On Rostow’s ‘Stages’ Thesis and Explanation of ‘Take-Off’ Growth

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1. Introduction

With the strong post-war economic recovery of the developed nations and the birth of many new nations formerly under colonial rule there was in the 1950s and 1960s considerable interest in policy-making to promote economic growth and development internationally. Through the newly created institutions of the World Bank, International Monetary Fund, International Bank for Reconstruction and Development and the United Nations, the United States, no doubt motivated by the Cold War with the Communist bloc, made a concerted effort in international economic development. It was in this context that development economics flourished and, connectedly, so did economic history. Indeed, development economists of this era such as Rosenstein-Rodan, Ragnar Nurkse, Simon Kuznets, Arthur Lewis and Walter Rostow were concerned with the ‘big picture’ questions in explaining growth and development and were in varying degrees also economic historians. The history of economic development naturally provided an empirical basis to identify the main social, political and economic elements they considered to be conducive to promoting growth. In addition, after a long period of neglect, there was an advancement in the theory of economic growth during this period, largely in the footsteps of Harrod (1939; 1948) and Domar (1946; 1947); on the one hand, along ‘Keynes-Kaleckian’ lines by Kaldor (1957; 1962; 1965) and Robinson (1956) at Cambridge University; and, on the other hand, along traditional neo-classical lines, by Solow (1956) and Swan (1956), and which became the dominant theory. Interestingly, much of the development economics of this era consisted of an attempt to apply theory to an interpretation of economic history and to employ economic history in the development of a ‘model’ to explain the growth necessary for modernisation and the policies to promote it.

Of the development economists, Walter Rostow stands out as one who built an historical-based model in order to identify the stages of development of economic systems and, in particular, to identify the main factors which can explain the transformation of an undeveloped country to a developed country. In Rostow’s ‘stages of economic growth’ model there are five evolutionary stages of possible economic development, as based on his study of the historical patterns of development of the advanced nations up to his time. The critical stage, and indeed, the most contentious, in Rostow’s model, is the ‘take-off’ stage, which characterises the period when an economy experiences a transformation decisive in putting it on the path to sustained growth and development and becoming an economically advanced nation. This ‘take-off’ notion has subsequently been usefully employed by some economic historians and development economists. In connection to this model Rostow
endeavoured to develop a theoretical apparatus – ‘a system’ – for interpreting economic history and identifying the main forces in society which explained the take-off of economies. This attempt by Rostow to bring together theory and history to explain economic growth is itself of great interest.

The purpose of this paper is to critically examine Rostow’s ‘stages’ thesis along with his theoretical apparatus for explaining the ‘take-off’ stage formulated in the 1950s by reference to its contemporary significance to explaining growth and proposing policies which promote economic development. In section 2 we examine Rostow’s historically-based ‘stages of economic growth’ model of economic development. Then, in section 3, we examine the theoretical apparatus developed by Rostow, principally to explain the take-off growth stage. Our conclusion in section 4 critically appraises Rostow’s contribution to development economics in the 1950s, showing that his insights can be better appreciated by reference to a coherent theoretical framework provided by the demand-led approach to explaining growth.

2. Rostow’s ‘Stages of Economic Growth’ Thesis

The ‘stages of economic growth’ thesis began with the notion of the ‘take-off’ first articulated by Rostow in *The Process of Economic Growth*, published in 1952:

The process of take-off may be defined as an increase in the volume and productivity of investment in a society, such that a sustained increase in per capita real income results (Rostow 1952: 102).

This notion was considerably elaborated by Rostow in terms of the history of economic development in the article, ‘The Take-off into Sustained Growth’, published in the *Economic Journal* in 1956. In this article Rostow (1956: 27) formulated a three stages model of the growth process, consisting of ‘preconditions for take-off’, ‘the take-off’, and ‘when growth becomes normal and relatively automatic’. It was in the article ‘The Stages of Economic Growth’, published in *The Economic History Review* in 1959 that Rostow first articulated his ‘stages of economic growth’ model, consisting of five historical stages of development. The most comprehensive account of the model was then subsequently given in his book, *The Stages of Economic Growth: A non-Communist Manifesto*, first published in 1960. This book included a global geo-political outlook, a repudiation of Marx and Marxism and a rationalisation of the emergence of communism in the twentieth century with reference to the Cold War. In this connection Rostow was quite explicit that a major motive for promoting global economic development was to staunch the spread of communism. Indeed, Rostow proposed his thesis – understood in conjunction with his theoretical apparatus – as a superior alternative to that which he attributed to Marx and the ‘Marxists’. But as indicated above Rostow’s model was fundamentally developed out of a desire to explain the growth process from an historical perspective. Hence, in the opening sentence of his book Rostow writes: ‘This book presents an economic historian’s way of generalizing the sweep of modern history. The form of this generalization is a set of stages-of-growth’ (1961: 1).
The five stages of Rostow’s thesis consist of (1) ‘the traditional society’, (2) ‘preconditions for take-off’, (3) ‘the take-off’, (4) ‘the drive to maturity’ and (5) ‘the age of high mass consumption’. According to Rostow each country can be categorized as being in one of these stages of economic development and in which only the most advanced countries have historically evolved through all five stages. Hence, the advanced nations, led by the United States and including Britain, France, Germany and Japan, are considered to have reached the fifth stage of growth; whereas, for example, Turkey, Argentina, China and India, were judged to be only in the take-off stage (1961: x). Moreover, Rostow estimated timelines for when countries, which come under his consideration, evolved through each of the historical stages of development from the take-off stage onwards. Thus, for example, Rostow (1961: x, 38, 59) estimated that for Britain, the first nation to take-off, the take-off occurred in the period 1783-1802, the drive to maturity occurred in the period 1803-1850 and the economy entered the stage of mass consumption from the early 1930s. Each of the five evolutionary stages in Rostow’s thesis are defined by certain economic, social and political characteristics considered important to comprehending the general pattern of development in modern history.

*Traditional Society*

The most economically backward stage, ‘the traditional society’, is defined by Rostow (1961: 4) as ‘one in whose structure is developed within limited production functions, based on pre-Newtonian science and technology, and on pre-Newtonian attitudes towards the physical world’ where ‘Newton is here used as a symbol for that watershed in history when men came widely to believe that the external world was subject to few knowable laws, and was systematically capable of productive manipulation’. For Rostow this stage is characterised by technological backwardness in which there is an incapacity for systematic technological progress that places a limit ‘on the level of attainable output per head’ (ibid). It is evident that for Rostow (1961: 5) not only is the economy of ‘the traditional society’ overwhelmingly based on agriculture but that its productivity growth is low. Connectively, it is a society characterised by a ‘hierarchical social structure’ in which there is limited social and economic mobility and in which ‘[F]amily and clan connexions played a large role in social organization’.

Whilst Rostow does not use the term feudalism to describe this historical stage he writes that it is often characterised by ‘central political rule’ but in which the ‘centre of gravity of political power generally lay in the regions, in the hands of those who owned or controlled the land’ (ibid). As historical examples of what he calls the ‘pre-Newtonian world’, Rostow cites ‘the dynasties in China’, the ‘civilization of the Middle East and the Mediterranean’ and the ‘world of medieval Europe’. In the contemporary ‘post-Newtonian’ world the traditional society is one in which there is the possibility for technological progress but it remains untouched or unmoved by man’s new capability for regularly manipulating his environment to his economic advantages’ (ibid). Nevertheless, the meaning of ‘the traditional society’ in Rostow’s model is obscure, essentially capturing all those economically backward societies which have yet to evolve into the next historical stage of establishing the preconditions for take-off.
The Pre-conditions for Take-off

The second stage of growth in Rostow's model is one in the process of transition from tradition society to the take-off stage in which the preconditions for take-off are developed. It is a period characterised by society exploiting 'the fruits of modern science, to fend off diminishing returns' and in which 'the insights of modern science' are 'translated into new production functions in both agriculture and industry' (1961: 6). The historical reference for this 'preconditions of take-off' stage appear to be 'Western Europe of the late seventeenth and early eighteenth centuries' (Rostow 1959: 4) which he associates with modernity and the enlightenment.³

From history Rostow (1961: 17-18) identified two kinds of cases of the pre-conditions stage experienced by countries. The first and more general kind were those countries in which 'the creation of the preconditions for take-off required fundamental changes in well-established traditional society: changes which touched and substantially altered the social structure and political system as well as techniques of production' (ibid). This case is consistent with the historical economic development of the nations of 'most of Europe', the 'greater part of Asia, the Middle East and Africa' (ibid) which occurred after the first industrial revolution in Britain was underway. Rostow makes it clear that his characterization of the pre-condition for take-off mainly relate to this general case. The second kind of nations are those which he called 'born free', being all English-speaking countries and former colonies of Britain who inherited social and political institutions and cultural attitudes from the mother country, assisted by possessing abundant natural resources. These include the United States, Australia, Canada and New Zealand. Because these nations 'never became so deeply caught up in the structure, politics and values of the traditional society' there was less resistance to modernization.⁴

The significance of this distinction in Rostow's thinking is that in the general case often an important motivating force to development is the fear of a nation in the stage of 'traditional society' being overtaken and dominated by more advanced nations. Thus he writes:

As a matter of historical fact a reactive nationalism – reacting against intrusion from advanced nations – has been a most important and powerful motive force in the transition from traditional to modern societies, at least as important as the profit motive (1961: 26).

For historical examples of this pattern, Rostow (1961: 27-31) refers to the cases of Germany, Russia, Japan and China. Whilst Rostow focusses on the role of nationalism in economic development, it did not escape him that a common feature of all these nations is that liberal democratic institutions were weak and their central governments autocratic.

According to Rostow (1961: 7) a 'decisive' factor in the pre-conditions to take-off is the political development of 'an effective centralized national state – on the basis of coalitions touched with a new nationalism'. This is associated with the emergence of a new elite who 'supersede' the 'old land-based elite' and whose interest lies with economic and social
modernization, and especially in connection with promoting technical progress (1961: 26). It is also associated with a growing appreciation in society not only of the greater potential for economic progress ‘but that economic progress is a necessary condition for some other purpose, judged to be good: be it national dignity, private profit, the general welfare, or a better life for the children’ (1961: 6). Besides the development of the institution of national government, this stage is characterised by the development of financial institutions for ‘mobilizing capital’, the development of transport and communications infrastructure, a widening in the ‘scope of commerce’ in the internal economy and externally, and the emergence of ‘enterprising men’ in the ‘private economy, in government, or both – willing to mobilize savings and to take risks in pursuit of profit or modernization’ (ibid).

It is evident Rostow believed that in this stage the period of socio-political, economic and technical development necessary to establish the pre-conditions for take-off varied historically between nations. Until a transformation of society has progressed to a point where certain structural pre-conditions are in place, take-off cannot occur.

Firstly, there requires to be ‘a build-up of social overhead capital, notably in transport’ in order to create a ‘national market’, to productively exploit ‘natural resources’ and to enable the ‘national government effectively to rule’ to provide a ‘setting of peaceful order’. This would require a national government ‘capable and willing to take a degree of responsibility for the build-up of social overhead capital (including its finance)’ (Rostow 1959: 5). Indeed, Rostow (1961: 25) believed that because of ‘the long period of gestation and pay-off, the lumpiness, and the indirect routes of pay-off’ involved with building social overhead capital governments played ‘an extremely important role in the precondition period’.

Secondly, there must have begun a ‘technological revolution in agriculture’ to ensure a sufficient increase in agricultural productivity to meet the increased demand for food which arises from a ‘disproportionate rise in urban populations’ (ibid). This will require ‘a willingness of the agricultural community to accept new techniques and to respond to the possibilities of the widened commercial markets’ (ibid). In this connection Rostow (1961: 23) contended that agricultural exports were important in generating foreign exchange needed to purchase foreign-produced capital goods as well as other imports, especially food. In addition, the expansion in agriculture and rural income will provide a significant source of demand for manufacturing industry, mainly for inputs to production. Furthermore, Rostow (1961: 23-4) believed that at a time when agriculture still dominated the economy, rising rural incomes played an important role, through taxes and private saving, in financing ‘social overhead capital’ and ‘loanable funds to the modern sector’. He cites nineteenth-century land reforms by ‘Japan, Russia and many other nations’ as ‘an effort to increase the supply of capital available for social overhead and other essential modernizing processes’ (ibid).

Thirdly, a new generation of ‘enterprising men’ in the private sector and government must emerge to bring about the necessary modernization of the social and economic structure. This is clearly connected to the required institutional changes discussed above. In order to ‘get the rate of investment up’ Rostow (1961: 20) argued that ‘men in the society must be able to manipulate and apply ... modern science and useful cost-reducing inventions’ and ‘[S]ome other men in the society must be prepared to undergo the strain
and risks of leadership in bringing the flow of inventions productively into the capital stock’. Others ‘must be prepared to lend their money long-term, at high risk, to back the innovating entrepreneurs’ of ‘modern industry’ (ibid). In addition, Rostow refers to the need for a trained workforce adaptable to ‘an economic system whose methods are subject to regular change, and one which also increasingly confines the individual in large, disciplined organizations allocating to him specialized narrow, recurrent tasks’ (ibid).

Lastly, for Rostow the structural pre-conditions above, involving the creation of new markets and availability of new inputs to industry, enabled the initial and then sustained expansion of strategic ‘enclaves of modern industrial activity’ that characterised the decisive take-off stage. This supposes that in the pre-conditions stage these ‘enclaves’ of modern industry, which become the leading sectoral drivers in Rostow’s take-off, are already established. Hence, in the case of Britain, the first nation to take-off, Rostow (1961: 33) writes that it ‘alone was in a position to weave together cotton manufacture, coal and iron technology, the steam engine, and ample foreign trade to pull it off’.

The Take-off

The third ‘take-off’ stage is conceived by Rostow to be the decisive transformation in the historical development of a nation in which it gets onto a path of self-sustaining economic growth. He explained it as follows:

The take-off is defined as the interval during which the rate of investment increases in such a way that real output per capita rises and this initial increase carries with it radical changes in production techniques and the disposition of income flows which perpetuates the new scale of investment and perpetuate thereby the rising trend in per capita output (Rostow 1956: 25).

The take-off is therefore seen to be a period in which there is considerable technical progress, embodied in, and driven by, a substantial increase in the rate of investment, which provides the impetus to a continuous self-perpetuating process of growth. Once the self-perpetuating process is achieved ‘Growth becomes its normal condition. Compound interest becomes built, as it were, into its habits and institutional structure’ (1961: 7).

In attempting to provide a more precise definition of the take-off stage, Rostow set out three basic conditions:

(1) a rise in the rate of productive investment from, say, 5%, or less to over 10% of national income (or net national product (NNP));
(2) The development of one or more substantial manufacturing sectors, with a high rate of growth;
(3) The existence or quick emergence of a political, social and institutional framework which exploits the impulses to expansion in the modern sector and the potential external economy effects of the take-off and gives to growth an on-going character (ibid: 39).
In elaborating on the first condition Rostow endeavours to provide quantitative reasoning based on the assumptions that the marginal capital-output ratio for an economy ‘in its early stages of economic development’ is 3.5:1 and the population grows at 1-1.5% per annum. On this basis, in order for the rate of net national product (NNP) per capita to be sustained (i.e. at zero growth) investment (saving) needs to be ‘something between 3.5 and 5.25 per cent’ of NNP. Therefore for NNP per capita to grow at the rate of 2 per cent investment (saving) must increase to ‘something between 10.5 and 12.5% of NNP’. On these assumptions Rostow (1961: 41) contends that a ‘transition from relatively stagnant to substantial, regular rise in NNP per capita, under typical population conditions, requires that the proportion of national product invested should move from somewhere in the vicinity of 5% to something in the vicinity of 10%’. Putting aside measurement problems, this argument assumes no technical progress in the take-off, which is likely to reduce the capita-output ratio and thereby the required (measured) investment as a proportion of NNP to achieve a growth rate of 2% of NNP per capita. Instead, Rostow (1963: xiv-xv) indicated that there would be variations in the required investment rate for take-off according to differences in the population growth rates, the capita-output ratio and the amount of infrastructure, especially for transport, needed in the pre-take-off and take-off stages, of nations. A major problem in empirically verifying this condition is the paucity of historical investment data, especially for nations in the pre-take-off stage. Nevertheless, Rostow (1961: 41-6) appeals to available historical data of investment/NNP ratios for countries which, but for the exceptions of Sweden and Canada, are at various stages of un-development. Elsewhere, Rostow (1963: xv-xvi) maintains that ‘a careful scrutiny of both contemporary and historical data – where they exist – including the data for Great Britain, Germany, Sweden, and Japan in this volume are consistent with this view: the investment rate is likely to rise during take-off; the extent of the rise will vary with specific factors, notably the scale of social overhead capital’. He emphasizes though that ‘a rise in the investment rate is not the sole relevant criterion for take-off’ (ibid).

With regard to the second condition, a feature of Rostow’s explanation of the take-off is the central role played by what he calls ‘leading sectors’ which provide the impetus to the overall expansion in modern manufacturing industry. Leading sectors in Rostow’s model are also called ‘primary growth sectors’, being those with ‘possibilities for innovation or for the exploitation of newly profitable or hitherto unexplored resources’ such as to ‘yield a high growth rate and set in motion expansionary forces elsewhere in the economy’ (1956: 43; 1961: 52). The most historically important leading sector to take-off identified by Rostow (ibid: 55) is the railways: ‘[I]t was decisive in the United States, France, Germany, Canada, and Russia; it has played an extremely important part in the Swedish, Japanese and other cases’. According to Rostow (ibid) railways provided a major impetus to industry by stimulating the coal, iron and engineering industries, by lowering the costs of transport and widening the geographical market for products and by facilitating a ‘rapidly enlarging export sector’ which also enables the economy to obtain foreign capital for development. In the case of Britain’s take-off however, Rostow (ibid: 54-5) identified the cotton-textile industry as the key leading sector, arguing that it provided impetus to wider industry by generating ‘demand for coal, iron and machinery’ as well as for working capital and cheap transport.
which, in turn, promoted wider investment and technological progress. By reason of its export earnings the industry also enabled greater imports necessary to the wider expansion of industry. For Rostow (1956: 46) though, historically the leading sectors have varied ‘from cotton textiles, through heavy industry complexes based on railroads and military end products to timber, pulp, dairy products and finally a wide variety of consumers’ goods’.7

In Rostow’s (1956: 43-4; 1961: 52-3) thinking the take-off is a dynamic process led by rapid investment growth and technical innovation in the ‘primary growth sectors’ which, through cost-reductions and inter-sectoral demand, generate an expansion in ‘supplementary growth sectors’ (e.g. coal, iron and engineering) which, in turn, promotes further investment and innovation that spreads to all sectors, including ‘derived growth sectors’ such as food production and housing which are conceived to grow more steadily with ‘total real income’. Hence, associated with the rapid expansion of manufacturing industry, is ongoing structural change as well as greater urban development.

The third condition of Rostow essentially consists of political, social and institutional changes necessary to promote the growth of modern industry to achieve the take-off. To promote the take-off process these changes must, according to Rostow (1961: 46-52), generate the entrepreneurship necessary for ongoing technical innovation in response to commercial opportunities, generate the leadership in industry and government to provide ‘social overhead capital’ as required and create the capital market to finance the rapid expansion of investment by modern industry, including of social overhead capital. With regard to the latter, Rostow (ibid: 46-7) is not just referring to the development of the financial system, but relatedly to the ability of the economy to access foreign capital funds and to the redistribution of income (profits) from the traditional agricultural sector to modern sector in order to enable the greater ‘plough-back of profits in rapidly expanding particular sectors’ of manufacturing industry. In particular, Rostow (ibid: 47-50) argued that the redirection of income flows into more ‘productive hands’ who would plough profits back into expanding key sectors, through government land reform, finance and taxation policies as well as price inflation was conducive to economic development.8

The take-off periods for major economies estimated by Rostow (1961: 38) are, in chronological order, as follows:9

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>1783-1802</td>
</tr>
<tr>
<td>France</td>
<td>1830-1860</td>
</tr>
<tr>
<td>United States</td>
<td>1843-1860</td>
</tr>
<tr>
<td>Germany</td>
<td>1850-1873</td>
</tr>
<tr>
<td>Japan</td>
<td>1878-1900</td>
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<tr>
<td>Russia</td>
<td>1890-1914</td>
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This shows that Rostow believed the take-off typically took twenty to thirty years. A feature of Rostow’s historical explanation of the take-off is that it can be traced historically to ‘a particular sharp stimulus’: 
The stimulus may take the form of a political revolution which affects directly the balance of social power and effective values, the character of economic institutions, the distribution of income, the pattern of investment outlays and the proportion of potential innovations actually applied; that is, *it operates through the propensities* (1956: 29; emphasis added).

The ‘propensities’ form the theoretical apparatus of Rostow’s system employed to explain the process of economic growth, which we will consider in the next section. It is clear that for Rostow (ibid) the ‘stimulus’ only plays a role in propelling the take-off if the preconditions for take-off are met.

**The Drive to Maturity Stage**

In Rostow’s thesis the take-off leads to the drive to maturity stage, being a ‘long interval of sustained if fluctuating progress, as the now regularly growing economy drives to extend modern technology over the whole front of its economic activity’ (1961: 9). In this stage the economic growth is seen to be self-perpetuating in which the rate of investment is between ten to twenty per cent of national income and output per capita grows at a steady positive rate. It is characterised by the spread of the most advanced technology from a ‘relatively narrow complex of industry’ to other new industries associated with a continuous widening of the manufacturing sector. This is associated with ongoing structural change ‘with new leading sectors gathering momentum to supplant the older leading sectors of the take-off’ (Rostow 1961: 59). Hence, in the case of Germany, Great Britain, France and the United States, Rostow (1961: 9, 59) contended that there was a transition in the last quarter of the nineteenth century from growth dominated by railways along with coal, iron and heavy engineering industries to that dominated by steel, shipping, chemical, electricity and machine tools industries. The structural pattern of this development will vary between nations according to not just ‘the pool of technology’, but also to ‘the nature of resource endowments’, to ‘the character of the take-off, and the forces its sets in motion’ and to ‘the policies of governments’ (ibid). Based on historical evidence, Rostow (ibid) maintained that the drive to maturity, a state at which ‘society has effectively applied the range of (then) modern technology to the bulk of its resources’, typically took 60 years after the take-off stage had begun. His estimates for the historical dates at which major countries reached this state of maturity are 1850 for Great Britain, 1900 for the United States, 1910 for Germany and France, 1940 for Japan and 1950 for Russia.

**The Age of High Mass-Consumption**

After maturity the next stage of development in Rostow’s thesis is the age of high mass consumption in which ‘leading sectors shift towards durable consumer’s goods and services’ (1961: 10). It marks a stage of development in which living standards rise for the mass population and consumer goods and services are produced on a mass scale. Rostow identified the automobile as symbolic of this age; one in which ‘various electric-powered
household gadgets were gradually diffused’ (ibid: 11). This stage is characterised by the greater allocation of resources to social welfare and security, by urbanisation and socially, by a greater ‘individualist-utilitarian creed’ (1961: 73-4). In Rostow’s thesis the first nation to enter this stage is, not surprisingly, the United States from the early 1920s, followed by Canada in the mid-1920s, Britain in the early 1930s, by Australia in the late 1930s, then, after the Second World War, by France and Germany, and Japan in the mid-1950s.  

3. Explaining the ‘Take-Off’ Growth Process

The stages of development in Rostow’s thesis essentially revolve around the ‘take off’ stage, which is his main concern. There is a backward induction that characterizes Rostow’s taxonomical conception: the pre-conditions to take-off stage can only be retrospectively established after a country has been shown to have taken-off, and the take-off stage can only be established after a country has been shown to have reached the drive to maturity stage. This follows because of the path dependency of development in which it is only possible for a nation to reach a state of maturity by progressing beyond a traditional society, the preconditions to take-off, the take-off and drive to maturity stages. However, in Rostow’s thesis, by definition, once a country achieves take-off it will become a modern developed economy with a high average income per capita. Hence, the focus of Rostow’s explanation of the process of economic growth is, like an aeroplane pilot about to take flight, on the conditions required to bring about take-off.

What is interesting about Rostow as an economic historian explaining the growth process is the attempt in his book, *The Process of Economic Growth* (1952), to formulate a theoretical apparatus (or ‘system’) to do so. This ‘system’ is employed by Rostow to interpret the historical patterns of economic development and so to identify the forces which he considers important to explaining economic growth. It clearly informs his stages of economic growth thesis. Moreover, in formulating this system, Rostow is clearly guided by his study of economic history. In this connection Rostow takes an approach to explaining growth and development which endeavours to marry history with economic theory. On the difficulties of this approach Rostow wrote:

The historian shares one central problem with the maker of public policy. He must take as unique events, in their full complexity, the situation he confronts. Like the policy maker, the historian brings, certainly, to those events implicit or explicit suppositions which determine his view of what the facts are, what relative importance they may have, and what underlying forces may link them causally. Nevertheless, the historian, by the nature of his profession, must use theoretical models in a special way. He may find them invaluable guides to the organization of his materials and immensely helpful in sorting out strands of connected events. He must deal, like the theorist, with the philosophic problem of theory’s relation to fact; and perhaps, the historian should be more aware of that inescapable problem. The empirical aura of modern historiography induces a dangerous evasiveness concerning the theoretical presuppositions which are at work in the conventions of history. Nevertheless, on balance, the historian’s loyalty must remain to his perception of the facts (1952:3).
Economic theory was therefore considered by Rostow to play an important role in his historical analysis.

In the early 1950s growth theory in economic science was enjoying a renewed interest following the development of the Harrod and Domar models and the Keynesian inspired trade cycle theories. Nevertheless, only after the mid-1950s was significant progress made in growth theory, with the Solow-Swan model and with post-Keynesian contributions by the Cambridge School in England. Indeed, Rostow (1952: 3) lamented the situation: ‘The most vital and fully articulated bodies of modern economic thought have been developed within Marshallian short-period assumptions; that is, the social and political framework of the economy, the state of the arts, and the levels of fixed capacity are assumed to be given and, usually, fixed ... these are intolerable assumptions for the historian’. In attempting to construct a secular analysis of the dynamic process of growth, Rostow (1952: 4-6) believes he is returning to the approach of Adam Smith’s *Wealth of Nations* (1776) which ‘used history not simply to illustrate static relationships but to illuminate the processes whereby the wealth of nations may increase or decrease’. However, for Rostow (ibid), Book IV of Alfred Marshall’s *Principles of Economics* (1890) ‘constitutes perhaps the most extensive and rigorous statement of the factors governing changes in the rate of growth and productivity of the factors of production that exist in the literature’.

At the heart of Rostow’s theoretical apparatus is a pseudo aggregate production function in which output is ‘determined by the scale and productivity of the working force and capital’ where ‘for the purposes of this analysis’ capital comprises ‘land and other natural resources as well as scientific, technical, and organizational knowledge’ (1952: 12). This is clarified by Rostow in the following passage:

The central and highly classical relationship on which this analytical structure hinges can be stated as follows: the level of output of an economy is a function of the size and quality of the working force and the size and quality of the capital stock. The qualitative elements attaching both to the working force and to the capital stock are believed to be at least conceptually capable of quantitative expression; and with this productivity element included in its determinants, output may be regarded, simply as a function of the effective size of the working force and of the effective size of the capital stock. The rate of growth of output is taken to be a function of the rate of change in these two complex variables (1952: 55).

Rostow’s theoretical apparatus essentially consists of identifying the major social, political, economic and related institutional forces which influence and determine the rate of change of the ‘two complex variables’, which could be described as the productive powers of the labour force combined with the capital stock (including all material inputs) employed in aggregate production. In Rostow’s apparatus this is articulated by way of six ‘propensities’: (1) ‘the propensity to develop fundamental science (physical and social)’; (2) ‘the propensity to apply science to economic ends’; (3) ‘the propensity to accept innovations’; (4) ‘the propensity to seek material advance’; (5) ‘the propensity to consume’; and (6) ‘the propensity to have children’ (1952: 13-14). While Rostow (1952: 36) admits that these propensities are not conducive to quantitative measurement, they can be conceptually
defined in terms of their responses to other variables in the sense, for example, that the propensity to have children will tend to increase with real income and/or the greater religious domination of society. Hence, in Rostow’s system the intensity of these propensities (greater or smaller) are all explained by reference to a complex of possible social, political and economic factors. In this connection it is evident for Rostow (1952: 38) that the propensities are ‘conceived to be a function of the value system of society’ as founded in the social and institutional structure of society. Indeed, these propensities are seen by Rostow (1952: 9) to be the subject of analysis beyond the domain of economists, by historians, sociologists, psychologists and other social scientists (Baran 1952: 921-22).

In Rostow’s ‘system’ an explanation of the process of growth is discovered by focussing on these propensities, but in this connection there are a set of factors to be considered which he calls ‘sub-variables’. Hence, with respect to explaining changes in the size and productivity of the working force, Rostow (1952: 15, 56-7) specifically lists the birth rate, the death rate, the ‘role of women and children in the working force’ and the ‘skill of the working force’. These variables are in turn to be explained by reference to a complex interplay of demographic factors as well as factors influencing health, education and human motivation (1952: 57-64). The propensity to have children (6) and the propensity to seek material advantage (4) are the most relevant to explaining the productive power of the labour force in Rostow’s system but he does not clearly show what the analytical relationship is between them and these sub-variables. In explaining changes in the size and productivity of the capital stock, Rostow (1952: 57) specifies a number of sub-variables: the ‘yield from additions to the capital stock’; the ‘volume of resources devoted to the pursuit of science’; the ‘volume of resources devoted to the pursuit of applied science’; the ‘proportion of the flow (and pool) of potential innovations accepted’; the ‘volume of resources allocated to current investment’; and the ‘appropriateness of the desired level of consumption’ in relation to investment. Clearly the second, third and fourth variables overlap with propensities (1), (2) and (3), whilst for Rostow (1952: 66) the (5) propensity to consume determines investment as a proportion of income, apparently by reason of the simultaneous determination of the saving ratio. However, it is evident that (5) is determined by reference to the other sub-variables above which are conceived to also influence long-term investment behaviour.

In Rostow’s ‘system’ an important factor influencing capital accumulation is the long-term yield on investment which, not defined precisely, seems to be an expected profit rate adjusted for risk (ibid: 65-7). Moreover, the relative yields in different industry sectors are seen by Rostow (1952: 80-82, 114-15) to determine the sectoral composition of investment and, thereby, structural change that accompanies growth. The yield itself is seen to be influenced by the ‘potentialities’ of innovation and returns to scale: while the extent to which the rate of investment responds to a higher ‘yield’ will depend on the entrepreneurial attitude toward risk connected in part, to (4) the propensity to seek material advance. Indeed, in Rostow’s system the propensities (1) to (5), shaped by politico-institutional and socio-economic forces, all play a role in determining the rate of growth of the productive power of the capital stock.
In terms of his theoretical apparatus Rostow (1952: 102) argued that the process of the take-off into sustained growth involved a rapid increase in the rate of investment associated with technical progress that was induced by either a critical increase in the yields and/or in the propensities. Hence, in relation to Britain’s take-off into industrial revolution the yields (i.e. expected profit rates) for leading sectors, dominated by the cotton textiles industry, significantly increased as a result of technical innovation that reduced the costs of production. In this regard Rostow seems to argue that when the propensities are conducive, an increase in the yields for leading sectors to critical magnitudes can induce the take-off. It is evident however that for the take-off to occur and lead to self-perpetuating growth the propensities, especially (1)-(4), must have reached critical magnitudes so as to facilitate the spread of technical progress to a wider set of sectors associated with the yields of industries rising more generally. In some cases Rostow argued that the take-off is chiefly induced by an abrupt emergence of the propensities through rapid social, political and institutional development. Thus, in the case of Japan’s take-off ‘after 1868’, Rostow (1952: 104-5) argued that the overthrow of the Tokugawa feudal dynasty (1603-1868) and its replacement, under Emperor Meiji, of a government that modernized the nation, increased the propensities, especially of (2) and (3):

Not only was a higher proportion of available innovations accepted, but the scale of investment input was increased, the state mobilized new capital in diverse ways, including the taking over the rent payments from some of the former nobility, and by means of inflationary finance.

One assumes that when the capitalist class of Japan did emerge Rostows’ yields would then play a prominent role in the take-off process.

In Rostow’s theoretical apparatus the process of take-off growth involves a dynamic interaction between the propensities and the yields in which propensities (1)–(3), by generating innovation, can causally raise the yields and, in which an increase in the rate of investment in response to higher yields can, in turn, induce technical progress. At the same time Rostow believed that a potential constraint to the expansion of any sector was diminishing returns – presumably of output to increasing applications of capital – for a given technology, which could be overcome by yields being kept up through innovation continuously inducing investment in a process he referred to ‘as changing production functions’. This take-off process of Rostow involves structural change in which the rapid expansion of the leading sectors, associated with, and, indeed, contributing toward, inducing an increase in the propensities and thereby yields of new emerging sectors that widens the investment-driven expansion and put the economy on the path to self-perpetuating growth. It is evident though that whereas the propensities are conceived to be slow-changing according to social and institutional change, the yields are more variable in response to changes in the propensities and other factors. In this connection, Rostow (1952: 103) refers to the need ‘to take account, in history, of the interaction of economic growth on the propensities themselves’. Indeed, Rostow’s theoretical apparatus represents an attempt to make sense of the complexity of a path-dependent growth process in which there is interdependence between the major explanatory factors identified, most particularly,
between technical innovation and investment (i.e. capital accumulation). It was indeed from this theoretical apparatus that Rostow formulated his historical explanation of the take-off process.

4. **Conclusion: History, Theory and Policy**

Rostow’s writings in the 1950s are concerned with the *grand* question of how undeveloped economies can make the decisive step that puts them on the path to self-sustaining growth and development on which its peoples can enjoy a progressively higher standard of living. The ‘stages’ thesis is an ambitious attempt by Rostow to identify from economic history the key factors in creating the social, politico-institutional and technical conditions for this decisive ‘take-off’ step in industrial development. From its historical perspective the crucial stage in Rostow’s conception is in fact the ‘Pre-conditions to Take-off Stage’, at which an economy has in place all those key factors which enable the take-off. Hence, Kuznets considered Rostow’s sequence of take-off stages ‘analogous’ to ‘an aeronautical process’ in ‘putting an aeroplane into flight’:

First there is the checking and fuelling, providing the pre-conditions; then there is the relatively brief take off, during which the driving force is accelerated to produce upward movement; and finally there is the levelling off into self-sustained flight (1965: 36).

Though the aeroplane might of course stall or crash in take-off, something Rostow acknowledged could happen, the take-off cannot even occur without the pre-conditions being met.\(^\text{18}\) Given that Rostow believed the state played a key role in the take-off process, most evident when he elaborates on the development history of Germany and ‘Meiji’ Japan in the nineteenth century, a central purpose of his model to discover the secrets of growth was to draw lessons for development policy.

There is little doubt that Rostow’s ‘take-off’ notion generated considerable interest among economic historians and development economists, culminating in a conference sponsored by the International Economics Association and attended by leading scholars in these fields in 1963.\(^\text{19}\) The project undertaken by Rostow of endeavouring to discover a common pattern of development in the economic history of advanced nations is clearly a legitimate and potentially valuable exercise (see Kuznets 1965: 41). Indeed, there is a long tradition of the stages of historical development approach going back to at least Adam Smith (1978 [1762-66]: LJ (A) i.27; 1976 [1976]: 708-22); notably, by List (1909 [1841]: Third Bk.: 262-89), by the German Historical School and, famously, by Marx (see Hershlag 1969; Hoselitz 1961; Bauer and Wilson 1962: 190).\(^\text{20}\) Moreover, the notion of Rostow’s take-off closely resembles a transformative stage that economic historians have called ‘the industrial revolution’, first coined and popularized by Toynbee (1894) in relation to Britain.
Disagreement with Rostow’s stages of economic growth model centred on the characterisation and identification of the stages consistent with the historical evidence. As one critic commented:

Rostow nowhere offers clearly defined specific criteria for the definition and the dating of the stages of growth, and this makes it very difficult to come to grips with the argument. The stages are not defined in terms of clear-cut or specific cultural, scientific, material and technical attainment (Bauer and Wilson 1962: 196).

The qualitative nature of Rostow’s categorization of the stages reflects the complexity of the growth process and the different possible routes which economic development takes according to the sociological, cultural and political conditions of countries, in no small measure connected to the external relationship existing with other countries. Whilst the lack of historical data is a constraining factor, nevertheless, Rostow does not provide even a clear conceptual criteria for when countries reach, after take-off, the stage of self-sustainable growth or the stage of ‘maturity’ that would at least provide a more tractable basis for better estimating retrospectively the sequence of identifiable stages in the historical evolution of economic development.

A major criticism is that the ‘pre-conditions’, ‘take-off’ and ‘maturity’ stages are not clearly distinct sequences in historical economic development. Instead, as Kuznets (1965: 40-1) argued, ‘there is a prima facie case for expecting the ‘pre-conditions’ and the ‘take-off’ stages to overlap (also see Habbukak 1961: 601-3). In addition, Rostow’s characterisation of the ‘maturity’ stage as being one of self-sustaining growth with the implication that growth in the other stages is not self-sustaining is somewhat simplistic and at the least requires considerable clarification (Kuznets: ibid). In addition, the stage after maturity of ‘High Mass Consumption’ is very loosely defined by reference to a country having reached an unspecified level of social affluence. The problem here is that, as shown in section 3, Rostow’s stages are defined in a highly qualitative way by reference to his ‘theoretical apparatus’ rather than on the basis of clear objective criteria. This underlies the great difficulty of identifying the common elements of a pattern in historical development when different nations that have experienced the stages do so in different complex ways precisely because their histories are different. Hence, Kuznets was critical of Rostow’s stages thesis because ‘the analysis of the take-off and pre-conditions stages neglects the effect of historical heritage, time of entry into the process of modern economic growth, degree of backwardness, and other relevant factors on the characteristics of the early phases of modern economic growth in the different ‘traditional’ countries’ (1965: 40-41; emphasis added).

Even if one agrees with Rostow’s characterisation of these stages as broadly representing a pattern of development to maturity, his historical dating for many of the countries is objectionable. Consider the case of Britain. Rostow contends that the take-off period runs from 1780 to 1802 and then Britain reaches a stage of maturity in 1850. This dating accords broadly with the common view of economic historians for the period of the ‘first industrial revolution’. However, Rostow’s thesis that in the maturity stage the trend growth rate levels off to a long-run sustainable rate is not consistent with evidence that indicates Britain’s
The trend growth rate was in fact higher in the period 1850-1870, at around 3%, than during the earlier ‘drive to maturity’ period from 1820 to 1850 when it was around 2%. Moreover, income per capita in Britain appears to have risen significantly in the period 1850-1870 compared to any earlier period. Similarly, in the United States the trend growth rate after the Civil War, from 1865 to 1900, was considerably higher than before it in the take-off period 1843-1860 identified by Rostow. The timelines of the historical stages of development identified by Rostow in the case of Japan is also not convincing. According to Rostow, the take-off period for Japan is 1878-1900 during ‘Meiji’, whilst maturity is not reached until the early-1940s, well prior to the unprecedented post-war trend growth of 9% achieved in the second half of the 1950s, which continued until the early 1970s. This implausibly implies that the pre-conditions for take-off was established in Japan only ten years after the collapse of the 250 year-old ‘Tokagawa’ feudal regime and its replacement by the Western-orientated Meiji regime. Instead, the history of Japan’s economic development is more accurately characterised by two spurts of growth, two take-offs, in the period 1905-1921 and then 1950-1973. It was only the latter spurt of unprecedented growth which greatly increased income per capita in Japan such as to bring its living standards to a level commensurate with that of most advanced western countries. Only Germany appears to neatly fit Rostow’s stages timelines, with economic historians generally agreeing that the decisive take-off period was 1850-1873 when rapid economic development was associated with the political formation of the German Nation (see Hoffman 1965; Trebilcock 1981: 22-105). Nevertheless, it was not until the beginning of the twentieth century that living standards in Germany reached a level commensurate with the most affluent nations of Britain and the United States. The problem for Rostow is that the historical pattern of development by which advanced countries achieve their affluent standard of living is shown to be considerably different, something which can only be known in retrospect. As Habbakuk (1961: 603) well remarks, ‘The take-offs can only be confidently identified retrospectively; one can only tell if growth is going to be self-sustaining if in fact it has been sustained for a long period’.

A major shortcoming with Rostow’s stages thesis is the supply-side theory of growth that underlies it. As explained in section 3 above, Rostow developed a ‘theoretical apparatus’ upon which his historical stages thesis was formulated. It is indeed a mark of Rostow’s intellectual ambition that as an historian he endeavoured to employ a theoretical system to answer the ‘big questions’ of growth and development. This ambition of Rostow is summed up by Shackle:

Broadly, in writing history, two rival methods, based on two mutually antagonistic pre-suppositions are possible. The historian can describe, in such detail as the scale of his work allows, what seems to him to have happened, and leave his readers to interpret and explain the story for themselves on any principles they like. Or he can try to supply such principles. He can try to say what history means, to find in the factual record a structure, a recurring pattern, a mechanism’ (1962: 65).

As already outlined in section 3 above, when Rostow was developing his theoretical apparatus in the early 1950s a revival in growth theory had begun with the Keynesian-
inspired Harrod (1939; 1948) and Domar (1947; 1948) models. In *The Process of Economic Growth* the only formal growth model Rostow (1952: 86-94) seriously discussed is Harrod’s model. It is evident though that Rostow did not really comprehend the leading role that effective demand plays in Harrod’s model in the determination of long run output growth. This does not mean that Rostow entirely ignores demand. Thus, for example, Rostow (1956: 45, 47) refers to ‘a source of effective demand for rapid expansion in British cotton textiles was supplied, in the first instance, by the sharp reduction in real costs and prices which accompanied the technological developments in manufacture’ and to how growth in ‘new manufacturing sectors’ with ‘new production functions of high productivity ... sets up a chain of effective demand for other manufactured products’. As we previously showed Rostow endeavoured to account for the role of demand in his theoretical apparatus by way of (5) ‘the propensity to consume’.

While Rostow considers the rate of investment a key to the growth process it is evident that he subscribes to the supply-side approach that it is ultimately determined by the propensity to save. Moreover, Rostow considers population growth and technical innovation as more important factors in any theory of growth. Rostow essentially adopts a supply-side approach to growth theory because it is more superficially conducive to explaining growth consistent with the central causal factors that he has identified *a priori* as an economic historian. To some extent Rostow’s position received formal theoretical support from the Solow (1956) and Swan (1956) neo-classical supply-side growth models, developed on the basis of the aggregate production function, in which the steady state growth rate is determined by the population growth rate (or with labour-augmenting technical change, determined by the growth rate of the supply of ‘effective labour’).

Since the capital debates of the 1960s it is well established that the aggregate production function (or indeed, the production function for an industry or firm) is only valid in a one-commodity system and not in the general case of heterogeneous commodities used in the production of others. The results of the capital debates undermine the dominant neoclassical supply-side approach to growth (in all its variants, including endogenous growth models) since it cannot be supposed that factor prices systematically adjust to assure that aggregate demand is adjusted in the long run to output necessary for any supply-determined equilibrium steady-state growth rate. A more promising theory of growth and one not plagued by these theoretical problems is provided by the demand-led approach that has origins in Harrod’s model (see, for example, Seranno 1995; Smith 2012). In this approach the growth rate of output is determined by the growth rate of demand in which the growth rate of capital and labour are endogenously determined according to the technique of production.

In our view this demand-led approach can provide greater clarity in appraising Rostow’s ‘stages’ model of historical development. From its standpoint the essential problem of the take-off is one of an undeveloped country being able to generate demand growth when income per capita is relatively low. At the risk of being semantic, the difficulty for poor countries to grow and develop is that they are too poor to generate domestic demand. If however an undeveloped country can find a market for its products in a relatively richer
country then they can generate (foreign) demand growth. This perhaps explains why the first
nation to take-off, Britain, took longer than most of those that followed because it had to
rely more on technical progress to generate higher income per capita and, thereby, higher
demand growth in its economic empire. The relatively faster take-off of Germany and the
United States in the second half of the nineteenth century, characterized by a rapid
absorption of industrial technology, can be much attributed to greater access to lucrative
export markets thanks to the established prosperity of the British Empire economy. In the
case of Germany innovative industrial banking also played a significant role in enabling
strong growth in investment and, thereby, domestic demand; whereas the United States
benefited from foreign capital, mainly from British lenders. The demand-led approach also
readily explains why during the inter-war period of the twentieth century, global growth and
development slowed considerably as a consequence of suppressed demand growth. Furthermore, from the standpoint of the demand-led approach to growth, the strong post-
World War II growth, characterised by a convergence of income per capita of the advanced
nations, can be attributed not only to ongoing expansionist fiscal policies but to a
liberalisation of international trade that in particular enabled Western European countries
and Japan to generate strong demand by access to the rich United States market. Indeed,
the meteoric development of East Asia after the Second World War shows the importance of
lucrative export markets of rich countries (i.e. United States and Western Europe) and
associated foreign direct investment to induce rapid development, by generating demand
when income per capita is relatively lower. The leading sectors in the post-World War II take-
of Japan, South Korea, Taiwan and China have been low-capital intensive export sectors
in textile and light manufacturing industries, with ‘social overhead capital’ organically built
according to the needs of industry. As income per capita rose in these countries domestic
demand came to gradually play a more important role, facilitating greater commercial
opportunities for investment in ‘social overhead capital’, associated with more intensive
industrialisation and urbanisation. In this connection, according to our demand-led
approach, Rostow’s idea of self-sustaining growth when a country reaches the stage of
maturity can be interpreted as achieving a critical level of income per capita and establishing
institutions in policy-making, finance, education and in innovation-creation that are capable
of sustaining ongoing growth in domestic demand.

Notwithstanding the shortcomings of Rostow’s ‘stages’ model it has made a useful
contribution to development economics as much for its grand ambition to discover the
secrets to growth and prosperity. There is no doubt Rostow outreached himself with the
manner in which he endeavoured to employ the historical ‘stages’ of development to not
only identify the main forces for the take-off to maturity of advanced countries but to
explain the geo-political landscape during the Cold War. Indeed, Rostow’s claim that his
‘system’ – historical stages informed by a theoretical apparatus – represents a superior
alternative to Marx’s (or the ‘Marxian’) ‘system’, of which he shows only a superficial
understanding, is quite absurd and deserved the heavy criticism received. Whilst the
supply-side theory with a pseudo-aggregate production function that underlies his
theoretical apparatus is unconvincing and certainly not valid, nevertheless it is to his credit
that Rostow endeavours to interpret the history of economic development explicitly by
reference to theoretical principles and that he endeavours to employ history to do so. Perhaps for this reason Rostow offers many useful insights even though his theoretical outlook lacks coherency.

References


Notes
1 Other significant contributors to development economics in this era include Albert O Hirschman, Raul Prebisch, Hans Singer, Theodore Shultz, Moses Abramovitz, Jacob Schmookler and the historian, Alexander Gershenkron.

2 At MIT in the 1950s Rostow was heavily involved with the Centre for International Studies (CENIS), which was concerned with promoting US foreign aid and international policies to thwart the spread of communism to developing countries. He developed an expertise in Asian development aimed at preventing the spread of communism from China, advocating greater US foreign aid, including military aid to counter communist guerrilla insurgency. On the basis of this expertise Rostow became an influential foreign affairs advisor variously to US Presidents’ Eisenhower, Kennedy and then Johnson. In the Johnson administration Rostow served as ‘Special Advisor to National Security’ (1966-9) for which he was a strong advocate of the Vietnam War.

3 In a reference to modernity Rostow (1960: 19) writes ‘the concept must be spread that man need not regard his physical environment as virtually a factor given by nature and providence, but as an ordered world which, if rationally understood, can be manipulated in ways which yield productive change and, in one dimension at least, progress’.

4 However, Rostow (1961: 18) does refer to the ‘South’ of the United States whose slower development as a region is owed to it being a ‘kind of traditional society’.

5 As shown in the following quotation, Rostow articulates this argument in terms of re-directing the surplus in the agricultural sector to the modern sector, though he does not explain precisely what he means by ‘surplus’:

   ... agriculture must yield up a substantial part of its surplus income to the modern sector. At the core of the Wealth of Nations – lost among propositions about pins and free trade – is Adam Smith’s perception that surplus income derived from ownership of land must, somehow, be transferred out of the hands of those who would sterilize it in prodigal living into the hands of the productive men who will invest it in the modern sector and then regularly plough back their profits as output and productivity rise (1961: 24).

6 This is a reference to various case studies assessing the plausibility of Rostow’s model of take-off in a volume of conference proceedings, titled The Economics of Take-off into Sustained Growth, published in 1963.

7 Referring to its significant role in nationalistic Russia, Germany and Japan, Rostow (1956: 46) also argues ‘that an enlargement and modernisation of Armed Forces could play the role of a leading sector in take-off’.

8 On this desired redistribution, Rostow (1961: 47 n.) does refer to Adam Smith’s argument in the Wealth of Nations (1976 [1776]: 330-49) that accumulation is promoted by a larger proportion of income being employed in reproduction rather than unproductive consumption.

9 The take-off period of other countries nominated by Rostow (1961: 38) include Belgium (1833-1860), Sweden (1868-1890), Canada (1896-1914), Argentina (1935-), Turkey (1837-), India (1952-) and China (1952-).

10 As examples of political events which act as a stimulus Rostow (1961: 37) refers to the ‘German revolution of 1848, the Meiji restoration in Japan of 1868, and the more recent achievement of Indian independence [in 1946] and the Communist victory in China [in 1949]’. The stimulus may instead ‘come through a technological (including transport) innovation which sets in motion a chain of secondary expansion in modern sectors and has powerful potential external economy effects which the society exploits’ or ‘It may take the form of a newly favourable international environment, such as the opening of British and French markets to Swedish timber in the 1860s or a sharp relative rise in export
prices and/or large new capital imports, as in the case of the United States from the late 1840s, Canada and Russia from themed-1890s’.

11 See ‘Chart of the stage of economic growth in selected countries’ on opening page of Rostow (1961: 1).

12 In the opening sentence of this book Rostow declares ‘This is an historian’s book about economic theory’ (1952: 2).

13 Rostow refers to these theories as ‘[T]he elaboration of the Keynesian system of income analysis’. In a footnote Rostow (1952: 86 n.9) lists major influential works:


14 Hicks commented that these propensities ‘are clearly intended to regard as in some manner analogous to the propensities which (according to Keynes [in the General Theory]) determine employment’ (1953: 173).

15 Thus, Rostow (1961: 39) writes ‘the pre-conditions for take-off include an initial ability to mobilize domestic savings productively, as well as the structure which subsequently permits a high marginal rate of savings’

16 Rostow (1952: 81-3) uses the term ‘diminishing returns’ to investment by which he appears to mean output per unit of capital invested tends to diminish for a given technology, largely because of the decreasing marginal productivity of exploiting natural resources necessary to growth.

17 In the cases of ‘Australia and New Zealand’ and ‘many other late-developing countries in the world economy’, Rostow (1952: 102-3) argued that an increase in ‘value’ of raw materials and foodstuffs on the global market contributed to their take-off by significantly raising the yields for investment in their leading agricultural industries.

18 Hence, Rostow (1961: 38 n.‡) refers to an uptake in Argentina’s growth during the First World War that subsequently did not lead to the take-off into sustained growth.

19 The proceedings of this conference were published in a volume edited by Rostow (1965), which included a number of significant papers in economic history and development, notably, by Kuznets (1965), Habakkuk and Deane (1965), and Hoffman (1965). Other prominent scholars who contributed papers were Cairncross, Gerschenkron, Landes, Leibenstein, Tsur and North.

20 The stages theory of history in fact pre-dates Adam Smith and can be traced back to eighteenth century writers of the enlightenment such as Adam Ferguson, Hume and Turgot (see Brewer 1999; Meek 1971). On Adam Smith’s four stages theory of history, see Brewer (2008); and on Marx’s theory of history, see Cohen (1978).
21 Kuznets elaborates on this criticism:

The analysis of take-off and pre-conditions stages neglects the effect of historical heritage, time of entry into the process of modern economic growth, degree of backwardness, and other relevant factors on the characteristic of the early phases of modern economic growth in the different ‘traditional’ countries (1965: 40-41)

22 In fact Rostow (1961: 28-31) does discuss how a nation’s historical heritage affects the nature of its development when he reflects on the autocratic character of the state in nineteenth-century Germany and Meiji Japan.

23 In criticizing the scope of Harrod’s model for taking technical innovation and population growth as given, Rostow writes:

It would be easily agreed, however, that with respect to underdeveloped countries the determinants of the size and quality of the working force and the quality of capital investment are highly relevant objects of policy ... It is the author’s conclusion that, on balance, the great problems confronting the more advanced countries, and likely to confront them over the next few decades, are more nearly like those of the undeveloped countries than the formal preoccupation of economists would suggest. It is for that reason (as well as to meet the requirements of historical analysis) that the present structure is more classical than Harrod’s, seeking to raise explicitly and to organize formally the old questions of the determination of population and the working force and the productivity of capital (1952: 89-90).

24 The general prevalence of ‘re-switching’ and ‘capital deepening’ means that no inverse functional relationship between factor prices and ‘the quantity’ (in value terms) of factors of production can be established in a multi-commodity economic system necessary for the adjustment of demand to output consistent with the simultaneous determination of distribution (see Garegnani 1970; 1990a; Kurz and Salvadori 1995: 427-64; Petri 2004: esp. 206-52).

25 The main requirement to avoid the capital problems is that for a given technique prices and distribution be determined separately from the quantity of factors of production and of outputs, leaving them open to be determined by demand. This indeed is a characteristic of the ‘surplus’ approach to prices and distribution of the classical economists and Marx. On the theoretical structure of this ‘surplus approach’, see Garegnani (1984; 1990b).

26 For a multi-commodity system the only long-period theory of prices and distribution which is truly consistent with the demand-led approach to growth is the ‘surplus’ approach of classical theory, as articulated by Sraffa (1960). The important feature of this theory is that the determination of normal prices and distribution on the basis of free competition is compatible with persistent unemployed labour and unutilized capital in which quantities are conceived to be endogenously determined by demand conditions.

27 A good example is Japan, whose impressive upward trajectory of development came to an end in the early 1920s as the economy struggled in the interwar period and was then launched by the Korean War into a take-off that by the late 1970s would dramatically raise income per capita to levels then enjoyed by the Western advanced countries.

28 In a highly critical commentary Schweinitz wrote, ‘For economic historians and economists ... [Rostow’s] The Stages lacked credibility because in trying to explain everything it explained very little’ (1972: 166).

29 See, in particular, Baran and Hobsbawm (1961).