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**INAUGURAL SIR W. ARTHUR LEWIS
MEMORIAL LECTURE**

**AGRICULTURE AND THE REST
OF THE ECONOMY: INTERACTIONS
AND PROSPECTS FOR THE FUTURE**

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INTRODUCTION

Mr. Chairman, President and Executive Members of the Caribbean Agro-Economics Society, Distinguished Ladies and Gentlemen. I am honoured by the kind invitation of the Caribbean Agro-Economics Society to deliver the Inaugural Sir W. Arthur Lewis Memorial Lecture.

Sir Arthur Lewis was a friend of the Caribbean Agro-Economics Society, not only indirectly providing support during his time as President of the Caribbean Development Bank (CDB) but also lending his distinguished presence and authorship to at least one of the annual conferences.

It is well-known that Sir Arthur Lewis was one of the world's outstanding economists. Winner of the Nobel Prize in Economics, first President of the CDB, economic adviser to governments in the Caribbean, Africa, Asia and Europe, author of still influential books in the field of development economics, author of one of the most influential economic journal articles i.e. his famous "*Economic Development with Unlimited Supplies of Labour*", Sir Arthur Lewis nonetheless managed to extend his talents to many other fields of economics. I became acquainted with his work as an undergraduate in England in the mid-1960s in the area of microeconomics. His classic book on Overhead Costs was compulsory reading. Later on, I discovered Lewis as an economic historian indeed as one of the first

quantitative economic historians, applying the tools of statistics and economic theory to the analysis of economic patterns and economic development in historical perspective. He featured very prominently in the debates of the times on nineteenth century production, trade and growth. He authored several important articles on the economic history of the period between the two world wars, notably *Economic Survey 1919-1939*. This professional interest in economic history was followed up in the 1970s with a large, detailed study of the evolution of industrial economies between 1870 and 1914 and a gem of a survey on the interactions between developed countries and developing countries called *The Evolution of the International Economic Order*.

Lewis is less well-known as a writer on agricultural economics. To the best of my knowledge, there are three publications by him in the field. The first is a paper entitled "*Issues in Land Settlement Policy*" which he wrote for the Caribbean Commission in 1951. The second is a paper entitled "Thoughts on Land Settlement" published in the *Journal of Agricultural Economics* in 1954. In these two papers Lewis provided a blueprint for Caribbean agricultural development dealing with issues of land tenure, agricultural investment, optimal farm size, agricultural education and research, and agricultural technology. The third paper by Lewis first published in 1960 dealt with "*The Shifting*

Fortunes of Agriculture in relation to the rest of the economy. It is this last paper which provides the theme for my address.

You will forgive me, I am sure for drawing upon Lewis' unique methodology of economic history to illuminate a neglected issue of tremendous importance to the quest for sustainable agricultural development. I can best set the stage by providing you with the essentials of Sir Arthur's argument.

LEWIS ON THE SHIFTING FORTUNES OF AGRICULTURE

Lewis begins with typical boldness and clarity: *"The fortunes of agriculturalists depend not only upon the prices they receive but also upon their productivity"*. Furthermore, *"In practice, farmers are interested not only in their own absolute standard of living, but also in how their earnings compare with earnings in other occupations"*. He posits that relative agricultural incomes or the factorial terms of trade depend on the comparative rates of growth of demand for agricultural and non-agricultural commodities, on the relative factor productivities of the sectors, and on population movements with respect to the agricultural sector.

Lewis argues that where agriculture is domestic market-oriented, growth in agricultural incomes cannot be sustained independently of economic growth in the rest of the economy because of the less than unitary elasticity of demand for food. On the contrary, "the farmers' position is much more hopeful if development begins outside agriculture", be it in manufacturing, mining or tourism. Non-agricultural growth generates a sustainable demand for agricultural commodities provided there is strong export performance or growth in agricultural productivity. Fulfilment of either conditions prevents the balance of payments for constraining aggregate economic growth.

THE CARIBBEAN SITUATION POST 1960: AGGREGATE ECONOMIC GROWTH

The experience of Caribbean economies since 1960 provides a rich laboratory for assessing the Lewisian propositions outlined a

few moments ago. In all countries, aggregate economic growth has been variable, with alternating periods of positive growth and economic stagnation or decline. To illustrate, Jamaican real gross domestic product grew at an average annual rate of 4.4 per cent between 1960 and 1970, decreased by 1.1 per annum between 1970 and 1981, and expanded at an average rate of 1.2 percent between 1980 and 1989. In Trinidad and Tobago, the average annual rate of growth of real gross domestic product was 4.1 percent between 1960 and 1970, 5.1 per cent between 1970 and 1980, and negative 5.5 per cent between 1980 and 1989. Guyanese economic growth during the 1960s and first half of the 1970s was succeeded by a prolonged period of decline which seems to have ended in 1991. The OECS countries experienced economic stagnation during the 1970s and early 1980s but have largely prospered since 1986.

In Jamaica and in Trinidad and Tobago, the annual average rate of growth of agricultural gross domestic product was substantially slower than aggregate growth during national expansionary periods. There is a hint of contracyclical interaction here. The rest of the economy does not uniquely pull agriculture along during economic expansion, it may also slow the rate of agricultural growth by drawing resources away from the sector. This is particularly because of the greater attractiveness of opportunities in the non-agricultural sectors, because governmental policies restricted the ability of agriculture to compete for resources, and also because of factor pricing limits set by product market conditions such as high price elasticity of demand, quotas, and negotiated prices. Agricultural growth relative to the rest seems to be enhanced during generalized economic recession by the capacity of the sector to absorb displaced workers and by switches in demand from imports to home goods induced by foreign exchange scarcity.

RELATIVE INCOMES

Kuznetsian methods may be used to describe patterns in the sectoral distribution of incomes. The Kuznets measure of relative per worker income for any sector is the sector's

percentage share of aggregate income divided by its percentage share of aggregate employment. The relative income and profit indices are bounded by 0 and 1 (or 0 and 100 if you prefer).

Employee compensation per worker as a measure of labour income seems considerably lower in agriculture than in the rest of the economy on the basis of the limited evidence available. Relative labour incomes for agriculture averaged 0.234 in Jamaica during 1974-1988 and 0.351 in Trinidad and Tobago between 1975 and 1985. Thus agricultural labour incomes per capita are less than one-fourth of the economy-wide average in Jamaica and just slightly more than one-third in Trinidad and Tobago. Another way of making the point is to state that in Jamaica an agricultural worker on average received less than 30 per cent of a commerce sector worker's pay, less than 20 per cent of the income earned by an employee in manufacturing, less than 13 per cent of the income of transport workers, less than 10 per cent of the wages of his counterpart in commerce, and less than 6 per cent of his counterpart in the mining sector. Sectoral inequality of labour incomes is less acute in Trinidad and Tobago. Per capita agricultural sector incomes are equivalent to 42 per cent of mining sector income, 37 per cent of commerce sector income, 30 per cent of income received by manufacturing and construction sector employees, and 17 per cent of the income of workers in the transportation sector.

The relative impoverishment of agricultural workers has tended to diminish over time particularly vis a vis commerce but not rapidly enough to eliminate the substantial sector differences in per capita incomes. Small wonder, then, that the agricultural sector experienced sustained major loss of labour. In Jamaica, agriculture's share of the labour force decreased from 37 per cent in 1969 to 28 per cent in 1989; in Trinidad and Tobago the decline was from 20 per cent to 7 per cent. Low labour incomes relatively speaking is not the sole reason for the reduction in the agricultural labour force, but I surmise that it must have been a significant factor.

What explains the persistence of relative labour income differentials? The explanations cannot be found solely in the structure of

agricultural labour markets. True enough the agricultural sector is less unionized than industry, but one doubts whether in either Jamaica or Trinidad and Tobago the agriculturally employed are significantly less unionized than industrial workers. Likewise, while educational levels are considerably lower among agricultural workers than among workers in sectors such as manufacturing and commerce, the same cannot be said for several other sectors with as great an income advantage. I suggest that the answer lies along Lewisian lines.

PRICES AND PRODUCTIVITY

You will recall that Sir Arthur Lewis attributes some explanatory power to relative prices. The facts on the Caribbean are somewhat inconclusive on the issue of whether prices of agricultural output as a whole deteriorated relative to prices of non-agricultural output. The data on Jamaica are supportive on the thesis of relative price retardation, while the experience of Trinidad and Tobago is the opposite. Using the implicit price deflators of gross domestic product as sectoral and aggregate output price indices, one can establish that for the period 1969 to 1989, the average annual percentage increase of Jamaica agricultural prices was about 6 index points slower than that of industrial prices, except for the 1969-1974 sub-period. Agricultural prices also grew about 4 index points more slowly than the price of aggregate GDP. For Trinidad and Tobago, for 1969-1989 as a whole, agricultural prices grew 1 index point faster annually than industrial prices and 3 index points faster than the price of aggregate GDP. However, during 1970-1974 industrial prices grew twice as rapidly as agricultural prices.

Real agricultural prices or the purchasing power of agricultural output decreased persistently in Jamaica. Over average, real agricultural prices fell by 40.5 per annum. In 1980-1984, the rate of decrease was as much as 15 per annum. In contrast in Trinidad and Tobago, real agricultural prices increased by about 5 per annum overall with particularly sharp annual rates of acceleration of 14 per cent in 1975-1979 and 7 per cent in 1980-1984.

Let us now turn to the explanatory factor

on which Lewis lays the greatest stress, namely agricultural productivity. For present purposes, we measure agricultural productivity as real GDP per worker in the agricultural sector; likewise for other sectors and aggregate productivity. Kuznetsian indices provide a convenient means of description and comparison. Unfortunately, only data for Jamaica is readily at hand so that the case of Trinidad and Tobago cannot be examined at this time.

The Kuznetian measure of relative product per worker reveals a tremendous difference in agricultural labour productivity relative to other sectors. Jamaican agricultural productivity averaged over the 1960 to 1988 period is 2 per cent of labour productivity in the mining sector, 10 per cent in transportation, communications and public utilities, 14 per cent in construction, and installation, 15 per cent in commerce, and 19 per cent in manufacturing. Moreover, there is no sign of a long run improvement in agriculture's relative product per worker. In 1960, agricultural relative product per worker was 0.308. By 1974, it had decreased to 0.226. A slow revival then ensued, but by 1990 i.e. 16 years later when it reached 0.301, it still had not surpassed the 1960 level of productivity. Herein lies one of the major reasons for agricultural retardation.

To sum up the argument so far, agriculture will not be sustainable if it continues to lose labour at a rapid rate, but it will not be able to retain labour at the requisite levels if agricultural incomes fail to keep pace with non-agricultural incomes. Agricultural incomes has thus far to keep up with other sectors not so much because of any peculiar structural features of agricultural labour markets but because of the relative weakness of agricultural commodity prices and the relatively low level of agricultural productivity.

PROSPECTS FOR THE FUTURE: WHAT NEEDS TO BE DONE

In the time remaining to me, I shall attempt to quickly identify the requirements for a brighter future for agriculture under two broad categories.

Strong Demand for Agricultural Commodities

With respect to domestic demand, the resuscitation of economic growth in Caribbean countries should result in expanded demand for agricultural products either as final goods or as inputs into the production process of non-agricultural sectors. But this would not necessarily entail stronger demand for Caribbean agricultural products unless there is product transformation, product innovation, and marketing refinement to adjust to the changing taste patterns and preferences of Caribbean consumers. Agro-industry would have to be considerably more dynamic and innovative than it currently is.

With respect to foreign demand, the Commonwealth Caribbean's price disadvantage in the markets for bananas and sugar within the overall context of weak global demand growth does not auger well for the future. Stronger export demand in relation to these two commodities necessarily implies larger market shares. An increase in market shares itself requires unprecedented marketing effort, a fundamental re-organization of international market policies and strategies, and substantial productivity gains reflected principally in internationally competitive prices.

Productivity Growth

Sir Arthur Lewis has repeatedly made the point that "the income of farmers producing for export cannot rise significantly above the income of farmers producing for the home demand", and that the productivity of tropical food farmers relative to those in temperate countries is the main determinant of the international and domestic factorial terms of trade for agricultural producers. Productivity growth is thus essential for improving intersectoral and international terms of trade.

Several policies would have to be implemented to make this a reality. There would need to be substantial technological improvements in production and processing, the achievement of which is conditional upon the development of the systems for research and dissemination, appropriate fiscal incentives for

adoption of new technology, and the creation of economically viable sized production enterprises in both agriculture and agro-industry. Each of these policy areas can be elaborated in a variety of ways which I do not attempt here. For instance, it would be intriguing if not challenging to spell out the implications of a quest for economically viable farm size for issues such as land settlement policy, farm consolidation, asset transference rules and fiscal treatment.

CONCLUSION

Mr. Chairman, President, Distinguished Ladies and Gentlemen, I shall not attempt to summarize the content of my address. Instead, I shall conclude with the following plain statement. Agricultural development is closely intertwined with the general economic development of the Caribbean region. However, there can be no sustainable agricultural development unless agriculture offers to those who labour in it the prospects of incomes not greatly dissimilar to those generated by other sectors of the economy. How to achieve that objective is the challenge before us.

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