W. Arthur Lewis's Theory of Economic Growth: a Review with 50 years of Foresight

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Abstract

This article sets out to review Lewis 1955 without making any concession to its age. It examines the fit of Lewis' analysis with the early growth model of Harrod-Domar and the later exogenous technological progress Solow-Swan model and endogenous model approaches. We find Lewis' analysis builds on and is consistent with these approaches. His analysis is different to the usual mechanistic growth analyses and less susceptible to the usual assessment of growth theory that, "its link with public policy is often very remote. It is as if a poor man collected money for his food and blew it all on alcohol" (Sen 1970, pp. 9-10).

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W. Arthur Lewis's Theory of Economic Growth: a Review with 50 years of Foresight[1]

W. Arthur Lewis was a rare person in many respects. He is just one of two Caribbean persons who have won a Nobel Prize. Notably, the other person is his fellow country man, Derek Walcott from the island of St. Lucia. He was born January 23, 1915 and died 76 years later June 15, 1991. Sir Arthur Lewis, as he became, studied economics at the London School of Economics, famously occupied the Stanley Jevons Professorial Chair at Manchester University and was later Professor at Princeton University, among many other things, including Vice-Chancellor of the University of the West Indies[2].

Fifty years after its publication, I set out to read his *Theory of Economic Growth* without making any concession to its age. It is this that he describes in his Nobel autobiography as "my so-called classic book of 1955" (Lewis 1979), that is also regarded as a major contributor to the development of development economics as a sub-discipline (Ranis 2004). I wanted to be informed about the issues and problems of economic growth from a *now* perspective by this fifty year old book. This is neither an unfair nor unique demand to be made of a book. Great books rise to such challenges and indeed, are central to what makes them great – they transcend the milieu in which they were written. *Theory of Economic Growth* seeks to explain a phenomenon central to issues of how the economies of nations develop and as such invites such a challenge. Lewis wrote in the preface: "The last great book covering this wide range was John Stuart Mill's, *Principles of Political Economy*, published in 1848", over a hundred years prior to the Lewis's 1955 publication.

This book is about economic growth because someone had already written a book about how nations create wealth and Lewis sought to further disentangle the process through which the wealth of nations are derived and in so doing identified economic growth – the growth of output per head of population – as the primary variable in which interest should be placed.

> "'Growth of output per head of population' is rather a long phrase to repeat over and over in a book. Most often we shall refer only to 'growth' or to 'output', or even

[1] I should like to thank Pat Northover, University of the West Indies, and Ron Smith, Birkbeck College, University of London, for their comments and helpful suggestions.

[2] See his Nobel autobiography at http://nobelprize.org/economics/laureates/1979/lewis-autobio.html

> occasionally, for the sake of variety, to 'progress' or to 'development'. Whatever the short term used, 'per head of the population' should be understood, unless total output is clearly specified or clearly intended by the context" (p.10).

The growth of per capita output is clearly an important and deliberate choice. From the general Adam Smith function that seeks to explain the wealth creating powers of nation, Lewis took the partial derivative of the wealth of nations with respect to output as the driving force of that function but further identifies its second derivative with respect to time as the critical variable in the development process. He explains that it is not total output that is at the heart of the wealth creation of nations, but rather, it is the rate at which output grows, corrected for population growth, which is the fundamental basis for the development of the wealth of nations.

The purpose of the book is to "provide an appropriate framework for studying economic development" (p.5). The focus on the growth in per capita output is emphatic:

> "It is possible that output may be growing, and yet hat the mass of the people may be becoming poorer. We shall have to consider the relationship between the growth and the distribution of output, but our primary interest is in analysing not distribution but growth" (p.9).

He recognises, of course, that distribution and consumption are important in the development process:

> "We shall certainly have to consider the relationships between output, consumption, saving and government activity, but we shall be doing this from the angle of growth of output, and not from the angle of growth of consumption. …
>
> This book is not, however, an essay on whether people ought to have or to want more goods and services; its concern is merely with the processes by which more goods and services become available. The author believes that it is good to have more goods and services, but the analysis of the book does not in any way depend upon this belief. In order to emphasize the fact that the book is about the growth and not about the desirability of output, he has relegated what he has to say about desirability for an Appendix at the end of the book" (pp. 9-10).

The judgement to identify this rate of growth of output is worthy of remark – it is not remarkable but it is worth remarking upon because some people make this a point of criticism. Some undergrads could be forgiven for thinking that Lewis is not interested in the

distribution or consumption or think them unimportant but rather are subjugated to economic growth. This, however, would be an obvious misrepresentation.

Economic growth, the growth in per capita output, is identified as the linchpin of the development process. With the lessons of Smith, Ricardo, Mills, and Marshal behind us, there is mastery implicit in the choice and treatment of the variable. It now allows a highly analytical economist to write a book that examines the broad lesson of the growth process without the need to go into the minutiae of technical economic analyses.

Let us take stock for a moment of where we are. Modern growth theory was initiated with Harrod's pioneering 1939 Economic Journal article, *An essay in dynamic theory*, integrated with Domar's 1946 Econometrica article, *Capital expansion, rate of growth and employment,* and to these can be incontestably added Solow's seminal 1956 QJE paper *A contribution to the Theory of Economic Growth*. These have given rise to a vast and still growing literature. Of this literature, in 1994, N Gregory Mankiw wrote that "economic because growth has reawakened". "Work on economic growth", he wrote, "stopped in the 1960s economists had nothing new to say". The 1980s indeed saw a reawakening that culminated in the Barro & Sala-i-Martin's landmark book called simply *Economic Growth*. This and other works have indeed spawned excitement and a literature.

I am not so sure that Mankiw's "had nothing new to say" is the correct phrase, rather, *what they had to say* and *how they said it* may have been more central to the demise. Let me illustrate. In the 1970s Penguin published the influential Modern Economics Readings series, and the *Growth Economics* title was edited by Amartya Sen, and in it he explained that the modern revival of growth economics in the immediate post-war period, was spurred by the reconstruction of the war damaged industrial economies and interest in economic growth from both the under-developed economies and the socialist economies.

> "With this immensely practical motivation it would have been natural for growth theory to take a fairly practice-oriented shape. This, however, has not happened and much of modern growth theory is concerned with rather esoteric issues. Its link with public policy is often very remote. It is as if a poor man collected money for his food and blew it all on alcohol" (Sen 1970, p.9).

Now just as with the current literature today, with issues concerning *convergence* and technological *change.,* the literature of the immediate post war period was riven with controversies and Sen's telling comment on this is:

> "The reader should be warned that the extent of the controversies in growth theory may not be a good guide to the innate importance of the issue" (Sen 1970, p.10).

Sen's 1970's view I find both compelling and convincing and indeed relevant to the manifestation of growth theory in 2005 – but we run ahead.

In all of growth theory we set out to model the factors that influence economic growth. For a long time now we tend to teach about per capita growth in an economy using a production function of the form

$$Y_t = K_t^{\alpha}\left(A_t L_t\right)^{1-\alpha}, \quad 0<\alpha<1 \tag{1.1}$$

where, Y_t is output during time period t, produced by physical capital K_t and labour L_t, with technology and resource endowment A_t , giving effective labour input measured as $A_t L_t$. Population and technology are assumed to grow at fixed rates, n and g , respectively, so that

$$A_{at} = A_0 e^{gt} \text{ and } \mathrm{L_t} = L_0 e^{nt} \ .$$

Growth in the stock of capital depends on investment I_t , which is assumed in equilibrium to be equal to savings S_t given as a simple proportion of income

$$S_t = sY_t \ ,$$

and depreciation in the capital stock takes place at a rate δ, so that the growth in the stock of capital over time period t is:

$$\frac{dK}{dt} = I_t - \delta K_t = sY_t - \delta K_t \ .$$

Using lower case letters to denote the logarithm of a variable and ~ over lower case letters to denote units per effective workers, the production function in terms of effective units, is usually written as,

$$\frac{Y_t}{A_t L_t} = \tilde{y}_t = f(\tilde{k}_t) = \tilde{k}_t^{\alpha} \ . \tag{1.2}$$

The evolution over time of the effective capital stock is then,

$$\frac{\partial \tilde{k}_t}{\partial t} = s\tilde{k}_t^{\alpha} - \left(n+\delta+g\right)\tilde{k}_t \tag{1.3}$$

This, then, determines the growth profile of the economy over time. It is the economy's ex-post equilibrium savings rate determined by the rate of investment and the factors influencing the population, depreciation and technological growth rates that the model shows as determining the output per effective worker.

From here the theory usually then go to such issues as; steady state growth conditions, consumer maximising golden rule in the steady state, issues of convergence, and explanations of how growth may be initiated and sustained in the long run in the absence of Solow- Swan type exogenous technological shocks in the literature on endogenous growth models.

Modern growth theory, allows for choices between work and leisure, and takes into account the effects of migration, fertility and mortality on population. It is just that they are often quickly subsumed into esoteric modelling issues. Lewis, however, sets out to conduct an in-depth examination of the factors the will determine "the will to make the effort to produce" (p.55). Here we are at least a step away from the specification of a production function. Here we are examining the factors that lay deep in the foundation of the processes that serve to promote growth and he starts with three general areas of causes of economic growth (p.23):

(i) economic activity – the will to make the human effort to increase the yield of a given effort or resource;
(ii) increasing knowledge;
(iii) increasing capital.

Lewis recognises that "growth of output per head depends on the one hand on the natural resources available, and on the other hand on human behaviour" (p.10), and it is upon this human behaviour on which he concentrates in this book. So that the first body of analysis examines the factors underlying the '*Will to Economize*', where he examines the foundations of the desire for goods.

This takes him on a wide journey from *asceticism*, "not in practice, a drag on economic effort" (p.29); *wealth and social status*; and what he argues may be the most important of these three, *limited horizons*, where "wants are limited because the goods that are know about and can be used are limited" due to the background knowledge (cultural capital) of the society. In this analysis the impact of increased income on 'primitive' and 'more advance' societies are analysed and the mechanisms that lead to differentiated diffusion of knowledge

of goods are examined. "To understand how wants become more elastic we must therefore understand how knowledge of new goods is spread" (p.31).

The discussion of '*the desire for goods*' is followed by an examination of '*the cost of effort*' – the factors determining the different attitudes of individuals and societies to effort, given an equal desire for goods. The discussion ranges over historical, environmental and biological explanations. The analysis weaves through various theories based on physical constitution, malnutrition and other debilitating diseases, and attitude to work on economic effort. There is an emphatic rejection of a particular biological argument more supported in his day: "We can certainly reject the idea that one race is superior to another, in the sense that all members of one race are superior to all members of another in performance tests" (p.36).

The historical aspect of this analysis integrates a dynamic element that is as clear and profound as if stated in algebra. This is well established when Lewis writes:

> "All explanations based on environment have, however, to face the fact that attitudes are not constant; … Explanations of attitudes have therefore to be historical as well as environmental; that is to say, if they are relying upon environment they have to show when and why the environment changed to bring about the differences which they are explaining" (p.37).

An interesting conclusion from the explanation of attitude to work and social status is that, growth is likely to be enhanced in societies where work is more highly regarded, that is, I societies where everyone works and there is no tradition of the idle rich. The "willingness to work, however, is not a necessary condition for economic growth". Rather, growth is determined by people "working more productively, using more knowledge or more capital, and taking more favourable opportunities for specialization, for trade, and for investment" (p.39). This distinction between 'working hard' and 'working more productively' is essential for distinguishing between explanation of the *absolute level* of output and the *rate of growth* of output, in which we are interested. Lewis concludes,

> "In every community there are some men whose natural bent is to experiment with new techniques, new products, or new economic forms, in defiance of established opinion or of vested interests. Some societies admire and encourage such people, while others regard them as buccaneers to be suppressed, but economic growth

depends very largely on the extent to which the social atmosphere nourishes such people, and gives them scope" (p.51.

In the last section of this *Will to Economize* chapter, Lewis concludes his analysis that the Caribbean experience of the last forty odd years is well able to confirm and one development implication, arguably, missed by many policymakers and if not missed, certainly is not emphasised enough, that resource endowment does not determine growth but rather the pattern of the development, if any growth takes place at all. The point is this: "Given [a] country's resources, its rate of growth is determined by human behaviour and human institutions[3]: by such things as energy of mind, the attitude towards material things, willingness to save and invest productively, or the freedom and flexibility of institutions. Natural resources determine the course of development," the pattern and shape of the development process but it is *behaviour* and *institutions* that determine growth (p.53). This is a telling realisation that precedes the development experience of the soon to be independent British colonies and, arguably, the implication of which has not been evident in their approach to economic growth and development. The entire book is essentially an examination of the factors that influence human behaviour and how those various factors weave together to produce a stochastic net impact on per capita growth. It is this that provides the "framework for studying economic development" (p.5). We can, in modern jargon identify these as having some impact on the labour augmenting technological progress – that element that affects the efficiency with which labour is applied in the production process.

Indeed, on reading this book, it is clear that the book essentially deals with the factors that influence labour augmenting technological progress. This is, we soon realise, the central problematic in initiating and sustaining growth in the economy. Lewis does, discuss the impact of different savings rate on growth reminiscent of this discussion in growth theory, but this is set in the context of *behaviour* results in certain investment/savings rates and this has certain technical links to economic growth. It is the manner of the analysis that makes the book distinct from the usual book on growth theory. Barro & Sala-i-Martin (1995) have written a great book on growth, but for all its innovations it is 'the usual' type of analyses of growth, Lewis' book is not. Neither is he drawn into growth controversies. He anchors himself in the fundamental no matter the area of science they reside and his analyses pursue

[3] These are this author's underlinings.

their relevance to growth in a manner that consistent with his initial objective of studying economic development.

In dealing with the issue of savings and development, Lewis' ever careful analysis is notable. He begins the section:

> "The proposition which we have established in the preceding section is that investment is necessary to economic growth. From this i[t][4] follow, in a passive sense, that saving is necessary to growth, because investment has to be matched by saving. It nevertheless remains open to ask whether the process of investment will no automatically create all the saving that is required, so that we need no worry about the level of savings, and can concentrate on investment. We can also go further and ask whether saving may not discourage investment, by destroying the market for goods, so that it is better to encourage people to spend than to save. These questions have been asked for a long time, and we have to deal with them before we begin to analyse the sources of saving in detail" (pp. 213-4).
>
> "This, then, is the answer to the question whether saving matters. It does matter. Given the level of investment, if people's desire to save is excessive there will be deflation, and if their desire to save is inadequate there will be either expansion of output if this is possible, or else inflation of prices. Given the level of investment, it is equally possible for people to want to save too much or too little" (p.214).

This, of course, viewed from the other side is the Keynesians under consumption equilibrium for a given level of capital stock.

> "Now some people hold the view that investment is so necessary in these countries in order to raise living standards that it should be undertaken even at the cost of generating inflation. It is therefore necessary to pursue that analysis to see what happens if investment is undertaken at a level which exceeds voluntary savings. The answer, in general terms, is that money income will expand continuously until it reaches a level where savings equals investment" (pp. 216-7).

The analysis is then extended to discover how this equilibrium is reached, how long it takes, and what happens in the interim to prices and to output. This analysis is firmly Keynesian.

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[4] Printers devil at work here, *is* should be *it*. The unwelcome assistant had a low marginal product in this book, this is one of only a few (p.217) from my thorough reading of the text.

Lewis is very clear on Keynes' *General Theory* constructs of nineteen years earlier: savings is equal to investment but it is investment that determines savings and not the other way around, and the equality is established in equilibrium. The notion that a nation needs to save so that investment can take place is nowhere stated or implied. Lewis is ever clear on this. Of course, there is a link between investment and saving through the mobilisation of savings but the analytical distinction remains intact throughout the analysis.

The analysis of *The Will to Economize* is followed by a chapter on *Economic Institutions*. Knowing what we do now from the success and failures of development experiences of various countries, it is clear that the functioning of *institutions,* widely defined, is critical to the development process. Over the last two decades issues of governance, corruption and the role of institutions have come to the fore in explanations of why some countries get rich while others remain poor. The weight given to this issue in the book is indicated by the fact that 120 of the 435 pages are devoted to this chapter. This now is recognised as the binding constraint in many cases, where prior lack of investment and access to market where the focus of attention. The nature and functioning of economic institutions are fundamental in supporting the will to economize. Lewis explains:

> "Institutions promote or restrict growth according to the protection they accord to effort, according to the opportunities they provide for specialization, and according to the freedom of manoeuvre they permit. … Men will not make effort unless the fruit of that effort is assured to themselves or to those whose claims they recognize: this is the fundamental argument of this section" (p.57).

This is a complex question as there is no consensus on how effort should be rewarded, the role that need should play in the process of distribution nor the impact of the interplay between effort, reward and need on the next production phase. Nevertheless, growth requires some degree of resolution to these issues.

The impact of material and non-material reward on economic growth is examined. There is a clear argument that "unless we match differential effort with differential reward, men are unlikely to take the trouble to develop their talents and resources to the utmost of their capabilities" (p.58). This is so because "Growth involves changes in the kinds and quantities of work done by different individuals; and even if innovations is introduced by order from above, growth involves also some willingness on the part of individual members of the clan to adjust spontaneously to changing opportunities, and to seek and exploit new chances" (pp. 59-

60). It is to be recognised, however, that the structural changes underlying growth will "not benefit everybody to the same extent" (p.59).

As would be expected in a book on growth capital and capital relevant institutions are central to the analysis. Lewis writes:

> "Capital formation is one of the conditions of economic growth, and the existence of a law of property is one of the conditions of capital formation" (p.60).

Fundamental obstacles to capital formation are explained:

> "If it is necessary to protect public property from private abuse, it is just as necessary to protect private property from public abuse. The maintenance of law an order is one of the primary conditions of economic growth, and many communities have declined because the state was unwilling or too weak to protect the owners of property against the actions of bandits or of mobs. … Governments, too, can be as damaging to confidence as bandits or rioters" (p.61).

A central lesson of this being that:

> "Economic growth requires that the person who is in a position to decide that the property be maintained or improved should have an interest in making the right decision" (p.62) .

This examination of the *management of property* in the process of capital formation is to be distinguished from *the reward for work* done by capital or labour. Lewis puts this latter issue succinctly:

> "We have said that men will not do their best work unless the fruit of their work is assured to themselves or to those whose claims they recognize. Problems arise so soon as it becomes difficult to distinguish the fruit of their work from other fruit, as is the case if they are working together on a joint enterprise, or if they are working with property which belongs to someone else" (p.64).

There is no answer to this to be found here but the essential issue is clearly recognised and the relevance to capital formation and growth examined within the context of the functioning of economic institutions.

Trade and Specialization famously recognised by Adam Smith as central to the creation of 'the wealth of nations' and the growth of markets are examine within this section on the

operations of economic institutions. In examining the role of economic institution with respect to these Lewis is emphatic that "Increasing specialization seems to be as much a principle of economics as of biological evolution, and its association with economic growth is beyond question" (p.70).

Capital occupies a central role in growth theory and whilst he is sanguine about our ability to measure capital/output ratios with any accuracy it is clear that industrial country capital is considerably about that of poor countries (p.60). The migration of capital from industrial countries to developing countries due to a falling rate of profit is an argument that finds little favour in Lewis' analysis and this conforms much more with the literature of today than at the time of his writing fifty years ago. Whilst noting the longevity of this explanation he noted:

> "The most notable exception to this agreement was the economist, Alfred Marshall. In *Official Papers* (page 49) he expressed the usual view, but in his *Principles* (page 681) he argued that whereas the increase in capital per head tends to reduce the return on capital, technical progress, on the other hand, provides new opportunities for using capital, and so tends to raise the rate of return" (p.248).

There is in this chapter an interesting analysis of the migration of capital (public and private foreign investments) with significant attention paid to arguments of problems of deficiencies in domestic demand. The relationship between exports and the role of agriculture in going for growth is particularly notable. Agriculture he noted, however, can act as a brake on economic growth.

> "Though the expansion of exports has the advantage of being the easiest means of starting the economy on its growth, over-concentration upon exports is just as disadvantageous as over-concentration on any other sector. The disadvantage shows itself in adverse terms of trade. If nothing is being done to raise the productivity of peasants in producing food, they constitute a reservoir of cheap labour available for working mines or plantations or other export industries. This is very much the case in the under-developed countries of the tropics, and it explains why tropical commercial produce –such as tea, cotton, oilseeds and various mineral products – can be had on terms so advantageous to the industrial countries. The labour required for producing these commodities can be had cheaply because its alternative is to stay on peasant farms growing food with very low productivity per man. So long as the peasant farms have low productivity, the temperate world can get the services of tropical labour for a

very low price. Moreover when productivity rises in the crops produced for export there is no need to share the increase with labour, and practically the whole benefit goes in reducing the price to industrial consumers. Sugar is an excellent example of this" (p.281).

This is the point of this 'surplus labour' analysis that is seminal to Lewis' contribution to economic development. No one explained this before and no one does it better, still. It remains, however, an aspect that seems to confound some analysts and one that is completely missed by others. The argument is illustrated as follows.

> "Cane sugar production is an industry in which productivity is extremely high by any biological standard. It is also an industry in which output per acre has about trebled over the past seventy years, a rate of growth unparalleled by any other major agricultural industry in the world – certainly not by the wheat industry. Nevertheless, workers in the cane sugar industry continue to walk barefooted, and to live in shacks, while workers in wheat enjoy among the highest living standards in the world. However vastly productive the sugar industry may become, the benefit accrues chiefly to consumers. This is one of the disadvantages to tropical countries (advantages to industrial countries) of the fact that their economic development has concentrated upon the export sector of the economy, and that foreign entrepreneurs and foreign capital have been devoted in the first place primarily to expanding exports. The result is that their exports are available on terms favourable to the industrial countries" (p.281).

The conclusion of this analysis is pulled together in a masterly manner when he writes:

> "The moral is not that it is wrong to expand exports, but that it is wrong to concentrate exclusively upon this sector of the economy. It is just as important to take steps to increase productivity in the sectors working for the home market, above all in the agricultural sector, and if this is done the real wages of workers in the export sector will rise *pari passu*. It is just as much an error to neglect exports as to concentrate excessively on exports, … Any development programme for a country as a whole must therefore make adequate provision for expanding exports, or for producing substitutes for imports. … With the passage ot time the growth of home demand, first stimulated by exports, encourages domestic entrepreneurship, and after a while investment for home consumption may become the chief pillar of economic growth. …
>
> One corollary of this analysis is that it explains the conditions in which economic development can take place without pressure on the foreign exchanges. If the main reason why the economy is growing is that the demand for its exports is increasing rapidly, the

> economy will be in the happy state where imports for purposes of consumption are tending to lag behind exports. In contrast, if an economy is developing mainly at the home market end, imports will be tending to grow without corresponding growth of exports, and unless it receives substantial foreign assistance, the development programme may have to be pursued behind a barrier of foreign exchange controls. To have a growing demand for one's exports is always a blessing" (pp. 281-83).

Now, just when one would think that it could not get any better he writes:

> "The conclusion of this analysis is not very startling; it is that in development programmes all sectors of the economy should grow simultaneously, so as to keep a proper balance between industry and agriculture, and between production for home consumption and production for export. Though this is rather an obvious conclusion, it conforms neither to current practice nor to current recommendation. … but the logic of this proposition is as unassailable as its simplicity" (p.283).

This summary of the argument for balanced growth is as good as we will ever read it starts with "is not very startling" but ends up stating a conclusion that "conforms neither to current practice nor to current recommendation" where nevertheless the logic of it is "unassailable as its simplicity". Reading this is like seeing the Mayor of London 2005 New Year's Eve £1 million fireworks display all over again, brilliant. This open economy aspect that is largely undeveloped in the 1954 paper, mentioned below, is in *Theory of Economic Growth* well explored (Kirkpatrick and Barrientos 2004).

The chapter on capital is central to Lewis' original contribution to economic analysis and is clearly derived from the analysis developed in another of his seminal works *Economic Development with Unlimited Supplies of Labour* published in the previous year, 1954. In the book, however, he is more able than in an article, to contextualise the argument with analyses of economic institutions, "the institutional environment – the nature of economic, social and political organization. This should not, of course, be surprising, for it is through institutions that human activity is organized. .. In every society the institutional environment is a legacy of historical forces. So that the analysis must be historical in orientation. What this means is … a study in which all aspects of human activity are synthesized in a holistic whole" (Beckford 1972, *Preface*). This perspective of *Theory of Economic Growth* can hardly be

more appropriately described. In the 1954 *Manchester School* paper Lewis summarised a part of his argument thus:

- "The main sources from which workers come as economic development proceeds are subsistence agriculture, casual labour, petty trade, … and the increase in population. In most but not all of these sectors, … the marginal productivity of labour is negligible, …
- The subsistence wage at which this surplus labour is available for employment may be determined by a conventional view of the minimum required for subsistence; …
- In such an economy employment expands in a capitalist sector as capital formation occurs.
- Capital formation and technical progress results not <u>in raising wages</u>, but in raising the share of profits in the national income (1954, p.29).

It is these arguments that underlie the analysis in the *Theory of Economic Growth*. He is at pains to point out:

- "The reason why savings are low in an underdeveloped economy relatively to national income is not that the people are poor, but that capitalist profits are low relatively to national income. As the capitalist sector expands, profits grow relatively, and tn increasing proportion of national income is re-invested.
- Capital is formed not only out of profits but also out of credit creation. ..

The implication of a monetary economy is again not lost on Lewis and the firmly Keynesian aspect of this analysis is concrete.

In the section on *Population and Resources* Lewis sets out to explain on of the fundamental population issue. Growth in output clearly does not cause population to rise to its limit, the old Malthusian chestnut, and Lewis provides an authoritative and explanation to this. He writes:

> "While it is true, … , that the population problem of some of the poorer countries is very serious, it is not true that population growth, actual or potential, is the principal reason why their levels of living are not rising. … [T]he principal obstacle to raising output per head in these countries is … that fact that their rates of capital formation, at around 5 per cent, are much too low. If they were investing 10 to 12 per cent per

annum their output per head would be rising, and this itself would be bringing down the birth rate, and reducing the rate of population growth" (p.316).

Lewis argues that Malthus was right to revise his earlier explanation that food supply would determine population growth to that deliberate human control might break the link between population growth and food supply. This argument is convincing because it is output growth, increases in the standard of living and the change in attitudes that they engender that lead to the 'deliberate human control' and the breaking of the link between population size and food supply. The transmission mechanism runs like this; an increase in capital formation leads to an increase in living standard causing a movement away from population equilibrium due to a decline in the death rate, but equilibrium is later restored by a decline in the birth rate, under deliberate control. Population size, he notes, is not primarily an economic question and "… there is no objective answer to the question 'what is the right rate at which to use up resources?' Each community has to decide these matters for itself in each generation" (p.323). There is, in Lewis' analysis no stereotypical Malthusian spectre lurking in the analysis.

Aware, of widespread arguments against economic growth as the primary focus of economic policy, in the Appendix, Lewis addresses his critics who view growth with suspicion.
Although briefly addressed in the beginning of the book, in this last section he makes the reader aware that he is himself aware of the limitations and disadvantages of growth as the central objective. He notes that growth is not desirable because it increases wealth and happiness, but because it increases the range of choice available and gives people greater control over their lives. Growth he argued, benefited women "even more than men", and this seems true now for industrial and was always obviously so developing countries, "in most underdeveloped countries woman is a drudge" (p.422).

He addresses the issue of inequalities in income distribution in the process of growth. "Economic growth", he notes, "may be deplored in so far as it is dependent upon inequality of income" (p.429) and "does not imply the rewards of growth will always be properly distributed" (p. 432). The transition to growth implies changes in social relations and the outcome of this is not Pareto optimum. There will be losers and winners even if the winners far outweigh the loser. After discussing some historical examples, he makes three important conclusions in these regards:

> "First, some of the alleged costs of economic growth are not necessary consequences of growth at all – the ugliness of towns or the impoverishment of the working classes, for instance.
>
> Secondly, som of the alleged evils are not in fact intrinsically evil – the growth of individualism ... As in all human life, such thins can be taken to excess, but they are not intrinsically any less desirable than their opposites.
>
> Thirdly, the rate of economic growth can be too high for the health of society. Economic growth is only one good thing among many, and we can take it to excess" (p.429) .

Overall, when the costs and benefits are considered, Lewis, of course, concludes that going for growth secures net benefits in spite of the costs of transformation, ".. those who believe that it would be wrong to speed up production because of the effects on social relations, or on moral codes, usually forget both that ese are already changing rapidly, and also that the results of frustrated aspirations may be even more dangerous to existing patterns thatn speeding up production would be" (p.434).

An interesting aspect of the *Theory of Economic Growth* is the non-technical explanations of standard economic issues, such as 'what should be included in the calculation of national income'. Whilst it is interesting to see how the arguments are woven together, it is however, possible to miss the short-cuts and the nailing of points that technical jargon allows – see for example, the issue of by how much is output really increased by a move from agriculture to manufacturing (pp. 336-7).

Conclusions

So, knowing what we know now, in its absence, would this be a worthwhile book to write in 2005? Can this book help to deepen the perspective on modern growth theory in 2005? The answer to both of these questions is an emphatic yes. Lewis (1955) undoes much of the mechanistic view of growth that is central to the approaches taken by any version of modern growth theory, whether it is Harrod-Domar modelling, the Solow-Swan models or the later Endogenous Growth models, but, at the same time, Lewis' analysis remains consistent with these approaches. Students could be forgiven for thinking that the real substance of growth theory is finding solutions in the manipulation of the mathematical models. Notwithstanding the value inherent in such exercise, and not even Sen would argue that there is no value to be obtain there, when we read Lewis 1995, we find that we are able to appreciate what is,

sometimes, only hinted at in the usual approaches to growth theory but, nevertheless, what is of fundamental importance. We are able to appreciate that, the savings rate and the capital and labour factor shares that are to be readily found at the forefront of modern growth theory is just the skin on the porridge, and there is a whole world of issues that drives the process. In recent literature, the issue of what initiates and sustains the growth process in market economies in the long run is founded on the concept of labour augmenting technological progress, and it is essentially an in depth explanation of this that Lewis sets to explain in *Theory of Economic Growth* and in doing so extended the boundaries of economic analysis with the significance of unlimited supplies of labour in macroeconomic growth. It is a remarkable application in a remarkable book and quite rightly acclaimed a *classic.*

Bibliography

Barro, Robert J & Xavier Sala-i-Martin (1995), *Economic Growth*, McGraw Hill, USA.

Beckford, George L. (1972), *Persistent Poverty – Underdevelopment in Plantation Economies of the Third World*, Oxford University Press.

Kirkpatrick, Colin & Armando Barrientos (2004), "The Lewis Model after Fifty Years", Development Economics and Public Policy Working Paper Series, Paper No. 9, University of Manchester.

Lewis W.A (1979), "Sir Arthur Lewis – Autobiography", Nobelprize.org, http://nobelprize.org/economics/laureates/1979/lewis-autobio.html

Lewis W.A (1954), "Economic Development with Unlimited Supplies of Labour", *Manchester School*, 22, 2: 139-191; reprint used http://www.eco.utexas.edu/facstaff/Cleaver/368lewistable.pdf

Lewis W.A (1956), *Theory of Economic Growth*, George Allen & Unwin Ltd. Great Britain, edition used Unwin University Books, ninth impression, ISBN 0 04 330054 5

Mankiw, N. Gregory (1994), "Foreword" to Barro, Robert J & Xavier Sala-i-Martin, *Economic Growth*, 1995 McGraw Hill, USA.

Ranis, Gustav (2004), "Arthur Lewis' Contribution to Development Thinking and Policy", Yale University Economic Growth Center Discussion Paper 891. http://www.rh.edu/~stodder/BE/Lewis_byRanis.htm or http://papers.ssrn.com/sol3/papers.cfm?abstract_id=583302

Sen, A, ed., (1970), "Introduction", to *Growth Economics*, Penguin Modern Economics Readings, Harmondsworth, Middlesex, England.

Solow, Robert (1956), "A contribution to the Theory of Economic Growth", *Quarterly Journal of Economics*, February 1956, 65-94.

Swan, Trevor W. (1956), "Economic Growth and Capital Accumulation", *Economic Record*, 32, November: 334-361.

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