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The analysis is very interesting - and if I'm were to pursue it further, it probably would be necessary to examine the kinds of industries established and their specific characteristics not limited to agricultural technological as well as the failure of agriculture to provide raw materials as well as products for the modern sector — This would lead to further analysis of the lack of integration between the urban and rural best of the economy. Analysis, too, would be necessary in the fiscal, institutional both internal and external

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# The Need for Agrarian Institutional Reform in Iran



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"It is commonplace that man as a species has proved himself capable of the most prodigious achievement, and the most abysmal follies, achievement and follies both of which have no parallel in the behavior of any other species." -- C. P. Ayres

## Definition of Development

The second half of the twentieth century has been one of economic development and change. Political, social, and cultural trends in different parts of the world, although not always determined by economic factors, are strongly influenced by them. Most political upheavals, social dislocations and cultural rebellions are partly rooted in a stream of social consciousness concerning the tempo and direction of economic growth and change - being too little, too slow, or too lopsided on the one hand, or too disruptive of traditional manners and mores on the other hand.

The whole body of literature on development with some exceptions identifies growth and development with the rate of increase of output per capita. Jacob Viner has said, "Were I to insist, however, that the reduction of mass poverty be made a crucial test of the realization of economic development, I would be separating myself from the whole body of literature in this field."[1]

Some believe that economic development must be carried on even at the cost of lowering per capita income levels, provided it brings urbanization and industrialization. Patriotic citizens may want their national economies to grow in size of aggregate income or aggregate output because of prestigious or strategical considerations, even if this involves a lowering of the average living standards. To others, living standards may be important, but they may stress the living standards of a particular class or regional category of the population rather than the average living standards of people as a whole.

More recently some economists have begun to treat economic development as a process whereby an economy's real per capita income increases over time. When focus is on the magnitude of this increase, the end product of the development process comes under scrutiny. If we concentrate on the process itself, however, numerous complex relationships and interdependencies will emerge. These relationships are in general classified into two groups, according to whether they affect fundamental factor supplies or the structure of demand for the products.[2] On the supply side, there are (1) natural resources; (2) capital accumulation; (3) population growth; (4) introduction of new and better techniques; (5) improvement of skills; and (6) other institutional and organizational factors. On the demand side there is (1) the size and composition of the population; (2) the level and distribution of income; (3) tastes of the growing population; and (4) other institutional and organizational arrangements.[3] Economic development, according to this school of thought, involves a dynamic process with changes in the supply-demand relationships.

Iran is a country that has embarked on an ambitious programme of economic development in the last twenty years. Not only are aggregate wealth, aggregate income, total population, and total production all increasing, but also per capita wealth, income and production are also increasing. Some believe that any economic development programme which might try to prevent an increase in the absolute extent of poverty may doom the programme to failure without lasting benefits to any sector of the population. They

contend that if aggregate wealth and income, total population and production are all increasing, eventually the prosperity will trickle down to the lower socio-economic levels of the population and only then will national resources become abundant so as to make a large scale war on poverty possible.

Here Viner poses an interesting question: "Suppose that someone should argue that the great economic evil is the prevalence of a great mass of crushing poverty and it is a paradox to claim that a country is achieving economic progress as long as the absolute extent of such poverty has not been lessened or even increased. Such a country, nevertheless, might be able to meet all the above tests of economic development. If its population has undergone a substantial increase, the number of people living at the margin of subsistence or below, illiterate, diseased, undernourished, may have grown steadily with a rise in the average income of the population as a whole."[4]

Therefore, there is a whole set of new questions that arise if the concept of development is broadened to include the more equal distribution of improved income, earning opportunities, and the reduction of mass employment and poverty. There exists a close relationship between income distribution and the institutional tenure arrangement which gives individuals access to the annual income stream.[5] Thus the position taken in this paper is that development should be seen as a process of creating economic opportunities. Dorner suggests: "the manner in which increased production is achieved and the number of people who participate and reap some benefits

from the experience, may be as important as the production process itself."[6]

Iran as a Model. The study of Iran is one which is necessarily characterized by an economically dominant and a highly capital intensive subsector coexisting with a large, traditional, labor abundant indigenous sector. Economic growth has in the past been triggered by what economists call leading sectors.[7] The growth sector in some cases has been no more than a single industry, such as cotton textiles in the British "takeoff" from 1783 to 1803 or railroads in France from 1830 to 1860 or the automobile industry in the United States. A leading sector is one that experiences a high growth rate in relation to the rest of the economy and consequently induces favorable responses from the other sectors. The inducement is provided by the supply of low-cost products for the consumer or by stimulating output in other industries or by creating external economies that can be captured and integrated into other sectors or industries.

There are two conventional strategies to growth and development" the "incremental pull" or the "big push." Incremental strategy focuses on the marginal movement of resources within the broad framework of private supply-demand relationships and it relies essentially on free markets and the price system. The big push strategy favors strong intervention by the government in the allocation of scarce resources. The case against the incremental approach to the development of the emerging nations rests on the contention that the price system does not work well. The market

mechanism may work well where (1) the economy is sufficiently monetized and reasonably competitive, so that prices can be held as a fair measure of demand and supply conditions; (2) changes in the supply-demand relationships are only incremental, taking place at the margin; (3) supply-demand elasticities are such that no major indivisibility or bottleneck can block or undermine responses to a change in price rations; and (4) neither internal nor external economies are of an immense magnitude. In developing nations, where often a large portion of the economy is nonmonetized, where large scale movements are frequently necessary to break the vicious circles of poverty and productivity, where bottlenecks are enormous, and where externalities are abundant, the price mechanism usually fails to stimulate growth.[8] In the absence of an automatic mechanism to stimulate growth in the emerging nations, the need for deliberate social action is strongly felt. The objective of the "big push" strategy is to maintain, in a deliberate and conscious effort, a desirable growth pattern among the various sectors of the economy. The formulation of such a strategy requires the convergence of many forces, the most crucial being that of the government. Polanyi notes the important role of the government in controlling the tempo of development: "The rate of change is often of no less importance than the direction of change itself; but while the latter does not frequently depend upon our volition, it is the rate at which we allow change to take place which may well depend on us. A belief in spontaneous progress must make blind to the role of government in economic life. This role consists often

in altering the rate of change, speeding it up or slowing it down, as the case may be; if we believe the rate to be unalterable or even worse, if we deem it a sacrilege to interefere with it . . . then, of course, no room is left for intervention."[9]

Hirschman has suggested that it does not make too much difference whether social overhead capital precedes private investment or whether private investment takes precedence, thereby creating decision-making imbalances.[10] Imbalances are corrected through profit opportunities which guide the private investor to the right expansion path. These profit opportunities are created through backward and forwad linkages. A backward linkage is a profit opportunity created for a firm as a result of the expansion of demand for various raw materials and intermediary goods and services generated in the leading sector. A forward linkage is a profit opportunity created for other firms and industries to produce goods and services with the aid of lower cost inputs produced by the leading sector. These reactions are assumed to lead to further reactions and thrusts, thereby resulting in growth. Therefore, depending on the characteristics of demand and the possibilities of forward and backward linkages, the expansion of a certain industry could lead to decision-inducing imbalances. At the same time, the expansion of an industry which may appear to have significant interconnections with other industries may gail to galvanize the other sectors of the economy, if they cannot respond to such stimuli.

Direct foreign investment is often viewed as not having a stimulating

effect in the process of economic development. It is argued that such investment constitutes an enclave in the developing nations, physically located therein but economically set apart. Rather the enclave is seen to be an extension of the overseas metropole. A foreign based industry such as petroleum production that is established in a developing nation like Iran with the aid of foreign capital may fail to stimulate the indigenous economy because of low domestic demand and supply elasticities. Such industries frequently become so foreign oriented that they may obtain their required material, skilled personnel and even some of their general labor force from abroad. Thus a national economy based characterized by such a foreign enclave comprises two distinct sectors: a highly developed, capital intensive sector and a relatively underdeveloped, slowly developing indigenous sector, mainly composed of a large traditionally agricultural sector. The existence of such a system gives rise to a dual economy.

Charles Rollins has made an impirical study of the effects of foreign investment in extractive industries under dualistic conditions in Bolivia.[11] Ann Siedman has made a study of a model of dual economies in East Africa, which deals with the existence of an export enclave (not necessarily dealing with extractive industries), and a hinterland, where the majority of the population depends on the traditional agrarian economy.[12] According to Rollins there are two effects of such investment: direct influences and fiscal influences. The direct influences result from contact with the

mineral export sector, and the fiscal element is what allows the state to contribute to economic growth. Under direct influences Rollins includes the expansion of markets and incomes resulting from forward and backward linkages and employment of local labor and the receipt of foreign exchange; under fiscal influences are various govermental activities that could be initiated as a result of payment of taxes, royalties, bonuses and so on. Rollins concludes that the development of mineral resources such as petroleum will not lead to economic growth. He believes that this type of foreign investment will not lead to growth and development of the indigenous population because it will not become integrated into the economy.

In a recent book, Jahangir Amuzegar and Ali Fekrat try to show that such a conclusion has validity only in a country where (1) domestic political leadership is weak; (2) where the private sector response is only mild; and (3) that royalties and taxes are meager. They believe that the development of a raw material source, such as oil in the case of Iran, can alter the relative resource structure of the country and the development strategy has been able, in the last fifteen years, to increase the degree of integration between the export-oriented sector and the rest of the economy. They suggest that Iran, having been deprived of its beneficial effects of its export sector for several decades (resembling Rollins' and Seidman's prognostication) has found new ways to use the dynamic oil sector as a direct and indirect instrument for its further development.

Between 1910 and 1950, the direct influence of the oil industry

was negligible and the industry remained economically aloof from the other sectors of Iranian economy. The only link between oil and the domestic economy was provided by limited payments of royalties, taxes and dividends to the government. There are indications that the oil company (Anglo-Iranian) was not anxious to develop ancillary industries on which it would have to depend for supply. In the area of money and banking, the company kept almost all its foreign exchange earnings, reserves and deposits in foreign banks, thus having no effect on the development of domestic financial institutions. There was very little forward linkage except for the sale of oil for domestic consumption, but even here no real effort was made to encourage the use of oil for home cooking and heating. The link between the oil sector and the agricultural sector was nonexistent.

Since nationalization of the industry, the domestic demand rather than the oil industry demand for local goods, has been the prime force behind the closer integration of the two sectors. The demand-induced directly influences have not contributed significantly to the intersectional flow of resources. This is because the very capital intensive nature of the oil industry has been unfavorable towards the use of much labor and also because the consortium is sensitive about not becoming too involved in the livelihood and welfare of the indigenous worker. Lastly, the Iranian economy has not matured enough to provide the highly advanced scientific capital equipment that a fast growing sector like the oil sector requires.

However, in the last twenty years (1950-1970), the supply-induced

influences have and will assume a far more dominant role. Amuzegar and Fe rat state that unlike the Schumpeterian theory that is based on the decisions of the entrepreneur, the Iranian dualistic model is based not so much on innovation and entrepreneurial initiative, but mainly on the absorption of borrowed technology and the leading role of government in the context of popular demands for a better standard of living. The industrialization of the economy will generate a demand for certain primary products which can be supplied by the oil sector. The relatively low cost of these products will push the economy toward the production of goods that use the raw materials. One example of such supply-induced influences has been the fantastic growth in the field of petrochemicals. The internal demand for fertilizers has increased rapidly and the petrochemical companies will supply the agricultural sector with low cost inputs that are essential for increasing agricultural production. Kerosene and fuel oil are rapidly replacing wood, charcoal and animal manure as cooking and heating fuel; this too has direct implications for the conservation of natural resources and the rural population.

The structural characteristics of a dual economy like Iran are different from the models existing in current economic literature. The basic problem in the Iranian dual economy is not one of shifting the economy's centre of gravity from the static to the dynamic sector, but of speeding the growth effects of the dynamic sector throughout the traditional sector.

The body of our paper will deal with land reform and the green

revolution in Iran. However, it was necessary to create the framework of the Iranian economy in order to get a better conception of the Iranian development goals. Such a framework involves the conscious effort of the developing nation to substitute (1) the government for the entrepreneur; (2) foreign technology for the process of innovation; (3) higher living standards for entrepreneurial profits.

## Land Reform and the Green Revolution in Iran

Land Reform and the Green Revolution are two different policy measures in the process of economic development of agriculture. Some view them as competing measures, others as complementary. It is thought by some that with the green revolution there is no longer a need for land reform; others believe that the case for land reform is much more urgent as a result of the new technologies associated with the green revolution. It is the purpose of this inquiry to explore these questions for the case of Iran within our definitional concept of development, although it should be admitted that the study was severely handicapped by the paucity and inconsistency of the available statistical data on Iran.

The Iranian national land reform program which became effective in early 1962 was the outgrowth of long efforts toward change in the pattern of land ownership and use rights which had stagnated agricultural production and created severe maladjustments of social and political structures. The redistribution of land rights was seen as a key element in a) removing undue political and social power from the landlord class or the "thousand families" b) improving the social and economic status of the peasant class and c) achieving increased agricultural production by encouraging increased farm level capital and labor inputs.

The concept of an ideal land tenure system is an abstraction and history is proof that higher ideals on paper have met with almost complete frustration in practice. In dealing with broad issues of land tenure, income distribution , agricultural productivity, employment and poverty,

it is easy to fall into projecting a desired end without considering the feasibility of the means. In actuality we must deal with a system as it is and as it might reasonably be modified. We must be aware of the particular institutional and technological conditions of such a system and the stage at which a society has in the transformation from an agrarian to an industrial economy. Dosner states that in dealing with agricultural development we must be aware of the realities of our time;" the rural people with their specific skills or lack of them, the physical resources with peculiar capacities, obstacles and locations, the attitudes and beliefs generated by unique historical antecedents--all these make up the real world situation to be dealt with and we can not wish them away".[14]

The impending pressures of population on land resources in developing nations plus the application of science and technology to traditional agriculture in recent decades remove land reform from the context of equity and politics. In the Iranian setting there is a sense of urgency of also raising agricultural productivity. Raup comments on this issue; "A land Reform conceived only as a redistribution of rights in property may fail to generate forces that will achieve sharp breaks with old customs, traditions and technologies, needed to promote development. Rather, the relevant concept of land reform must combine the redistribution of rights with the necessary resources to achieve the national objectives of social justice, political development and the expansion of agricultural output."[15] Therefore, for our purpose land reform is treated as equi- to be

valent to agrarian institutional reform.

The Green Revolution is the name given a major technological breakthrough in food production that is believed to have lifted the spectre of famine in the near future and has postponed the prospects of a Malthusian population disaster. Startling developments have been accomplished in wheat, rice and corn--major food staples in much of the developing world. The possibilities for doubling or tripling production are based upon new high-yield varieties coupled with adequate supplies of water, fertilizer, pesticides and modern equipment. Starting from a position of only a few thousand acres in 1965/66 there has been a spectacular growth in the use of new seeds and by 1968/69, it is estimated that 30 million acres of the improved varieties were planted."[16] In Iran the area under new varieties of wheat were negligible in 1966/67 but increased to 25 thousand hectares in 1968/69[17] and available statistics of the Fourth National Development Plan (1968-72) indicate that by the end of the plan another 20 thousand acres of irrigated land will be put under cultivation which could feasibly grow the new high-yield varieties.[18] These high response varieties and the concomittant rapid growth in fertilizer use have produced yields per acre about double those of local strains. Fertilizer consumption in Iran increased from 41 thousand metric tons in 1965-66 to 83.9 thousand metric tons in 1968/69 period.[19] In more aggregative terms, wheat production in Asia during 1969 exceeded 1960-64 average by 30 per cent while rice in 1969 exceeded the 1963-67 average by 18 per cent.[20]

However there is reason to believe that the further spread of new varieties will not be as fast as early successes might suggest. Firstly, the fact is that the availability of irrigated land imposes at least, a short-run limit to the spread of the new high-yield varieties. Most of these require irrigation and careful water control throughout the growing cycle. In Iran of the 628,000 square miles (163 million hectares) of land more than 88 per cent is in the form of deserts, mountain, lakes, swamps, cities, other forms of uncultivable land, forests and and permanent pastures and meadows.[21] The arable land can be expanded by a maximum of 20 per cent.[22] One important reason for such a low percentage of cultivable land is the lack of water supply and adequate rainfall. Water is the scarest and thus the most valuable resource for the Iranian farmers. In Northern Iran, in a narrow margin of the southern shore of the Caspian Sea, there is adequate rainfall of 40-50 inches per annum. In the south andsoutheastern part of the country, there is as little as one or two inches only and the rest of the country averages about 8 or 9 inches annually.[23] Thus land for which water is available is scarce and valuable. The speed with which additional land can be corrected to the new technology depends on the rapidity with which new irrigation facilities can be constructed; and here the high capital costs are likely to be a retarding factor.[24] Similarly, district by district analysis for Pakistan and India show clearly the very high correlation between the growth in crop production and controllable water supplies and fertilizer

use.[25] Large scale irrigation projects can seriously strain the investment capacity of an emerging nation like Iran; further more additional costs are involved in correcting the existing irrigation system of "ghanats" to the requirements of modern agriculture.

A second important constraint on the adoption of the new technology has been the inadequacy of pesticide programs and according to Falcon the deficiencies in pest and disease control will continue to be another serious limitation on the supply side. Where a single variety is introduced, causing large contagious areas, the dangers of pathological susceptibility are multiplied. For example the new wheat introduced from Mexico into Iran has involved a small range of genotypes. Any change in the spectrum of races of wheat rust could threaten the wheat crops on a massive scale since it would involve the whole area.

Given the regional constraints on new varieties for wheat and rice in Asia and given the continuing need for rapid agricultural growth as part of the development process, there is an urgent need for increased national and international varietal research on other commodities. Some research on corn and sorghum has already started, there is need to do research for other crops as well as livestock.

The adoption of the new technology is likely to be much slower where the crop is a basic food staple, grown for family consumption. Farmers are reluctant to gamble with the survival of their families. If land reform has already begun, there are many more peasant producers than

commercial farmers and the task of changing them into a modern technology is much harder. Thus far the spectacular results have occurred mostly among the relatively large commercial farms and although some more semi-subsistence farmers have begun to grow the new varieties, their rate of adoption may be much slower.

Farmers have to learn new farming skills and expertise as regard to planting dates and planting depth; fertilizer rates and timing; insecticide, pesticide and fungicide applications; watering and irrigation controls. Unless appropriate extension measures are taken to educate farmers, the higher yields will not be obtained. The Fourth plan puts a high emphasis on agricultural training. A large number of skilled agricultural workers, technical foremen, technicians and agricultural engineers are being trained; programs of training centers and agricultural colleges have been arranged. Further more courses will be conducted to train mechanics for farm machinery, livestock foremen, orchardmen, skilled farmers, row planters, repair workers,deep well technicians and so on. Special courses will be established to teach modern method of agriculture, animal husbandry and livestock vaccination to the children of farmers and tribesmen.

The need for altering the land tenure system in Iran as a fundamental condition for modernizing the nation's socioeconomic structure was not clearly recognised until Reza Shah assumed power in 1925. Property rights in agriculture have never been secure in this ancient land and

over the centuries whole regions were dealt out to favored individuals at a fee with tax collection priveleges and public service obligations attached. This feudalistic tendency gave rise to oppressive obligation of tenants to landlords that were not abolished until the enforcement of 1962 land reform law. Iran entered the twentieth century with a feudal land tenure and a medieval agricultural technology. On the eve of land reform, a retrospective view would indicate that from remote times the rise and fall of empires had had little effect on the relative position of the tenant farmers. The coming of modernization to non-agricultural activities had only worsened his position by raising the cost of government and living without bringing compensating increases in farm income.

The typical Iranian farm community in which land reform was needed, therefore was one which had been created by the enterprise and resources of its owner and his ancestors or had been held together through the assumption of control by one or few dominant leaders. The general circumstance was one of legitmitized current ownership fitted to the governing natural and historical circumstances. For one man to own a whole village or several villages was not itself ground for opprobrium; rather it was the condition of tenancy under this ownership structure and the general stagnation of production under the system which called for reform.[27]

The growing centralization of economic and social affairs which characterized the reign of Reza Shah, together with a uniform land tax

in lieu of the former numerous and diverse methods of assessing and collecting taxes began to undermine the power of the landlords. Beginning in 1927, some state owned lands were sold in Khuzestan and Sistan in an attempt to encourage and expand peasant proprietorship.[28] This distribution failed for lack of sufficient government integrity and follow-up, but it set the stage for more constructive development in land distribution.

When the present Shah, Mohamad Raza Pahlavi, took the throne in 1941 upon the forced abdication of his father, he was in too weak a position to pursue programs distaseful to the powerful conservative landowning and religious leaders. By 1951, the young Shah initiated the distribution by sale of large aggregates of Crown lands inherited with the throne; favorable valuation and pay-out terms were granted, cooperatives formed and credit extended. This program was announced as an example for other landlords to follow; it found few emulators. During the political turmoil of the Mossadegh era this program came to a halt and by 1961 only 7 villages out of 1330 were distributed.[29]

The land structure of Iran before reform was characterized by a wide range of landownership sizes, with a relatively few private owners. The state and religious endowments held large estates and large numbers of single villages and part villages (dong). Within this ownership frame, tenancy was a strong dominant feature, with crop sharing the dominant mode of rent payment. Only in the Caspian rice area, where Iran's richest farm lands are located, were cash or other fixed rental found. Lambton

has pointed out that the large landowners of Iran in the pre-reform period were not a hereditary landed aristocracy on the European feudal mode, but rather men of urban origin who had bought land for the purpose of social prestige and political power.[30] A common characteristic was that they were mostly absent and took little direct interest in the management of their estates. For this they hired managers or bailiffs (Kadkhoda).

Some pecularities of Islamic land rights philosophy imposed serious adverse effects on the usual conditions of tenancy. The doctrine of "root rights" gave to the planter the rights to use the products of his planting as long as the roots remained alive. Because of these, landlords did not allow tenants to grow long-lived crops. Another doctrine recognised continuing use rights in land formed for several consecutive years. To guard against the establishment of such rights, landlords commonly rotated their tenants to different plots of land each year. The result of these two practices was to prevent tenants from improving the land in any lasting way. Infestation of perennial weeds were neglected, stony fields were left unimproved, use of fertilizer minimized and erosion neglected. Raup's comment on the investment processes in agriculture show the deleterious effect of such practices in preventing resource maintenance and capital accumulation: "The process of economic growth in agriculture follows a distinct pattern. In its early stages, slow gains in capital stock predominate. Investment decisions are typically made in small segments, spread over many seasons or gestation periods. Im-

pressive amounts of capital are formed, but by many small plodding steps. This is quite different from the large scale, dramatic investment programs emphasized in much current economic development planning. The image of development conveyed by a hydroelectric dam or by a steel plant is misleading if applied to agriculture. Capital formation in farming is rarely concentrated in space or time. It accumulates by an incremental process that is best described as accretimary."[31]

Raup goes on to state: "The prospect of long and secure tenures can create a condition in which maximum incentive is given for the investment of family time in productive undertakings. Much of agricultural captial formation is accomplished in what might otherwise be leisure time."[32]

The violent and unforseen overthrow of the government of bordering Iraq in 1958, the constant barrage of Persian language radio broadcasts from the Soviet Union attacking the monarchy, the landlord class and the Iranian government as obstacles to the rights of the people, the notoriously rigged procedures of elections for the Majles (parliament), all signs pointing to a public demand dangerously approaching general revolt, culminated in a bill in 1960. The new law limited the size of individual holdings to a maximum of 400 hectares (988 acres) of irrigated land or 800 hectares (1,976 acres) of unirrigated land.[33] The implementation of the law, however did not progress much beyond fragmentary action, largely owing to the absence of sufficient data and administrative machinery and the strong opposition of some members of the majles who were themselves large landowners.

On January 9, 1962, the 1960 law was amended by a "decré loi" of the Council of Ministers after parliament had been dissolved. It (1) limited the size of individual holdings to one village; (2) fixed the price due to the landowner for extra holdings to be sold to the peasants on the bases of previous years' taxes paid by him; (3) allocated the holdings among peasant cultivator without changing the existing field layout of the village; and (4) required membership in a cooperative society as a condition of the peasants receiving land.[34] This law with supplemental articles of January 1963 and various other regulations constitute the legal framework for executing the land reform program. The obvious pragmatism surrounding the law has been a unique feature of Iran's effort to undertake a gigantic step in reforming the nation's land tenure system.

The 1962 Land Reform Law was designed to bring a major change in the landlord-peasant relationship with a minimum of change in the environment and physical setting of production. The execution of the law came to be known as the first stage of land reform. Under this stage, a total of 16,000 villages representing 19.5 percent of the arable land were purchased by the government from the landowners during 1962-69 period and transferred to some 743,400 farm families. (Table I) [35]

Although the number of villages directly affected by the first stage of land reform constituted only a small portion of the total number of village in the country, the large land holdings of all major

landlords were liquidated with profound sociopolitical implications for the entire country. Even though such vast and radical reforms in other parts of the world had been accompanied by dramatic, emotional and often violent reaction and usually a fall in agricultural output, the Iranian results surprised even the most optimistic. In many parts of the country there was a rise in output due to better standards of cultivation. Dislocation and disruption was minimal.

Under the second stage of land reform, landowners were offered a choice of five methods of settlement: (a) tenancy; (b) sale to peasants; (c) division of land on the same proportions as crop sharing agreements; (d) formation of agricultural cooperatives; (e) sale of peasant lands to landowners.[37] Moreover, maximum individual holdings were set at 150 hectares (370 acres) and the reform was extended to cover religious endownment lands (vagf). Under the second stage the peasants were given tenure but many did not receive ownership of land. (table II)[38]

To create the degree of independence and self-reliance necessary for the peasantry to move out of the landlord's sphere of influence a cooperative movement was fundamental. This has been a difficult task in view of the numerous cultural, social, manpower and organizational difficulties. Despite this the number of rural cooperatives have increased tremendously in recent years.(table III)[39] In 1961 it was noted that although 45% of total national income came from agriculture, nevertheless, not more than 6 to 10 percent of institutional credit was allocated to

agriculture; non-institutional credit sources were almost all of the agricultural credit. Private moneylenders, the major source of short-term credit charged 120 to 150 percent. In the pre-reform period, only a small fraction of farmer's credit needs were being met by institutional sources; the Agricultural Bank small loans program had proved the feasibility of institutional loans for subsistence needs but contributed very little to agricultural production and the cost of non-institutional credit was so high as to preclude borrowing more than taken amounts for production purposes. After tha land reform, a new emphasis was made to provide and supervise small production loans through cooperatives and a larger share of the total resources of the agricultural bank was allocated to this use. This was essential because former private sources sharply reduced their credit to the land recipients immediately after the distribution. The enlarged number of cooperatives and the need for a special focus on distributed villages led to the creation of a new administrative structure called the Central Organization for Rural Cooperation (CORC). "This organization took over from the Land Reform Organization and the Agricultural credit and Rural Development Bank, the setting up and supervision of rural cooperative societies. It was an independent corporation set up by a charter as an independent joint-stock company governed by the commercial code. Its function was to give guidance to the rural cooperative societies and their federation; to expand the cooperative network in rural areas; to provide the societies and their federations with credit; to

encourage mechanization and the marketing; to provide farming implements and requisites;...etc."[40]

While the average loan level has been characterized as too low to have much impact on agricultural production, the loans largely freed the peasants from dependence on local merchants and money lenders and thus enabled them to retain substantially larger net returns from production and this in turn becomes available for the purchase of more production inputs. Land Reform can thus generate a set of new attitudes toward debt and credit which are essential for capital formation. Taboos against debt are characteristic of traditional societies. The taboo seldom prevents borrowing but it is generally confined for consumption purposes. The emergence of attitudes that relate debt repayment abilities to increased output is an important prerequisite for agricultural development. It is very important to realise that a secure tenure in land can lead to stagnation if it is not followed by extensive service and credit supervision. It is also possible to devise long-term leasing arrangement that would create tenure security. This was done for the vagf lands in Iran, giving the tenant 99 year leases which would in effect give them full incentives to improve their property.

In January 1966 the third stage of land reform was announced with the aim of (1) expanding agricultural output required for the industrial development of the country (2) a rise in the per capital output and standards of living of the peasantry and (3) the stabilization of food

prices by improved marketing and production techniques.[41] With the redistribution of land more or less complete, attention is being directed to the full utilization of the nation's agricultural potential. Accordingly water resources were nationalized in 1967 and three new ministries were set up: Ministry of National Resources, Ministry of Agricultural Products and Consumer Goods and the Ministry of Land Reformed Rural Cooperation. Raup comments: "It is the slow evolutionary impact of measures taken after the actual land reform which decides its ultimate success or failure."[42] Whether or not the new technologies of the green revolution can be successful depends on whether the rate of institutional reform (such as changes in tenure, credit, marketing, educational and research) have been transformed to enough to accomodate these technologies.

The failure to make institutional reform may be a severe handicap. "There is evidence in several Latin-America countries that a failure to make needed changes in policies now detrimental to agricultural or a reluctance to effectuate the institutional reforms required to give real economic incentives to small farmers and tenants have been responsible for the slow spread of Mexico's success with the new varieties of wheat and corn to its neighbors in the south."[43]

Usually the early adoption of the new technology will be in regions which are already more advanced, responsive, and have better soil, better water management and closer access to roads and markets, in sum, wealthier farmers. It becomes much easier for them to adopt the high-yield varieties since the financial risk is less. When these new

technologies are used and yields double, there is a corresponding increase in income. Thus the richer farmers become richer and they can capture food markets previously served by the smaller semi- subsistence producers. Such a development could lead to a net reduction in the income of the smaller poorer farmers and a reduction in income of less experimental, more insecure farmers. This raises the immense problem of welfare, equity and social justice. It is obvious that if only a small fraction of the rural population moves into the modern times while the majority is left behind or perhaps even poorer, the situation will become highly explosive.

In the regions where the production revolution has occurred, even with a high on farm demand from increased output, marketing surpluses have risen more than proportionately to production. However policy makers seem to react to cataclysms too late. Transportation and marketing bottlenecks have often been a major problem. Problems with milling, storage, grading and transport have been phenomenal in India and Pakistan and although the new technologies are not so widespread in Iran, appropriate measures must be taken before the problems arise. Accordingly appropriate action has been planned by the Plan Organization: the supply and demand of agricultural products has not so far been handled in an orderly manner nor has the distribution of various farming and livestock products been conducted on logical and equitable fashion in the various stages from production to consumption. Available statistic reveal that an appreciable

part of such products is was ed during various stages of production and distribution, which imposes a heavy loss on the economy and those who benefit from it.[44] In addition most products are expensive for consumers while income of producers of these products is so low that there are no incentives to increase production. To overcome these difficulties (a) A marketing organization was established; (b) The Agricultural Statistics and Economic Research Bureau will be provided with technicians and equipment; (c) Organizations investing in proper supply, storage and transportation of agricultural products will be given technical and allocated credits; (d) regulation for the marketing, sorting and packing of agricultural products will be drawn up and the Institute of Industrial Research will be strengthened; (e) demonstrative cooperative societies will be set up and given the necessary credit facilities and technical aid; (f) the capacity of storage silos will be increased and livestock fattening centers and markets will be established in suitable areas.

Besides marketing and transport problems, there have been varietal quality that have posed difficult domestic and international difficulties. Although the new varieties are more profitable to farmers to produce, there is some doubt as to consumer acceptability. However research on new varieties can overcome this problem.

The question of pricing and markets introduces immense political and economical problems. Most food deficit countries have a structure of relative prices that have no correlation with world market prices and

adjusting domestic support prices are essential if farmers are to be given the correct price signals and if the social benefits of agricultural production are to be left at the vanguard of development strategy. The case of Pakistan shows this problem clearly. Given the new wheat-fertilizer technology coupled with governemnt guaranteed price support which were twice world market price at the official exchange rate, to grow wheat was an extremely profitable venture.[45] If the price of wheat,which is a major wage food, had been lowered, it would have assisted urban industrial workers and moved the price of wheat in line with international comparative advantage.[45] The agreement was that production would be reduced because disincentives would be harmful on regions not using the new technologies.[46] Eventually high prices were maintained. As Falcon states "The fundamental point--that incentives is a composite of yield and price (i.e. profitability) and not just price was overlooked as were the broader needs of the economy. That somehow agriculture might or should share the results of cost reducing effects of the new technology has been disregarded."[47]

On the international side,even if a developed country can produce a surplus,breaking into the international group market is difficult. World market prices of grains depends on both what happens to the green revolution in the developing countries and the type of agricultural policies followed in the advanced nations. Falcon sums up the three different kinds of problems that the developing nations will have to meet (a) " a tenacity

among developed countries in fighting for shares of the commercial markets and a willingness to cut prices to retain them; (b) an increasing amount of food grains being supplied by the developed countries at concessional terms to countries that might normally be the trading partners of developing countries;and (c) an inability or at least the difficulty of the less developed world to compete in a buyer's markets in terms of specific grades, quality, deliverability, etc." This does not mean that developing nations like Iran can not sell on the international markets but it must realistically evaluate the quantities and prices at which wheat and rice can be exported and the concomittant internal price adjustments that will be required. The government of Iran is emphatic about the need for overall development and not merely the agricultural sector. The real tragedy in Iran would result if the government of Iran retained outmoded pricing policies which would lead to inefficiencies in resource allocation, stock accumulation or highly subsidized agricultural exports. Moreover, if the developed countries maintain their concessional policies, the developing nations should look towards their own internal markets for absorbing the surplus output. If it is possible to increase output, the prices of feedgrains would fall.

Since the increase in output comes from cost-free technological change, price would fall somewhat and still provide strong incentive to farmers.[48] With adequate stocks of grain the government could implement expansionary monetary and fiscal policy, especially if it is directed toward labor-intensive public projects, can shift the demand course

for grains to the right helping to counteract some of the decline in prices.[49] Given the fact that the price of the wage good is a development constraint the increases in production from the green revolution can continue after initial import substitution has been exhausted. These production increases can be converted into investible resources through fiscal and monetary policy. If Iran moves into a food surplus economy by the mid-seventies, this would seem to be an appropriate strategy since this approach provides time to solve the agrarian institutional problems and prepare the nation for entering international markets.

## Population Growth and Employment

The fact that reform of land tenure institutions is extremely important in the development process is obvious for it is a catalyst towards even larger institutional reform. It is a crucial step towards the twentieth century to break the bond between the ruling class and land, a separation which has happened in all industrial nations; additionally, the ways and methods of changing the agrarian system has a direct influence on the resulting political system. In Iran, immediately after land reform was initiated, the cabinet announced a sweeping programme of reforms heralded by the name of the "White Revolution." These were (1) the abolition of traditional sharecropping arrangements and the substitution of cash wage contracts whenever peasants worked for landowners; (2) the nationalization of all forest lands; (3) a massive literacy programme with the establishment of a Literacy Corps; (4) a uniform nation-wide profit sharing scheme under which employers would be required to distribute 20 percent of their annual profits to their employees; and (5) revised electoral laws to assure free elections.[50] Between 1962 and 1972, six other reforms -- the development in health and rural construction, a House of Equity to handle interminal minor village litigation, the nationalization of water resources (1967), urban and rural reconstruction and development and the reform of the country's educational and administrative system.[57] There are many who predict that these broad reforms, like many earlier futile attempts at reform would soon be forgotten. But many also wonder whether the regime would be allowed to forget its momentary enthusiasm for reform even if it

wanted to do so. A goverment can trifle with the fundamental appetite of its subjects only so long, and so often, before some reckoning seems to be inevitable -- if no "White Revolution," perhaps one of a different color.

That the Green Revolution can increase output is not doubted. But unless a comprehensive system of institutions is established in which the powers of the State and of the economic system supplement and mutually support each other, so that people are energized by expections of progress in a reasonably dependable public order, not only will the gains in technical agriculture be nullified in a few decades, but technical progress without institutional reconstruction will likely intensify pressures for revolution.

The population of Iran is 61 percent rural and 39 percent nonfarm, and is growing at an annual rate of 2.9 percent.[52] During the 1960's, Iran has experienced a remarkably high rate of economic growth in actual prices, real terms and per capita. Output during the decade has grown steadily at an annual rate of some 7.6 percent in real terms (and 9.5 percent at current prices) -- exceeding the original 6 percent growth target of the Third Plan (1963-1967) and matching the rates achieved by some of the fastest growing countries in the world.[53] As population is estimated to have grown between 2.7 and 3.0 percent per annum during the same period, real per capita G.N.P. has increased by about 4.5 percent a year. The gross national product in 1969 stood at 700 billion rials (just over $9 billion) at current prices, and 583 billion rials (nearly $8 billion) in 1959 prices.[54] Per capita G.N.P. was $330 and per capita income $285 comparing favorably with per capita G.N.P. of $200 and per capita income of $175 in 1962.[55]

Oil, growing at an average annual rate of 15 percent in revenues in the 1960's has accounted for 33 percent of the growth in total value added during the decade.[56] Industry, advancing at an average annual rate of 11.3 percent, has provided another 19 percent of the total value added. Manufacturing in particular has had a notable growth. Although traditional sectors, food processing, textiles, construction materials and carpet weaving, have continued their dominant role, new industries, mainly electrical, chemical, metal working and machinery, have expanded at more than 12 percent per annum.[57]

The major element of growth has been the oil sector in which local efforts and initiatives have played a relatively minor economic role, and industry has been more amenable to increased investment and production through increases in the importation of capital goods. Part of the total annual growth has also been provided by the expansion of the service sector which includes the government's own administrative apparatus.

However, the growth of the agricultural sector has been very disappointing. During the 1960's farm production rose by an average rate of a mere 3 percent, barely exceeding the annual rise in population.[58] Although the target rate for the agricultural sector in the Fourth Plan has been set at 5 percent, rather unrealistically, the actual rate between 1968 and 1971 has only been 3 percent.

Employment has also increased in the past decade at an average rate of approximately 2 percent. Full employment has prevailed in the skilled

and technical personnel market. As the labor force has grown at a somewhat faster rate, some pockets of unemployment have continued to exist particularly among urban unskilled workers. But shortages have also prevailed in some highly skilled trades. To combat unemployment and underemployment, the government has diverted sizeable funds to education, manpower training, and to upgrading of the labor force.

The high growth rate and nearly full employment of skilled labor in recent years have been a direct result of substantial increases in both public and private investment. Annual gross domestic capital formation almost tripled in real terms betwen 1959 and 1970, rising from 17 percent of G.N.P to more than 21 percent of G.N.P. More than 60 percent of the investment has been in the public sector. During the same period, the ratios of gross national savings to the gross domestic and national products have generally ranged above 15 percent. This, in turn, has resulted in a relatively high rate of gross domestic capital formation. Gross domestic fixed capital formation represnts gross additions to the stock of fixed capital within the country, whether financed by the country's savings or by foreign funds. Given the relative importance of the former in augmenting the stock of capital, it can generally be regarded as the embodiment of national savings. It may be noted that the rate of capital formation is expected to reach a high of about 25 percent of G.D.P. by the end of the Fourth Plan. This has obvious implications for planning and growth.

Assuming an incremental capital output ratio of 2.5 : 1 and a population growth rate of 2.8 percent per annum, the gross domestic product per capita can be expected to increase as much as 7 percent per annum in real terms.[59]

Two important features distinguish the agricultural sector in a developing country and its role in the process of economic growth. First, agriculture is an existing industry of major proportions; in Iran 61 percent of the population is still involved in agriculture. The other characteristic is the secular decline which occurs in the relative size of the agricultural sector; that is, the structural transformation which includes both the flow of labor from agriculture to industry and the decline of the agriculture sector in relation to the other sectors in the economy. The significance of these shifts among the various sectors of the economy will become clearer when they are viewed in terms of sectoral shifts in the total real product. A fall in the share of agriculture is the result of a rate of growth of agricultural output lower than that of aggregate output. In Iran there has been a rise in the share of the industrial and oil sectors, implying a rate of growth of output higher than the percentage growth of aggregate product at factor cost as well as the relative changes in the four sectors under consideration in constant prices. It will be seen that the relative change in agriculture, in real terms, is smaller than that of aggregate product, and the relative changes in industry and oil are invariably greater than that of aggregate output. (Table IV)[60]

Table V [61] summarizes the distribution of the labor force among the four major sectors from 1959 to 1968. The data reveal a distinct and

clear trend in labor input away from agriculture and toward industry and services. The share of agriculture in the total labor force fell from 53.5 percent in 1959 to 45.9 percent in 1967.

Although a high growth rate has been pivotal in the basic quantitative framework, a somewhat "balanced" approach has been followed as the purpose of development strategy. Although the planner's aim has not been to equate this balance with an even distribution of development resources among all sectors of the economy, at least not in the short run, their long range perspective has envisaged such a balance. In Iran, both the agricultural and the industrial sectors have been emphasized, although unequally. Since the capital-output ratio in Iranian agriculture is higher than that in industry, the aim has been to provide an adequate supply of agricultural products and sufficient demand for surplus rural workers, whereas the major impetus to growth has meant to come from industry and mining.

It is estimated that during the Fourth Plan income will increase at an average of 5 percent per annum. The population growth rate is approximately 2.9 percent and the income elasticity of demand for agricultural products is .7. Using the Johnston-Mellor Formula, the annual increase in the demand for food is calculated to be 4.7 percent in 1971.

It is needless to add that in the above formulation we have neglected, as have the planners, the effect of both price and elesticities. The country's demand for food is expected to rise by an average rate of about 5.5 percent per annum and Iran is expected to boost its food output by generally the same rate by 1972.

Johnston and Mellor point out that agricultural development is characterized by a substantial increase in the demand for agricultural products and the failure to expand agricultural products in pace with the growth of demand for food can seriously impede economic growth. In Iran, the rate of population growth of 2.9 is very high; income elasticity of demand for food is much more elastic than in the developed countries and hence a given increase per capita income has a considerably stronger impact on the demand for agricultural products in the less developed countries. It was formulated that the demand for food in Iran would have to be increased by 5 percent annually, which is a formidable if not unfeasible task for the agricultural sector.

If the food supply does not meet the demand, prices rise, thus leading to adverse effects on industrial profits and economic growth. Owing to the economic and political repercussions of a rise in food prices, domestic shortages are likely to be offset by expanded food imports. However, foreign exchange has a high opportunity cost because of the requirements of capital machinery needed for industrial development. Thus, if the potential exists for increasing agricultural productivity, it seems to be more advantageous to obtain additional food supplies by increased domestic output rather than by relying on the expansion of exports to finance enlarged

food imports.

"The demand for food is a desired demand determined essentially by the growth of population and of per capita incomes; and this characteristic of the demand for food cuts in both directions. Not only does it mean severe penalties for the failure of food supplies to keep up with demand, but it also implies that the returns on investment in the expansion of food crops for domestic consumption fall off sharply if food supplies increase more rapidly than demand."[62]

On the employment side, the crucial considerations are the high rates of population growth and the difficulty of absorbing large share of this growth in the urban sector. Even with a large rural-to-urban migration, the rural population continues to grow, although at a slower rate than the total population. In Iran the nonagricultural labor force is growing at 4.9 percent annually while the total labor force is growing at the rate of 2.9 percent. Using Dovring's first"rule of thumb," we estimate the rate at which the nonagricultural labor force will grow as a proportion of the total labor force. Dovring's first rule states than when the nonagricultural grows faster than the total labor force, its percentage share in the total labor force will increase at a rate which is the difference between the growth rate of the nonagricultural and the total labor force.[63]

Therefore, the change in total share is 4.9 percent - 2.9 percent = 2 percent. Since the population of Iran is divided into approximately 60 percent agricultural and 40 percent nonagricultural in 1970, then there will be 40 + (40 x 2 percent) = 40.8 percent in nonagricultural in 1971. If the

population grows at .8 percent in one year, it will take 12.5 years to change the 60 percent agricultural 40 percent nonagricultural into a 50 percent farm and 50 percent nonfarm. Now assuming that the farm population remains stable in absolute numbers, we are interested in knowing how fast the nonfarm employment would have to grow to absorb all the population increase (assuming that the total population and labor force grow at an annual rate of 2.9 percent). Dov ing's second rule of thumb states that if the agricultural population is assumed to remain stable, then the non-agricultural population should increase at a rate equal to the rate of the population growth multiplied by the denominator in the fractional number for nonagricultural population over the total population.[64]

Therefore we have $\frac{100}{40} \times 2.9 = 7.25$ percent.

Thus the nonagricultural employment has to grow by 7.25 percent in order to keep the absolute numbers constant in agriculture. Although output in Iran has increased more than 7.25 percent over the last ten years, especially during the Fourth Plan, according to a recent unpublished study, employment between 1964 and 1969 is estimated to have risen by 16 percent -- implying a compound annual growth rate of about 3.9 percent. The same study also puts the over-all employment rate in the first half of 1969 at 3 percent of the labor force -- 5.4 percent in urban centres and 1.5 percent in rural areas.

## Needed Redirections in Agricultural Development

What do all these calculations mean when we are dealing with the process of development? Owen begins his article by stating that the most fundamental dual question is how can peasants be encouraged to produce a cumulative surplus of food and fibres over and above their consumption, and how can this surplus be channeled into investment activity without requiring in exchange an equivalent transfer of productive value to the farm sector.[65] According to Owens, a squeeze on agriculture seems to be a feature of all developing nations whether socialistic or capitalistic.

However, this squeeze on agriculture cannot be applied indefinitely without a return flow of public investment. If the squeeze is applied indefinitely in this one-way exploitation process and there are no benefits for the agricultural sector, the incentive for capital formation becomes weak. In Iran, given the high population growth and its need to import food, it cannot ignore investment in its agriculture and it may have little to squeeze from the peasants without facing the prospect of mass starvation. The case for tax reform programmes can lead to the realization of one of the principal capital-forming opportunities that a land reform can create.

As long as decisions are made on the basis of private profit, farm entrepreneurs in Iran may find economic justification to import labor-saving machinery. There are various reasons for this: (1) farm owners may have outside interests which might be more economically important; (2) Abundant labor may not be cheap labor because of certain minimum wages and social welfare laws; (3) An unskilled labor force might be difficult to

manage. Government policy often encourage the importation of such machinery by giving favorable foreign exchange terms and more easily available credit at low rates of interest.

Dorner and Kanel point out that the profitable course for the individual entrepreneur results in a cost to society which cannot forever be postponed. Given the rapid population growth and increases in farm population and the inability of industry to absorb the surplus labor force, agriculture must be organized to provide much more productive employment.[66] The large agricultural labor force in Iran before land reform lacked the economic and political power needed to increase its productivity. Before land reform there was an obvious misallocation of resources -- too much land and capital and too little labor on the large farms and too much labor and not enough capital on farms owned by the peasants themselves. The Japanese experience suggests that that technology can be adapted to fit small farms if research is specifically directed towards this end. In Iran, the reorganization of a large farm system on a cooperative basis can both absorb labor and be efficient in the use of capital.

The above circumstances yield to the Johnston-Mellor policy prescription -- that of a labour-intensive approach with reliance on yield increasing technical innovation in the earlier phases of agricultural development.[67] This system both produces increases in agricultural products and avoids displacing labour prematurely. It calls for agricultural research for large increases in the use of yield increasing inputs such as fertilizers, improved seed, insecticides and pesticides, increases in

irrigation facilities and for building of service institutions in extension, marketing and credit.

In the Iranian context, emphasis has shifted in the late 1960's to increases in agricultural productivity and now it seems that the problem of unemployment and redistribution are thought to be secondary objectives, to be resolved indirectly as output increases. Kanel and Dorner point out that higher productivity is found on larger farms but that this is hardly a relevant measure in a labor surplus economy.[68] Higher productivity is based mainly on mechanization and labor-saving techniques. Land-saving technologies associated with the Green Revolution such as improved seed varieties, fertilizer application, improved insecticides and pesticides can be applied to the redistributed lands. Under conditions of abundant surplus labor and a high population growth, productivity per unit of land seems to be the most relevant measure for policy purposes. The purpose of economic development is to raise labor productivity, but not just for the few large farms but broadly throughout the agricultural sector.[69] And to do this, land reform must be implemented.

Even with the rapid growth of the industrial sector in Iran, it seems that nonfarm jobs will not keep up with the population explosion. Increasing agricultural unemployment and underemployment and a larger unemployment in the cities seems inevitable.

In the short run, data indicates that in some areas, the shortened growing season may permit multiple cropping and add to labor requirements. Increased yields per acre may also require more labor. In some cases,

however, it may become more profitable to displace a more labor-intensive crop such as cotton with one such as wheat which may mean that the total man days of labor may be reduced. However, no serious generalizations can be made and the employment effects of the new varieties unless analyzed in a specific regional context. Such data is not yet available for Iran.

However, the negative effects of the green revolution must also be taken into account. The green revolution has led to unequal regional growth and this touches the question of employment, welfare and stability. Regions with irrigation have the capacity to respond to the new technology which means that incomes in these areas will grow phenomenally. It is the differences in income in different regions of the country that could lead to severe economic and political implications. Although theoretically the new seeds and fertilizers are neutralized to scale, in practice the factor and product markets in which the technology is used often have large imperfections.[70] Often it is the larger, more modern, more efficient farmer who obtains fertilizers and irrigation water, which means their incomes have increased tremendously. This could lead to both rising land prices and more important, mechanization. The result would then make tenants into laborers and increase the number of people displaced from agriculture. It is feasible that growth in government, public works or the service and supply industries can absorb some of this additional displacement. However, there would evolve a large number of uprooted men -- dispossesed, déracine which could have severe sociopolitical implications for the nation. There are ways and means to close the gap between certain social and private

benefits on certain forms of agricultural technology. "Higher taxes on tractors, a possible lowering of wheat and rice prices as a stimulant to the rest of the economy; higher interest rates on capital; progressive land taxes and perhaps even ceilings on farm size so as to make uneconomical from a private point of view, certain forms of technology.[71]

Neither growth nor equity problems can be solved by the green revolution or by the agricultural sector alone. A common feature of most developing countries, including Iran, especially before land reform, is a shared distribution of land ownership and a relatively slow growth of nonfarm employment. Thus, those who own no land or very small parcels, or who farm as tenants or sharecroppers have only a small access to income. In a society like Iran where 60 percent of its population is involved in agriculture, the income level of the majority is no help in determining the demand for foods in the economy. When the rural people are poor, little economic demand is generated.

There is, of course, a conflict between a more equal distribution of income and demand expansion and the concentration of income which would allow highrates of savings and investments. But this conflict might be resolved if luxury or conspicous consumption (especially of imported goods) could be reduced to a smaller proportion of the income of property owners; then the proportion of savings to national income could be considerably raised without lowering the standard of living for the man of the population.[72]

To state the problem as a choice between productivity and equity is

an oversimplification. In Iran there must be attention given to both the distribution and production issues and policies have to be redirected to meet both these issues; their neglect may mean the failure to achieve both the growth and development objectives. In Iran, there is an overemphasis on production as a goal rather than the creation of opportunities for the masses of rural people.

The essence of economic development is not merely to keep man alive under any conditions; rather it is the existence of a rising cultural, educational and economic level; of a sense of improvement and betterment. In short, development calls for a sense of dominance or purposeful control over one's environment, and only under such conditions life becomes less unbearable and social conflicts less sharp. Hunger and poverty do not breed reform; they breed madness and all the ugly distempers that make an ordered life impossible.

Table 1. Results of the First Stage of the Land Reform Program, 1962-69

| | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | Total |
|---|---|---|---|---|---|---|---|---|---|
| Number of villages purchased | 3,705 | 5,002 | 1,605 | 2,991 | 1,571 | 136 | 451 | 539 | 16,000 |
| Number of farm families receiving land | 130,018 | 173,171 | 45,702 | 164,084 | 88,527 | 15,537 | 36,673 | 89,694 | 743,406 |
| Installment payments to landowners (million rials) | 339 | 223 | 426 | 1,305 | 547 | 73 | 64 | 60 | 3,037 |
| Value of lands purchased (million rials) | 3,339 | ---- | ---- | ---- | ---- | 231 | 317 | 292 | 9,868[a] |

SOURCE: Bank Markazi Iran, Annual Report and Balance Sheet as (of) March 20, 1970, table 77, p. 134, Persian edition.

(a) Details do not add up to total because of the unavailability of data for 1963-66.

Table II. Results of the Second Stage of the Land Reform Program, 1965-69

| | 1965 | 1966 | 1967 | 1968 | 1969 | Total |
|---|---|---|---|---|---|---|
| Number of publicly-endowed lands leased to farmers | 10,227 | 880 | -1,902[a] | 230 | 70 | 9,505 |
| Number of privately-endowed lands leased to farmers | 973 | 32 | -76[a] | 39 | 5 | 973 |
| Number of small landowners who have leased their lands to farmers | 129,648 | 73,203 | 3,990 | 1,861 | 3,120 | 211,822 |
| Number of small landowners who have sold their lands to farmers | 2,405 | 820 | 198 | -9[a] | 81 | 3,495 |
| Number of villages in which land reform is completed | 43,513 | 9,339 | 738 | 584 | 306 | 54,480 |
| Number of farms in which land reform is completed | 13,013 | 4,705 | 1,118 | 543 | 178 | 19,557 |

SOURCE: Bank Markazi Iran, Annual Report and Balance Sheet as (of) March 20, 1970, table 78, p. 135, Persian edition.

(a) Minus sign denotes correction of previous years' data.

Table III. Rural Cooperatives Registered, 1963-69

| | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | Total |
|---|---|---|---|---|---|---|---|---|
| Number of rural cooperatives | 1,349 | 1,124 | 1,672 | 1,515 | 1,203 | 152 | -286[b] | 8,102 |
| Number of members | 138,196 | 102,808 | 118,836 | 172,442 | 151,082 | 173,134 | 139,342 | 1,399,762 |
| Capital (million rials) | 119 | 143 | 161 | 258 | 339 | 369 | 345 | 1,984 |
| Number of loans granted by rural cooperatives to members | 151,385 | 328,993 | 391,199 | 558,751 | 673,062 | 738,500 | 843,909 | 3,685,799 |
| Amount of loans granted by rural cooperatives to members (million rials) | 504 | 1,434 | 1,883 | 3,024 | 4,077 | 5,041 | 5,753 | 21,716 |
| Number of rural cooperative unions | 2 | 15 | 18 | 29 | 13 | 17 | 14 | 112 |
| Number of members in rural cooperative unions | 187 | 1,026 | 970 | 1,169 | 2,265 | 1,385 | 172 | 7,542 |
| Capital of rural cooperative unions (million rials) | 6 | 31 | 23 | 29 | 176 | 246 | 255 | 781 |

SOURCE: Bank Markazi Iran, Annual Report and Balance Sheet as (of) March 20, 1970, table 79, p. 136, Persian edition.

(a) Except for data on loans, totals include results achieved before 1963.
(b) Minus sign denotes correction of previous years' data.

| Sectors | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1972 (projected) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture[b] | 87.3 | 87.4 | 91.4 | 88.3 | 89.9 | 92.2 | 99.0 | 102.7 | 110.9 | 115.5 | 117.5 | 120.0 | 137.5 |
| | (31.4)[c] | (29.5) | (28.8) | (26.4) | (25.4) | (24.6) | (23.6) | (23.1) | (22.2) | (21.2) | (19.4) | (18.2) | (17.2) |
| Industry[d] | 37.9 | 47.7 | 47.7 | 45.1 | 51.2 | 57.4 | 65.5 | 72.5 | 84.9 | 93.5 | 101.0 | 113.0 | 154.2 |
| | (13.6) | (16.1) | (15.0) | (13.5) | (14.5) | (15.3) | (15.6) | (16.3) | (17.0) | (17.2) | (16.7) | (17.1) | (19.3) |
| Oil (domestic value added) | 47.7 | 52.9 | 59.5 | 65.5 | 73.8 | 75.6 | 87.6 | 98.7 | 122.9 | 132.2 | 155.5 | 180.0 | 250.5 |
| | (17.2) | (17.8) | (18.8) | (19.6) | (20.9) | (20.2) | (20.8) | (22.2) | (24.6) | (24.3) | (25.7) | (27.3) | (31.3) |
| Other sectors[e] | 105.3 | 108.3 | 118.8 | 135.1 | 138.7 | 149.6 | 167.9 | 170.8 | 180.5 | 202.7 | 231.8 | 247.0 | 257.3 |
| | (37.8) | (36.6) | (37.4) | (40.5) | (39.2) | (39.9) | (40.0) | (38.4) | (36.2) | (37.3) | (38.2) | (37.4) | (32.2) |
| GDP (factor cost) | 278.2 | 296.3 | 317.4 | 334.0 | 353.6 | 374.8 | 420.0 | 447.7 | 499.2 | 544.0 | 605.8 | 660.0 | 799.5 |
| | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) | (100.0) |

SOURCE: Bank Markazi Iran, National Income of Iran, 1959-65, p. 79; idem, National Income of Iran, 1962-67 table 16, p. 42; idem, Annual Report and Balance Sheet as (of) March 20, 1969, table 14, p. 39; and additional data provided by Bank Markazi. The 1959-61 series are not comparable with those of later years because of revision of data.

(a) Estimated by authors.

(b) Agriculture includes farming, animal husbandry, forestry, fisheries, and trapping.

(c) Percentage shares in GDP are shown in parentheses.

(d) Industry includes mining and manufacturing, construction, water, and electricity

(e) "Other sectors" includes transportation and communication, banking and insurance, wholesale and retail trade, ownership of dwellings, public and private services, and statistical discrepancies

Table V. Distribution of Labor Force among Four Major Sectors, 1959-68 (Thousand Persons)

| Sectors | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 |
|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 3,346 (53.5)[a] | 3,351 (52.5) | 3,351 (52.5) | 3,261 (51.6) | 3,242 (50.5) | 3,221 (49.4) | 3,197 (48.2) | 3,168 (47.1) | 3,141 (45.9) | 3,710 (53.1) |
| Industry | 1,293 (20.6) | 1,356 (21.3) | 1,362 (21.4) | 1,520 (24.1) | 1,589 (24.8) | 1,660 (25.4) | 1,735 (26.2) | 1,813 (26.9) | 1,891 (27.2) | 1,679 (24.0) |
| Oil | 61 (1,0) | 58 (0.9) | 52 (0.8) | 46 (0.7) | 43 (0.7) | 43 (0.7) | 44 (0.7) | 43 (0.7) | 42 (0.6) | 41 (0.6) |
| Services | 1,555 (24.9) | 1,614 (25.3) | 1,614 (25.3) | 1,494 (23.6) | 1,546 (24.0) | 1,597 (24.5) | 1,652 (24.9) | 1,706 (25.3) | 1,762 (25.8) | 1,560 (22.3) |
| Total | 6,255 | 6,379 | 6,379 | 6,321 | 6,420 | 6,521 | 6,628 | 6,730 | 6,836 | 6,990 |

Source: Bank Markazi Bulletin (Dey-Bahman, 1346 (1968), p. 51, in Persian; Bank Markazi, National Income of Iran, 1962-67, p. 58; and table 3.13.

NOTE: The 1959-61 employment figures have not been published in other sources. Accordingly, it was not possible to verify the accuracy of the data, which show no variations whatever in either total or sectoral (agriculture, oil-inclusive industry, and services) employment between 1960 and 1961.

Although it is not specified in the source, it is presumed that the 1959-61 industry data incorporate the labor force engaged in the oil industry, but not those engaged in local distribution and transportation. They have been adjusted to show the labor force engaged in industry (exclusive of oil) by finding the difference between the original oil-inclusive labor force and the employment figures pertaining to the oil industry.

The 1968 data are based on a recent unpublished study of the Iranian population and are not readily comparable with those of the preceding years.

(a) Percentage shares in total labor force are shown in parentheses.

## FOOTNOTES

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