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THE INDUSTRIALIZATION OF UNDERDEVELOPED ECONOMIES

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INTRODUCTION:

In this research study, we shall try to elucidate the complicated problem of industrial development as related to the economically underdeveloped countries.

This subject has become one of the most important ones in the recent literature of economics and in governmental fields. For that matter it has become of primordial necessity that due interest should be given to it.

In dealing with our subject, we shall not concentrate ourselves to a single pattern or to a particular country; instead we shall deal in a more general manner with the overall theory of industrialization and the way it may be applied to the so called underdeveloped areas. It may be argued that each country, particularly the underdeveloped nations have characteristics that are peculiar to them, and which are different to others and that for that matter it is quite impossible to generalize on underdevelopment.

Nevertheless, it is my belief that there exists a fundamental category of underdeveloped world to which each nation can add its particular salient conditions which will make them different from others. It is on this fundamental categories that we shall concentrate our reasoning.

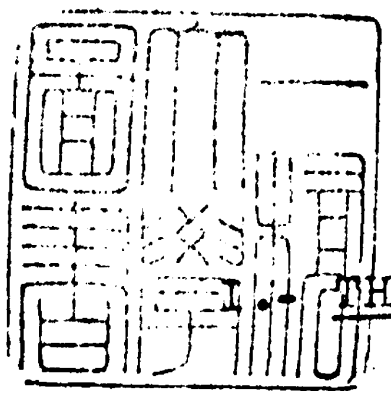
In addition, we shall bring forth, as illustrative material, particular nations where our point under consideration may suggest best to exemplyfy.

In developing our argument, we shall first start from static assumptions and gradually introduce dynamic changes in population, taste, technology and in other similar fields. Much of our study has a flavor of the classical school of thought, and there will be considerable sections based on the marginal and income analysis mehtod of reasoning.

We shall start with the terminological difficulties in dealing with this nations. Agriculture will then be thoroughly considered because of its close connection with underdeveloped countries. Finally, industrialization, its relation with agriculture, its process of growth, its changes and the role os small industries will be considered.

Throughout our work, emphasis will be given to the empirico-theoretical norms of reasoning. Statistical material will be made available as far as it may clarify the argument in question.

With this in mind, let us try tc tackle our problem.



I.- THE DILEMMA OF UNDERDEVELOPED ECONOMIES.

A.- Some Terminological Difficulties.-

In the study of underdeveloped countries and their economic problems, one of the most stricking difficulties is the lack of a common denominator in dealing with underdevelopment. Almost every economist has a different opinion on the subject and it is usually discussed thoroughly without much results. Therefore it is relevant, to clarify the concept as it would be used in any research, for purposes of avoiding difficulties in interpretation. So I shall endeavor to broaden the idea of "underdeveloped countries" and in doing so, try to reach a certain basis of uniformity upon which I can base my argument. The number of works in the subject is so large that it gets confusing at times. Anyhow, I shall deal with those which are most relevant.

In dealing with the subject, we shall keep in mind that our study will bear closer resemblance to the classical case of free competition and the beneficial effects of free trade as was held by the older generation of economists. Furthermore, these studies will not consider the problem from the point of view of static theory but from the dynamic stand of the economy.

In general we can say that an underdeveloped country is one "which on the average affords its inhabitants an end product of consumption and material well being, appreciable inferior to that provided by the economies of the developed countries."(1) This concept is of a comparative nature and refers to the performance of a country's economy.

It refers to a condition of poor economic performance which can be seen by the low average of consumption and material well being of the people. This is a concept of potentiality for it shows the existence of possibilities for development. Usually, "underdeveloped," means that the resources of the country are yet in a low stage of productivity and that through the application of known means, they can be develcped.

When we speak of underdeveloped countries, we must also deal with their people, that is, we must see the socio-economic aspects of the inhabitants of such underdeveloped countries. Economists usually refer to these latter problems, as that of "Backwardness," or "Backward People." One thing that must be made clear before proceeding, is that both underdevelopment and

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(1) N. Buchanan and H. Ellis, Approaches to Economic Development. Twentieth Century Fund. New York 1955. p. 3.

backwardness are more of an economic term, for though these countries may have low standards of living, they may have high levels of artistic, literary, philosophical and other cultural achievements.

Another thing is that both terms are interrelated and should be studied as a whole and not as divisible parts. The History of Development has shown that both go together. In other words, I may say that both terms are even, interchangeable.(2)

H. Mynt(3) says, that "backward people" may be defined, as "a group of people who are in some fashion or other, unsuccessful in the economic struggle to earn a livelihood. Thus, we are starting from a classical distinction between man and his environment: only then can we think of a group of people as being successful or otherwise in adapting themselves to their environment". This shows a clear interrelation, or integration of both the social and economic problem; for although the whole is made of parts, the parts are integrated in the whole and cannot be studied separately.

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(2) To this, some economists will disagree, saying that one is more of an economic concept of resources and the other, more of a social approach.

(3) H. Mynt, An interpretation of Economic Backwardness. Oxford Economic Papers, Vol VI, June 1954. p. 132.

I shall hold such an assuption throughout this thesis for it is basically important when dealing with a theoretical analysis.

Myint, continues in his essay saying that underdevelopment of natural resources and backwardness of people are two distinct phenomena and they need not even coexist, thus he says, "the inhabitants of overpopulated countries which admitedly have very little natural resources left for further unaided development are also generally backward." That, "although underdevelopment of natural resources may cause backwardness of people, it does not necessarily follow that any efficient development of natural resources resulting in an increase in total output, will always reduce the backwardness of people."(4)

In here, I may say that these statement does not deny our argument, for what we are saying is not merely an underdevelopment of NATURAL resources but of ALL resources, human, natural, and even capital, considered as a resource, and that the interaction of all or most of them is the cause of such low standards of life. I do not argue that a single phenomena is the cause of backwardness. Speaking in general terms then, underdeveloped resources as a whole, can be described in the language of optimum theory as:

H. Myint, op cit, p. 134.

" a) Less than optimum amounts of these underdeveloped resources have been used in producing final output.

b) Less than optimum amounts of capital have been invested to augment the quantity and improve the quality of the underdeveloped resources".(5)

We can say that the role of capital is of great importance and that it is necessary that more research be done not only in how to increase capital but also, and with great stress, in how should it be used.

Most economists semm to be in accordance with the argument we have brought forth,(6) but yet, it seems to me that most of them tend to bring a separate argument for both and that sometimes, they overlook backwardness of the people as a subject of sociology.

The argument of Thurnwald comes closer to our idea. He states, "it is not sufficient that discoveries should be made by individuals, but such discoveries must be raised by the community to the rank of cultural conditions in order to take effect. But,

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(5) ibid

(6) So, Mynt says: The problem of the underdeveloped countries consist not merely of underdeveloped resources in their usual sense but also of economic backwardness of their people; where it exist, the underdeveloped resources and the backwardness of people mutually aggravate each other in a vicious cycle. ibid p. 142.

so must they in advanced economies. Only here, the process takes place through round about methods of marketing, excluded from primitive society by its very structure, for only such inventions can be marketed by individuals as it serves socially acceptable purposes".(7) (Yet, in his argument, there is a strong emphasis on the social aspects).

Perhaps it is a great hardship to introduce socio-economic elements(8) in a theoretical argument, but what we should like to stress is that in thinking about underdeveloped economies, we must think of a complex whole and not merely a simple economic state.

Having made our initial point clear, let us cite some of the most common criteria of underdeveloped countries. To this effect, the argument given by Viner(9) is clear and illuminating. Let us, therefore, bring forth his thesis and the weaknesses he finds in discussing underdevelopment.

He brings the following arguments:

a) That of a low ratio of population to area. Yet, this is not satisfactory for these are empty areas without prospective, and these cannot be called underdeveloped but "undeveloped," furthermore, what can be

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(7) as mentioned by I.C. Greaves. Modern Production Among Backward People. p.54.

(8) Because they cannot be measured as easily as the economic factors.

(9) Jacob Viner. International Trade and Economic Development. Oxford, 1953. Chapter VI.

said of areas with a high population ratio like India?

b) Scarcity of capital as shown by high interest rates. Yet these interest rates may be due to high risk premiums or to a high marginal productivity of capital and not to the factor backwardness.

c) The criteria that underdeveloped countries have a low ratio of industrial output to total output; yet, it is doubtful for we believe an agricultural nation can be well developed and achieve high standards of living, if properly conducted.

d) Another is that, underdeveloped countries are young. But it is most questionable, for we can see that the older countries with long historical tradition are still largely underdeveloped.

Finally, we believe a more adequate definition which serves better our purposes, than the one given previously, is that an underdeveloped country is one which has a potential prospect for using the different resources and factors mentioned to support an existing or an increasing population on a high level of living with high per capita income.(*) With this background in mind, our thesis can be made clearer.

(*) The U.N. Report on Measures for the Economic Development of Underdeveloped Countries, stresses this "per capita income", saying that an underdeveloped country is one with low per capita real income when compared with the per capita real income of the U.S.A., Canada, Western Europe and Australasia. In this sense, an adequate synonym would be, poor countries. p. 3.

B.- The Problems of Underdeveloped Countries.

The economies of underdeveloped countries may not offer the complicated economic structural framework of the highly developed countries. Nevertheless, they offer a different set of problems, we may say, they are the problems of developed countries in their early stages of development. A knowledge of such general problems is of extreme importance for those studious of the economics of underdeveloped countries. Let us therefore briefly look upon them, before engaging in the main text of our thesis.

The most relevant problem faced by underdeveloped countries is that of a low level of per capita incomes. This can be seen in the pattern of consumption, where a community, having almost a starvation level of income is obliged to spend most of its income on primary consumption goods. According to an estimate made by the United Nations, most of the underdeveloped countries, containing more than half the worlds population, had per capita incomes of $100 or less, as compared with $1,400 in the U.S.A. and $800 in countries like Canada, New Zealand, Switzerland and the United Kingdom.(10)

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(10) National and per capita income of 70 countries in 1949, expressed in U.S. dollars. U.N. Statistical Office, statistical papers, series E, No. 1. New York, October, 1950.

The following table I, makes explicit the income relations at different levels of development. We can realize the tremendous gap between the highest and the lowest income. These low per capita incomes are the most aggravating problem confronted by most underdeveloped countries. It is I believe the cause of other problems. Some authors state that, there are several interrelated problems, but I believe that there is one problem, namely, that of low incomes and the others are merely derived from it. Therefore, the next striking fact is that of population.(11)

Many underdeveloped countries have population problems, in the fact that they have more population than they can support at present due to their low incomes. This high pressure of population on soil will result in an agricultural setup with a labor intensive framework that limits the productivity per worker and thus keeps his income low, making the nation rely on primary production at inefficient levels.

Furthermore, low incomes demand largely primary products and so employment is concentrated in this sector. An occupational distribution of this type is not conducive of high incomes and output.(12) (it shows a mere vicious circle)

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(11) For a relevant research on the effect of low income on birth rate, see Josue de Castro's "The Geography of Hunger" Little Brown & Co., Boston, 1952. De Castro supported by statistics shows how low income can cause the birth rate to be higher in those poor countries, thus increasing the population. Hunger, he says is not the effect of overpopulation but the cause.

(12) Baljit Singh. Federal Finance and Underdeveloped Economy. Bombay, 1952.

TABLE I. Per Capita Income, Population and Population Groups in 1939.

COUNTRY	PER CAPITA INCOME	RANK	POPULATION	POPULATION TYPE
UPPER INCOME GROUP (over $200)	(U.S. $ per year)		(Unit:1000)	
United States	$ 554	1	131,416	1
Germany	" 520	2	69,317	1
United Kingdom	" 468	3	47,778	1
Switzerland	" 445	4	4,206	1
Sweden	" 436	5	6,341	1
Australia	" 403	6	6,997	1
New Zealand	" 396	7	1,642	1
Canada	" 389	8	11,368	1
Netherlands	" 338	9	8,834	1
Denmark	" 338	10	3,825	1
France	" 283	11	41,950	1
Norway	" 279	12	2,937	1
Belgium	" 261	13	8,396	1
Eire	" 248	14	2,946	1
Argentina	" 218	15	13,132	2
MIDDLE INCOME GROUP ($101-$200)				
Union of South Africa	$ 188	16	10,251	2
Finland	" 184	17	3,684	1
Chile	" 174	18	4,940	2
Austria	" 166	19	6,650	1
U.S.S.R.	" 158	20	196,500	2
Italy	" 140	21	43,864	1
Greece	" 136	22	7,200	2
Czechoslovakia	" 134	23	15,239	1
Hungary	" 125	24	9,129	1
Bulgaria	" 109	25	6,308	2
LOWER INCOME GROUP ($100 AND BELOW)				
Cuba	$ 98	26	4,253	3
Yugoslavia	" 96	27	15,703	2
Poland	" 95	28	35,090	2
Japan	" 93	29	72,520	2
Venezuela	" 92	30	3,650	3
Egypt	" 85	31	16,650	3
Palestine	" 81	32	1,502	3
Costa Rica	" 76	33	639	3
Colombia	" 76	34	8,986	3
Peru	" 72	35	7,000	3
Panama	" 71	36	620	3
Ceylon	" 63	37	5,922	3

TABLE I (cont)

COUNTRY	PER CAPITA INCOME	RANK	POPULATION	POPULATION TYPE
Mexico	$ 61	38	19,380	3
Uruguay	" 56	39	2,147	3
Dominican Rep.	" 51	40	1,650	3
Haiti	" 50	41	2,600	3
Nicaragua	" 50	42	883	3
Guatemala	" 48	43	3,260	3
Bolivia	" 47	44	3,400	3
Honduras	" 45	45	1,090	3
El Salvador	" 45	46	1,745	3
Brazil	" 46	47	40,900	3
Ecuador	" 44	48	3,000	3
Paraguay	" 39	49	970	3
India	" 34	50	382,000	3
Phillippines	" 32	51	16,300	3
China	" 29	52	450,000	3
Indonesia	" 22	53	69,435	3

SOURCE: U.S. Dept. of State, Point 4, Pub. 3719, January 1950, pp. 113-14.

Type 1- Low growth potential, birth rates below 25/1000 population, low death rates, small natural increase with prospects of relatively stationary population in the future.

Type 2- Transitional growth, birth rates 25-35, both and death rates generally falling, rapid population growth.

Type 3- High growth potential, birth rate over 35, death rates (not birth) generally declining, rapid growth in absence of civil disturbance, famine and epidemic.

Again income is of extreme relevance in our problem, so that we cannot say that overpopulation is the cause of backwardness, for this, will leave unanswered the question of why economically backward people have been unable to increase their productivity to match the increase in population, while the economically advanced people have managed to increase their standards of living on top of large increases in population (comparatively speaking). Therefore we need to find a basic relevant factor which is not, let me stress, the only factor, but the most important, which in connection with other factors which in our sense of reasoning emanate from it, produce backwardness.

The next problem that we may consider and which is closely related to that of population is unemployment, and especially the so called "disguised unemployment" as used by R. Nurkse,(13) in the sense, "that even with unchanged techniques of agriculture, a large part of the population engaged in agriculture could be removed without reducing agricultural output".(14)

The problem of disguised unemployment conducts us to that of low productivity, characterising all the underdeveloped economies. This productivity matter is closely connected with demographic aspects.

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(13) Ragnar Nurkse- Problems of capital formation in underdeveloped countries. Oxford 1953, pp. 32-37.

(14) Prof. J. Robinson uses it also in "The Rate of Interest", London 1954, but in reference to more developed countries.

In the underdeveloped areas, characteristically, a much higher proportion of the total population is in the younger age groups. The mortality in the younger age groups is appreciably higher and those who can escape death rate in childhood and reach a productive age, have on the average, fewer productive years remaining to them.

Evidence shows that on the average in the underdeveloped countries about 40% of the population is below 15 years of age, against only 25% in the more developed countries. Thus, the underdeveloped countries have about 15 fewer persons per 100 inhabitants, old enough to work and be productive than the developed countries.[15] This all contributes to low productivity rates.

In Table II, we can see some of the factors contributing to low average productivity. We can see that among the most stricking problems often disregarded by economists is that of health, education and literacy, which can be thought of as collaterals of the low productivity rate of underdeveloped countries.

Before leaving the population aspects, let me state that overpopulated areas are not necessarily underdeveloped.

Such nations as Western Germany, Belgium, the English Midlands and the Northeastern seabord of the

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(15) Buchanan and Ellis. opcit., pp.27-28.

United States are densely populated,[16] but we cannot say they have overpopulation problems, because of their efficiency in production and their ability to get out of the vicious circle of low income and low productivity.

Finally, one of the most important problems, besides the ones already mentioned is the lack of capital to raise productivity and standards. Again we may say that there is a low rate of capital formation due to low incomes[17] which account for low savings and thus small domestic capital formation. Furthermore, in low income areas, investment is risky for obvious reasons and thus it attracts few foreign investment. In general, we can use real income per capita (without neglecting or underestimating other factors) as the indicator of development and material welfare, so that development will mean rising real income per capita.

Roughly speaking, we can say that what is underdeveloped in those countries is their real income potentialities; development means exploiting these potentialities.

The real income potential of the land, the people, the capital equipment and technical knowldge they now have or can obtain is for the underdeveloped areas

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(16) Buchanan & Ellis op.cit., p. 257
(17) which will be mostly used for consumption of food, following the principle of Engel's law.

appreciably above the level of real income which now prevails.

Development consists in making those changes which will make most effectively realizé the real income potentialities of a particular area. Therefore, we are interested in analysing some factors which may give an impulse to development, and rise the incomes of the inhabitants of such areas. All the problems mentioned briefly in this section will play an important role in the theory and process of industrialization as developed in these study.

TABLE II. INDICATORS OF LOW AVERAGE PRODUCTIVITY

COUNTRY	TB DEATH RATES PER 1,000 POP.	% OF POP. AGE 10 & OVER ILLITERATE (1930)	PHYSICIANS PER 1,000 POP,	ELEM. SCHOOL TEACHERS PER 1,000 POP.
United States	47	below 5	1.37	4.29
Germany	50	" 5	.69	2.63
United Kingdom	62	" 5	1.13	4.11
Switzerland	80	" 5	.84	3.01
Sweden	75	" 5	.94	4.03
Australia	40	" 5	.94	3.78
New Zealand	60	" 5	1.00	4.58
Canada	53	" 5	.95	5.43
Netherlands	41	" 5	.83	4.10
France	137	5	.73	3.77
Argentina	103	17	1.05	5.24
Union of S.Afr.	low	60	.41	1.28
Finland	190	14	.45	3.68
Chile	264	24	.63	2.54
U.S.S.R.	160	19	.76	3.65
Greece	128	41	.86	2.17
Cuba	76	35	.63	3.18
Japan	207	below 10	.87	3.47
Venezuela	233	63	.41	0.94
Colombia	low	44	.29	1.41
Celon	62	60	.15	--
Mexico	56	62	.51	2.40
Brazil	250	62	.31	1.97
Haiti	high	90	.09	0.63
Bolivia	medium	92	.15	1.62
India	283	91	.12	1.27
Philippines	298	51	.26	1.76
China	400-500	85	.04	1.73

Sources: U.S. Dept. of State. Point 4, publication 3719 January 1950, pp. 115-16, 122-23.

II.- ECONOMIC DEVELOPMENT IN PERSPECTIVE

A.- What is Economic Development.-

It is imperative that we discuss the meaning and process of development because it can be readily seen that there is in the existing literature of the subject, not only an absence of a satisfactory theory but also the absence of agreement as to which of the many problems apparent to the observer are important for study. The studious of the subject finds no clear pathway, but an intricate jungle of "vicious circles," obstacles to change and necessary but never sufficient in themselves, preconditions of economic growth.(1)

Economic development is not to be sought as an end in itself, but as a means to increasing human welfare and well being. It may be sought as a tool towards better possibilities of material life. It has been the interest of economists and social thinkers throughout the history of humanity. In early times of mercantilism, the economists of the times, did much to stimulate interest in how the material growth of a nation might be encouraged.

Adam Smith, in his "The Wealth of Nations"(2) carefully studied the general problem of how to build and transform the existing society into a social and political

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(1) Editorial, "Economic Development & Cultural Change", the University of Chicago Research Center in Economic Development. Vol I #1, March 1952, p. 3

(2) Adam Smith. The Wealth of Nations. Modern Library, New York, 1937, Book I

framework which would foster sustained economic growth.

What are therefore the economists of present days thinking about these problem? In general, we can say that the necessary requirement is an increased output of scarce goods and services. In this way, the U.N. Report on measures for the economic development of underdeveloped countries, stress the increase of productivity as a primary requirement.

I.H. Siegel[3] says, that economic growth may be described roughly by an incremental or cumulative measure pertaining to a significant desideratum of society, (such increases as in national product, national income, material welfare) that is, it can be explained by the relationship betweenthe fruit of productive activity and man as the end of production.

For other economists also, economic development is an increase of net productivity per man hour, but that such should not be of existing capacity in the same existing conditions, but of a revolution of the productive processes, applying techniques of production which are more efficient and of improved forms of organization.[4]

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(3) Siegel- Technological Progress and Economic Institutions. Conditions of American Technological Progress. American Economic Review Paper and Proceedings #2, May, 1954, p. 163.

(4) R.T. Gaitán- "El Desarrollo de la Economía y de sus Principales Sectores", Niveles de Vida y Desarrollo Económico. Investigación Económica U.N.A.M., 1953, p. 3.

This is similar to Schumpeter's view, who states that the mere growth of the economy, as shown by the growth of population and wealth cannot be designated as development. That if the phenomenon that we called economic development is in practice simply founded upon the fact that the data change and that the economy continuously adopts itself to it, then we cannot say that there is development.(5)

Therefore, some pump primer is needed, and that, he calls innovations, which is something that alters forever and displaces the equilibrium state, previously existing. In this sense, we can say that a mere capital increase will not mean a change, but a mere accumulation. Furthermore, a discovery of natural resources will not mean economic development, it may signify an increase or accumulation but not a cualitative change which transforms the economic and social structure of a country.

In other words, we may stress again, that what is important is to know how to use the resources and other means effectively and not merely have them piling up. That a mere piling up of industries do not mean development, but what is required is the adjustment

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(5) Schumpeter, J.A.- "Theory of Economic Development". Cambridge, Mass., 1951, p. 63.

and efficient use of such industries, plus their integration into society. Thus, it is necessary that any progress should change the existing pattern and for that matter, it is necessary that the change be fitted to the society in question. A mere imitation of the industrial structures of developed countries will not constitute development.

The U.N. Report mentioned before, states that, "The high standards which some underdeveloped countries set themselves, sometimes have also the effect of inhibiting the growth of public work because the works come to be more costly than the government can afford"(6) and let me add, that the people would not be accustomed at all to such standards, therefore, making development an unbalanced phenomena.

Another statement to the problem which may clarify our concept is that "Economic development is a process of better and larger use of the productive factors, which can be achieved by the increasing use of capital resources and advancing modern technology".(7)

We can stress here, the fact of "process", by which I mean that development is gradual and slow moving for it requires a certain degree "of social and psycholo-

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(6) U.N. Report, op.cit., p. 55.

(7) Horacio Flores de la Peña- La Elasticidad de la Oferta y El Desarrollo Económico. El Trimestre Económico, enero-marzo, 1955, p. 1.

gical harmony",(8) necessary to the maintenance of a certain rate of change.

Prof. H. Frankel stresses the necessity of having a slow process of development.(9) He says, "The mechanization devices which quicken the pace unduly in one direction will but destroy those deeper mutual harmonies of man in nature, to which alone she will yield her blessing",(10) and that economic development implies a new synthesis between man's thought and action in relation to the natural rescurces of the globe.

This means, as we have already stated, that development is not a mere superimposition of techniques or factors of production of advanced nations, nor can we have development through exporting 'the world's accumulated technical knowledge and capital. Development in Frankel's words, must be induced(11) not enforced. It must be integrated into society not be an accessory.

Basically, economic development implies four fundamental aspects, namely:

a) A rising rate of capital which can use the increasing labor force.

b) An improved organization of productive effort.

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(8) H. Frankel- The Economic Impact on Underdeveloped Societies, Oxford, 1953, p. 25-26.

(9) He bitterly attacks the U.N. Report, saying that it is extremely speedy; that development should be a slow prccess of re-orientation of attitudes and institutions and that attempts to speed it up are certain to be disastrous if not unsuccessful. see, W. Arthur Lewis- "U.N. Primer for Development" Quarterly Journal of Economics, Vol 67, 1953.

(10) H. Frankel- op.cit., p. 11.

c) The application of advanced technological processes.

d) Changes in the relation of production.

When one or more of these elements produce an effect over the increase of productivity, rise of real income and improvements in consumption and leisure and result in product diversification and economic stability, then we can measure economic development. But the increase of potential productivity or of production by itself cannot characterize economic development. Only when these results in an increase of production into a better use of the labour force then we can say that there is development. Furthermore, progress produces not only qualitative and quantitative changes but also distributive and time changes. By quantitative we mean increases in real income, investment, per capita consumption and so on. Qualitative implies changes in the structure of production employment, foreign trade, productive organization and employed technique. From the distributive point of view, these are changes in the distribution on income, consumption and savings, expenditure of national income, geographic distribution of population and so on. Finally, time changes involve such problems of short and long term period, such as whether the volume of production depends basically on equipment, existing resources, used technology, etc. These

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(11) See Frankel, op.cit.,p.79

elements are susceptible of producing an increase in production and services at a short or long period according to elasticity of production of each of the factors of production. In addition to all of these, economic development involves a change in the social structure of the society, in the political soundness, the spirit of business and the approach to economic life. It is in itself a revolution, a change of the whole realm. It should be seen and studied in these sense.

Finally it is imperative to stress that there are no single causes which provoke economic development. Discussions of primacy are reminiscent of the conundrum about the chicken and the egg. This sort of failure together with the careless assumption that we may talk about economic events as though they occur in aggregates, gives an air of artificiality to some of the familiar questions of economic development. Whether agricultural productivity increase is the cause or consequence of the release of rural labor to urban industry. Whether higher investment is a cause or consequence of economic growth, whether the values and traits of a population influence technological change or vice versa; whether high wages are a cause or consequence of a high level of net capital formation is irrelevant because actually any of these alternatives are more or less correct in a changing economy considered over time.(12)

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(12) H. Siegel- op.cit. above. p.165.

Therefore we must not concentrate our attention into problems of cause and effect, but into the analysis of a certain cirteria in the process of economic development and how and in which way can it contribute to development, while seen the economic realm as a single whole in a process of change.

B.- The Problem of Economic Development.-

Economic development offers a large number of problems, which in itself are topics of research and study among scholars. Let us however mention briefly some of the most fundamental ones in order to have a panorama where we can lie our hypothesis later.

First, and most basic is the problem of a favorable atmosphere for progress. For the economist in advanced countries, these factors may seem without importance because obviously they live in an environment where life is materially active and thus where there are much incentives for development. Yet in the economically backward countries, such conditions do not exist. People in these areas may and do recognize the benefitial effects of development. They hear about a better material well being but they just believe it isn't "worth the effort".(13) But even though we find an ardent desire to develop and to achieve a higher level of living, there seems to be an obstacle in the form of a refusal —incompatible with "ardent desire"— to accept the socio-economic changes

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(13) U.N. Report. Measures for the economic development of underdeveloped countries, New York1951, p. 13.

and institutional reforms that are the preconditions of change in technique.(This change which is implanted upon them). Often there is also a resistence to accept the supplied changed techniques in themselves.(14) It seems unbearable for the people in these countries to change their habits and traditions which the introduction of technology brings with. It is necessary for those engaged in programs of industrialization and technical transformation to bear this point in mind while making decissions or planning schemes. It is not difficult to think about our problems if we know that the people will have to change their habits completely and enter into a new type of livelihood common in advanced countries. And if we consider that these latter countries took decades of painful years in order to achieve their change, the problem of adaptation is stricking if we realize that it "is not an accident that by and large it was in the empty peripherial areas such as Australia, New Zealand, the U. S. A., that the most economic progress was achieved".(15) In these countries, people already accustomed to the new life of industrial countries, immigrated and developed the nation. There was no problem of socio-structural adjustment as found in underdeveloped countries. There must be, for development

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(14) H. Singer. "Obstacles to Economic Development" Social Research, Vol. 20, 1953, p.28.
(15)H. Frankel. op.cit., p.72.

purposes, the necessity that conditions must be rippen for it. In European countries there was a slow but solid background in the long history of Renaissance, Reformation, the discovery of a new world, the rise of national states, the scientific revolution, and the commercial revolution.(16) For these conditions to be realized, there is a necessity of motivation, that the people in these areas should feel a necessity and not merely a recognition to improve their material well being.(17) (To this are related problems which I may call derived, such as low productivity, maladjustment, capital shortage, inefficiency, etc.)

Next we can mention the conditions of the market as being a problem of basic importance. It was Adam Smith who first brought up the point in manifesting that the division of labour was limited by the extent of the market.(18) The thing that follows immediately from these is that in underdeveloped areas, the markets are so small that they cannot support large saale industries. For instance in Colombia, a mechanized plant for the production of

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(16) Buchanam and Ellis, opus cit., p. 119
(17) Suggestions are varied as to the achievement of this purpose such as technical education, rise general education, improve agriculture, land reform, property right, reform tenacy laws, etc.
(18) Adam Smith, op. cit. above, chapter III, Book I

light bulbs can fulfill the demand for one year in less than one month. Naturally under such conditions it is almost impossible to start right away on projects of industrialization or agricultural reform. Here we can say that the great difference between developed and underdeveloped countries lies. In the developed countries, the generating force is supply (of new goods, lower supply price in relation to market price and thus giving chance of large profits for the pioneering industries, etc.) but in underdeveloped ones the force is in market demand (19) which often is larger than the supply, due to a small market and thus explains the widespread inflationary pressure throughout these countries- itself disruptive of Economic development. This high consumption in relation to the reduced existing market has a discouraging effect on the rate of savings and domestic capital formation in underdeveloped countries. This is what is well known as the "demonstration effect"(20) and is characterized by an unbalanced consumption of imported goods which tends to disrupt the balance of payments and the

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(19) It can be seen that this is one of the differences between the schumpeterian approach and the one of present theories. Schumpeter theory says that change in the supply side is the cause and that increased consumption is the effect. In underdeveloped areas its different, the desire for consumption is the cause. The change in supply function must result if the desire for increased consumption is to be fulfilled.

(20) Ragnar Nurkse - "some international aspects of the problem of economic development". papers and proceedings of the American Economic Association. Boston 1951, pp. 571-83.

stability of foreign exchanges. This will naturally check economic development,(21) and is one of the most relevant problems confronted by underdeveloped societies.

The next problem that we may consider briefly is that of monopolistic forces in the society of backward countries. They are those where people,

a) as unskilled labour have to face the big foreign mining and plantation concerns who are monopolistic buyers of their labour.

b) In their role as peasant producers they have to face a small group of exporting and processing firms who are monopolistic buyers of their crops.

c) As consumers of imported commodities they have to face the same group of firms who are monopolistic sellers or distributors of these commodities.(22)

These monopolies are one of the most relevant problems confronted by tropical countries who are based largely on a monoculture type of economy and who base much of their income in the trade of their primary production. Such monopoly forces cannot be erradicated, what is necessary is to improve the economic conditions, namely incite development for with it such forces will automatically clear away. It is of interest to bring

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(21) It can be said that the "Demonstration effect" is part of the change over from the Schumpeter model of economic development to the non-Schumpeterian world.

(22) See H. Mynt, an interpretation of Economic Backwardness. Oxford Economic Papers, Vol6, June '54, No.2.

at this point, the idea of Schumpeter as exposed in his "Capitalism, Socialism and Democracy" where he brings a contribution to the long run theory of economic development in arguing that the growth of monopoly which from the static point of view would result in a maldistribution of resources might actually favour technical innovations and economic development. But I believe such an idea will favour the developed nations but not so much the underdeveloped ones.(23) We can realize this in that monopoly in advanced countries and particularly in the U. S. A. has been accompanied by countervailing forces on the opposite side of the market, such as trade unions, retail chain stores, cooperative societies, farmer unions etc. These countervailing forces are stimulated by monopoly and it induces their grouth, providing a self regulatory mechanism to the economy. This does not happen in an underdeveloped country where the initial conditions of development are too unfavourable to give rise to a countervailing power to check the foreign economic domination which is another problem for the underdeveloped countries.That is to try to stand by themselves. We can emphasize that economic development requires that the people should do it, otherwise there will be exploitation (see Mynt opus cited).

A further problem that often arises in

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(23) It is in this sense that Schumpeter theory is regarded as one applied to developed countries and not to underdeveloped ones.

studies of economic development is that of foreign trade. It is often argued that the extreme reliance on trade and primary production reduces inhabitants of backward areas to a state of low economic livelihood closely connected to the cyclical activity of industrial nations, making their economies weak and unbalanced. The U. N. Report mentioned previously states that the terms of trade are against primary producers and that the fruits of technical progress are captured by industrial countries. Thus it advocates the use of trade controls and tariffs, arguing furthermore that foreign exchange earnings can be in these ways channeled into productive investment in industries.(24) Such problems are complicated and I shall discuss them later on more thoroughly.

Finally let me just mention other problems which are of common knowledge and interest to those studious of development theories. I realize a discussion is important but it may deviate much from my main argument for which I shall only state some of them and later on shall discuss them appropriately. They are: 1) low productivity functions, 2) unfavourable physical environment, 3) the quality of working population , 4) scarcity of capital, 5) a rapid rate of population increase.(25)

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(24) It is interesting to observe the contrasting viewpoint of Ragnar Nurkse in his Problems of Capital formation in Underdeveloped countries, where he questions the U. N. opinion saying that if demand is channeled away from imports as the U. N. suggest, it will be spent in some other way harmful to a development program.

(25) For further details refer to Viner's International Trade and Economic Development. Oxford 1953, chapter VI

All of them are problems to be confronted by most underdeveloped countries, their solution is of importance not only for economists but for the society in general.

To conclude this discussion on development it is important to make clear that not all are gloomy problems but that underdeveloped countries have some advantages over their predecessors in the process of development. Underdeveloped countries can borrow extensively from the achievements of predecessors, be it in the way of capital investments or in the form of technical know-how, plant and equipment as well as guidance, leadership and training. Underdeveloped countries will not have a need to create an Edison to produce electricity or invent the steam engine. The tremendous gap can be narrowed by intelligent planning schemes. It is here again that underdeveloped countries differ from developed ones in the Schumpeterian sense in the fact that they do not have innovators or pioneers but they can merely borrow all the knowledge from the industrial nations. Underdeveloped countries can receive much advice and help on their programs from developed countries. They can avoid the failures of advanced nations by studying the process of their development. Furthermore, the role of government is increasingly important in underdeveloped countries. This stimulates to a greater extent the development which was started by pioneers in the early stages of the industrial revolution. Economic development offer wide perspective for underdeveloped countries and its study has become of great interest in all the fields of intellectual endeavour.

III.- INDUSTRIALIZATION

In the preceding sections we have clarified the meaning and situation that underdeveloped areas are confronted with. We have seen that the average level of material welfare in those areas is very low and that these nations are confronted with serious economic problems which the more developed countries should try to cooperate in aleviating them. It can be said that these so called developed nations had the same sort of problems and that their consumption and material well being were little better than they are in most underdeveloped areas at present. Though to make a deduction based on comparison and state that the now underdeveloped areas will also reach the standards of the advanced nations is rather insecure. We can yet, fairly assume that the less developed areas can learn a great deal from other nations and in this way try to achieve a higher position in the world economy, which will be for the benefit of all. In assuming so I am nct saying that underdeveloped countries should follow the same pattern and merely imitate other advanced nations in order to achieve progress, but I am merely advocating, that these countries should endeavour themselves to develop on their own basis and that the other advanced countries should cooperate and aid in this development.

It is our main theme and idea that nations should engage in some sort of industry in order to raise their economic position. That it was the Industrial

revolution started in England which activated the economic life of that country, and later the German and French industrialization which at the same time raised the material welfare of those countries is beyond doubt. Therefore it is of keen interest to study industrialization, its purposes and what effects can it furnish to the less developed areas. Is it necessary, we may ask, that all nations should become heavily industrialized as the United States or England or are there any other forms of industrial development and progress by which nations can achieve such a high standard of life. Is it necessary that a nation should adopt technology and superior industrial forms in order to activate its economic life or can they move slowly into a different but better suited pattern of adaptability. Are there any reasons to believe that agriculture should be also a means to raise the standards of living or should it gradually diminish in importance in relation to industry. Can there be balanced harmony between agriculture and industry and between nations that engage in them. In this thesis we shall endeavour to analyse the problem and try to produce an answer to the above mentioned dilemas.

Let us first take up the problem of industrialization and industry and clarify its structural elaboration as may be used in an analytical study.

In order to study industries, it is necessary to point out the different ways it has been treated in research works. Therefore we shall take the most

general classifications as it is commonly used. John D. Black in "Introduction to Production Economics"(1), makes one of the early classifications of industries. He sets them into three:

1) Extractive Industries, including mining lumbering, fishing, hunting and water power utilization.
2) Genetic Industries, including agriculture forestry and fish culture.
3) Manufacturing and mechanical industries including construction and the hand trades.

These industries deal with some stages of production and productive processes. Professor Black, thus speaks of industries more in a sense of production and with reference to output concepts. It is a tangible concept as distinguished from professional services, storage, transportation, merchandise and retail store services, banking and other financial facilities.

Colin Clark in his well known work "The Conditions of Economic Progress"(2) makes a broader classification:

1) Primary industries including agriculture forestry and fishing.

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(1) J. D. Black "Introduction to Production Economics, New York, 1926, pp. 66 - 86.
(2) See his 1940 edition, p. 182.

2) Secondary industries including manufacture, mining and building.

3) Tertiary industries including commerce, transport services and other economic activities.

Thus Clark's classification of Primary and secondary industries is what Black considers an industry. Clark brings one of the most clear statistical analysis of industries, their efficiency and productivity done in recent times, so that his concept is of sound meaning to those studious of industrial developments. Yet we find another known classification and that is the one of Wassily Leontief [3] who includes besides all the industries mentioned above, household as a particular type of industry. We do not need to go into such intricate empirical analysis as that of Leontief, but will consider industries in a more narrow sense of manufacturing, regardless of the size and efficiency. Including in our sense of the word we shall have those activities which are closely linked with agriculture, such as the processing of agricultural products. These are forms of production which may stand between manufacturing properly and the genetic types of activity. We shall include them in our arguments as part of the industrial process. It may be called industrialising agriculture.

The industrial structure of a country can

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(3) Wassily W. Leontief. The Structure of the American Economy, 1919-1929, Cambridge, Massachusets, 1941, pp. 69-72.

therefore be seen in terms of the above mentioned classifications. It can be defined as the way the resources of a nation are distributed among the different industries. The differences will rely on the raw materials, techniques employed, productive processes utilised, whether it can be handled by private enterprises or by public corporation, etc. From this standpoint we can see that our underdeveloped countries are easily distinguished from developed ones in the fact that much of their economic activity is based on primary raw materials or is based on a community or small family type of business organization (4), with an obviously small market and low income levels. The stricking thing about the underdeveloped countries is their low level of technological state. In some parts of South East Asia, the Middle East and South America, agricultural techniques are no better today than they were a thousand or so years ago. These wide gap between technology and backwardness in different countries gives much hope and scope for further advance by the underdeveloped countries and gives much to be expected from engaging in industrialization.

Following our systematic way of thinking let us briefly touch the meaning of industrialization.

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(4) Simon Kuznets. Economic Change. London, 1954, pp. 145-147.

The most commonly used concept is that from the standpoint of capital resources. That is, the amount of capital used has a key relation to the development of industries. Frankel (5) understands by industrialization an increase in the amount of capital equipment and productivity per employed person and variety of goods. Here he implies an increase in real income, which will be capable of absorbing the rise of production. This concept is rather weak for it neglects some of the problems of overpopulation and the use of advanced technology. Obviously a nation can industrialize without a considerable amount of capital equipment while increasing workers productivity in an overpopulated area or increasing capital equipment in a scarcely populated country. Industrialization is not a mere process of increasing capital, but it is in my opinion a process of socio-economic adjustment in which its material aspects are fulfilled by the rise of capacity but to wich the adjustment of a new force of the so called industrial worker is necessary, plus the conversion of the people into a group used to deal and transact in an industrial economy. It is therefore a complicated process of structural adjustment. It is in this sense that development as we consider it, will take place. Then it is necessary that we may have not a mere increase of factors employed but what may be called a change in "strategical production functions" (6). It is

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(5) H. Frankel. The Industrialization of Agricultural Countries and the Possibility of a new International Division of Labour. Economic Journal. June-Sept. 1943 p. 191.

called strategical because although it may start initially as a production function of a single firm it may spread over the society "with such dominance as to constitute a social production function". By strategical force, professor Chang (6) means a function which generates and determines the changes of other production functions. This latter may be called induced production function. In these form we may relate it to the concept of external economics as used by R. Nurkse or by professor Tibor Scitowsky (7). (We shall deal with them in a later section of this study.)

Through the experiences of the industrial countries we can cite as examples of such strategical production functions, those of transportation, power industry, machinery industry, iron and steel industry, etc. These will be motive powers to bring forth other industrial forces into work. These process is closely connected to the well known theorem of professor Shumpeter, namely that of innovations which we may call "strategic innovations" and which can be identified with our strategic production function. These have brought marked changes in the industrial structures of advanced countries. Industrialization is therefore not a narrow process of capital factors as mentioned earlier but one of "deepening" as well as of "widening" capital (8).

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(6) As used by Pei-Kang Chang. Agriculture and Industrialization. Cambridge, Mass., 1949, p. 66

(7) R. Nurkse. Problems of Capital Formation in Underdeveloped Countries. Tibor Schtousky , Two Concepts of External Economics. The Journal of Political Economy, April 1954, number 2

(8) Chang P.K., opus cited, p.69.

It will rise the productivity of workers in the country and output per unit of land in agriculture. In this sense of productivity, some economists like Rosenstein Rodan(9) and Condliffe of the University of California at Berkeley consider industrialization as an alternative to emigration for solving the problems of overpopulation and raising the standards of life of those countries which are economically backward.

Finally let me bring a further point and this is that industrialization should at any stages be accompanied by a marked increase in total production and associated with the spread of techniques based upon empirical science (10). That is, empirical science will activate and initiate a new set of production functions which may produce a reaction in other fields and thus promote development.

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(9) Refer to Rodan, Rosenstein. Problems of Industrialization of Eastern and South East Europe. Economic Journal, June-Sept., 1943. He says that "if the principles of International division of labor are to be applied, labor must either be transported to capital (i.e. emigration) or capital must be transported to labor (industrialization)... that "industrialization is the way of achieving a more equal distribution of income between different areas of the world by increasing incomes in depressed areas at a higher rate than in the rich areas. The assumption is that there exists an agrarian excess population.

(10) Simon Kuznets, opus cited, p. 300.

It seems to the general observer that such factors as strategical production functions and empirical science are beyond the reach of backward nations. In these regard let me cite two different viewpoints. One based on the proliferation of manufacturing industry, the other upon the advantages of international specialization (11). The first is more widely held and it manifests that industrialization is a whole process, of which we are experiencing the early parts of it. That it will spread gradually throughout the world and continue advancing in those countries now industrialized. It is an optimistic view which we hold in our argument and which implies different stages of industrial development where every nation will participate. In the words of Colin Clark "equilibrium has not yet been obtained and indeed the world is still at a very long distance to obtain it.(12) The second view is pessimistic and it implies conditions which are not held widely so that not all the nations can industrialize. Such favorable conditions are an industrial revolution, climate, temperament, aptitude of the people, natural resources, which are obviously not found everywhere. To the proponents of this view only a small number of nations will engage in manufacturing activities. They imply a relationship of

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(11) John Jewkes-The Growth of World Industry. Oxford Economic Papers, New Series #3, 1951, pp. 1-3.
(12) Opus cited, p. 341.

primary producer versus industrial organization and a level of equilibrium obtained through trade. Thus, for them, industrialization is not a means towards rising living standards, for them , trade and the above mentioned factor are more important. We cannot hold this latter view for as the recent developments in economic progress and the long history of colonial trade have shown that the underdeveloped countries are capable of reaching certain stages of industrial progress, that even they will be not of a highly industrial country, yet they are early stages, which will provide a solid fundament towards later industrial growth. Furthermore, that a nation can develop its existing resources and small industries and yet achieve high living standards without imitating advanced nations. What we can accept of the second viewpoint is that certain industries are fitted to certain areas and that if introduced in those unfitted areas they will fail. That, we grant, as it can be seen by much of the disastrous plans to introduce heavy industries in backward countries. It should always be recognized that in industrialization "each step in the sequence is a necessary and integral part of the process, and each step must need be taken in the given order"(13). We shall not take a rigid dialectical order in the study of industries for such a method is doubtful, but we are thinking of "fitness" as a proponent factor.

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(13) Usher, A.P. - History of Mechanical Inventions. New York, McGraw-Hill Co., 1929, p. 4.

Industrialization for our purposes will be the engagement of people in productive activities of the manufacturing and processing type, which are adapted to their economic situation and social condition and which through a necessary adjustment shall rise the income per capita and the standards of living. That industrialization is not a mere end as many leaders in present times have in mind when they say "industrialization at all cost" , but that it is a means towards a higher material welfare for the people. That it is not necessary to achieve the stages of specialization and advancement of higher countries but that if it is adapted to a certain phase of the manufacturing process it can well develop in that direction and achieve the said high standards of living. It involves changes in the before mentioned strategical production functions and the changes that accompany them, such as the effects of mechanisation, and enterprise, the building of a new industry, the opening of a new market and the exploitation of a new territory. It will involve an increas in the use of capital accompanied naturally by its formation as the country develops. Industrialization in our study will be the application of industrial technology to farm and manufactures. It is in this sense that industrialization takes for the first time a realistic stand in approaching underdeveloped areas.

Finally, industrialization should not start

right away on the high forms of production, such as heavy industries but should try to fit itself to the society. For that matter it is of importance to study the prospectives for agricultural improvements, agricultural industry, small industries and other small and medium size type of operation in promoting progress in underdeveloped countries.

IV.- THE RELATIONSHIP OF AGRICULTURE AND INDUSTRY.

A.- Agriculture and Industry interdependent.-

It is widely understood that industrialization has a close relationship with agriculture. In fact, it seems that the sequence of economic growth, implies first a stage of agricultural production after which a nation will gradually tend to industrialize. For students of underdeveloped countries this close relationship of the two factors are of immediate importance, for, most of the so called backward countries live in conditions of rudimentary agriculture. In more developed nations, agriculture as a relevant economic factor seems to be loosing importance. The main argument be that the share of agricultural production in the total national income of that country is insignificant. This is the reverse of underdeveloped countries where most of their national income is accounted by agricultural production.

Let us observe the growth of industry relative to agriculture in the United States in terms of percentage, shares of agriculture and manufacturing in realized income from 1799 the early stages of the industrial revolution in the United States to 1937.

TABLE III. % share of agriculture and manufacturing in realized income in the United States 1799 - 1937.

YEAR	AGRICULTURE	MANUFACTURING	OTHER ACTIVITIES
1799	39.5	4.8	55.7
1809	34.0	6.1	59.9
1819	34.4	7.5	58.1
1829	34.7	10.3	55.0
1839	34.6	10.3	55.1
1849	31.7	12.5	55.8
1859	30.8	12.1	57.1
1869	24.1	15.9	60.0
1879	20.7	14.5	64.8
1889	15.8	21.1	63.1
1899	21.2	19.6	59.2
1909	22.1	20.1	57.8
1919	22.9	25.8	51.3
1929	12.7	26.2	61.1
1937	12.3	30.3	57.4

Sources: Chang P.K. Agriculture and industrialization, p.159.

In this table we can see a decrease of about one third in agriculture from 39% to 12% of the national income. Also at the same time there's been a larger growth of manufacturing from 4% to 30%. This reflects an inverse relationship between agriculture and industry. As industry grows, agriculture becomes smaller. It also reflects the fact that the importance of agriculture in the economy seems to be gradually decreasing. Another fact is that in many of the highly industrialized nations the proportions of labor between agriculture and industry follow the same principle as can be seen in table IV.

TABLE IV. Percentage of working population engaged in agriculture.

YEAR	U.S.A.	Gr.BRITAIN	FRANCE	GERMANY	JAPAN
1830	70.8	....	63.0	....	....
1840	68.8	26.7	....	....	....
1850	64.8	21.9	....	....	....
1860	60.8	18.7	....	....	....
1870	53.8	14.8	42.2	....	84.8
1880	49.4	12.0	....	39.1	....
1890	42.6	10.2	....	....	77.8
1900	37.4	8.4	34.1	33.3	71.8
1910	31.4	8.0	....	27.0	61.5
1920	26.7	7.0	28.6	....	55.1
1930	22.5	....	24.5	22.2	50.3

1) Table includes forestry, and, except France and Germany fishing.

2) The years apply exactly only to the United States. For other countries each year will be taken as representing a range of ten years, that is, for example the year 1840 will be taken as representing the range of 1836 - 1845.

3) Sources: Chang P.K. Agriculture and Industrialization p.155.

In Great Britain the industrial revolution marked the highest level and so her agricultural population became the lowest. United States, Germany and France followed. Their economics shifted from agriculture to industry and commerce. Only Japan who though started industrialization after 1868 did not become as active until the beginning of the present century. Yet by 1930 Japan had still a 50:50 relation in labor population. It is obvious that the rate of industrial growth and decrease in agriculture is different from country to country depending upon their skill, ability, potential resources, technology and social structure.

It is interesting to make a comparison between the 2 tables III and IV. that is between changes in the proportion of national income and in population. We can observe that in the 100 year period between 1830 and 1930, the rate of decrease was almost the same for both. In those tables let us pick the data for the United States and we find a decrease in terms of income from about 35% in 1830 to about 13% in 1930. In terms of population the percentage fall from 71% in 1830 to about 23% in 1930. It shows a decrease of about one third in a period of hundred years in both income and population terms. Therefore it can be added that not only in terms of income the relative importance of agriculture is falling but also in terms of working population. This however is a data for highly advanced nations in the

industrial sphere. It does not prove in my belief that agriculture is unimportant. In my argument I contend that agriculture is a field of vast possibilities, especially for countries in the early stages of development. That there is a close interdependence of agriculture and industry does not mean that industry will at the end take over agriculture but it means in our argument that there is a possibility of a balance between agriculture and industry either in a national way, inside the boundaries of a nation or in an international manner through a world balance. The case of Australia and Denmark are relevant in this context. Let us examine table V.

TABLE V. Percentage of working population engaged in agriculture, industry, transport and commerce 1871 - 1931.

A U S T R A L I A

YEAR	AGRICULTURE	INDUSTRY	TRANSPORT	COMMERCE
1871	44.2	26.7	3.8	8.2
1881	38.5	29.7	4.5	9.3
1891	31.1	31.1	6.9	12.3
1901	32.8	26.9	7.2	13.1
1911	30.1	28.8	8.2	14.5
1921	25.7	31.3	9.1	14.4
1931	24.4	32.1	8.3	16.7

D E N M A R K

YEAR	AGRICULTURE	INDUSTRY	TRANSPORT	COMMERCE
1871	....	....	...	....
1881	....	....	...	....
1891	....	....	...	....
1901	48.0	24.9	...	....
1911	43.1	25.0	4.4	10.8
1921	35.1	27.4	6.0	10.9
1931	36.4	27.5	5.9	12.5

a) For Australia, agriculture includes minning; for both countries transport includes communications.

b) Source: Chang P.K., p. 156.

In these table we can observe the interesting fact of two countries who are primarily agricultural and yet advanced economically speaking. We find that industrial population has increased in both countries at a very slow rate, from 2.5% to 5% approximately. Therefore where can we account for absorption of population, taking into account the usual phenomena of rapid population growth in agriculture when a country starts to advance and considering the interdependence of agriculture and industry. We see through these tables that the increase in population was absorbed by transportation and commercial activities. These are also close akin to agriculture and industry. These seem to distort our facts, but the real thing in this problem is that we find an international balance here. The peculiar situation of both of these nations can be understood only by the close economic relationship that they have with advanced industrial nations. Through this economic harmony it is possible for a nation to achieve high standards of living by keeping a system of production on the basis of agriculture. The point that must be made clear is that we are not advocating extremes, that is neither pure agriculture nor absolute industrialization but that underdeveloped nations should not try to achieve such extremes and instead try to find the best prcportion or system adapted to their conditions, because the aim of development is not industrialization as many

countries are believing but higher standards of welfare, the answer is not a single proposition but a complicated set of structural socioeconomic forms which may ultimately cooperate to that end. Later we shall expand our argument of the significance of agriculture versus industry in economic development.

We have seen some of the factual figures showing the relationships between agriculture and industry. Let us extend our argument now towards a clearer conception of the interdependence between the agricultural factors and the industrial ones.

In the history of economic progress, one of the things which is evident is the close connection between the two factors in question. Although we are trying to avoid extremes let us nevertheless see what are the conditions under such situation. In a purely agricultural state of the type existing in early periods of eccnomic history we can see that the artisan, the handicraftman and the household productive unit held a key point in the contribution to the prosperity of such states. This forms of production are sometimes termed agricultural but we can realize here that they are industrial in their early stages and their importance cannot belittled. We can observe this situation in some of the underdeveloped countries at present. Now in a highly advanced industrial nation, the importance of agriculture as a

meansof acquiring food and raw materials for industries, cannot be underestimated. Again as we have stated before a nation cannot develop industrially without at the same time keeping some sort of equilibrium between agriculture and industry proper and these they can do either internally or through close and free international exchange through foreign trade with the agricultural concerns of other nations. A highly industrial country like Great Britain could hardly keep such a state of welfare without a close commercial relation with other nations preponderantly agricultural as Australia, Denmark, Canada, India etc. The reverse is seen in the previously mentioned cases of Australia and Denmark.

Students of underdeveloped nations recognize that the improvements of agriculture and the development of industry go side by side but yet it is believed that there is an important sense in which the former is of prior urgency(1). By this I assume those studious of the problem followthe argument of professor Datta as stated briefly in the footnote below. We are not suggesting any sort of unilateral development that will

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(1) In reference to this matter of primary urgency, B. Datta in his "The Economics of Industrialization", Calcutta, 1952, states that there is no such a thing as of prior urgency in the sense that agricultural prosperity is a pre-condition of industrialization in backward countries. Because he says that agricultural prosperity cannot be built in an underdeveloped country unless non agricultural production is progressing simultaneously and increasing non agricultural employment and incomes are making the required changes in agricultural methods possible. See chapter VII.

create a factor of unbalance in a theory of equilibrium growth as that which we are discussing. Datta argues for a simultaneous increase in non-agricultural industries but his term "simultaneous" seems rather vague especially when we consider the following relationship as presented by the Indian economist B. Singh:

a) The income elasticity of demand for agricultural products is lower than that for products in secondary and tertiary industries.

b) The rate of population growth in farming areas is larger than non farm groups.(2)

These propositions, imply that equilibrated development require a much higher development in other sectors than agriculture. Henceforth we shall regard equilibrium and simultaneous development a rate of growth in relative terms that is in regards to the theoretical propositions stated, which are verified in the actual working of the economy.

It is widely recognized that the role of agriculture as a food producing factor is predominant than that of a supplier of raw materials. Agriculture is the means of subsistence we may say without which no other forms of human organization can exist. In this food producing role, agriculture offers an important

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(2)Refer to Baljit Singh. "Federal Finance and Under-developed Economy", Bombay, 1952, p. 8 .

linking with industries. It is an essential link which seems to be left untouched by most economist while taking other factors which in fact are based on this role of food producer. For the sake of our study let us expand the position of this factor, combined with the two early propositions given above, which hold true for almost any type of economy.

First we stated the proposition that "income elasticity of demand for agricultural products is lower than that for products in secondary and tertiary industries. This is a fundamental fact in the economic systems of both the developed and under-developed areas, where, if related to food production it will rise a clear conception of the relations and changes between farming and industry in a developing country. The coefficient of income elasticity of demand is expressed as follows:

$$\frac{\text{Expected \% change in quantity demanded.}}{\text{Expected \% change in income.}}$$

which is a relationship expressing the response of demand to a change in income. In this way we can speak of three types of elasticity. unit elasticity $= 1$, or when a % change in income brings a corresponding change in demand. Elastic $= +1$, or when a change in income brings more than a corresponding change in demand. Finally inelastic $= -1$, when a change in income

brings less than a corresponding change in demand.(3)

Having stated the principles of income elasticity, the next thing that is observable is that the income elasticity of the demand for food is relatively low or we may say inelastic. Yet we find difference in income elasticity among the diverse products. A general rule is that elasticity is higher among better food products or we may say good of high quality or nutritious value. A table computed by Chang P.K. in his "Agriculture and Industrialization" will bring light to this concept.(4)

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(3) This comes from the Initial Proportion by A. Marshall, who was the first to conceive it and put in a formula:

$$\frac{dx}{x} \div \frac{-dy}{y}$$

See Marshall. Principles of Economics, BookIII, chapter IV and mathematical appendix, p. 838, 8th. edition, 1947, London.

This was later introduced as a coefficient of demand elasticity and expressed as:

$$\frac{\text{Expected \% change in quantity demanded}}{\text{Expected \% change in income.}}$$

which is essentially the same as that thought by A. Marshall.

(4) Chang P.K., see p.32

TABLE VI. Income Expenditure Elasticities.

ARTICLES	ELASTICITY.
sugar	0.15
potatoes	0.20
flour	0.24
bread	0.25
milk, cream, icecream	0.29
butter	0.36
eggs	0.66
meat, poultry, fish	0.66
fresh vegetables	1.16
fruits	1.20

Now, in elaborating our argument we must take into account several factors. a) The differences in taste among people and among countries, b) that each commodity has a different income elasticity, c) that there is always the possibility for substitution taking in consideration the price elasticity of demand which is a close correlate to the income elasticity, d) we shall adopt the well known proposition by Lord Keynes, namely the "propensity to consume" which he regards is a "fundamental psychological law" where men "as a rule and on the average, tend to increase their consumption as their income increase, but not by as much as the increase in their income"(5).

Let us hold constant in our apparatus the factor differences in taste for it will bring a complicated scheme difficult to solve and shall try to have tastes in a more systematic sense, that is, more related to income. Then we can proceed to elaborate our formulae in a more consistent way with the other factors. That each commodity has a different income elasticity of demand can be well observed in table VI . To this we add the possibility of substitution and the propensity to consume. What we obtain is a working economy where an increase in income, will produce a change in

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(5) John Maynard Keynes. The General Theory of Employment, Interest and Money, New York, 1935, p. 96.

the demand for food. The factor change in income (real income) is important in our scheme because it is an index of progress in terms of industrialization. That is, as industrialization plus improved farming goes on the income of those engaged in such productive activities will gradually rise and therefore the standards of life will also rise. Now as income rises, the amount that goes for consumption or the propensity to consume rises also but not in a proportional way as Keynes has observed in his fundamental law of consumption. This propensity related to the income elasticity of demand for food will bring forth a fundamental proposition, tht is, as income rises, the demand for food having better quality will increase, but not proportionally with income. That is, it will tend to lag behind, as the Keynesian proposition states. This demand for food which is accompanied by a shift of population into occupations other than agriculture, plus the increase in the rate of growth of population will naturally bring a pressure on food supply. Before going on, let me briefly comment on the fact that there is a difference between the rise in consumption due to an increase in income and that due to an increase in population. The former will tend to shift towards food products having higher income elasticity or those products which are more nutritious, thus the consumer will choose among different food products. These will be more of the factor substitution either based on price or quality, which will tend

to attract different customers in the later or that where there is a change due to an increase in population, consumers will tend to increase their consumption of energy producing food products such as cereals. The substitution that will occur if any will be for the use of cheaper cereals which in many cases will be consumed with others, such as the mixing of rice with wheat or substituting rice for other product of low income elasticity such as potatoes. Now in both cases there will be a pressure on food supply as we have stated and in order to satisfy this requirements there will be a need to improve farm technology, methods of production or if that is not possible, engage in international trade, where the country shall exchange industrial goods for the agricultural products of other countries. Yet it is an observable fact that progress in farming methods is accompanied by industrial development. The increase for farm products especially food willthus give us an index of close relationship between both industry and agriculture. And as the income elasticity of demand for agricultural products is lower than for products in secondary or tertiary industries, there will be a shift of the importance of food as a country develops[6].

Food is thus an index of economic develop-

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(6) Yet the importance of food cannot be underestimated We shall discuss later on a section pointing the relevant role of agriculture and agricultural industry in the economic development.

ment as we shall expand later on, and in that role it brings clear the relation between agriculture and industry especially in the underdeveloped countries where shifts on food demand are most marked.

Let us now take up our second proposition that the rate of population growth in farming areas is larger than in non farm groups and relate it to our linking factor food. We shall have an interesting scheme in the theory of development and most adapted to the problem of backward countries. Here we shall assume that there is no change in the tastes as we did previously and second, the changes in income previously discussed will also be omitted. In other words the argument will be of a simple relation between the growth of population and the demand for food.

The problem of population in underdeveloped countries takes two forms;one is the natural growth, where as the proposition states is larger in agricultural areas and therefore is of greater concern to those countries. The other form is that of the transfer of population that takes place from agriculture into industry or into other types of gainful occupation. As a country is industrialized or as a country adopts new farming techniques. In this regard different problems arise which we shall elaborate as the argument goes along.

Let us present a case where population

growth and the food supply are interelated, as follows(7)

PERIOD	FOOD		POPULATION		
	Required	Produced	Rural	Industrial	Total
I	100	100(units)	50	50	100
II	200		150	50	200
(a)	200		100	100	200
(b)			50	150	200
(c)	100		40	60	100

As we have assumed that the demand for food is a factor of the growth of population, we can immediately sense a problem of food pressure as a country industrialize or advances economically. It is this problem of food pressure whichmust be solved in order to rise the living standards of the people. Food brings thus a close link between both activities and its solution is I believe one of the important questions in underdeveloped countries.

Studying our model we find that in the first stage we have a population of 100 where we assume half is industrial and half is agricultural. This population will demand 100 units of food which the 50 farmers will be able to produce in 100 acres of land. It may be argued that a 50:50 distribution of population is far from representing an underdeveloped country where as we know, the population engaged in agriculture exceeds by a large margin that engaged in industrial activities, see table VII

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(7) Adapted from Chang P.K. in his work previously mentioned above p.25. I have added some variations to his model in order to expand our argument and make the model fitted for our purposes. The problems of capital formation and investment will be avoided in this analysis. Furthermore consumption other than food and changes in taste will not be considered for the sake of clarity and simplicity

(63-A)

Table VII DISTRIBUTION OF LABOR AMONG DIFFERENT OCCUPATIONS IN SELECTED COUNTRIES.

		Agriculture	Forestry & Fishing	Mining	Construction	Manufacture	Transport & Communic.	Commerce & Finance	Profess. Service & Entertainm	Forces	Other Government Services	Private Domestic service	Other Persons Services	Occupied Population in '000's.
U.S.A	1940	18.8	0.5	2.0	4.6	24.6	5.8	19.6	8.3	0.17	3.2	5.1		45,166
ANADA	1941	25.7	3.5	2.3	5.4	24.1	6.5	14.0	6.6	(3)	3.4	3.5		4,512
EXICO	1930	← 70.5 →		1.0	← 13.5 →		2.1	5.3	1.0	← 3.0 →		8.6		5,352
UATEMALA	1940	← 48.0 →		..	← 13.9 →		0.5	3.3	← 0.3 →			← 4.0 →		1,041
ERU	1940	← 54.4 →		2.3	2.4	19.5	2.6	5.7		← 4.6 →		← 8.5 →		1990
RAZIL	1944	← 67.4 →		0.1	← 9.9 →		3.6	5.4	← 13.1 →					13050
"	1941	← 69.1 →		..	← 8.8 →		4.2	4.8	← 13.1 →					12808
HILE	1930	← 34.3 →		6.0	← 22.9 →		5.4	11.4	2.9	1.2	1.9	← 10.5 →		1,338
"	1920	← 38.9 →		4.4	← 25.7 →		5.1	9.4	6.1	0.4	4.6	← 9.7 →		1343
RGENTINA	1914	← 23.6 →		0.1	← 39.5 →		4.9	13.1	4.1					3162
reat Britain & NORTHERN RELAND.	1938	6.8	0.3	4.5	6.8	35.0	7.4	16.8	4.1	1.8	5.6	6.8	4.1	20,230
RANCE (4)	1931	23.8	0.7	2.4	4.8	33.8	5.0	14.2	5.0	2.2	3.3	4.3	0.5	18,424
ERMANY (4) (5)	1933	16.3	0.6	2.7	7.2	37.5	5.6	13.0	4.2	0.5	3.5	4.6	4.3	27940
outh Africa (4)	1911	← 40.3 →		13.5	← 11.1 →		2.3	3.0	1.8	0.6	0.8	← 20.6 →		2355
nclude Natives)	1921	← 56.4 →		9.2	← 10.2 →		2.8	4.8	1.8	← 2.2 →		← 12.1 →		2918
NDIA (4)	1931	← 63.9 →		0.3	← 13.6 →		2.1	6.9	2.0	← 1.6 →		← 9.6 →		120,800
HINA (4)	1931	← 70.6 →		2.6	← 8.6 →		8.0	5.0	← 9.0 →					155000
APAN (4)	1930	← 36.2 →		1.3	← 23.7 →		4.1	21.8	← 9.0 →			← 3.9 →		22,820
USTRALIA	1933	23.8	1.6	2.3	6.9	19.1	8.8	18.2	8.4	0.3	1.7	5.0	4.6	2120
EW ZEALAND	1936	24.3	0.9	1.8	7.5	19.3	10.1	16.2	8.3	0.3	1.8	← 9.2 →		616

Explanations to Table VIII

(1) Where a number of occupied persons "Industry unspecified" are shown, their numbers are included in this column, but the % apportioment is based on the numbers shown with specified industries.

(2) Excluding unemployed

(3) Attributed to their peace times industries. Permament forces insignificant.

(4) Omitting women attributed to agriculture. (A large proportion of the male agricultural population in this countries)

(5) Including unemployed, whose numbers are not available for all the above subdivisions.

(6) These table was compiled from Colin Clark's The Condition of Economic Progress, second edition, New York 1951. pp. 398-400. Selecting a few countries out of his analysis.

We shall only assume it so, as an initial stage without much bearing into our argument, that is we assume so for the sake of simplicity.

Now let us move to our second period, where we assume that there is a rapid increase in population as a result of a tendency for economic development. The increase is larger in agricultural groups and at the beginning, we shall assume that there is no transfer into industrial areas. Therefore, we find now a population of 150 in rural areas and 50 in industrial areas.

The food required to support this population will also increase to 200 as population has doubled. The problem is how can food production be increased. We can say that there are three conditions:

a) The so called "intensive", which is the degree in which labor can be used in the land.

b) Extensive, on the amount of new land that may be opened for agricultural purposes.

c) Technical, which are the improvements of farm technology.

In our case here we need either or both of the first two conditions in order to avoid the pressure of population on the supply of food. If neither of these exist and let us say, machines is introduced into the land, there will be a large number of the so called disguised unemployment due to the fact that improvements in farm technology necessarily result in displacement of labor into other

occupations. Under such conditions, a nation must either industrialize or find new forms of employment in the tertiary industries in order to avoid the population pressure on the land. Now, under an irregular distribution of the population, the problem of adequate food supply is relevant but, besides this, another issue is the land pressure, if there is no more land available and the resulting unemployment if other occupations do not develop.

Our second case is, that where there is no occupational change in occupational distribution, and so the population increase will be evenly distributed, 100:100. Food requirement will increase to 200 again. Once more, the intensive and extensive margin will come into operation. Let us observe the apparatus more closely. If we assume that laborers in the farms are working in period I, on 100 acres of land to supply the food for the total population, and if this population is doubled, the farmers would have to produce two times as much in the same plot of land but, if there is more land, let us say, 100 acres more, this will easily solve the problem and would not cause a population pressure or problem of food supply.

Whereas, if the amount of land is the same, intensive methods will then be required and more farmers will have to work on the same plot of land. This intensive methods have had effective results in areas where the farms were still large for the existing population, but yet, the amount of production that can be obtained

from such a plot of land will be more than the 100 units previously supplied but less than the 200 required. The reason obviously comes from the well known technological economic relationship, the so called law of diminishing returns.

This law establishes the relationship between input and output, holding one of the factors of production as constant. In our case, land is constant, so that as we increase man input into the existing land, the amount increased will add to total output, but the addition or extra output will gradually become smaller until it reaches a point where it will eventually fall. To understand this relationship more clearly, the following table is given:

TABLE VII. Law of Diminishing Returns Operating on 100 acres of land.

No. of man yrs. of labor	Amount of product in bushels	Extra output added by additional unit of labor.
0	0	0
50	100	100
70	130	30
80	145	15
90	155	10
100	160	5

Thus, although total production increases, the addition by an extra input is smaller and smaller, never reaching the 200 units required. This intensive cultivation is different from improving technology, for if we do so, we may increase and avoid the pressure on food supply but it will require and increase of other occupations, resulting from technological displacement of [redacted] labor.

Let us turn to our third case, where we may assume that the increase in population in the rural areas shifts into urban areas as may be the case of a more advanced nation. Here there will be no problem of intensive cultivation or land pressure, but only that of food pressure, for a large number of people previously engaged in farming activities, are now in occupations other than farm. Now the problem is completely different for, if that nation had 100 acres more for cultivation, it will not have the farmers to work on them, for the existing 50 farmers are just the right number for producing the 100 units which were previously required.

The fundamental problem in this third case is to bring changes in farm technology. That is, new and better forms of production must be introduced in order to be able to support the population now in existence and avoid famine in the Malthusian sense.

By technological change, we do not mean only the introduction of mechanical devices but in this case, mainly the improving of farming techniques, seed selection, use of better fertilizer, soil analysis, etc. Mechanical innovation brings about a problem of laber displacement which in our case may bring unemployment to a large number of the farmers.

Another relevant point to bring forth in this case, is that the nation may be required to exchange land products which are scarece to them, for labor products (industrial) by engaging in international or interregional

trade. It will exchange its abundant industrial products for the food of agricultural nations and achieve an agro-industrial balance, we may say, incited by the food requirements of the nation.

Our final case, is that where we shall assume that there is no change in population but only a transfer from rural to urban areas, of 10 workers, making the proportion 40:60; the food requirement is the same as in period I.

This case is relevant because it brings the same problems as that of an increase in population over the supply of food. In other words, there will be a pressure on food. However, several problems rise which are of immediate concern to underdeveloped countries. One is that of disguised unemployment; that is the amount of workers who are not under the general classification of unemployed, but who are usually in farms or household helping in farms and or dom stic tasks, but who if they were taken away from those tasks, their shift would have not caused a change in production, nor will their addition increase the amount of production. It is also called hidden unemployment, for it is actually hidden most commonly in the rural areas.

Now if there is hidden unemployment in this last case of ours, the removal of the ten workers will not reduce agricultural output and may nn the contrary increase it, due to the efficiency that may be achieved as the inefficient labor is driven away, so that forty workers may

be able to work as efficiently or better, than the previous fifty. Now if there was no disguised unemployment, the shift of population will bring a reduction on food supply, as farmers are driven away to industrial areas, and therefore, create problems of food pressure. Yet the decrease of food supply will not be proportional to the reduction of the farm population.

What the farm workers can do now, is neither intensive cultivation due to lack of labor, nor extensive cultivation if there is no mechanical labor saving innovation introduced. Then, their problems will be those of a country having vast lands and little population. They will have to adopt mechanical innovations, labor saving devices, improved farming methods or engage in international trade by exporting their industrial goods and importing their food requirements. This problem is thus similar to the previous case of increase of population and shift of population only the previous case is more serious for besides the shift of population there are increases in population.

This whole argument presents the different types of problems of the rate of growth in the demand and supply of food products in developing economies. It stresses the necessary position of food in the balance of world or national economic development and the effects rising from the changes in population.

The most important means to meet these problems are extensive cultivation, that is increase the amount of land available, intensive cultivation which is

done by increasing labor on the same land, international or interregional trade or the exchange of agricultural products for industrial ones or vice versa, in world or national scale, and finally, changes in farm technology and the introduction of mechanical devices.

These are the relevant problems as faced by most underdeveloped countries.(8) It shows the relevant position of food as a linking factor especially in early stages of development and how its importance has brought so many problems both to developed and underdeveloped countries. The solution of which is a great dilemma to the studious of underdeveloped economies.

B.- The Role of Agriculture in the Economy

One of the most common discussions in under-developed areas is our subject of industrialization. It is argued that most underdeveloped countries have such low standards of living because they engage merely on agricultural occupations and so that the key for rising their levels of living will be to industrialize. With it, a country will turn into prosperity and high welfare standards. They base their arguments by observing the poverty of underdeveloped nations which is always associated with low incomes derived from agriculture.

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(8) Chang P.K., in his work mentioned before, states the case of China where, "For many centuries, her farm techniques have remained essentially the same. But, on the other hand, the natural growth of population and occupational shifts to a very moderate extent, have continued. The problem of meeting the deficiency in food supply exists every year within some specific regions. The pressure of population on food supply has reached such a point that only in farm technology and trade with other nations can mitigate it. p. 27.

Many ideas and opinions have been thrown into the subject. Let us therefore, analyze some of the most well founded arguments on the subject for it will be relevant to broaden our understanding of the problem as well as to bring insight to our framework. Furthermore, since underdeveloped countries are mostly agricultural, we can understand why the role of agriculture must be stressed in any scheme for economic development. In terms of policy, we find a different tendency.

It seems that most underdeveloped countries set their, ideal goals as that of achieving industrialization for, their leaders feel that agriculture is not desirable. But the peculiar fact is that their interest is based on matters of prestige, militar dominance or mere romanticism in thinking that industrialization brings fame and power. For this reason, it is important that leaders as well as people in backward countries, should recognize the important role of agriculture.

The first question that comes to our minds is that of, "is agriculture inferior to industry?" Let us answer this question by bringing the arguments of versed authorities on the subject. They are based mostly on findings of low income levels, low productivity and the unfavorable terms of trade in these areas.

Recently, Louis Bean,(9) an economist who had

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(9) See: Investigación Económica, segundo trimestre, vol XV No. 2, 1955. Escuela Nacional de Economía, UNAM pp. 191-208.

been for a long time with the Department of Agriculture in the United States, elaborated a statistical study of the national income of several countries, and dividing it according to the participation of industries into, primary, secondary and tertiary. He regards as primary industries, the genetic and extractive industries;(10) secondary industries are manufacturing and tertiary industries, those of professional services, commerce and finance.

Bean found in his study a close inverse correlation between per capita income and the participation of tertiary production in generating income. In other words, in countries of low income the number of people dedicated to commerce, finance, etc., is very reduced for, what Bean states that in order to stimulate the development of underdeveloped areas, it is necessary to give more emphasis to the tertiary activities and give less efforts towards the promotion and efficiency of agriculture. This argument however, seems to be inadequate.

Professor Viner(11) suggests that this sort of theory reverses the relation between cause and effect. The low level of tertiary production in underdeveloped areas is due to the low levels of national income. According to Viner, the method advocated by Bean to raise income per capita would be as effective as increasing the number

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(10) This is similar to Black's classification stated earlier in this study.

(11) Viner, ibid., p. 198.

of barbers. Now, a recent study connected with this problem is that of professor Martinez of the National University of Mexico, who states that during the period 1939-1950 in Mexico, the participation of the commercial section on the national income increased largely without a corresponding increase in income per capita. He is therefore, rather pessimistic as to the increase of commercial activities alone, and we cannot but be in agreement with his study.

Another economist, H.W. Singer, of the United Nations and well versed authority in underdeveloped economies is not satisfied with the emphasis given to improvements in agriculture. He bases his arguments in three different points of view. His first one is that, of the infant industries.

He states that the concentrated efforts of primary producers to export their goods, bring an obstacle to the development of other types of production.

This view is similar to that of professor Kuznets,(12) who states that "the slower growth of extractive as compared with manufacturing industries, suggests another retardeing force operative within specific branches of production". He argues that in the process of economic growth in any nation, the different factors are interconnected so that if one lags behind, it will tend to drag the others with it.

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(12) Kuznets, Simon. "Economic Change", London 1954, pp. 272-273.

However, he argues in this way because he favors activity in agriculture which will in his opinion, stimulate other fields at the same time and as we shall see below.

These arguments cannot be neglected, but we may think of the possibilities that a diversified agriculture may offer through the application of improved technologies. The second argument presented by Singer is that related with the terms of trade. He maintains that for many years the producers of primary agricultural goods received the worst part of the terms of trade. It seems that the existing statistics indicate an unfavorable position for this kind of countries in the course of long periods.

Obviously a bushel of corn or wheat does not change in quality after fifty years, what is the case of typewriters, machinery, automobiles and so on. The qualitative improvement of industrial products must be considered as a factor of great importance in the determination of the real terms of trade, which seems to bring doubts as to the bad effects for the interests of producers of primary goods, once we take into account the improvements of the quality in exports.

The third argument presented by Singer focuses itself to the benefits of external economies. He is of the opinion that this benefit manufacturing industries and apparently implies that the other sectors do not receive the benefits of external economies.

As in the case of the infant industries, it seems that these economists have put too much attention to

the industries of transformation. We can see that in a prosperous agricultural community, like New Zealand, there are numerous industries of great importance whose work in the past have depended on agricultural expansion. Consequently it is possible to state that the external economies do not merely affect the expansion of industries of transformation.

Furthermore, up to the present, there has not been a single theory with well founded basis which can refute the importance of agriculture in economic development.(13)

Contrasting this view points, we have, those who decidedly favor the promotion of agriculture as a necessary requirement for the development of a nation. Let us again bring forth some of the well known economists in the field.

Beginning with Simon Kuznets whom we introduced earlier, we have a position of proportionality. He argues that the agricultural industries are per se, no less productive than the non agricultural ones. His conclusion is based from statistical observation of countries like the U.S., New Zealand, Australia and so on, as compared to the labor productivity of manufacturing in such countries as India and China. His argument is well based for it is weighted deduction, different from that of other economists who merely discuss from a passive analysis of statistics.

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(13) As discussed by N. Buchanan and H. Ellis in "Approaches to Economic Development", 20th. Century Fund, New York, 1955, pp. 260-263.

He implies that the small share of agriculture in the national economy of a country as it develops is due to the fact of industrial diversification, but that it brings in itself an increase in overall productivity. Now the great question to be argued is, that stated before, where some economist implies that low income levels are due to agriculture's predominance in an economy.

Kuznets is opposed to this when he says that, "income is not high because a smaller share of the nation's economy is accounted for by agriculture and is not low because of the preponderance of agriculture, but in certain countries, agriculture accounts for a smaller share because income is high and in other countries, agriculture predominates because overall productivity is low."(14)

He accounts for the decline of the share of agriculture due to the tendency of developing nations, where, as, income rises and their standards of living rise the demand for goods other than agriculture will increase. Nevertheless, we can say that this is a matter of proportionality for the consumption of agricultural goods will also increase at a speed, trying to match the increase of population and also the increase of consumption for food, as the nation improves its nutritional status. Yet, as the income rises naturally a smaller proportion will go to a particular

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(14) Kuznets, op.cit., pp. 223-224.

consumption for the consumer will diversify his consumption among more products which does not mean that he will consume less food. This can be seen clearly in Table IX.

TABLE IX. Agriculture's Contribution to Economic Welfare in the U.S. in % by decades. 1799 to 1938.

In Current Prices

	Total Economic welfare	Agriculture's Contribution	
	million Dls.	million Dls.	percent
average of 1799 and 1809	716	28[illegible]	40
1809 " 1819	806	300	37
1819 " 1829	833	312	38
1829 " 1839	1,173	437	37
1839 " 1849	1,823	641	35
1849 " 1859	3,029	1,001	33
1859 " 1869	5,012	1,391	28
1869 " 1879	6,324	1,444	23

In 1929 Prices

	Total Economic welfare	Agriculture's Contribution	
	million Dls.	million Dls.	percent
average of 1799 and 1809	1,150	467	40
1809 " 1819	1,380	526	38
1819 " 1829	1,657	637	38
1829 " 1839	2,408	892	37
1839 " 1849	3,876	1,282	33
1849 " 1859	6,486	2,085	32
1859 " 1869	8,140	1,987	24
1869 " 1879	10,880	2,155	20

Source: E.M. Ojala Agriculture and Economic Progress, Oxford University Press, London, 1952. p. 27.

From this table we can observe that the total contribution of agriculture to economic welfare increases but that its proportion is reduced due mainly to the diversification of industries and the increase in incomes. It is therefore a natural consequence of growth. It was clearly observed by economists from early times. Adam Smith in his famous "Wealth of Nations"(15) had stated that "the desire for food is limited in every man by the narrow capacity of the human stomach; but the desire of the convinience and ornaments of buildings, dress, equipage and household furniture, seems to have no certain boundary". That is, as income increases at first, man may crave for food but as his income becomes larger, the proportion of food that he may consume will gradually become less though in absolute numbers it has increased. Around 1857 Ernst Engels(16) had clearly stated a law by which he makes a relation of the declining importance of agriculture as the economy develops. He made a study of the expenditures of a group of German families and found a relationship between income and certain classes of expenditures which he stated as follows: "the poorer is a family, the greater is the proportion of the total outgo which must be used for food". But I believe that this is more of an income concept than of food and agricultural

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(15) See Smith Adam, "Wealth of Nations", New York 1937, Book I, Chapt XI, part II.
(16) See Quarterly Journal of Economics, Vol. XIVII, Nov. 1932, pp. 78-- 101.

relevance. Furthermore, it shows the relevant position of agriculture in an economy, because when a family has low income, the fact that food is the main required good is reflected on their expenditure in foodstuffs which covers almost all their income. But (that as income grows, proportionaly the expenditure may decline because of the observation made clearly by Adam Smith of the limited capacity for food consumption so that they must consume something else, and these will be the different tangible goods of industrial manufacture. Yet when the same family reflects a decline in income, the first thing they will eliminate is the non agricultural commodities. One can see for example that some of the most prosperous states in an industrial country like the United States are those agricultural regions like California, Iowa, Oregon, Etc.

It is natural, furthermore that as a nation develops, more people will be engaged in activities other than agricultural. The question that is is often asked is why is it that when approximately two thirds of the world population is engaged in agricultural activities, the human race is so badly nourished, by nutritional standards. The answer lies in the low agricultural productivity; that when a country develops, its productivity will rise, and if technological improvements rise, population which has been hitherto in the land is demanded

by the industrial world. It is not that growth reduces rural population, but that growth and especially industrial growth requires new hands, and if those hands are cultivating land, industries must go to the land and ask for labor, not that labor will ask for industrial jobs. This is a fundamental proposition often neglected in backward areas. One thing which brings support to this is that large numbers of people in underdeveloped areas from the so called disguised unemployment not because they do not find jobs, but because they do not want to go to industry. Industrialization is therefore also a process of socialization of the rural worker. One of the things that can be done is to improve the productivity of the land so that the former with larger incomes will feel the necessity of goods other than foodstuffs and naturally stimulate industry and be stimulated by industry in order that they may transfer to secondary and other activities. In fact, the role of agriculture is so relevant that it is necessary in most countries to improve the inefficient labor-intensive agriculture so that such labor which is doing unnecessary work may be able to go to industrial areas as the productivity caused by land improvements increases. We can see immediately why this is important. Let us suppose that productivity does not increase as land improvements are neglected. Then if labor is taken out of rural areas, this will have the effect of producing food pressure as shown in our previous model, for less labor will be

producing in an inefficient manner less food. Thus the country will require the return of the displaced labor, or the improvement of farm technology in order to avoid the pressure on food.

In terms of welfare and the contribution of agriculture to the welfare of the community, an interesting argument is brought by E.M. Ojala in his "Agriculture and Economic Progress," where he states that only a very small part of the total production of agriculture flows directly to the consumer. That is, as an economy develops, the individual who was at first self sufficient and produced his own food and clothing so that in his case production went directly to the consumer, that is himself, will gradually depend upon others for the satisfaction of his needs. In other words, the economy becomes complicated and many intermediate stages will rise between the farmer and the ultimate consumer, so that the price a buyer pays for a piece of foodstuff includes the cost of transporting agents, the miller, the baker and the delivery boy. Therefore as an economy grows, the sections which contribute to the ultimate end product grow and naturally in a proportionate manner the contribution of agriculture will decline, but in absolute terms it may be rising. Ojala defines therefore welfare in terms of agriculture as being = price of the commodity – the price of the productive and other intermediate services and in such a way we have adopted his table which appears as number IX in our study.

Finally it may be contended that the main reason for the low productivity of agricultural areas, which drags under developed countries is the fact that in industrial countries, capital is "concentrated" so that productivity in industry is higher in terms of money in the secondary industries over the primary ones.(17) It is believed therefore that the problems of low productivity and low income earnings can be easily solved in an industrial sector than in an agricultural one. The fundamental problem of agriculture is to improve productivity while in industry it is more of a social and wage policy, which is easier to solve.

To those supporting this argument, the introduction of capital may be of much effect, yet let me note that there is not a single factor which can by itself bring a change in the process of economic development. Perhaps, more than the introduction of capital, the distribution of income will have a predominant effect. It will not increase national income but it will induce a far better allocation of the social product as can be seen by the following calculation:

Per capita distribution of real income:

Case A.- Extreme inequality.

10,000 000 recipients of income at £10 = £100,000 000
100,000 recipients of income at £ 1,000 = £ 100,000 000
Total £ 200,000 000

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(17) Bonné Alfred.- The Economic Development of the Middle East, London, 1953, p. 48.

Case B.- improved redistribution.

10,000 000 recipients of income at £ 15 = £ 150,000 000
100,000 recipients of income at £ 500 = £ 50,000 000
Total £ 200,000 000

Now we can see that total real income remains the same, however the per capita income has increased by 50,000 000 for the low income people. This increase will have a far stronger effect on the development of a country especially in its early stages. It will stimulate better productivity and may be the starter of industrial growth as the community may start to quest for other goods than agriculturlal ones following Engel's law and thus stimulate the secondary industries. Such considerations must also be taken seriously by policy makers, instead of arguing without purpose on problems of extreme difficulty as those of capital formation and the flow of international investment.

It may seem that so far in our argument we consider agriculture and its main output, food production as being relevant especially in early periods of development. But the important thing to realize is that we contend here that agriculture's role is and will continue to be relevant as a country develops. In fact development may be said to be paralel to agriculture. As argued already, food is a link between agriculture and industry and in that role both shall continue to have close relationship.

Let me here introduce a theory that shows the role of agriculture in producing food as a country develops. It will take the form of welfare concept whereby an

industrialized nation will have to increase consumption on foodstuffs which will improve his health and national well being. Food will be not merely a matter of satisfying hunger as it is in large areas occupied by underdeveloped countries but a mater of improving the welfare state of the nation.

It is necessary to stress that economic development does not mean merely a growth of the economic factors but that it is essentially a welfare concept, in other words, economic development intends to raise the economic welfare of the total population of the world, and the position of agriculture in the role of food producer is most imminent. The marriage of agriculture and nutrition or the organization of agricultural production on the basis of feeding the world population adequately for full health is a historic objective. The tremendous task that lies ahead of us is manifested by the fact that almost half the people in the world of the 1930's were consuming foods which yielded calories value of less than 2,250 per day or about 2/3 of the consumption in the United States.

At low levels-of calorie intake, the food consists mainly of cereals and root crops, and the diet is defficient in animal products, fruits and vegetables essential for better health. Yet in the most elementary food products which may not be high calorie producers, the limits have not been reached yet, even though we recognize that a large number of world population consume those foodstuffs. This is shown by the yet large quantity

of hunger that exists in the world at present.(18) Having this fact in mind, therefore we can realize that the human consumption of foodstuffs to satisfy a minimum dietary requirement is not yet fulfilled. Modern nutritional studies have shown that the world population is severely low in the consumption of vital foodstuffs. This is true not only for underdeveloped countries but for advanced industrial nations who are so concerned with dietary problems like the United States. What we mean by vital are those foods which are rich in protein and vitamins such as milk products, eggs, citrus and other fruits and vegetables which according to modern nutrition standards should not drop below a certain point. A study by Alvin Hansey and C. P. Kindelberger in "Foreign Affairs 1942, shows that for the United States to secure that minimum, the production of milk must be increased by 33% of eggs by 25% and that of vegetables by 90%. Naturally in order to produce that much it will be required a great change in the economic structure of the country. Another computation by the U.S. Bureau of Agricultural Economics(19) shows a considerable gap between the actual number of livestock for domestic use and the required acreage and

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18) For an illuminating study on hunger refer to Josué de Castro's "the Geography of Hunger", Boston 1952. The purpose of his book he states is to "study the terrible erosion that hunger is causing in the human race and its civilization, an erosion that threatens to blot from the earth all the gigantic works of man.

(19) U.S.Bureau of Agricultural Economics. Estimates of quantities of food necessary to provide certain specified diets and crop acreages and numbers of livestock required for indicated production. Feb. 13, 1942.

number of livestock for the "best adapted diet" as shown in the table below:

T A B L E X

COMMODITY	Actual number of livestock for domestic use. 1936 - 40	Required number of livestock for best "adapted diet"	
	Millions	Millions	Increase in %
milk cows	23.9	33.3	39
hens(for eggs)	369.0	452.9	23
meat animals slaughteres:			
sheep and lambs	21.9	25.5	16
hogs	60.5	69.3	15
chickens	644.0	699.5	9
beef cattle	15.2	16.2	7
veal calves	9.6	10.1	5

The same situation is faced by England, who according to Sir John Boyd Orr in an article "The role of food in Post-war Reconstruction", published in the International Labour Rview, March of 1943, states that the consumption of protective foods is much lower than the required. For example, to bring the consumption of liquid milk up to the level recommended by the Advisory committee on Nutrition in 1935, would require an increase of production to be double of what is at the time. The deficiency is so large that agricultural nutrition policy calls for a reorientation of production and the increase of imports.

Not to speak of the underdeveloped countries, where the deficiency will be unimaginable if the per capita deficit of the population is calculated. Each food

product will require an intensified agricultural policy which will offer a great deal of incentives for development and will rise the income per capita of the nation. A. Bonne, has made a computation of the gap between actual and required vital foodstuffs. He makes the assumption that the food requirements are the same for the people of all lands and races. Now, such figures should not be taken literary for the estimates are somehow difficult to compute accurately, especially for such goods as eggs, cheese, fruits, etc, though it is more accurate for meat and vegetables. Nevertheless it shows an enormous potentiality that the activities in the diverse agricultural fields offer for the world as a whole, if we are to achieve higher standards of welfare and of material well being. Following we shall introduce Bonne's table abridged in some parts:

T A B L E XI.- Actual and Optimum consumption of the rural population of the middle eastern countries.

Population figures for 1939

(Quantities are given in 1,oootons, when not otherwise stated)

COUNTRY	EGYPT	TURKEY	IRAQ	SYRIA and LEBANON
Rural population 1939 in((1000's)	13,700	14,600	2,100	2,500
Meat and fish:				
optimum	300	320	46	55
actual	154	165	24	28
vegetables				
optimum	1,750	1,865	268	319
actual	1,105	1,178	169	202
fruits				
optimum	1,000	1,066	153	183
actual	720	767	110	131
bread(wheat)				
optimum	*2,110	2,248	323	385
actual	1,055	3,329	260	340
milk and milk products 1,000 tons.				
optimum	3,000	3,197	460	546
actual	1,250	2,119	192	228
eggs(1000 units)				
optimum	2,534,500	2,701,000	388,500	462,500
actual	822,000	876,000	126,000	150,000
oils and fats				
optimum	200	213	31	36
actual	400	426	61	73
sugar				
optimum	400	426	61	73
actual	250	266	38	46

(*) The average per capita consumption of wheat and

By analysing these figures, it is no wonder that economists like Bonné regard agriculture as the most important activity for underdeveloped countries at the moment.

After having analysed the great deficit of the world in terms of food, which deficit applies not only to the economically backward countries but also to the most developed industrial nations, let us observe now certain peculiarities of agricultural foodstuffs, which will back our theory of the important role of agriculture in underdeveloped as well as developed countries. We are concerned here with the concept of income elasticity of food, as was explained earlier. In general we can say that there is evidence for a low and diminishing elasticity for food, but that it is in proportion with other commodities. Therefore we shall be more concerned with particular elasticities and the behaviour pattern of consumers as their income grow.

In addition to the table presented earlier on elasticities, let us bring forth another one.

TABLE XII.- Range of elasticity of expenditure per equivalent adult on main food groups in relation to total expenditure per equivalent adult.

food group	elasticicy range lowest	commonest	highest
cereals	0.1	0.3	0.9
meat	0.9	1.1	1.7
dairy produce	0.6	1.1	1.4
vegetables	0.5	1.1	1.7
sugar	0.0	0.9	1.1
tea and coffee	0.4	1.3	1.7
miscellaneous	0.6	1.8	5.3

a)
Diary produce includes margarine and eggs. Vegetables include fresh fruit; tea, coffe includes all non alcoholi drinks.

b) Taken from Ojala's "Agriculture and Economic Progres London, 1952, p. 105.

We can see that cereals has the lowest range of elasticity then the elasticity value for sugar tended to be some what higher, and for dairy produce, mea and vegetables the values most commonly exceeded unity. The general conclusion that can be drawn is that as economic development goes on, and per capita income rises maintaining factor prices as constant, expenditure on cereals remains stable or ~~increases~~ Decreases very slowly, while expenditure on dairy products, meat and vegetables increa ~~rapidly~~ slowly. The low elasticity of cereals reflect the fact that they are the basic food, that without other things existing it will continue to be consumed. It is the cheapest and the most necessary. It reflects the fact that the whole population consumes it in more or less

degree, according to income ranges as the well known propensity to consume principle, as income increases they will tend to divert into other goods. It can be accurately stated that with higher incomes the consumption of cereals grains is lower than with low incomes, because the later will not be able to afford a diversified consumption while the former having enough income will consume on the so called luxurious foodstuffs and less on the cereals. That is people will eat less grain products, potatoes and dry beans, peas, nuts and more of eggs, milk as their income grow. The following table shows these relationship:

TABLE XIII

CONSUMPTION OF SPECIFIED FOODS IN URBAN HOMES OF THE UNITED STATES, BY INCOME CLASSES, SPRING 1942

	AVERAGE QUANTITY CONSUMED PER PERSON PER WEEK						
UCOME CLASS PER YEAR	Milk Quarts	Meat Poultry Fish lbs	Eggs Dozen	Grain Products lb	all Potatoes lb	Dry beans Peas Nuts	Vegetables & Fruits
· 499	2.86	1.65	0.51	3.14	3.11	0.43	2.60
) · 999	3.24	2.07	0.58	3.14	2.48	0.35	2.84
) · 1499	3.47	2.22	0.63	3.16	2.54	0.37	3.09
) · 1999	4.02	2.43	0.71	2.82	2.74	0.26	2.94
) · 2,499	3.84	2.85	0.69	3.06	2.77	0.24	3.42
) · 2,999	4.06	3.19	0.70	2.87	2.63	0.30	3.71
) · 4499	4.07	3.21	0.67	2.96	2.60	0.22	3.48
) · 9,999	4.02	3.32	0.60	2.75	2.69	0.18	3.73
ASSES Incl & OVER	3.83	2.77	0.65	2.96.	2.66	0.27	3.32.

M. OJALA O.P.Cit. P.107

It is a known fact that consumers will at every income level tend to maximize their economic welfare. The way it is done is by spreading their disposable income into as many commodities as they will increase their economic well being. The way they will spend may be called the consumers urgency to acquire a particular good in terms of his welfare, which is measured by the income elasticity of the different commodities. Such income elasticity seen as a whole is low for agricultural products and high for durable goods, which was explained earlier in this study. Nevertheless this does no diminish the role of agriculture as can be seen by analysing the different agricultural goods. They show different elasticities as income grow. It can fairly well be assumed that the food consumption of people under conditions of increasing income will turn towards animal products and their derivatives, plus vegetables and fruits. And we have seen already how large is the deficiency for these products. This offers therefore a very wide range of activities in the agricultural sphere for those countries still in early phases of development. The demand as a nation grows for such rich foods will steadily increase and thus the market is gradually broaden for producers of such foodstuffs. Furthermore, grains and cereals may turn towards the improvement of livestock and serve as feed for improving animals. It is nothing but the process of growth where better goods take the place of lower goods and the later will take minor roles. It is all a form

of natural growth reflected in any system of development. Thus instead of observing merely statistics and past facts it is necessary that development programs be more concerned with improved goods or the introduction of innovation. There is much grounds left for the improvement of health and physical conditions of the human body and agriculture holds one of the leading roles in this tendency for world development and economic welfare. Now, what we are stating does not mean that we shall keep on agriculture but since our analysis is dynamic in character, we are considering agriculture as a phase of development, which in conjunction with other activities will bring a dynamic and balanced growth to the economy. Industrialization is the most close field related to agriculture and as we have seen they are closely interdependent. We shall develop our argument on that direction in the follow ing sections.

V.- INDUSTRIALIZATION IN UNDERDEVELOPED COUNTRIES.

A.- Industrialization in Agriculture:

As stated previously, this study will treat agrarian improvements as one chapter of industrialization, because as it has been mentioned, both aspects of economic development are interconnected parts of one problem. Agricultural developments and industrialization have both the effect of rising the income levels of the inhabitants of a country if the programs are properly held. Therefore, one of the purposes of economic development, namely higher incomes per capita in order to achieve improved standards of living will be achieved. Now as it has been clearly discussed any model of development should not stress a particular economic activity as the starting force of economic development, but should realize the conditions existent and apply thereof the most suitable form. Usually all types of activities should be seen as interconnected. The activity in one field should be seen as a form of balance with the others. "The aim of industrialization" for instance "is to produce a structural equilibrium in the world economy by creating productive employment for the agrarian excess population" (1) The ~~important~~ thing to notice is not a theoretical discussion which is the most important: improvements in agriculture or industry, but the problem

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(1) Rodan Rosenstein, "problems of industrialization of eastern and south east Europe." Economic Journal June - Sept. 1943, p. 210

is one of "allocating efficiently the scarce factor"(2) and how resources available for development are to be distributed between the various sectors.

Studies regarding the right sequence in which industry and agriculture should develop and their relative importance to the prosperity of the nation are as old as the beginnings of formal economic thinking. In early times Adam Smith had observed in his well known treatise that "the cultivation and improvement of the country which affords subsistence must necessarily be prior to the increase of the town which furnishes only the means of convenience and luxury.....through the greater part of Europe, the commerce and manufacture of cities instead of being the effect had been the cause and occasion of the improvement and cultivation of the country..... This order however, being contrary to the natural course of things is necessarily both slow and uncertain.(3)

The important thing to stress in this context is that the conditions of a nation are the most relevant in discussion making. Nevertheless it seems to me that for most of the underdeveloped countries, on the basis of empirical observation, the role of agriculture must not be neglected. Agricultural improvements are and should come as an important factor in development. There are two main

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(2) Aubreg G. Henry, Small industries in Economic Development, Social research, Volume 18 1951, p. 270.
(3) Adam Smith, opus cit. book III, chapter I.

reasons as pointed out by R. Nurkse in his "Problems of Capital formation in Underdeveloped Countries", p. 52; these are:

1- Due to the great majority of the population, even in sparsely populated areas like South America are in agricultural activities.

2- Increases in productivity are possible without requiring much capital.

Certainly underdeveloped areas face the crucial problem of lack of capital funds and therefore they must engage in activities which will use more effectively that scarce factor. It will be argued that capital investments from foreign areas will promote development, where that factor is scarce but the history of investment has shown that it brings a rather unbalanced growth of a very few sectors and for profiteering purposes without actual improvements on the mass of the people. for that matter it is important to find the possibilities of agriculture and its related fields. As our study concerns with the industrialization of the so called "depressed areas", we are most interested to consider the possibilities of industries based on agriculture.

For underdeveloped areas, I believe it is necessary to develop industries based on agriculture. This is due especially to the following reasons. One is the magnitude of agriculture in the gross national output of those countries; two, because of the obvious factors which are lacking such as the scarcity of capital, skilled labor and trained management. Third, because by

introducing to farming areas early industrial forms based on the product of the land affords a direct means of increasing the income per capita and thenceforth the purchasing power of the farmer-buyer, which in other words means the expantion of the market, a main prerequisite for future growth. Fourth, we find that agricultural industry will afford jobs during periods of seasonal unemployment which will help towards giving a more firm base to the farmers income. Finally one of the characteristics in underdeveloped areas is that there are a large number of small fortunes owned by landlords and even by peasants, who are not aware of the potentialities of investment and therefore they merely hold it. Here the Keynesian analysis does not fit. The structure of the economy is not yet the financial one assumed by the theoretical apparatus of Keynes. Savings do not equal investment, not because there are no investment possibilities for actually there are very many, but merely due to a psycho-social state of mind transmitted from generations on and which is the inhibiting factor for the hopeful rural development. Furthermore, investments in most countries are limited to the narrow areas where there is some development. In most underdeveloped areas we find the situation where there are small patches where there is industrial activity but the surroundings are all large areas of low economic activity. It is a completely

unbalanced ratio and usually programs for economic development take up only those developed areas where naturally it is relatively easy to work on and involve less cost and risk than if it were to be done in completely unsettled areas. Therefore if a program for developing a region in a small scale is started it may bring forth the scattered capital hoarded by peasants and landlords of those regions and therefore avoiding problems in the balance of payment of the country. Investors may feel safer if they are to put their capital however small it may be into operations which they can observe or even where they can actively participate.

Let us discuss some of the issues raised above. We have stated first that there is a large magnitude of agricultural produce. This means that early industrialization will be not so different from improved agriculture. In fact it should go hand in hand with the later. The different studies done by research teams in underdeveloped areas show that there are much grounds for increasing land productivity which will aid to early industrialization. Some of the clear illustrations showing these are those in Burma and India.(4) In Burma, the Department of Agriculture before the world war II developed an improved metal plowshare costing around 60 cents. The results were that crop increased considerably and the tool was largely demanded for it

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(4) See Buchanan and Ellis, op. cit., p.270.

required little knowledge for its operation plus the fact that its use produced higher yields. The department of agriculture reports it sold around 5000 such implements yearly. In India, the introduction of the fly-shuttle which fostered England's industrial revolution increased the output of household producing units for about 30%, furthermore a 40 spindel, foot-powered cotton spinning machine amortized its cost in one month when operated for a full time. These are just some of the illustrations which back our contention that a small, inexpensive sort of innovation in agricultural or early industrial fields will increase output by a considerable number. Furthermore this shows that in any scheme of early production the cutput will at first increase at an enormous rate but will gradually decrease. This can be explained by the effects of a small technical development on production, which at first will result in an efficient contribution to the productive process but which for its maintenance will gradually require more difficult changes in technique and gradually will diminish its potentialities. Therefore it does not mean that the initial increase in output will continue at a rising rate, but more ccrrectly at a marginal diminishing rate, which requires thenceforth the continuous operation of a dynamic economy without which not much can be expected. By continuous we mean here an expanding interrelated system. That is growth will not follow only a single path but will be an interrelated

complicated structural netwcrk to which the social pattern of the individual must be adapted.

To those unfamiliar with the processing of agricultural produce it may seem that the field is rather narrow. Yet the reality is all the contrary, agricultural industry is and can be diversified into a large number of productive forms. Professor Sanford A. Mosk of the University of California in Berkeley and an advocate of rural improvements brigs forth such industries and posibilities as follows. "the processing of cereals, the preparation of edible oils from various seeds and nuts, the production of sugar and sugar by products such as alcohol, the fabrication of articles made from fibers such as cctton, silk, wool, henequen, ixtle and lechuguilla; production of raw rubber, etc., etc." furthermore from a single product there is a vast number of possibilities. Taking cuba, a "recent economic survey recommends as the chief measure to ensure the island's comparative advantage in sugar export in the future, the provision of supplementary income fcr sugar workers in the off season through processing such by-products as molasses, syrup, alcohol, rum, cane spirits, candies, preserves and marmalades, all this from her abundant sugar and fruits".(5) This shows clearly the vast potentialities of an agricultural type of industry which are neither capital intensive nor highly

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(5) Mosk a. Sanford, Industrial Revolution in Mexico, University of California Press, Berkeley, 1950, p.36.

skilled, therefore can be easily adapted to the conditions of most agricultural countries.

Now, the classical doctrine which in some aspects can be well applied and does fit to underdeveloped areas is sometimes uncertain because of the interdependence between the developed and the underdeveloped techniques. This is in reference to agriculture especially. The classical doctrine assume that there are diminishing returns in agriculture and stable returns in industry. This have been changed in modern times to a situation where the diminishing returns in agriculture shifts to an increasing total crop and the tendential diminution of its contribution results into a rising tendency. This tendency makes it necessary for agricultural areas to engage in industrial activities. Furthermore, industrial activities themselves have a strong influential effect on the rise of agricultural productivity. Special interest should be given to technological progress which may be considered as the prime mover of development. Industries such as the chemical field, provide large contributions to agriculture in the form of high quality fertilizers, potent insecticides and other similar products to exterminate vermins. Then we have the machine industry, providing tractors, and other agricultural implements. All of them are closely interrelated to the produce of the land and can contribute to its higher productivity.

In order to achieve such rates of growth

it is necessary to recognize certain factors, which are often neglected by economists of the modern theoretical fields. Such factors are overlooked in some instances due to the so called "Fallacy of misplaced concreteness"(6) These consist in the fact that in observing underdeveloped countries, economist look only at certain sections of the economy, such as those which are most important for exports or those where industry seem to be developing, and from this, generalizations are drawn. The majority of underdeveloped countries are characterized by a " dual economy system. This consists in a structural situation in which a modern industrial, commercial and financial organization constitutes small islands of modernism in a vast sea of regional subsistence economies".(7) Observers used to the structural complications of modern economies tend to base their observations upon these islands and rarely touch the real sections of underdevelopment. Much is neglected by modern economists in studying backward countries. One of the most often mentioned barriers is that which the classical economist A. Smith had carefully considered, and this is the limits of the market. It reflects the incapacity of most of the population to buy and this is due to the low productivity;

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(6) Peltzer Ernst. Industrialization of young Countries and the Change in the International Division of Labor, Social Research, Vol.7 , 1940, p.323.

(7) Aubrey G., Henry- Small industries in Economic Development, Social Research, Vol. 8, Sept. 1951, p. 273.

but herein lies one of the difficulties for if we are to ask if purchasing power will increase as soon as productivity rises, this will rise the big question of backward areas. It is my opinion that the farmers demand will not increase if a mere rise in agricultural production is assumed with other changes being constant as is the usual case in most areas.(8) Early in our study we have discussed the low income elasticity for agricultural products and specially for those like cereals which are mainly produced in the economically backward areas. In fact much of the subsistence farming in these areas is based on grain crop and much of the food consumption is based upon them. Therefore, even if the farmer increases his product, the only thing that he will have to take to the market will be his grain for which he will receive an additional income from what he usually gets before his increase in output. Now as is well known, agricultural activities are one of the most uncertain fields of economic endeavour as are subject to the changes of climate and the oscillations of weather. Backward countries are the most affected when severe changes come. Despite the improvements in land that modern science has brought, these are still far from being able to provide a check to the inclemencies of weather (Even in highly scientifically managed farms as those in the United States,

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(8) This argument is against those who like Prof. Mosk, advocates increases in agricultural produce in itself as a prerequisite to industrialization.

crops are often damaged by the unknown sudden changes of weather).Under such conditions farmers tend to be conservative and produce their single crop with the small improvements that development programs may bring, but towards which they are most skeptic. This skepticism is another thing often neglected by economists who think in terms of modern societies where innovations are readily accepted and wanted. Now almost all farmers in the region will engage in similar activities, if their productivity rise as mentioned, they will receive higher incomes, but the market will remain the same.

What happens is that these bumper crops are either sent to the large cities (islands of modernism) or exported to the industrial countries.(9)

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(9) Frankel brings forth another danger under conditions where purchasing power does not rise, even with small industries due to bad communication or little education. He states that if the purchasing power does not rise, the result will be an attempt tc export the produce of the newly created industries and in the decrease of imports of consumer goods, relatively to raw materials, so that the industrialization of a backward country might in such conditions result in a contraction instead of an expansion of the world market for manufacturers. It seems, he continues, that plans for internaticnal investment and export of capital for instance to South America or Eastern Europe, should be linked up with plans for social improvements to be undertaken there simultaneously with industrialization, creating the larger markets for foreign goods and lessening the tendencies to export abroad the produce of new industries.
H. Frankel, The Industrialization of Agricultural Countries and the Possibility of a New International Division of Labor. "The Economic Journal", June-Sept. 1943, p. 196.

Furthermore, the commercial gains usually do not go to the business of villages for in most instances, a wholesale company comes to the rural areas and buys the entire crops at a very low price by which the commercial firm is able to make high margins of profits. The whole of the benefit goes to the cities or to foreign firms. For that matter the rural market does not increase by much specially if the area is isolated without modern highways or other means of transportation. The farmers usually have large debts with rural shops and small money lenders, for most of their earned income goes to those people. Another observable fact is that the farmer does not respond to monetary inducement as in modern countries.

There is a theory which throws some light into this. The argument is founded on two parts.(10) The first states, that the rural individual in underdeveloped areas is "lacking in capacity to appreciate the purchasing power of money" and so it is argued that natives should be "converted to the habits of wage earning by forcible means".

The second part states that the native is incapable of enjoying more than his subsistence way of living and therefore should not be paid wages for it has been observed that higher wages instead of being an incentive for work is, on the contrary, a stimulant of idleness.

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(10) Refer to I.C. Greaves' Modern Production Among Backward peoples. London, George Allen and Unwin Ltd., 1935, p. 158.

There is in many tropical areas, the desire for leisure living where the economic man's idea has not penetrated in the natives mind. In those areas, if a native earns in one week, by receiving a higher income in let us suppose a newly established factory, what he usually earns in one month, we shall find that instead of being stimulated by income incentives, he will leave the factory after one week and playoff for the rest of the month, to come again after his income has been used up, without a knowledge of this, some investments have failed in such regions.

Though there is some truth to the above theoretical speculation on the economic behavior of the native, let me point out some qualifications. First of all, that "natives are lacking in capacity to appreciate the purchasing power of money", is a rather misunderstood phrase, for we have to know what is the true capacity of appreciating money. For instance, we may ask, is the game of poker, horse races or sheer drinking, on which a large number of people in urban areas engage,[15] a fine appreciation of money?

This question brings ambiguity of the theoretical speculation, which we may say is not the lack of capacity, but the lack of means to understand the pattern of behavior of the economic man, which hinders the action of the peasant. The means are nothing more than expanded education and literacy, which are so low as we can observe in table 2 of this thesis.

The issue of compelling peasants to become wage-earners by habit implies complicated political problems of exploitation and control, besides the fact that compulsion leads us nowhere, but a temporary stalemate, after which everything will be the same.

Turning to the second part of the argument, we are rather skeptical of it for there is only need to consider the elementary economic law of the satiety of wants. The law states that although the wants for a particular commodity decreases as more of it is consumed due to a diminishing marginal utility, the desire for wants will never be satisfied and so there will be always a shift to other commodities.

In the underdeveloped areas, there is according to each region, usually a single marketable commodity and the products of the market are rather uniform, emphasis laid on food products which have low income elasticity. Naturally under such conditions, peasants seem to be incapable of enjoying more than what he has, because there are no other things that he may have. Thenceforth, the peasant does not need any more income after a certain required amount. What is required are more wants. A much wider range of goods must therefore be offered. "Until money wants have become continuous and expanding, it seems that the motive power to make the institutions of industrial and commercial development work is lacking."(11)

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(11) McAuley. Paradoxes of Development in Southeast Asia. Pacific Affairs. June, 1954. p. 139.

For this, besides education, the rural population requires more constant and fluid communication with other areas; commodities can only flow to a market through the avenues of commercial intercourse facilitated by railroad, highways, water transportation and so on. One of the most important phases of agrarian improvements is thenceforth the pursuit of basic activities which may be called producers of external economies and shall be discussed later on this study.

Much of these problems are either overlooked or thought as hopeless. It is necessary that new forces should be set towards this issues which though apparently insignificant are still one of the strongest forces retarding progress and industrial development in many areas. It is so strong a force that we may say that capital investment and related problems may even come after them. Their solution is imminent.

Now, going back to what was stated earlier, that the farmers will not increase their buying power, this is not a pessimistic view at all but merely a statement of fact. In fact, it is a departing point for speculations on innovating force and moreover, it is a clear position, implying either agrarian improvements and by this is meant, all that goes with it, including basic industries, such as, irrigation projects, railroads, etc., plus the necessity for stable production and diversification of crops. This will tend to increase the market as well as the purchasing power; but this is not enough for,

as stated already, this agrarian improvement, though important in themselves, are closely interconnected with industrial development and so industrial forces on its elementary forms must also be set in order to provide a balanced growth in the economy.

Another thing which was not and still is in many instances not well understood by economists and planners in dealing with underdeveloped ares is the "cumulative need of capital."(12) Disregardeing this fact, economists aimed to duplicate by large scale industrialization, the patter established by industrialized nations as fast as possible, without realizing that enough capital could not be rapidly created by the underdeveloped economies themselves or that foreign investments including international loans and grants would not come forward in sufficient volume for all desirable projects. Thus, many of the early programs for development were doomed.

The most common fact of misunderstanding is that many of the thinkers of underdeveloped areas come from industrial areas and so they tend to think in terms of a model of growth. It is my belief that no such model can exist in a complicated social economic structure as that of the underdeveloped countries. Each society is different although there are some common patterns, the reaction to which will widely change from nation to nation.

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(12) Aubrey, H.G., op.cit., p. 270.

Furthermore it is readily said that underdeveloped areas are in a favorable position because they can imitate the western pattern or if not imitate at least have a model in the western industrial economies. This cannot be refuted, but what good is it to have a model if there is no basis to adopt it or to learn from it?

We may have a fine model for a painting but what good is it if we do not know how to paint or if we do not have the materials to paint with? The argument for strong basic foundations can be readily understood by observing the western industrial revolution where, in early stages, the market system, the monetary and banking organization and the substantial amount of pré-industrial manufacturing in workshops helped to pave the way of transformation to a considerable degree, even though there was no model for a developed economy. That is why a strong agricultural and rural industry can lay the foundation of a properly developed nation.

B.- Industrialization and Labor.

The most crucial issue that we are faced with, when dealing with industrialization in agriculture, is that of population and the labor force. In fact, the problem of population and labor force appears at all levels of development and is also a critical situation for the highly advanced countries (where it is more related with wage policy, trade-unionism and capital accumulation).

In these countries, the curve of industrial production shows a strong upward trend, while the trend of

agricultural production is flat. The number of those employed in agriculture diminish considerably as they move towards industrial occupations and the production index per unit of labor shows a marked increase in order to prevent food pressure.

Labor and industrialization present a number of different problems as the society grows. Those problems though peculiar to each social entity can be studied in an integrated form. In fact, analising the fundamental problem, we can speak of problems of labor and population growth in an industrializing society, or to refer to our subject matter, in an underdeveloped country. Let us first look at the problems arising in overpopulated country then those in a country with average population or even underpopulated and finally the difficulties and issues arising as a country starts to industrialize in reference to population and the labor problem.

The dilemma of overpopulation has been the nightmare of economists and social thinkers since the times of Malthus, who was a pioneer on the idea of the fear of overpopulation as expressed in his famous "Essay on the Principle of Population as it Affects the Future Improvement of Society".

In underdeveloped countries, one of the characteristics of most of them, is that there exist a large and chronic rural overpopulation, by which is meant a population larger than can be productively employed in the land for agricultural production. In other words, rural

overpopulation and underemployment is one of the most common characteristics found in underdeveloped areas.

Different surveys and statistical reports show that this surplus of labor in the farms is quite large. Studies done by Doreen Warriner in his "Revolution in Eastern Europe" (p.176) and by H. Seton-Watson, in "Eastern Europe between two Wars 1918-1941" (pp.98-9) shows that in the seven main countries of Eastern and Southeastern Europe, where the Soviet Union is excluded, the rural surplus population amounts to as much as a quarter of the agricultural population or about 16 million in all. H. Seton-Watson describes Poland, Bulgaria, Rumania and Yugoslavia as having more than a third of the agricultural labor as superfluous.

This population excess, plus the fact that the underdeveloped countries are usually inefficient in agricultural production and methods, aggravates the problem. In fact, where agricultural methods are still in a primitive stage, "there is commonly a very big fluctuation between the 'peak' demand for labor at the busiest season of the year and the 'trough' of the slack or low season. The population which is basically rural is apt to exceed not only the average but even the peak demand for labor".(13)

In other words, even at the time when labor is most needed, there will be a rather large number of people who are jobless. This is what constitutes the earlier

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(13) Dobb, Maurice. Some Aspects of Economic Development. Three Lectures, Delhi School of Economics, 1951, pp. 38-39.

mentioned disguised unemployment which as has been said, constitutes a condition where labor can be removed from the land without causing reduction in the agricultural output. It is somehow different from the seasonal unemployment as mentioned by Joan Robinson a modern theoritician.

This seasonal unemployment exists even though there is no overpopulation as is shown by highly industrialized countries, where during a certain season, the factory has to lay off a number of workers for there is a slack in the business condition at that moment. It is important to distinguish disguised unemployment for it can be said that it is a phenomena common to underdeveloped areas.

In fact, it can be said that it is a type of unemployment existing over and beyond seasonal unemployment. The interesting thing is that as differentiated from the unemployment of developed nations it does not bring any serious or catastrophic problem of social reform. It is a quiet and passive type of unemployment for what it is often called "hidden unemployment". It forms a strong potential labor force which can be utilized in a national manner for the increase of productivity and the standards of welfare of the community.

Economists agree that this surplus disguised unemployment should be withdrawn from the land and be used into other occupations. Up to this point, economists seem to be in unison but from here on, they rise a number of problems. Some advocate mechanization of agriculture,

heavy or light industries, farm developments and so on. In general, it can be said that the case for industrial development is more favorable for an underdeveloped country facing problems of over population. The reason is obvious. There are no other occupations in which they can engage if the country seeks to develop, because a crowd of unemployed people in the land will contribute nothing and even may hinder development.

Furthermore, the tendency of development is to increase the efficienty of labor or its productivity per capita. Therefore, it will result in a displacement of labor. The pressure of population is greater if there is a problem of overpopulation and so non agricultural occupations must be created in order to absorb this surplus.

A qualification can be made here and this is that in some countries facing overpopulation problems, there are vast amounts of unclaimed land which can be put into use for agricultural purposes. These new unclaimed lands offer therefore a large prospect for absorbing potential farmers into productive efforts. But here a consideration must be put forward and this is not the problem of physical possibilities of converting the surplus land into productive ones but that of the cost of doing it. The cost of doing so, is very high, that it cannot be well done by private hands. It requires the assistance of government finance.

An individual may be able to open an acre or so, but it will be in an inefficient way. Actually it is

done in the tropical areas where a few trees are cut down and burned, after which the farmer will use the burned material as fertilizer and plant a small crop. Obviously there is an inefficient method for after a crop or two the land is exhausted and has to be left over. This practice is common in areas with much land and scarce population, the result being a tremendous waste of land and resources. Actually an effective method which will be economical, productive and will contribute to the economic welfare of the nation is rather costly. The problem that rises here is that of capital cost. That is, the use of capital, which can either be used for opening new lands or for financing non agricultural production. The problem is of special concern for underdeveloped countries when we consider that capital is scarce in these areas. Now there are different opinions of which we shall be no judge, but shall merely discuss them. Those who favour industrialization, do so basing their contention on the high cost of opening even a small plot of land. For example in India "Even at the modest estimate of 10 acres per worker, the capital cost of installing a worker on new land comes to about 3,500 Rupees, an amount which is sufficient for a light industry".(14) Those who favor agricultural development based their arguments on the tremendous social cost of moving people from the farms

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(14) Datta, B., "The Economics of Industrialization", 1952, p. 120

to the industrial areas, plus the fact that the peasant is traditionally bound to the land, and feels always a desire to go back to his farm. Furthermore, the argument as applied for underdeveloped countries, contends that in order to start industrialization there is a need of achieving agricultural progress and rise agricultural productivity in order tc be able to support an industrial force which is producin non-agricultural goods. It seems that in our argument a middle oi the road policy is the most suited and yet it is the most difficult if we are to consider the fact that there is a lack of capital and so a great problem of financing.

Usually, however, under conditions of overpopulation, it is advisable to mobilize labor into non agricultural activities and by merely doing this, productivity may increase.(15) Furthermore, improved techniques of production will help keep up production and maintain an industrial population. In regard to investment, the additional return from new investment will be greater from an increase in the capital intensity of the area already under cultivation than from new and arid land. Another issue which must be considered in impro-

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(15) Mandelbaum brings forth this point clearly as he states that the drawing of surplus people from the land, would automatically raise agricultural output per head, even in the absence of changes in land tenure, in crops or in farming methods. And by industrial growth, population absorbed by this development increase the number of income earners and hence the demand for food, stimulating in this way agriculture. "The Industrialization of Backward Areas", Oxford, 1955, p. 3

ving farm technique is that as they are introduced, the labor requirements become gradually less.

The history of agricultural development shows that as a nation is developed and the land productivity improved especially through mechanization, the number of people engaged in farming diminishes gradually while those in non agricultural occupation rise. An idea of the great change can be obtained from the plans about ground-nut cultivation in Africa, under the colonial development schemes. About 3.2 million acres were planned to be cultivated at a capital cost of £25.5 million that is, at an investment of £ 8 per acre.

The total labor required when the plan started to work was estimated at 33,000 workers or at about one man per 98 acres, which would be enough to work efficiently under the mentioned plan.(16) This shows the magnitude of the problem of labor displacement to be especially considered in an overpopulated country. It may be suggested that labor intensive methods in farm areas are advisable since besides the fact of overpopulation there is the scarcity of capital which aggravates the problem, and that light industries using little capital can be suggested at the beginning because even such light forms of industries or small changes in the existing rural industries will bring large differences in productivity.

Finally, let us analyze briefly the effects of public works in reducing the surplus agricultural po-

(16) Datta, ibid., p. 123

pulation as have been suggested by some economists (besides the fact that they will create external economies).

B. Datta, in his "The Economies of Industrialization", makes a clear mention of the problem. He says that a distinction must be made between public works which are based on a "counter-cyclical approach" and one regarded as "a long term solution of a chronic problem".(17) A counter-cyclical programme of public works is analogous to the concept of pump-priming. It is only a temporary tool in the sequence of cyclical fluctuations and cannot be expected to provoke a lasting development in the economy. On the other hand, a long term programme of public works will be effective in absorbing the population and furthermore, will have the effect of creating external economies.

But this implies a continuous expantion of public investments so that a too large programme will initiate an inflationary trend which may be more harmful. For this matter, public works must be carefully planned, in such a way that they will create opportunities for employment, while preventing inflationary pressure.

Furthermore, its importance as producer of external economies is rather strong and will be discussed in later parts of this study. In general, it can be said that in an overpopulated area, "the most important teachings of modern population history in an underdeveloped area in-

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(17) Datta, ibid., p. 127

dicates that the population policy of these countries must include the rational utilization of cultivable and irrigable soil and an industrialization on a gradually expanding scale, which alters the ratio of primary to secondary and tertiary industries in favor of the two latter..."(18)

Next, let us briefly consider tne situation where there is no population problem. Under this condition in an underdeveloped area, where agriculture is predominant we can realize that if development takes place, there is need for labor to move to the industrial sector. Since we assume that there is no overpopulation, it can be said that there is a full employment of labor in agricultural activities.

In other words, that if labor is taken away from the land, other things being constant agricultural production will fall and so there may be a fall in the output of agricultural products and therefore, in consumption per capita bringing consequently, drastic effects to the economy. It has been explained earlier in discussing food as a linking factor between them. Obviously here there is a necessity to raise agricultural productivity through labor saving devices, that is capital saving, before any schemes of industrialization or public works may be attempted.

This is not a common case in underdeveloped

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(18) Bonne, A., The Economic Development of the Middle East, 1953, pp. 20-21.

areas, where there is usually a large number of disguised unemployment. It may be recalled that such a situation was faced by the U.S. in her early stages of development. Obviously the necessity of capital intensive devices is of primary importance. The lack of capital in underdeveloped ccuntries brings up a question which shall not be discussed here.

Finally, let us consider the economy in its dynamic aspect, that is when the process of industrialization starts, in a society, while keeping in mind the above mentioned problems. Starting from any static assumption one of the phenomenon that can be observed as an underdeveloped ccuntry starts to apply development programs either through industrialization or through land improvements, is the growth of population and consequently the pressure up on the land as well as the problems of labor absorption.

If industrialization or other forms of development increase the rate of population growth, so much as to reduce the per capita income of the labor force the ultimate effect would be without doubt the coming of Malthusian positive checks into operation. It can be argued therefore as K. Boulding states, that "if only misery can check the growth of population, all improvements are worse than vain, for they only permit a large population than before to live in misery".(19)

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(19) Boulding, K., "Economic Analysis and Agricultural Policy", Canadian Journal of Economics, August, 1947, p. 442.

When a country engages in sporadic development programs, as is usually the case, in other words, when a short term improvement is introduced, the country will benefit temporarily, as the income rises even for a short time, population may grow and if this development is merely sporadic, it will soon vanish, leaving the country in the same situation, but worsened by a problem of population pressure. What is necessary therefore, is that the process of expantion be continuous and interrelated. Under such conditions, the history of population growth and the pressure of labor as a nation develops, have shown a different course.

In general, it can be said that there are three phases of population in the process of growth. These are:[20] first, the period of stability with rates of birth and death both high; second, the period of rapid increase with quickly declining death rates and slowly falling birth rates, and finally, the period when death rates and birth rates have both become stable at a low level.

Some examples of these are countries such as England whose population increased from about 6.5 million in 1750 to 8.89 million in 1801. Then in her second period, there was a tremendous increase up to 32.53 million in 1901 and finally it became quite stabilized between 1901 and 1941, when her population was

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(20) Datta, B., op. cit., p. 142.

around 41.9 million. On percentage term, the growth of population per annum, rose from 1.43 in 1801 to 1.81 in 1811; then in 1901, it was 1.22 and fell to 0.49 in 1921 while in 1941, it was 0.45 percent. It has gradually fell. So as we have said, there is always an increasing rate of growth in the initial stages of development. These are specially problematic for the backward countries and in particular those which are already facing severe problems of overpopulation; as they are trying to rise their income per capita and the general welfare of their standards of living, because if development starts the growth of population is higher than the rate of economic expantion, there will be no real development.

Furthermore, one observation that has been done is in regard to life expectancy. This has shown that people in underdeveloped countries have a shorter expectancy for life. That there are a large number of death rate in the child population so that even though the birth rate is high and the death rate low, there is a peculiar situation where the life expectancy of old people becomes longer so that the death rate of older people which was rather hig, diminishes and this may show in the statistics of population growth, while the young child population still has a high mortality.

This situation is phased at the early stages of development where in most countries, about half of the population are children, few of which remain alive

to old age. This is in contrast with developed nations where the young infant population is only about 20%, of which most advance to old ages. What all this shows, is that besides the pressure of population growth, the underdeveloped areas are faced with problems of shortage of able labor, as the population is almost half and half between the young and the old. Since the young infant population is only consumer, this aggravates the problem.

If we add to this the fact that there is lack of skill, the problem becomes more severe. This is one of the facts that account for the large number of child labor in underdeveloped areas. However, as a nation develops further, this child death rate will also decline and this is what accounts more for a high increase in population during what we have called our second period of develcpment.

As population grows, there will be a movement into the non agricultural fields and as has been earlier stated, there is a need for rapid development of non agricultural fields. Industrialization becomes a necessity if there is overpopulation.

This brings problems of capital accumulation and technological development, for in order to absorb the population there is need for industries and other fields of occupation, which may take the large numbers of population and be able to maintain a rising standard of living. Assuming that techniques are fixed, it can be said in terms of capital, that its accumulation cannot exceed the

rate of growth of the labour in force, because if that is so, then the reserve of unemployed people will be drained and then a scarcity of labor developes in the sense that new factories cannot find hands to work them.(21) Consequently the real wage rate rises and the entrepreneur must use what we have been calling capital intensive methods, that is, more capital will be invested per man employed and the rate of accumulation will be brought down theoretically to fit the rate of growth.

Such a situation will be hardly expected in an underdeveloped country at present times and may be best exemplified by a country like the United States. In such countries consideration of technological progress are important in order to overcome the scarcity of labour by rising productivity.

However our underdeveloped countries face a different situation. There is little or non capital accumulation so that the level of real wages corresponding to the required rate of accumulation may be lower than the minimum. In such a case a surplus labour developes and most countries will have to engage in labour intensive devices. Now in countries with little industry, and only a relative amount of hidden unemployment, the transfer of population into industries can be matched with the introduction of industries and other non agricultural activities

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(21) For a complete discussion see J. Robinson "The Rate of interest and other essays" London, 1954, in vicissitudes of a developing economy" p.98 - 124.

even though at a low rate cf capital accumulation. This may approach the so called "Golden Age" of professor Robinson.

The problem of overpopulation takes different standpoints, among economist. A number of them ask why should the increase of population be regarded as undesirable when such a growth was responsible in the west for the economic expantion and furthermore that a declining trend of population growth is according to these economists the direct causes of a secular tendency towards stagnation. Especially since the publication by Keynes of his essay "Some Economic Consequences of a declining Population", The Eugenigs Review, April 1937, there is an increasing recognition that an expanding population can keep up the rate of growth of national income by increasing the demand for consumer goods, houses and public utilities, therfore increasing the marginal efficiency of investment.(22) We cannot deny that there is some true in this statements but, the answer to the question may be stated as due to the different conditions between the underdeveloped countries now and the developed ones when they started expantion. Furthermore, that the above rationalization can be applied to a developing economy with a steady rate of capital accumulation and an established market with a mature pattern of consumer demand. But cannot be applied to an underdeveloped

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(22) Datta, op.cit., pp. 144 - 145.

country, where first of all there is little capital accumulation if none at all and the market is limited due to the low incomes of people. Perhaps professor Nurkse is right in ascribing the root of evils to the lack of capital accumulation.

In regard to industrialization, some people argue that it is not worth while if it results in population pressure. But actually any other program such as land improvement, intensive agriculture development will bring almost the same effect. What we must realize therefore is not that population growth is important but whether such measures will raise the standards of living.

In regard to the availability of land to absorb the excess of population, something has been mentioned earlier and so here I should like to discuss a proposition of professor Robinson, in her above mentioned book. She states that if land is available, "the workers who are not offered employment by capitalists can set off into hitherto unpeopled territory, where they can support their families by their own labor".(23) Here we can readily raise up some questions.

As has been mentioned earlier, the cost of opening new land is quite high and even high enough to start a new industry, therefore, we may ask if professor Robinson is looking at agriculture as an alternative for industrialization or has overlooked the necessity of capital needs for land development.

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(23) Robinson, J., op.cit., p. 111.

Another thing that we may ask is if the labor which goes back to the land will rise the national income or will only form part of the so called disguised unemployment, for we have to consider that industrial output ismore valuable and with higher elasticity of income demand than agricultural output.

A different thing will be if from the beginning a program of land development, instead of industrialization is started. The rationale of prof. Robinson is not clear in this point; I have only brought it up in order to stimulate new thinking later on.

C.- Technology and Industrialization.

Technology is one of the most important factors in the theory of industrialization as applied to the economies of development. In fact, changes in technology have been the main springs of action in the growth of the most developed countries in modern times. They have been "spontaneous and discontinuous changes in the channel of the flow, disturbances of equilibrium which forever alters and displaces the equilibrium state previously existing".(24)

In underdeveloped countries, technology may not follow strictly the Schumpeterian System of spontaneity, but instead may take the form of transfered technology from the more developed countries. This in fact is one of the divergences of modern theories of development,

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(24) Schumpeter, J.A., "The Theory of Economic Development" Cambridge, Mass., 1951, p. 64.

as applied to the underdeveloped countries, from the Schumpeterian model which fits better the industrialized nations.

In our study, we are considering changes in two main factors, those of population and technology. We have seen the changes in population, let us now consider the technological disturbances which affect seriously the underdeveloped countries.

In studying the impact of modern technology upon the conomically backward countries, we are faced with three fundamental problems. These are:

1.- Overpopulation and consequently the abundance of labor as an idle resource. By this, we do not mean that there is an overcrowding of people in terms of land or an extreme intensity of population, but we are referring to it more on the economic standpoint of underdeveloped countries. In other words, that there is too many people and too little jobs. To use the economic term, capital accumulation is growing at a slower rate than the growth of population and so there are little opportunities and low standards of living, even though there may be abundant land in proportion to the population.

2.- Therefore, the next problem that concerns underdeveloped countries is that of lack of capital. Some economists considered it as the basic problem underlying the difficulties faced by underdeveloped countries, as if the introduction of capital would be like an injec-

tion which could cure a patient instantly. It seems to me, that although capital scarcity is basically relevant to underdeveloped countries, yet there are more stricking problems that must be faced by them. To mention the simple fact, that capital without the knowledge of how to use it is irrelevant, makes our argument clear.

3.- This brings us to the third fundamental problem. That of low standards of living and consequently little knowledge and adaptability required for technological progress.

The crucial thing that we must consider, when giving the above mentioned facts is that actually the reverse facts are the conditions for introducing technology. As Singer's[25] study mentions, the three assumptions of modern technology are: 1) capital is abundant; 2) labor is relatively scarce; 3) wage rates are correspondingly high, which are the opposite to our problems mentioned above.

Let us elaborate upon these factors and realize the problems that emanate from them. One of the things that we must face is that most of the existing efficient technology is capital intensive. The reason is obvious, for it has been developed by countries like the U.S. and Britain, where labor was unavailable and so they had to make labor saving devices. This is in

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(25) Singer, H., "Obstacles to Economic Development", Social Research, Vol. 20, 1953, p. 24.

fact more accentuated as modern technology develops and the process of production becomes more complicated. Therefore, underdeveloped countries are handicapped if they want to follow strictly the pattern of those developed countries.

First the initial expense on investment is very high if an efficient technology on the industrial standards is to be adopted. Then the complicated industrial goods that are necessary for technological progress are too difficult and requires too much skill and knowledge for an underdeveloped country to produce by themselves. They will have to import them and so there will be a pressure on foreign exchanges and the balance of payments.

Furthermore, the technology introduced in backward countries will in some cases fail or be of short duration because of the lack of knowledge or adaptability and therefore, much capital is needed for replacement and for training of technicians, because the application of modern technology requires quite high levels of scientific training and understanding plus education which are lacking in underdeveloped countries.

From the standpoint of population, the labor saving property of modern technology is obsolete, for there is too much labor and too little capital to create new industries where modern technology may be applied. Therefore, it is more important for a country to improve the existing technology which compared with

that of other countries may seem backward but which is best fitted for the country. By doing this, productivity per capita is rised and this will contribute to the rise of personal income and improve the standards of living.

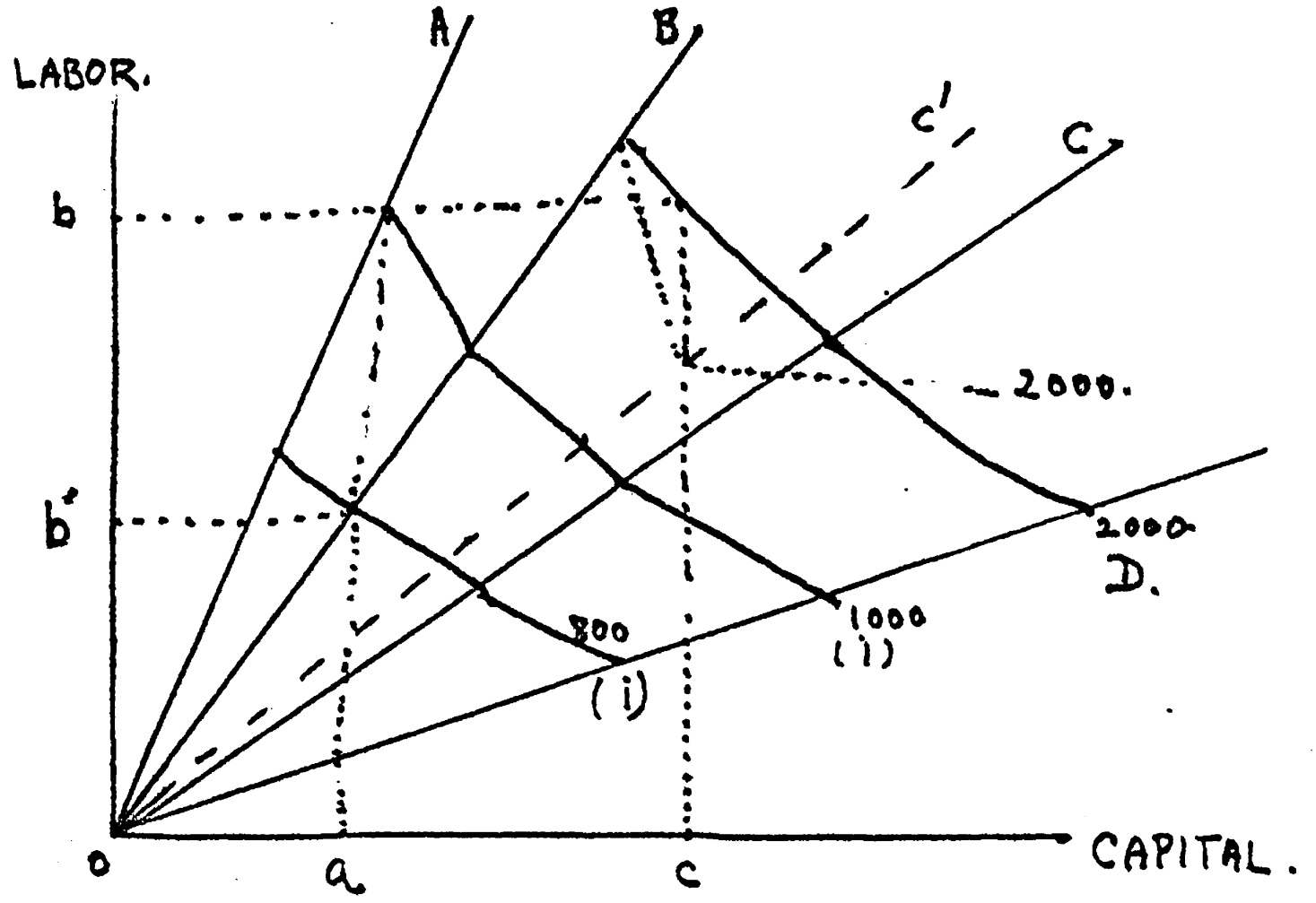
Some economists like Singer, seem to think of technology, as merely that existing in the modern industrial countries, when they say that "older or inferior ones... no longer exist, it has been scrapped in the industrialized countries, and the technology of industrialized countries is the only existing technology",(26) but it seems, that this kind of reasoning is biased on the fact that it clearly states that there is no other technology than that of modern countries, without realizing what is a modern industrialized country and that there are many countries where even the slightes technical improvement, which requires little capital, increases considerably the productivity per capita of the laborer.

For example, during the Japanese occupation, the China Industrial Cooperatives, in the interior of China, found that even a foot-powered cotton spinning machine made from lumber and old tin cans, quadrupled the output of old fashioned hard wheels.

Another example is that of the U.N.R.R.A. work in China, reported that a 40 spindle foot-powered cotton spinning machine adapted from local design, would amortize its cost in a month if operated full time.(27)

(26) Singer, H.W., op.cit., p. 25.
(27) Aubrey, Henry G., "Small Industry in Economic Development", Social Research vol. 18, Sept. 1951, p.280.

This shows that underdeveloped countries will do no good if they just merely imitate or adopt the techniques of the advanced nations, for besides the difficulty and hardships in doing so, it may result ineffective. This can be shown in a product contour map,(28) where we may introduce different types of technology.



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(28) As used by K.Boulding in his "Economic Analysis", New York, 1948. He refers to it as a map or diagram where the different product curves or isoquants, as used in our study are plotted. It is also known as iso-product curve ant it represents a combination of input quantities which will produce the same output, let it be 800, 1000 and so on. In our study, we shall refer only to their relation with technological change. For a detailed analysis of computation, tabulation and the different uses of product contours as well as to such problems as that of finding the best resource combination, see his section on "Advanced studies in Analytical Techniques" especially his chapter 31, "Three variable analysis of a Firm". pp. 671-709.

Here we assume that there are only three variable factors. Namely, labor, capital and technology, (shown by A,B,C,D, technique lines). Assuming that all other factors are constant and that only a single commodity is produced, we can say that in order to produce that commodity, there are several combination with which it can be done.

A line which joins all these combinations is known as isoquant, shown by curves (i) in our figure. Having certain amount of resources, we can produce a certain amount of good which will be represented by a point in our product contour map. Now let us say we have "a", of capital and "b" of labor. Then we can produce 1,000 units of that commodity using technique A, which is the output that can be more efficiently produced with given factors and a certain technique.(29)

Before continuing, we can observe that the technique lines, A,B,C,D, show a series of methods that are of a better nature as we go to the right of the graph. That is as we shift from A to B and so on, the technique will be one using more capital and becoming more efficient. Now, if in our model, the country in question decides to adopt an improved technique, transfered from an advanced country, we shall represent it by a shift to technique B in our graph.

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(29) See also de analysis of Yale Bronzen in his "Entrepreneurship and Technological Change" as appears in Williamson and Buttrick's "Economic Development", New York, 1954, pp. 236-239.

The result is that since this is a more advanced technique, the capital-labor ratio is higher and thus it will employ less labor because being economically underdeveloped, our country lacks the sufficient capital to employ the workers laid off due to improved technique.(30)

We should be able to employ only the amount of (b^1) workers out of the total of (b), which in our diagram we find ourselves operating on the eight hundred isoquant rather than on the 1,000 one. Therefore, besides unemployment, we shall be producing less amount and so individual welfare will be harmed. This is the case in many over-ambitious programs of underdeveloped countries where naturally capital is scarce. Which makes us realize that a lower technique using the available factors in the country will be more effective in rising the standards of living than a sheer imitation of advanced countries, who are capital intensive and highly skilled.

The next problem to be discussed is how do we account for technological change. In general we can say that there are two ways. One is the use of already available techniques and the other is the Schumpeterian spontaneous innovation, that is, the introduction of a new technology.

In the first case, these will happen if the available resources change.(31) Let us suppose that there

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(30) This is known as technologically unemployment and must be distinguished from disguised unemployment.
(31) Otherwise, it will be inefficient and may lead to serious disturbances.

is an increase in investments; let us say from a loan by a foreign country, so that there is more capital available. Assume this to be "C", in our diagram. Then we can see that the country's economy will do good in using techniques "B". The result will be that, due to more efficient techniques, the economy will be producing at a higher isoquant, that is, will have an output of 2,000 units. The existing labor will be more efficiently used as more capital per worker is available. And as productivity per capita increases, the income of workers also rises. The result is a higher standard of living.

Let us take up the second method, that of a spontaneous change in technology without any change in resources. Let us assume in our diagram we are in a position using technique B, with the corresponding amounts of labor and capital. Now if a new technique "B'" shown by the dotted lines, comes forth we shall see that the isoquant will change its position. In other words, the new technique is more efficient and will be producing the same amount at a lower cost, as the factors are reduced. Consequently that country will do better to shift into that new technique.

We can see however that a new technique without further capital accumulation will create a problem of technological unemployment. Therefore, it is necessary to stress that in a developing economy it is necessary that we have a constant progress in order to achieve a balanced rising growth.

We have seen the interaction of technology and labor. Since technological progress is related to the rate of capital accumulation and both are closely interconnected with the rate of population growth. In order to have technological progress it is necessary to have a continuous accumulation of capital; but as accumulation goes on, the population ratio must be balanced for if technology and accumulation of capital are at a higher rate, there will be scarcity of labor force, which will be manifested by a rise of wages, and the use of capital intensive methods of production to overcome the lack of labor.

On the other hand if population growth is at a higher rate as in underdeveloped countries, where besides there is no actual rate of capital accumulation, we shall only have increased unemployment which can be overcome by using simpler techniques and rise output per capita, inducing an improvement in the standards of living of the people.

D.- External Eccnomies in the Theory of Industrialization of Underdeveloped Countries.

The position of external economies in the programs for the development of economically backward nations have a strong fundament. It has generally become accepted that the basic consideration in selecting industries for the underdeveloped areas should regard the prospect for external economies.

Let us consider the nature of external

economies, and its role in the industrialization of underdeveloped countries.

The most common criteria in dealing with external economies is that used by Alfred Marshall, in his classical treatise on economics. He states that external economies are those dependent on the general development of the industry;(32) and that they result from the general progress of the industrial environment.(33) They are economies external to a firm within a growing industry.

It takes the form of improvements in productive facilities such as transport, communications, trade journals, labor skills and techniques available to a certain industry and dependent on the size of that industry.(34)

We can however extend our argument and include those economies external to one industry due to the growth of other industries, which will be the same problem in a larger scale. These will include large projects in developing basic industries, which will promote the development of other kinds of industries, which may not be

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(32) Marshall, A., Principles of Economics- eighth edition London, 1947, p. 266.

(33) ibid., p. 441. See also pp. 315-16.

(34) Nurkse Ragnar, Problems of Capital Formation in Underdeveloped Countries, Oxford, 1953, p. 15.

related at all![35] A highway may develop the cement industry, construction machinery and so on but it may also stimulate outside industries, such as real estate (if we may call it industry) whereby, due to improved transportation the land adjacent to it will increase in value, thereby, permitting speculative activities, which will in its turn stimulate the housing industry and other building activities and so on. In most cases, they are dependent on the factors of production utilized by the firms, plus the output and factor utilization of other firms.[36] It has therefore been called technological economies at times.

([35]) Maurice Dobb in his "Some Aspects of Economic Development", Delhi, 1951, brings forth this point, as he states, "This sort of interdependence has been familiarised among economists by the theory of external economies and its corollaries. What has been less noticed and its significance even less appreciated, is that such relations of interdependence extend between different industries and are not confined within the frontiers of a single industry or even of an industry and immediately contiguous industries." p. 58.

(36) As used by Meade in his "External Economies and Diseconomies in a Competitive Situation". Economic Journal. LXII, 1952, pp. 54-67/ He presents it in the symbols $x_1=F(L_1,C_1,\ldots;\ x_2,L_2\ldots)$; (x) is the output of a firm, $(L_1,C_1\ldots)$ factor of production of x, and (x_2) $(L_2,C_2..)$ are other firms and their output. F is a production function. The presence of variables to the right of the semi-color indicate the presence of external economies.

There is another criteria in the use of external economies and this is in reference to the size of the market instead of the previously mentioned one based on the size of the industry. They are market oriented while the latter are industry oriented. It consists in a wide range of projects which by contributing to an enlargement of the total size of the market has the effect of creating economies which are external to the firm and even to the industry. In fact, it is considered by several economists that for the underdeveloped areas the most important external economies are those which are conducive to an increase in the market size.(37)

Some economists like Rodan Resenstein,(38) advocate this type of external economies, or special external economies as he calls them, because they will have the effect of creating their own market as they expand and thereby, eliminate the risk of not being able to sell. This risk is important for in many instances it is regarded as a cost, therefore the possibility of doing without it, will reduce the cost of production which benefits will be accruing to the consumer.

This idea is clearly understood if we were to think of a country where all its inhabitants were to produce hats. Naturally the market for hats is limited and so they will face severe problems. But if instead of producing a single product they were to engage in a

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(37) Nurkse, Ragnar, op.cit., p. 14

(38) Resenstein, Rodan , op.cit., pp. 205-206.

whole group of different industries, it would naturally tend to create its own market and expand it as other industries are brought forth, stimulated by the market repercussion, coming from the expanding market. All these industries producing for the expanding market are in this way complementary. The importance of this type of external economies cannot be overlooked, in dealing with underdeveloped countries, because as we have already observed in an earlier section, one of the problems which deters progress in underdeveloped areas is the limited extent of the market as was observed from early times by Adam Smith.

Actually, both external economies, the conventional one of Marshall and the market oriented one are complementary. Professor K. Boulding(39) brings a good argument for this on terms of cost structures and efficiency of large industries. He states that a large industry is presumably more efficient than a small one and so it can have economies of large scale production, meaning that its cost will decline. This is in a sense what Marshall has called "external economies".

Extending our attention to this argument, we can realize that this is an application of the general principle that the degree of specialization is determined by the extent of the market. As the firms within an industry, or the industries in an economy, grow with increasing specialization, the market will also increase and become more diversified for as productivity increases,

the demand for goods also rises and consumption becomes more diversified as the consumer tries to obtain the best satisfaction from his income, by allocating it among different goods.

Demand through the market mechanism creates external economies and brings forth new industries and firms into the market. New industries become more interdependent and they will in themselves create other external economies.

There is another criteria that must be considered in dealing with the external economies as applied to underdeveloped countries. This is the one dealing with profit relations among different industries. "It seems that external economies are invoked whenever the profits of one producer are affected by the action of other producers."(40)

In this external economy the profit of the firm depends not only on its own output and factor inputs but also on the output and factor inputs of other firms.(41) This criteria is an extended one for it deals not only with the direct interdependence between producers in firms or industries but also with their relations through the market mechanism. It can be stated that these external economies include both of the above mentioned ones.

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(39) Boulding, K., Economic Analysis. Revised Edition, New York, 1948, pp. 197-198.

(40) Scitovsky, Tibor, "Two Concepts of External Economies" Journal of Political Economy. April, 1954. Vol.LXII, p. 146.

(41) ibid.

Profesor Scitovsky, refers to the market external economies as "pecuniary external economies". This comes about when an investment in an industry results in the expantion or higher specialiation within or among industries, reducing the prices of goods, by which consumers are benefited and raising the price of factor inputs, whereby, the producers of such factors will benefit. When these are manifested as profits for the industry or firms, they are called "pecuniary external economies".

It was not neglected by the conventional thinkers, for although they did not include it directly among their conception of external economies, they did give them due consideration. Marshall refers to them as consumers and producers surplus respectively.(42)

These benefits accrued in the forms of profits should be considered in any program for investment. Let us observe the mechanism through an illustration. Suppose that an investment is made on industry A. This will create economies of large scale and efficiency which make the product cheaper to produce and lower its market price. Assume that this product is used by 'B' as a factor of production in industry B. As prices of factors are lower, industry B increases its profit.

This will be a case where a reduction in prices creates pecuniary economies benefitting firms. Industry B will expand and increase its demand for A pro-

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(42) Marshall, op.cit., see book III, chapter VI and his Appendix K.

ducts thus also stimulating industry A. This will create a series of disequilibrating forces until the succesive investment brings a balance between private profit and the social benefits deriving from it. This points out the fact that a mere vertical integration would bring discrepancies between the private profitability and the benefit of the public. Therefore, what we need is an interdependent closely connected economic structure where the benefits of one unit will produce immediate external economies to be profitably used within the whole structure and therefore rise the welfare standards.

In our example mentioned above, it would mean that the expansion in industry A will not only benefit B, but there should be a series of other industries which can profit from it, such as:

a) An industry that produces a factor used in industry A.

b) An industry whose product is complementary in use to the product of industry A.

c) An industry whose product is a substitute for a factor used in industry A.

d) An industry whose product is consumed by persons whose incomes are raised by the expansion of industry A, etc.(43)

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(43) see T.Scitovsky, op.cit., p. 149.

All of this will further bring external economies in such a way that the "whole of the industry to be created is to be treated and planned like one huge firm or trust".(44)

A guiding principle in investments which may create external economies are prices. These are especially important in underdeveloped countries where investments are likely to have a greater impact on prices, which will consequently bring forth pecuniary external economies, and if there is a mere vertical integration, this will create a great discrepancy between private profit and social benefit.

This whole argument stresses the necessity of thinking seriously about more interdependence between new industries, than a mere uncalculated rise of industries in the underdeveloped areas. External economies may accrue large advantages in industrialization programs. Again we can say that the most important consideration in selecting industries for developing an underdeveloped area are the prospects of external economies. For this will be favorable to the growth of other industries and also for developing groups of industries supporting one another.

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(44) Rosenstein, Rodan, op.cit., p. 149.

E.- Patterns of Industrialization.

After having discussed some of the main factors which constitute the underlying problems in economic development, we shall take up the different ways in which industrialization may be achieved in an underdeveloped area. Much of our analysis will be based on the historical data as shown by older industrial countries.

This argument should be regarded not as a measure for development programs or policies but merely as a reference which should be kept in mind while engaging in development plans. It may be said that though the observation of the patterns of growth in economically advanced nations, the less developed ones have an advantage in that they can avoid the mistakes in the sequence of growth as well as have some base to which they can rely in case of complications in decission making.

From the standpoint of decission making in industrialization, either by the individual or the government, there are three ways in which it can be carried on. These are: 1) started by individual initiative; 2) by government and 3) where both the individual and the government participate hand in hand.

Looking at our historical material, we may have to conclude that most types of developmental patterns fall under category number three, that is, where government as well as individuals have both cooperated. Nevertheless, it is safe to say that there are models of the

first two types found in the U.S., France and England as belonging to category number one and Russia and Red China, under category number two.

Other different types of industrialization are based on capital formation and these can be analysed from the viewpoint of whether capital has been domestically formed to finance development or whether it has been mainly flowing due to international investment programs.

In the first case, we may cite the Russian model, which is a self centered one and aims at self sufficiency. It implies the construction of all stages of industry from the heavy structures to the medium and light ones, all falling under a guided planned scheme and so, "built like a vertical industrial concern."(45)

It may be said that this is advantageous because it prevents much of the wastes which result in a free economy of trial and error and that it is more efficient; though it prevents wastes in decission making it causes them in international ~~discussion~~ division of labor. However, it offers some disadvantages in that although it prevents wastes in decission making, it can proceed with much social hardships and pains because capital must be supplied internally at the expense of the people who already have a low standard of life and consumption pattern.

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(45) Refer to Rodan Resenstein's "Problems of Industrialization of Eastern and Southeast Europe", Economic Journal, June-Sept., 1943, p. 203.

It is the case of industrialization at all cost, overlooking the welfare of the people which should be the prime mover for industrialization. Much of these decissions may be realized from the political standpoint of objectives. That is, many countries have in mind a world of constant struggle and so they realize the necessity to build themselves into a strong industrial force to be able to maintain the balance of power among nations in the world.(46)

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(46) Another thing to be pointed out is that not only the the prospects of war and the necessity to prepare for it stimulates growth but war in itself has provoked expantion. For example, Germany started industrialization after the Franco-Prussian War of 1870; Imperial Russia, after the Russo-Turkish War of 1877; Japan, after the Sino-Japanese War of 1894; and the Russo-Japanese War of 1904. War stimulates in three ways: 1) it helps wash away some of the institutional obstacles standing in the way of social reform regarding the distribution of income and the ownership of property. 2) stimulates employment, and presents a necessity for introducing technological changes, either labor saving or material saving. 3) it creates demand and so stimulates the introduction of new products and the use of substitutes which can be more advantageously produced at home.
Chang P.K., Agriculture and Industrialization. Cambridge, Mass., 1949, pp. 93-94.

Naturally, having such an objective in mind, the welfare of the people becomes secondary in policy making. Furthermore, this closed economy type of growth will make that country an independent unit in the world economy which consequently alters the international division of labor as well as the principle of comparative advantages and this leads to a large waste of resources and unnecessary hardships.

On the other hand, the alternative method of international finance (which does not exclude domestic financing, but a combination of both), brings advantages to countries participating in such programs.

First of all, it makes a nation a member of the world community and consequently march along the path of the international division of labor, which theoretically will produce more wealth for all the participating nations. It will have a substantial flow of international investments,(47) and a private international capital movement. This may help a nation to develop more swiftly and without much hardship to the people, therefore increasing the welfare and the standard of living of that nation. It brings the advantages of international division of labor and specialization, which may prevent much of the wastes in closed economies and finally, it brings a closer cooperation between developed and underdeveloped

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(47) For a study on international investments, refer to the U.N. Publication, No. 1949 II D.2. "International Capital Movements during Interwar Period".

countries towards economic progress.

Another criteria is whether industrialization was started by heavy industries or whether it was started by light industries and gradually developed into more complicated ones and in here a further classification can be made in regard to the different types of industries with which industrialization started.

In our study, we have been stressing the role of light industries on the agricultural level fostering a slow growth. Finally, we can observe the patterns of growth as to whether the industries that have been developed are conducive to heavy industrialized structures or to more light industrial groups based on agricultural prosperity. The above mentioned patterns will merely serve us as a reference whenever we study the development of a particular country and no further discussion on that matter shall be attempted here.

Next in our agenda will be the sequence in industrialization and by that we mean the stages a nation follows in order to develop. We can see, as studied earlier, that technology is one of the dominant factors in considering the stages of industrialization. The thing that must be pointed out here, is that by stages we do not mean that there should be a rigid mathematical order in the process of industrial growth, but we are refering to a condition where each change in technology should not be a mere isolated one ending by itself, but an integrated one, which will cooperate in the trend of development.

It may be spontaneous in the Schumeperian sense or merely induced, but it should have to be interdependent in a complex dynamic structure which is constantly developing (in some instances, we do no have an orderly evolutionary sequence but a drastic revolutionary one as that of Russia; in our study we shall not deal with this type).

In general, we can say that by obeserving the economic development of the world, at large there has been a logical pattern of growth from the simplest to the complex. From the early discoveries of the steam engine by J. Watt, from 1769-1782; the perfection of the turbine water wheel in 1832, which developed water power; the discovery of the internal combustion engine and the machine tool industry, to the great advances in metallurgy, chemistry, such as the Bessemer process, the open hearth steel furnace and finally the atomic power in the modern world. All this implies that there is a kind of order in nature which is an integrated whole and thus permit us to generalize in saying that industrialization should also observe a certain pattern and sequence of growth which in reality is most fitted to a developing nation if it is to promote the welfare of the people. (we can realize this clearly if we consider whether a steel industry or a textile light industry is best fitted to an underdeveloped nation)

In this sense, the process of industrialization can be divided into three periods:(48)

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(48) Chang, P.K. op.cit., p. 100.

1) Where consumption good industries play a predomiant role.

2) Where the need of capital good industries start to grow.

3) Where there is a predominance of capital good industries, while consumption and light industries still continue to hold a relevant position and keep a sort of balance between them.

In the real cases, there are no actual definite dividing line in the course of transition. However, it is fairly accurate to assume a certain tendency in the course of development. It may be said that the U.S. had a predominance in capital good industries by 1926, and that countries like Germany, Belgium and Sweden had a balance between capital-goods and consumption-goods production, while the underdeveloped countries are still in the early stages of consumption-good industries.

Finally it is important to find out the velocity factor in the rate of growth of a nation's industrialization. There are several difficulties coming from finding an adequate measure of speed. The most commonly used is that of production indexes.(49)

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(49) which are based on two assumptions: 1) that the contribution of each industry to the total utility of the commodities produced by the community is in proportion to the "net value product" of the industry as measured in monetary terms, that is, the value which that industry adds to the materials and supplies which it works up. 2) That the net product in the utility sense per unit of physical product, for ex., ton, bushel, yard, if for each commodity constant over time. Changes in quality of product will be held constant. Chang, P.K. op.cit., pp. 105-106.

In the following table, we have the rate of growth of industrial production for several countries:

TABLE Average Annual Rate of Growth of Industrial Production.

Country	Period	Num. of years	Prod, Index	Rate (%)
Great Britain	1812-1907	95	100-1010	2.5
	1907-1924	27	100- 160	1.0
	1812-1924	112	100-1610	2.5
France	1812-1911	99	100- 580	1.8
United States	1849-1869	20	100- 242	4.5
	1869-1909	40	100- 688	4.9
	1909-1929	20	100- 264	5.0
	1849-1929	80	100-4360	4.8
Canada	1871-1911	40	100- 940	5.8
	1911-1927	16	100- 179	3.7
	1871-1927	56	100-1683	5.2
New Zealand	1906-1927	21	100- 220	3.8
Australia	1907-1924	17	100- 184	3.7
Soviet Russia	1913-1940	27	100- 850	8.3
	1928-1940	12	100- 750	18.3

Source: Chang, P.K. op.cit., 107, Table 6/

Some difficulties beside the ones mentioned earlier are clear in this table. One is the difference of years and the number of years taken. In some cases, the span is wider while it is more narrow in others. However, some generalizations can be made from this table. One is that the rate of industrialization in Soviet Russia was remarkably speedy, then comes Canada and the U.S., followed by New Zealand and Australia and finally, the slowest are Great Britain and France.

This brings weight to the argument that as a country industrializes later it becomes easier and faster to do so. Which obviously comes from the fact that they can borrow much from the experience of others. Other deductions that can be made about the speed of industriali-

zation is that a country with larger government intervention in development plans advances at a faster rate as seen in the Russian model. It can also be said that speed depends on whether a country begins with consumption goods or capital goods production. Countries starting with capital good industries achieve economies of scale production and so obtain a faster growth, yet a question of welfare may be raised here.

Finally, the factor of capital accumulation and investment facilities is important in determining the rate of growth. In this study, we shall deal not so much with problems of speed in development, for our essential argument is that slower but fundamentally strong is conducive to gigher standards of living, than the opposite, and since we are interested in improving the personal welfare of people in underdeveloped countries, our case is obvious.

VI.- SMALL INDUSTRIES IN ECONOMIC DEVELOPMENT.

In this section of our study we shall deal with the problems arising from small industries in underdeveloped countries. In this study, a logical sequence of small to large operations have been advocated as the most suitable rule for underdeveloped countries if we are to face their problems in a realistic way. Under conditions where primary production occupies almost all the output of the economy, where the extent of the market is limited by the low purchasing power of the consumer due to his low income which is at the same time caused by the low productivity per capita explained by the inefficiency of production which in addition to the labor intensive methods employed reduces naturally the output per man; the corresponding labor's relative share is low. Then there is a large number of the so calles disguised unemployment. Under all this situation the problem of industrialization is one of the most crucial ones, if by industrialization we mean a way towards higher incomes and improved standards of living and not merely an industrialization for its own sake, at all costs regardless of the effects that may be caused to the inhabitants of the country. In a rational method of industrialization, it is apparent that a small scale industry will have a good basis in order to form a strong foundation for later intensive growth.

Often small industries include those closely related with the agricultural output taking the form of processing industries. In our study we have called them agricultural industries.[1] and we shall differentiate them from small industries. The later involve full time industrial workers, on a full time basis, and forming part of an industrial community, organized under a structural community where production is the main objective. In the former or agricultural industries, they are included in our category of industries however we regard them more as a part time industrial activity, considering that many of them rely on the product of the land and thus are seasonal according to the time of harvesting, where besides utilising the product of the land they can also utilise the large amounts of seasonal umemployment in the farm, because nature and climate keep the peasant idle part of the year; between sowing and harvesting and again between crops when the conditions are such that not more than one can be cultivated in one year. It is natural that this period of lay off in farm labor differ from country to country and from region to region. It is"around 3 months in certain regions of China and 5 months for parts in India. In 9 districts of North

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(1) B. Datta in his "The Economics of Industrialization" a study of the Basic Problems of an Underdeveloped Economy, uses the term "agro-industry" or industry suitable for development side by side with agriculture, p. 174

China, 84% of all agricultural work is done within six months and in the other half of the year only about 16%." In Japan, a country which is well along the path of industrialization, 54% of the peasants were in 1938 engaged in supplementary jobs. A survey made by the Japanese Ministry of Agriculture and Forestry of a group of farm families in the year 1932, shows that independent farmers were deriving about 20% of their total income from subsidiary employment. There was a large number of tenant farmers who were dependent upon such incomes.(2)

These farm processing industries and the so called agricultural industries have two peculiar features. They are mostly resource oriented and localized within small rural areas. And their workers are mostly part time farmers who cannot be said to form part of a full fledged industrial group. Nevertheless this type of industries contribute to increase the farmers purchasing power and enlarge the market for commodities. The goods they produce or process are simple and readily consumed within the area, therefore it can avoid many a times undue costs of transportation and the irregularities of a wide non connected market as those of the underdeveloped areas. Furthermore, it prepares a nation to understand the feeling of being

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(2) Aubrey G. Henry. Small Industry in Economic Development. Social Research, volume 18, 1951, p.293.

members of an industrial community. This fundamental position is most widely overlooked when economists and the like deal with underdeveloped countries. By this sense of industrialization it is meant, a dicipline of the individual to a new pattern of social structure hitherto unknown to them. In it they have to subordinate themselves to a structural organization known as a factory or an industrial unit, where the individual will loose its sense of being and becomes merely a part of a superstructure, where his contribution will be merely a fraction of the total, but towards which he must endeavour his whole self. It may be called a disindividualization or a process of industrial transformation of the peasant worker. Here he must work according to a rigid schedule and he will not be able to do as he wishes during his working time as he could, when working in his plot of land. The structure where the worker enters is one of small parts integrated into a single whole which is different from the farming units which is an integrated whole, that is, where the farmer does everything from preparing the land to harvesting, whereas in the factory he will merely do a single part of the whole, thus subordinating himself to an organizational norm, which requires his cooperation for a smooth working of the process. To most of the peasants who have been reared in a carefree atmosphere of the land and rural areas, this is a very heavy sacrifice.

Besides, the farmer must leave his homeland and incorporate himself into the army of industrial workers, which are usually concentrated in a large city or town. This is another adjustment that must be made. It is of a more spiritual type and although it seems so small it is one of the major obstacles to adjustment. In most cases it is manifested by a lingering of the worker for his home town and makes him go back to it.(3) This brings a discontinuous supply of labour force.

In the western industrialized countries the same problem manifested itself in a different way. As it is well known in medieval Europe there were many organizations of craftsmen known as guilds, which consisted of a group of skilled people who endeavour themselves to heighten their work. It required much training to become a master craftsman and usually these guilds were not open but to a few carefuly screened individuals. Workers here performed by themselves the whole job, from the initial stages to their final completion. Usually most workers were quite skilled even outside of guilds and performed the whole job by themselves. It was in this way that they obtained a personal satisfaction in their work, In other words, by seeing their finished products which had a certain touch by them, they received an immense

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(3) See in Ajia Mondai, November 1954, Ajia Kiokai, Tokyo, the article by S.H. Yamaguchi on R. Emerson's politico-economic background for economic development of the underdeveloped areas, p. 91.

gratification from working. As the industrial revolution started, they had to adjust themselves to a different pattern of production; they had to put away their personal skills and craftmanship and merely participate in a part of the entire work. Their previous working satisfaction had to be put away and become an "Economic Man". In essence, the adjustment for both groups are the same and will be less painful if done gradually, for besides it will also bring economic adjustments which are gradual in a capitalist society.(4)

Therefore agricultural industries will be an intermediate stage between farming and industry where the process of adjustment will take place. Therein lies its importance for besides the economic advantages it algo contributes to alleviate the sociological problems of industrialization. In this sense they are distinguished from our small industries, and it is important to make such differences clear to embark in any program for industrial development for the reasons mentioned before.

The introduction of small industries in our sense of the term presupposes for its smooth working not only a source of power, but also transportation and communication facilities. In fact it requires a certain organization of the economic structure in modern lines.

(4) For a detailed research on the social adjustment of labor in the process of industrialization see Wilbert E. Moore, "Industrialization and Labor", Social aspects of Economic Development, New York, 1951.

This can be best provided by the basic industtries to be financed by the state for they require too large an investment to be furnished by private entrepreneurs. As we have seen already, basic industries are highly desirable in any program for development because of the many external economics that they can bring about. In addition to this it is necessary to have a certain degree of social and cultural change as we have netioned above.

Many questions arise in regard to the small industries, such as what is their size and efficiency, how can they compete with large industries, what is their position in an industrial society and how are they affected by it.

We shall endeavour to answer such questions and in doing so their problems may also rise which may contribute in clarifying our argument.

Keeping in our minds the above mentioned limitations in the underdeveloped countries, we can assume the possibility of fostering small industries within the conditions that have been laid down. Namely industries that are of low capital intensity, capable of using unskilled labor and able to operate efficiently under labor intensive conditions. These industries will not form a separate, disconnected unit but will be solid enough to be part of the whole industrial structure in which they will participate fully towards achieving the

objectives of economic welfare. In fact in order to fit into a developmental scheme, small industries must be full participants in the economic activities of the country. By this I mean that such industries will not be a mere temporary relief measure, let us say to solve the problems of unemployment, but a real functioning organism which may achieve a dominant role in the economy.(5) In many industrial countries the above holds true. Such countries like Germany, France, Switzerland and other European countries maintain still an important core of home industries and small scale work shops. In Japan, the most advanced industrial nation in Asia, even after more than three quarters of a century in developing, its industrial structure, home industries, very small work-shops and modern large scale industry can still be found in close proximity.(6)

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(5) K. Takahashi observes that the Japanese small scale industries which constitute more than one half of all enterprises are "not the beginnings of an industry which will grow into a large scale industry. Rather they are units of industry which though small in size are fully matured and not small units of a potentially large scale industry." See his "Factors in Japan's Recent Industrial Development", Institute of Pacific Relations, Tokyo, 1936.

(6) A special reference must be made in connection with Japan. That although more than a half of industrial production was furnished by small industries, these were in the majority under the financial control of either the State Department or the financial clicks of the Zaibatsu and that this support enabled many inefficient industries to keep on producing. For Ex. in 1932, 45% of all works in the hosiery industry were engaged in small units with less than 5 persons but these units produced only 12% of the total value of hosiery output of the country. The encouragement of inefficient cottage or small industies may simply mean the substitution of one type of disguised unemployment by another. B. Datta., op. cit., p. 177

Many economists advocate a well organized planning scheme for a succesful program of small industries. However it is our belief in this essay that such planning programs will not be so succesful for small industries than it would be for a heavy industrialization program. An illustration from past experiences which supports our argument is that of the extensive planning behind the scheme of scattered small industries in Indonesia, undertaken by the Dutch government in the thirties.(7) Nevertheless we are not supposing a full laisses faire condition. Planning will be advisable to a certain degree where freedom of enterprise will not be hindered. Furthermore a rigid planning scheme will bring about a situation where industries which are not efficient will be promoted at a loss of the society, for its costs will be high, but which due to political or other reasons may continue to be supported. And as it has been mentioned in the previous footnote it will be ineffective for the economic development of a nation for it will mean merely "a substitution of one type of disguised unemployment by another. A more liberal policy will be self - eliminating. That is, under such a policy, the principle of the survival of the best fitted will apply fairly well. Those inefficient industries will be gradually eliminated. Moreover, if trade restrictions become lower, the principle

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(7) Datta B. opus cit., p. 75.

of comparative costs will be effective in determining the international specialization of industries in the world. Therefore there are much grounds for a fairly liberal system.

Another fact that calls for the maintenance of small industries in underdeveloped areas is that the only existing industrial phase of these countries is that related with small enterprises. In India, over 87% of all industrial workers are employed in small scale or cottage industry.

A census undertaken in 1931 showed nearly 6.5 million persons engaged in cottage industries, as compared to about 1.5 million in large scale operations. In China, employment in large factories was just over one million in 1933 as compared with the 10 million engaged in small scale industries. The international labour office made an estimate of most Asian nations. It shows a similar distribution of workers. In Indo-china in 1936 approximately 1.4 million persons were thought to be working in small scale industry compared with only 120,000 in modern industry; in the Philiopines at least 60% of some 600,000 persons engaged in manufacturing work were in small scale and home industry.(8) These numbers although small in proportion give a good basis for the development of small industries. Furthermore another thing that can be observed is that most of these actually existing industries

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(8) Refer to H. G. Aubrey, opus cit., pp. 276 - 277

are run in a rather inefficient manner. In china for example in 1933 although employment in large industries was less than 10% of the total manufacturing labor force, it accounted for more than 20% of the total output of industries in the country. This does not underrate our argument. On the contrary, it supports it, because these industries can become very efficient and productive with very little technical adjustments. Thus they will not requiremuch capital to make them efficient and besides the cost of establishing them will be avoided because they are already existing. As their efficiency grows, the economy will be activated and by the multiplier effect working through the rise of income caused by the increase in productivity, other enterprises will be brought into our industrial realm. Thus a small technical improvement will have the effect of an innovation in the Schumpeterian sense, creating new fields of industrial endeavour. Small industries will solve in part the necessity for capital requirements, because these will not be highly capital intensive as the heavy industries. The scarce capital available in underdeveloped countries will largely satisfy the finance of these industries.

The next problem to be considered is that of skill formation in the process of economic development and to what extent its role is predominant. Let us bring forth the classification made by A. J. Brown into 4 types: (9)

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(9) Brown A. J. "Industrialization and Trade", London 1943, p. 33.

1.- Low skilled and light, ex: textiles, footwear, rubber and glass.

2.- High skilled and light, ex: engineering and fine metal work.

3.- Low skilled and heavy, ex: cement, butter margarine, fertilizers.

4.- High skilled and heavy like petroleum refining.

This classification shows the different possibilities of skill degree in skill and their relation to industries.

First let us analyse the position rising from low skill. Under these conditions we can have both light and heavy industries. But the problem is that low skills by themselves cannot contribute to the improvement of the standards of living of workers. In fact, the scarcity of skills in an underdeveloped country is one of the main causes of the large gap that exists between the earnings of skilled and unskilled workers. So that what we need is to introduce capital in order to supplement the lack of skill. B. Datta in his Economics of industrialization" (p. 184) says that "it is not always realised in the underdeveloped countries that capital formation and skill formation are essentially similar processes", and may in some cases be technical substitutes for each other. On the other hand, we can

employ large amounts of cheap labour and do away with these problems. But our main task is not to industrialize as has been repeatedly observed but to raise the standard of living of the country. In order to obtain this, labor must be well paid and be productive. This makes clear the problem of skill formation, which in our consideration is as important or even more important than capital formation. Therefore it is necessary to improve the skill of the labor force and these require a great deal of capital. If we are to supplement skill by using intensive mechanized processes, this will require intensive capital. This later measure is not advisable in an underdeveloped country because since the workers are not used to machines (besides the psychological adjustments and needs of capital) it will create high overhead costs in repairs and shorten the life of the machine. Thus the most suited group for our industrialising nation is one which does not press on either. That is, one which is light and requires low skill. This is actually the path taken in early industrialization programs. This will gradually create skill and capital to promote further development.

If the posibilities of increasing skills are good, this should be fostered more than anything. In many instances there is a possibility of improving the already acquired skill which due to the lack of knowledge and communication has remained stationary.

This will not require much capital but merely an improvement of existing methods of production, to which the worker will adapt himself and since he has a certain knowledge of the productive process he can learn more easily and increase his efficiency. This is one of the paths to which programs of industrialization should be undertaken. They are in fact many potential industries in their embrionic state which if analysed and improved will contribute to the economy in the form of small enterprises, the efficiency of which depends on the degree of improving the methods of production which are close in hand to underdeveloped areas because they require little capital. The increasing efficiency of such industries will bring many more into the productive process and their increasing numbers will bring problems of competition .

In regards to the problem of improving skills it is not profitable for a private firm to train and educate the labor force; "there are no mortgages in workers- an entrepreneur who invests in training workers may loose capital if these workers contract with another firm"(10) Therefore it should be a task of the government if a special training program is undertaken. If not, as we have stated workers will gradually acquire their skill by experiencing and working in the small scale industries and increasing in this way their efficiency, thereby making its base stronger. It is a good investment

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(10) R. Rodan, opus cit., p. 206.

for the government because it will provide the economy with a well prepared labor force which will itself foster a large scale undertaking of industrialization.

Now let us consider the problems of competition, that small industries phase in our underdeveloped countries. The most important consideration to be undertaken is that in many of the small industries, large scale operations are most efficient and draw much labour, so that the small units will be easily thrown out of competition. Furthermore, that these small industries are vulnerable to international competition where inexpensive textile goods, imported duty free in many instances, from such cou ntries as England and Japan and which with improved means of transportation has depressed the living standards of the village artisans. This can be seen in such countries like India and China where the process was accelerated by domestic mills.(11) This competition will result less often in a change of technology than in lower standards of living. It may be brought to our minds, the fact stated earlier that inefficiency is akin to disguised unemployment and so that we should do better without it. However, the early experience of these countries cannot be touched of inefficiency but of infancy(which is different from small scale industry) in the industrial age. Therefore we need government protection both nationally and internationally (this is the reason we

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(11) See Aubreg, H. G.,op.cit., p. 278.

have not advocated complete laissez faire methods). The example of Indonesia is illuminating. In that country the Dutch Government's policy was traditionally in favor of free entry of manufactured goods as a result of which the old age native industry of hand loom weaving had already been hard hit by the time the depression struck. When the East Indies were further affected by the slump in the volume and prices of their exports, the government decided to embark on a program of industrialization, for which sentiments had been build for some time in an academic fashion. A number of large scale mills were build but the major effect was directed towards the revival of traditional hand-loom-weaving and batik industry. The success of this policy is indicated by the increase in the number of mechanical looms between 1930 - 1941 from almost none to about 10, 000 while the number of modern looms perfected by the government's textile industry increased from about 500 to 49,000. Hand weaving and batik in Indonesia were and still are occpuations for home industry and small shops. However these were not the only industries improved in the 30's, the production of kitchen utensils, cutlery and agricultural tools was also stimulated by instruction in improved methods of manufacture. As a result of modern supplementat on of individual's work and of of more careful inspection and finishing, the quality of the product was so much improved, that the better prices obtained, paid for the cost of establishment.(12) All this

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(12) ibid.,pp. 279- 280.

shows that improvements of existing industries are the best decision in industrialising countries, because they are firmly imbued in the structure of the nation so that initial protection plus improvements in techniques will form a solid base which will enable them to compete with any other industry whatever their size.

In general we can say that small industries should not try to undertake the work that can best be performed by large scale methods, for they will not be able to compete on fair standards, but should engage in those which can stand besides large scale firms, due to their special technique, particular type of goods or the complementarity of its products. This last brings a strong argument for small industries. Complementary industries are the best case for an all round development scheme. Competition among these industries will bring improvements of technique and efficiency, which will increase productivity and so the standards of living of the people. Another group of industries that can be supported are those which produce close substitute products where there are many grounds for improvement in quality through higher skill so that there will be less affected by mass produced goods, which are low in quality comparatively speaking. (Even in the automobile industry which is primarily large scale, ex. Roll Royce is more efficient than a Ford) Such industries will not require excessive or undue protection after their base have been deeply formed and therefore besides its

contribution to the nation's welfare will create a healthy atmosphere in international economic relations.

CONCLUSION.-

In this research study, we have followed a logical sequence in the pattern of industrialization as it concerns underdeveloped countries. It has dealt more with the difficult problems that arise from its structural foundations than with solutions that may be given to it. In fact, it is quite irrelevant to speak about policies or solutions that may be given without having a sound understanding of the subject matter under consideration. And yet, it is in this context of logical irrelevancy that most of the actual policies fall in, where their failure is doomed.

We have tried in all our effort to clarify the problems of underdeveloped countries, yet we must recognize the vastness of the undertaking. After coming to a partial end of this research, we cannot say that there is a conclusion to it but merely a general consideration of the problem hereby discussed.

In fact, each of the questions discussed in this essay, stimulate intensive thinking to the point of making it a particular subject of long discourse. However, we shall only deal briefly with a few major items which deserve further clarification.

First of all, the obvious problem relevant to underdeveloped economies is that of agriculture. To what extent do agriculture enter as a factor in the development of backward nations?

Should it be a mere step towards further progress, after which it may diminish gradually in importance or should it hold a key position in a developing as well as a developed nation?

From our discussion of the subject in early paragraphs, we can say the following: It is a fact that as a nation advances, the importance of agriculture as a factor gradually diminishes. But this is the natural course of growth, and intrinsically it is in the nature of development that such basic factors as agriculture, slhould diminish in importance proportionally, just as a highway may diminish its role as a stream of communication, as railroads and airways are developed.

The main thing to be considered is that it is not in proportions that we are interested but in absolute figures. In this matter of absolute figures, a problem of meaning may come forth. Let us take it here in the general sense of the word.

In that sense, we can affirm that in absolute terms, the role of agriculture continues and shall continue to hold its prominence in the same way as a highway continues to play a vital role despite airlines and other means of communication. We have tackled our analysis from the view point of marginal analysis, considering the elasticity aspect of particular agricultural products. We have seen that they are quite unelastic, but that its demand will not fall completely as income grow and furthermore, that there is a wide range of pro-

duct substitution in this field. By that, we mean that consumers can switch to products of similar nature but of different quality, price, etc. This may be in contradiction with the general analysis of markets, which considers agriculture as a purely competitive system without product differentiation.

There may be no product differentiation but there is product substitution and each product has in itself a different elasticity, some approaching unit elasticity as we have seen earlier. It is here that agriculture contributes to the economic welfare of a developing nation. As such a country develops, its inhabitants will consume better foodstuffs, which their increasing income permits them to do, and in this way, improve their lot. Thus, agrigulture is an important sector of the economy which can contribute widely in the process of growth, its position should not be underestimated.

Next, the problem of industrialization in itself brings a point which we need to bring forth. This relates to the need of industrializing a nation, dilemma which has become a craze among underdeveloped countries. Should all nations, we may ask, try to endeavor their activity in industrializing like such nations as Great Britain or the U.S. or should they remain peripherial primary producers?

In our discussion, we have avoided extremes. The question mentioned above brings those extremes clear.

It is our belief that neither of them will be adapted to a scheme of development. The brief history of the capitalist economy have shown the irregularities arising from a world of extremes. They have created the frictional conditions of mother country and colony, in other words, of master and servant in some way or other. Therefore, there needs to be a change in the course of future action and this is by considering the conditions of each nation in relation to the world. By realising its position, each nation should develop in a manner corresponding to its situation and try to avoid any hampering in the course of international transactions.

In doing this, the classical principle of comparative advantages still play a considerable role. Each nation without becoming heavily industrialized can achieve high standards of living and economic well being, as long as they move slowly in a better suited pattern of adapatability. To each nation belongs the initiative to find out such pattern and to enter smoothly in the course of world harmony.

In regard to this problem of international harmony, a serioud problem rises in dealing with trade. Industrial nations fear that as other countries industrialize, they will loose many of the markets which are large sources of their revenues. Their fears are well founded, but let us consider the matter more closely.

A study made by the U.N.(1) brings much hope to our discussion. It reveals in a historical pattern how industrialization has resulted in an increase of trade among nations, both industrial and agricultural ones, but that as the world started to engage in conflicting disputes, beginning with the first World War and continuing with the depression of the 1930's, this pattern has changed. In other words, with this conflicts, the international economy was desintegrated and therefore, the prospering system of multilateral trade was broken down.

In this kind of internationally conflicting world, the industrial nations rationalize about their trade. It is no wonder, that such anxieties rise, because their actual trade has become gradually diminishing as world harmony turns into a blank. Therefore, it is quite rational to assume that it is not the process of industrialization which hampers world trade, but that the ever rising obstacles to trade in themselves are the causes of the gradually decreasing trade.

We can safely assume that as nations develop in the pattern of comparative advantages, they will profit more from trade, so that through the exchange of commodities that they can produce better, they will be able to enjoy a higher material well being.

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(1) For an illuminating and detailed study, see the work by the League of Nations. "Industrialization and Foreign Trade", 1945.

Therefore, it is of primary importance that nations should consider more their trade relations in themselves, instead of poking each other's noses by discussing on who shall industrialize or who shallnot.

Finally, let me bring forth a few points pertaining to the political aspects of the problem. We have throughout this work had a good faith in trusting, private enterprise as the main unit of economic organization and the democratic state as the dominating form of political organization.

In almost all the now successful countries, private enterprise was the main engine in introducing changes associated with the industrial system. In a few others state and private organization cooperated, but we have seen that such political control lead them to a srious war and thus, in the long run it is hardly indicative of a successful result.

To close up our discussion, we cannot neglect the social aspect. In this regard, let me quote professor S. Kuznets in his book, "Economic Change", where he makes a clear statement.

"Whether under a system of private enterprise or communist organization of the economy, of political democracy or aouthoritarian state, the adoption of an industrial system is thus not merely a matter of having a stock of scientific knowledge embodied in books or pamphlets, or even of the physical embodiments of such knowledge in machines and plants. Its effective

use involves as a minimum, an adaptation of the culture and mores of the population".

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