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《研究ノート》

Reconsidering of the Lewis Model : Growth in a Dual Economy

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Introduction

W. Arthur Lewis aimed to explain the process of economic development within the classical framework which assumes that unlimited labour supply facilitates economic development (Lewis ; 1954). Lewis divides the economy into two sectors, the subsistence sector and the capitalist sector so as to analyse the different economy of each (dual economy) and its interconnections. The capital sector expands by absorbing unlimited labour supply in the subsistence sector. The marked feature of the capitalist sector is that this unlimited labour supply makes the wage in this sector constant, and the accumulation of capital is attained by the capitalists' reinvesting all the excess of profits over wages. For Lewis, this capital accumulation by capitalists is the key to development in developing countries. The Lewis model also theoretically explains the existence of inequality between the rich and the poor (exploited worker and peasants); and economic growth in less developed countries (LDCs) without hinting at Marxism.

The Lewis model has attracted a lot of economists and economic policy makers in LDCs because the model seems to clarify the structural process of economic development in developing countries. However, after forty years, it is proved that the reality has taken a different process from the Lewis model. Many LDCs still face difficulty in economic growth through capital formation in their economy. So I would like to devote a little space to examine the Lewis model. If the model does not give a general explanation of development, further discussion of the assumptions in the model may be required, to know how and why the model does not incorporate reality.

In this paper, first of all, I shall explain the Lewis model of development. In section two, the model will be further examined in terms of labour exploitation. In section three, the focus will be on the weakness of the Lewis model.

1 The Lewis Model of Development

The important feature of the Lewis model is that the economy consists of two sectors ; an agricultural, rural

and subsistence sector and an industrial, urban and capitalist sector. In the subsistence sector, population is so large relative to products and natural resources that the marginal productivity of labour in the subsistence sector is very low or zero. This is to say that there is 'disguised unemployment' or underemployment, which is a potential reservoir of labour supply to the capitalist sector. These labour could be reduced without decreasing output. Besides there are some other factors for an affluent supply of labour ; huge population growth due to low mortality and high birth rate, the daughters and wives released from domestic work, and workers from various kinds of casual jobs and the unemployment generated by increasing efficiency. Therefore, labour supply exceeds demand. Then, the labour market is in favour of capitalists, and capitalists can keep the wage constant. Lewis assumes that the supply of labour is 'unlimited' on the grounds that the capitalist can have a good supply of labour at the same wage.

The level of wages in the capitalist sector is determined by that in the subsistence sector. Because if the wage in the capitalist sector is less than the consumption in the subsistence sector, no peasant leaves the land to seek a job in the capitalist sector. According to Lewis, the capitalist wage is approximately 30% more than subsistence earnings. This gap is considered necessary to induce the transformation from the subsistence sector to make up for the higher cost of living in an urban area or the psychological cost of transfer. As the marginal product of labour is negligible or zero, the wage in the subsistence sector remain constant at a subsistent level. Therefore, the wage in the capitalist sector also remain constant. Even though it is higher than the wage in the subsistence sector because of a little inducement, it is no more than subsistence level in urban life.

In the capitalist sector, labour is hired up to the point where the marginal product is equal to the wage in order not to reduce the capitalist surplus. Since labour supply exceeds demand and the wage remains constant at subsistence level, the rate of profits is maximised. Profit minded capitalists are assumed to reinvest all profits to create new capital at a maximum rate. Then capital expansion leads to new employment. The capital accumulation becomes larger but the wage is still constant so that the surplus becomes greater. Full investment and an unlimited labour supply guarantee that both capital accumulation and employment expand at the maximum rate.¹

As it absorbs more labour, the capitalist sector keeps expanding. This process continues until the labour surplus disappears. From this point, the extraction of additional workers from the subsistence sector leads to the rise of the marginal productivity of labour in this sector. So labour transfer is accompanied by lost food production.

However, before the surplus of labour is exhausted, the increase in earnings in the subsistence sector may occur and affect the expansion of the capitalist sector. Lewis explains this with the terms of trade between the two sectors on the assumption that they are producing and exchanging different things. Firstly, the change of absolute numbers of population by labour transfer will lead to the two situations given below : One is that due

¹ In the model, the curve of marginal product of labour shifts outward. It means that simultaneously the demand for labour and total profits increase. These larger profits are reinvested and the curve is shifted more outward. See Appendix A.

to the reduction of the absolute number of people in the subsistence sector, even if there is surplus labour and total productivity does not rise, the average production per head may possibly increase. This increase in earnings in this sector pushes up the wage in the capitalist sector. The other situation is that as the size of the capitalist sector increases relative to the supply of subsistence goods, it brings about the higher price of the subsistence goods. Therefore, the terms of trade move against the capital sector and capitalists' profits are diminished. Secondly, if the increase in productivity of the agriculture sector occurs, by introducing new technology or more efficient farming rotation, it will directly increase the average earning per head in this sector, and indirectly, the capitalist workers wage will rise. In any case given above, the result is the reduction of the capitalist surplus and, therefore, the retarding of the rate of capital accumulation.

Lewis, then, expands his theory beyond one country. Using the classical framework which assumes that all countries have surplus labour, he suggests that the capitalist might avoid retarding the capital accumulation by importing labour from, or by exporting capital to, countries where surplus labour is still available at a subsistence wage.

2 Labour Exploitation

Lewis considers economic development as rapid capital accumulation. This is expressed best when he says :

The central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 per cent of its national income or less, converts itself into an economy where voluntary saving is running at about 12 to 15 per cent of national income or more. (Lewis ; 1954, p. 155)

Lewis believes that only capitalist can save and invest their income. The notion behind the model is now obvious. The income distribution favours the saving class, that is for Lewis, the capitalist class, in order to facilitate rapid economic growth. This is attainable by keeping the wage in the subsistence and the capitalist sector constant. This will lead us into a further consideration of two implications behind the model ; unequal distribution and labour exploitation.

Firstly, the gap between the rich and the poor in LDCs at the outset of economic development can be explained clearly by this model. As the model shows, the capitalists profits increase more and more while workers wages are kept constant despite the privilege of economic development. The more the gap between them widens, the more capital is accumulated. Total profits are only used for more capital formation and are never redistributed to workers. Redistribution is merely the obstruction of the process of economic growth.

Secondly, unequal distribution is open to further explanation of labour exploitation. Lewis assumes that agricultural income is distributed equally in the subsistence sector so that the earnings in this sector is the average productivity per head. With this assumption, the labour transfer would soon provoke the rise of earnings in the subsistence sector because the same output is divided by fewer peasants. The rise in the earnings of peasants may occur through the exchange between two sectors. If the intersectoral commodity market occurs to

provide subsistence foods to the industrial workers, the more labour transfers, the more the remaining peasants can make profits from selling the surplus products which the transferred workers are supposed to consume before transfer. To avoid this situation, in other words, to keep peasants wages the same, the existence of the landowner class which appropriates the surplus in the agricultural sector and keeps the earnings of peasants constant, is implicitly behind the Lewis model. What the Lewis model provides for us, is the structure of exploitation based on two classes (the exploiters and the exploited) rather than two sectors (agricultural and industrial). Mechanisms of the model work not through surplus labour but through labour exploitation (Weeks ; 1971). Without the appropriation of the surplus by the capitalist and landlord class, labour transfer, that is to say, economic development can never occur in the Lewis model. In addition, it should not be overlooked that labour exploitation is even truer when the model is expanded to the world-wide economy. The capitalist sector can keep enjoying the more rapid capital formation with the world-wide supply of surplus labour which is kept underdeveloped. The Lewis model theoretically explains Marxist labour exploitation, which leads to the coexistence of great wealth in minor hands and mass poverty without using Marxist language.

Having observed the structure of exploitation, we may further consider the assumptions on which the Lewis model is constructed in order to examine whether the model is entirely valid for explaining general economic development.

3 Criticism of the Lewis Model

In spite of its theoretical clarification of the model, the reality of LDCs has not followed the locus of the model. On the one hand, several countries like new industrialised countries (NICs) succeed in capital accumulation and attain economic development by industrialisation. On the other hand, many LDCs have suffered from heavy debts, being away from indigenous capital formation in their economy, even though they have an affluent supply of labour. In some countries like Ghana small farmers accumulate capital successfully apart from labour transfer (Elkan ; 1978, p. 68). Lewis considers that the classical framework is more applicable to the analysis of the situation in LDCs. The model is constructed on the basis of Western historical economic growth. Is this model and its assumptions really applicable to the process of development of present LDCs?

First of all, it is worth while examining the classical framework of 'unlimited surplus labour', which is one of the critical assumptions of the Lewis model. Zero or negligible marginal productivity indicates the existence of disguised unemployment. Jorgenson focuses on this point, that the most prominent difference between the classical and the neo-classical approach to the development of a dual economy is the allegation about the existence of disguised unemployment (Jorgenson ; 1967). Admitting that the classical assumption is not relevant to some parts of Africa and Latin America, Lewis considers that many other countries, especially Egypt, India and Jamaica, are incorporated into the classical framework. However, Jorgenson points out Schultz's study in which he found that the provinces in India with the highest death rates because of epidemics also had the highest rates of decline in acreage sown to crops during 1918–1919. This indicates that in Indian

agricultural villages at the time of the epidemic marginal productivity was not zero nor negligible (Schultz ; 1964, pp. 66–67, quoted in Jorgenson ; 1967, p. 51). Schultz also reaches the same conclusion (rejection of a marginal productivity of zero in agriculture) in Guatemala and India in a different period. Other various historical and anthropological data also shows that the existence of more than five per cent disguised unemployment is rarely observed in underdeveloped countries. On the contrary, a seasonal shortage of labour is found. Therefore, Jorgenson concludes that the classical approach must be rejected (Jorgenson ; 1967). Although it is true that massive populations migrate from rural areas to urban areas, a simple assumption of anytime–available affluent labour surplus must be rejected. Otherwise, we would be misled about the consequence of labour transfer.

Secondly, the Lewis model tells us that the more the rate of labour transfer to urban employment, the more the economic grows, and more jobs are created. This simple logic, however, is not relevant to the reality of technical change. In the study of economic development in Japan before 1920, it is pointed out that when capitalists enjoy the surplus of labour, technological innovation tends to be labour intensive to get profits by using a cheap labour force (Fei, Ohkawa, and Ranis ; 1985). However, nowadays, the economy in LDCs has been getting deeply involved in the global economy. More sophisticated, cheaper and labour–saving technology is easily obtainable through brisk international trade or transnational corporations. Then, it is no wonder that profit–minded capitalists reinvest their profits in more sophisticated and labour–saving tools, equipment or technology. Consequently, total output increases immensely. If this situation apply to the model, the workers wage remains constant for the maximum profit of capitalists, and it will create no more jobs (Todaro ; 1992, p 72). In reality, the quantity of employment decreases rather than staying the same. Capital is formed at the expense of labour–intensity.

Thirdly, in reality, the wage in the industrial sector remarkably rises long before the labour surplus is absorbed. So the assumption that the wage in the capitalist sector is kept constant in a competitive labour market in a situation of the unlimited supply of labour, appears to be wrong. There are a number of reasons for this rise ; institutional influences such as strong labour unions, the standard wage of multinational corporations, and public service scale. In addition, as I already mentioned, capitalists employ more labour–saving equipment to maximise their profit. Consequently, more skilled and more educated workers who can manage this sophisticated equipment or can adjust themselves efficiently to a modern work environment, are required.² Since this skilled labour market is not so competitive in LDCs, the wages in the capitalist sector rise and differ widely according to the worker’s ability.

What Lewis did not take into account was that being induced by an expected high wage in the capitalist sector, labour keeps migrating from rural area to urban area. If labour exploitation in the subsistence sector is taken into consideration, the situation would be more accountable. Whether the marginal product is zero or not,

2 Here, Lewis’s view which considers that the growth of the supply of skilled labour and the growth of capital are a single phenomenon seems to be incorrect.

the remaining peasants have to work harder to keep the same output as before labour transfer in order to create a surplus for the landlord class. It could be said that it is the rational choice of peasants to follow the already transferred ex-neighbours or relatives for the better chance of living in a city rather than harsh life in a village. Then, in the capitalist sector, labour-saving technology sweeps away their job opportunities. At present, one of most serious problems in the LDCs is the heap of urban unemployment rather than underemployment in rural area.

Last of all, it would be untrue to say that all saving is done by capitalists for economic growth while ignoring the middle-classes or small-farmers. Bauer and Yamey point out that many individuals try to save and invest for their future even under unfavourable conditions such as the imperfect institutions for saving and investing and the large family system relative to income. They consider that economic development is the result of a combination of social, cultural, political and economic changes. Therefore the increase in the individual's saving and investment contributes to capital and economic growth. On the contrary, Lewis definitively says that the wage and salary classes can only save as much as 3 per cent of the national income net, and those savings do not contribute to economic growth. He mentions Japan as an exception. However, this exception could succeed in rapid capital accumulation during labour transfer, as occurred after 1868. Lockwood points out that in nineteenth-century Japan, 'the great bulk of new investment resources came... increasingly from personal and business savings' (Lockwood, 1955, pp. 268–70 quoted in Bauer and Yamey ; 1957, p. 133). Moreover, this process of capital accumulation stimulated the market and induced more individuals' saving and investment. It is ironical that Lewis's only exception could attain capital accumulation fairly well in a dual economy comparing it with LDCs.³

Concluding Remarks

The Lewis model provides us with quite a clear picture of the dual economy, unequal distribution and labour exploitation. However, unlimited surplus labour is not regular or general in the subsistence sector and not in great demand at all in the capitalist sector because of labour-saving technology. As a result, the mutual relation between labour transfer and capital accumulation breaks down. Moreover, because of the false assumptions, the real and serious problems such as poverty, urban unemployment and agricultural stagnation in LDCs have never surfaced in the Lewis model itself. On the contrary, adhering to the gap between the capitalist and labour, Lewis neglects some factors, such as the individual savings of poor workers, small farmers and the middle class, for economic development. As we can see in the examples of Japan and Ghana, private saving can be one of the vital factors for capital formation in a country.

3 It is also true that the constant wage and unlimited labour supply due to dense population relative to resources made rapid capital accumulation possible at a certain period after 1868 in Japan. There is a study which points out that labour transfer between two sectors continued from 1870 to 1920 in Japan (Fei, Ohkawa and Ranis ; 1985). Further study about Japanese economic growth in contrast with the Lewis model is interesting, but lies outside the scope of this paper.

Hence, we could say that the model provides a general explanation of how inequality in LDCs develops, and it also provides ground for constructing a more accurate model based on the prospect of sounder and more sustainable economic development by being analysed how the model fits reality and how it does not.

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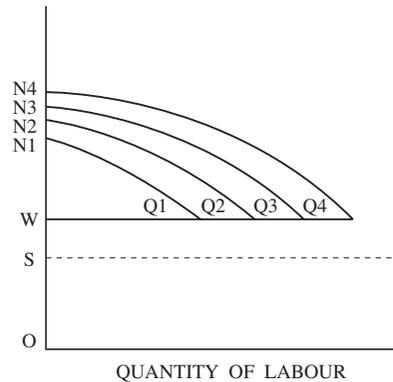
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Appendix A

OS-Average subsistence earnings

OW-The capitalist wage

WN₁ Q₁-The surplus in the initial stage



From Lewis (1954), p. 152.