	6152 (5274.9)	6,941
TOTAL	6,918	21,903	28,821

Note: Figures in parenthesis refer to the theoretical values.

Hence, the hypothesis of homogeneity is rejected at the 5 per cent level of the significance, or in other words, the occupational status of the employed males in Luzon, Visayas and Mindanao and Sulu are not the same/not homogeneous.

A. Luzon and Islands: All comparisons made in this region produced highly significant X^2 's. It seems that the occupational status of the employed males in Luzon and Islands is not homogeneous.

B. Visayas: From the X^2 computed by comparing Western and Eastern Visayas we may conclude that the occupational status in these two regions is homogeneous.

C. Mindanao and Sulu: The observed value of $X^2 = 5.37$ is significant at 5 per cent but is not significant at the 1 per cent level of significance. The homogeneity of the occupational status in Mindanao and Sulu is rather doubtful.

3.4. The Employed Population by Class of Worker and Industry

The classification of the "industry" into two categories, agriculture and non-agriculture, gives a better picture of the differences in the structure of class of worker in these two categories (Table 4).

TABLE 4

DISTRIBUTION OF EMPLOYED PERSONS INDUSTRIAL STATUS AND CLASS OF WORKER, PHILIPPINES: 1960

Sex	Class of Worker	Industry		
		Total	Agriculture	Non-Agriculture
MALE	TOTAL	5,939,200	4,412,400	1,526,800
	In own account	3,055,600	2,673,800	1,381,800
	Employees	1,566,600	495,400	1,071,200
	Unpaid & Unknown	1,317,000	1,243,200	73,800
	Per cent	100.0	100.0	100.0
	Distribution TOTAL	51.4	60.6	25.0
	In own account	26.4	11.2	70.2
	Employees	22.2	28.2	4.8
	Unpaid & Unknown	100.0	74.3	25.7
	TOTAL	100.0	87.5	12.3
In own account	100.0	31.6	68.4	
Employees	100.0	94.4	5.6	
Unpaid & Unknown				

In Agriculture, more than 60 per cent of the employed workers are in the "own account" class, while in non-agricultural occupation the proportion is only one-fourth.

The "Employed" component constitutes only one-tenth of the total agricultural group while for non-agricultural activities this class forms 70 per cent of the total.

In agricultural areas, the unpaid workers still constitute an important portion of the labor force (more than one-fifth of the total employed). More than 90 per cent of the total unpaid workers are farmers or related workers.

Aside from the relatively high proportion of unpaid workers we find another characteristic of the agricultural employment, i.e., the existence of large underemployment. The survey conducted by the P.S.S.H. in October 1960 shows that almost one-fourth (24.9 per cent) of the total male employed in farms constitute more than three-fourth (75.5 per cent) of the total underemployed. During the survey week, 36 per cent of the underemployed (in agriculture) were actively looking for more work. (See Tables 6 and 7 in the P.S.S.H. Bulletin Series No. 8).

4. Relation Between Education and Occupational Status

H.H. Golden in his "Literacy and Social Change in Underdeveloped Countries"³ discussed the relationship between literacy and industrialization, and came to the following conclusion: "Literacy affords an excellent index of the level of socio-economic development of a country for behind the degree of literacy lies the whole institutional structure of a society."

This conclusion might well apply to the Philippine situation.

In this paper, "No Schooling" will be used instead of the degree of literacy. The proportion of the employed persons working on farms in each region can be considered as a measure of socio-economic development.

³ *Demographic Analysis*, Selected Readings, J. J. Spengler and O.D. Duncan, p. 532.

To measure how close the relationship is between those two characteristics Kendall's Rank correlation method will be applied.

The percentages of employed males with "No Schooling" for each region are ranked according to order of magnitude. The same procedure is applied to the proportion of "agriculture employment". The Kendall's Rank Correlation is computed by using the formula:

$$\tau = \frac{P - Q}{1/2 n(n-1)} = \frac{2 P}{1/2 (n-1)} - 1$$

where P = the total number of positive arrangement
Q = the total number of negative arrangement
n = the number of observations.

The coefficient of correlation, shows that there is a positive correlation between "No Schooling" and employment in "agriculture". This means, there are more unschooled employed males on farms than in non-farm activities or there are more educated employed persons working in non-farm activities than in farms.

5. Median-Ages of the Employed

In the following section the median age of the employed will be discussed in relation to the level of "urbanization" and "schooling".

There is a suggested relationship between the degree of "agricultural pursuits" and the median ages: the greater the degree of "urbanization" the greater the median age. This is presumably due to the smaller proportion of children in the labor force in urban areas.

In agriculture, the labor force is more concentrated at young ages than in non-agricultural activities. Table 5 pro-

vides a clearer picture of this fact. The Philippines is grouped into 4 "regions" according to the proportion of farm workers;

Region A: Manila,

Region B: 50 to 70 per cent farm workers,

Region C: 70 to 80 per cent farm workers,

Region D: 80 per cent and more farm workers.

The median ages of the employed in these 4 "regions" are 35, 33, 32, and 29 years, respectively.

It may be further stated that the delay of the population in non-farm areas in going to work is largely due to the years they spend for education. The proportion of "No Schooling" employed males in Regions A, B, C and D are: 5.2, 16.4, 26.4, and 49.4 per cent, respectively.

TABLE 5

PERCENTAGES OF MALES ENGAGED IN AGRICULTURE
UNSCHOOLED EMPLOYED AND MEDIAN AGES
OF THE EMPLOYED MALES

Region	Employed Males		
	% Employed in Agriculture	No Schooling Employed	Median Age
I	1.0	5.2	35.1
IV + V + VI	62.4	16.4	32.6
II + VII + VIII	79.4	26.4	32.4
III + IX + X	89.1	49.4	29.3

The two paragraphs discussed above revealed the close correlation between "the level of industrialization" and education. Why should this interrelationship exist? Agriculture in the Philippines involves traditional practices. Most of the work can be learned by young people from their parents and elders. During the process of "training" reading and writing are not essential for everything can be done manually. There

is no need to keep records, documents, accountancies and the like. In non-agricultural pursuits — whether it be administrative, trade, technical, services, transportation or communication — a certain level of literacy is necessary. It means that schooling is generally required for non-agricultural activities. It is also a common knowledge that the higher educated people do not like working on farms. Farming is considered an inferior occupation and non-productive in the income sense. This attitude is influenced somewhat by the superior facilities in urban areas for health, transportation, recreation, etc.

6. Summary and Conclusion

Following the introduction which described the objective and significance of the study, the movement out of agriculture which took place during the last two decades was discussed. It seems that the movement was very slow such that the proportion of the employed males in farm did not change significantly. The very rapid growth of the population caused the growing underemployment in farm areas which consequently hindered the productivity of farm labor. The very high proportion of dependent population also caused a greater burden on the economically active portion of the population.

This situation may be remedied by some measures such as: industrialization (to absorb the underemployment); intensification of land utilization; extension of cultivated land; advances in education; reduction in number of children in the family.

The influence of demographic and economic factors on the size, pattern and length of participation of the population in the labor force has been discussed. In agricultural areas, the age specific activity rates are higher than in non-agricultural areas. The heterogeneity of the Philippine economy was also discussed, although it showed that agriculture is still the predominant economic activity in all regions except the Manila complex.

It appears that the process of industrialization/urbanization of the country has been concentrated in Luzon, particularly Central and Southern Luzon. Most of the labor force in Northern Luzon and in the South is still economically dependent on agriculture.

Finally, the association between education and the labor force focusses on the close relationship between "industrialization" and education. In general, the greater the proportion of farm workers the lower is the level of education in a region. Thus, it becomes evident that education is one of the important factors in the process of industrialization and urbanization. The Philippines is a potential country to "industrialize"; its economy since the degree of literacy is one of the highest in Asia.

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