The Effect of American Aid on the Immediate Post-War Taiwan Economy

I. Introduction

The study of dynamic systems in physics and mathematics requires a distinct appreciation of the importance which initial conditions have on the evolving trajectories of variables over time. Similarly, in the field of economics one finds that initial conditions of an economic system greatly affect the subsequent growth, trend, and development of an economy. Economic systems of countries that are initially bound up in unproductive constraints can very well become mired in such impediments and therefore fail to deliver a respectable standard of living for their populations, even with the passage of decades. By contrast, countries which are the recipients of timely aid may become unburdened to such an extent that their populations can pursue new and productive endeavors. Aid can push per capita consumption high enough to develop a self-sustaining level of saving and an all important breakout of private investment. Aid can allow scale economies to be reached more expeditiously and can free a country from its grinding search for raw materials and necessities. In short, foreign economic aid can temporarily allow a recipient country to act as if it were already somewhat developed. Naturally, aid cannot be merely “giving a man a fish for his meal today”. It must also be “teaching a man to fish, so that he never starves”.1 Coupled with thoughtful and determined developmental policies and with an energetic private sector, foreign aid can be the activation energy that sets in motion an outpouring of opportunity and human endeavor.2

Taiwan is a country which benefited greatly from its economic, social, and political re-initialization at the end of World War II. Together with South Korea and West Germany, Taiwan found itself during the late 1940s on the frontline of the fight against international communism. The people of Taiwan did not willingly choose this role. Perhaps, the leaders at the time did not wish it either. Instead, it was thrust upon them by sea changes in international relations taking place at the end of the war. But, it was precisely these initial conditions that ensured the continued viability of Taiwan and its ardent defense of freedom of choice. These all important initial conditions resulted in part because the US saw Taiwan as one of the last outposts in its fight for a free and open Asia – a flicker of hope for the continent that showed at least a solid potential for liberty, the rule of law, private property, markets, and most importantly, a fundamental yearning of its people for representative democracy.

The purpose of this chapter is to revisit the issue of US aid to Taiwan during the crucial period of 1951-1965, when US economic and military assistance dramatically changed the opportunity set and development path for the people living on Taiwan. Our goal will be to try to assess the effect this aid has had on the performance of the Taiwan economy. In doing so, we will try to better explain what happened using simple and intuitive theory. One can always object to simple deterministic explanations of human behavior. Such speculations are always cold and sterile and
do not allow for the obvious interplay of human free will or serendipity. Economic analyses can at times seem like the mere workings of a fantastically complicated machine, with human beings playing the role of mindless cogs. However, when we honestly confront the way the real world works, we must admit that this is not at all the way economies typically evolve. The future is full of uncertainties and constantly confounds our predictions with unexpected consequences of collective human action. The future development of the economy cannot be predicted well by any model, no matter how complicated such a model is. This is because the spirit of competition is constantly tearing down the structures that went before; and it does so in order to build better ones. It is the force of Schumpeter’s “creative destruction” – the creative force of competition -- that makes the future impossible to know precisely and that makes our models limited in what they can predict. By contrast, the past is entirely different. Looking at the past and applying deterministic formulae to reveal historical causality is much less objectionable than applying such models to predict the future. People don’t have the current option of choosing their past, but they can choose their future. As the late great English economist Sir John Hicks has said, “…determinism, applied to the past is not cramping. It is liberating”. That is, unlike the future, the past is fixed and can be studied without worrying about random events, inexplicable free will, or unexpected variables causing one’s theory to fail. The structure of the past, so to speak, is fixed and is always ready to be viewed in its unchanging detail.

The organization of the chapter is as follows. The second section is devoted to a careful review the evolution of the administration of US aid beginning in Washington and ending in Taiwan. The third section looks at the types of aid that were provided and discusses the goals and stages of this aid. We will focus on simplifying the tremendous diversity of US aid given in hopes of revealing what aid was ultimately of greatest importance. Thus, the quantity and quality of aid, along with the channels of distribution, were all fundamentally important in ensuring aid was well spent and was not wasted. The fourth section applies the classical ideas of Adam Smith and more recent authors to explain how that US aid allowed rational scale and agglomeration economies to be reached and how these impacted on Taiwan’s development. An important element of this is the role export promotion and reduced consumption had on the speed with which Taiwan was able to obtain self-sufficiency. In addition, increasing returns to capital, made available in part by US aid, bolstered Taiwan’s nascent manufacturing industry and allowed Taiwan to avoid a poverty trap. The fifth section, uses a very limited data set to help empirically justify the assertion of increasing returns and the poverty trap facing Taiwan in the early 1950s. The last section concludes the chapter.

II. The Evolution of Aid Administration in the US and the ROC

In general, one could say that US foreign aid during the 1950s and 1960s was allocated by the President and Congress for use by the State Department through various acts and through budgetary legislation. However, the administrative structure of aid in the US changed greatly during the two decades following the end of the Second World War. From 1945 to 1948, much US foreign aid work was done indirectly under the auspices of international organizations such as the International Monetary Fund and the International Bank for Reconstruction and Development (which later became the World Bank).
On April 2, 1948, the Marshall Plan was put in place through passage of the Economic Cooperation Act; an act which saw the creation of the Economic Cooperation Administration, whose function was to plan and coordinate US aid to war torn Europe. The Marshall Plan ended on June 30, 1951 and with it Congress felt a need to better integrate economic, military, and technical assistance in the face of communist aggression, especially in Asia. On October 31, 1951 the Mutual Security Act was passed which abolished the Economic Cooperation Administration and created a new Mutual Security Agency. This Agency was responsible for administering aid to Taiwan during the early years, although it was shortly superseded in 1953 by the Foreign Operations Administration (an independent government agency outside the State Department). In 1954 the Foreign Operations Administration was merged with the International Cooperation Administration (ICA) and aid once again came under the direct control of the State Department. That same year, the Agricultural Trade Development Assistance Act was passed by Congress and signed by President Eisenhower authorizing Public Law 480 which is commonly known as the Food for Peace program. PL480 was an important means of handling the various US surplus commodities bought under numerous price support programs of the Federal government. The economic assistance and food security program, one of four titles to the PL480, was administered by the US Department of Agriculture.

The structure of US aid administration changed again in 1957 when the Development Loan Fund under ICA was created through a revision of the Mutual Security Act. This fund helped to finance capital projects with loans payable in local currency. It became the principal lending arm of the ICA at this time.

By 1960 public and Congressional support in the United States for continued foreign aid was eroding at an alarming rate. In addition, there was seemingly no long term commitment to economic aid and development initiatives. Planning and administration of US foreign aid was increasingly complicated by the variety of countries needing the aid. The election of John Kennedy changed this, however. The Foreign Assistance Act of 1961, along with Executive Order 10973, set the stage for a modern and comprehensive approach to the provision of US foreign aid. With the passage of this act, the ICA and other foreign aid agencies within the US federal government were consolidated into a new US Agency for International Development (USAID), charged with the responsibility of making long term plans for aid, on a country by country basis. Three other important changes resulted from this new legislation. First, a Development Loan Fund and a Development Grant Fund would be created that would be used generally to fund US foreign aid programs. Second, the forerunner of the Overseas Private Investment Corporation (OPIC) was created which decreased risks for US corporations operating in uncertain foreign environments. Finally, a contingency fund would be created to handle emergency and exigent cases.

After 1961, USAID coordinated major US foreign aid expenditures around the world. It took over aid administration in Taiwan, as well. USAID continued on Taiwan with its USAID Mission to China, which we have previously referred to as the Mutual Security Agency Mission to China. This Mission coordinated with an USAID Country Team in China having the US Ambassador to China as a member. In addition, the USAID Mission to China hired an engineering company (J.G. White Engineering Corporation of New York) to consult on technical matters concerned with aid projects proposed. This engineering firm both reviewed and
evaluated the economic and technical feasibility of projects for the USAID Mission to China and it also consulted the Chinese government. Its contract was terminated in 1962.

By the early 1960’s US aid was administered in a coherent manner as shown in Figure 1. The President and Congress would review the plans made by the State Department and USAID and would formally approve or reject such plans. Given such financial authorization, these plans would then be communicated to the country team through USAID in Washington. The country team would coordinate all US interests on the ground, including political and military, so as to cooperate with the USAID Mission to China that was charged specifically with handling economic aid. It was the responsibility of the Mission to work with the instrumentalities of ROC administration to see that projects and aid programs were successfully carried out.

The USAID Mission to China would normally operate through three channels or instrumentalities of ROC administration. First, there was the Economic Stabilization Board (ESB) of the ROC which was established in March of 1951 and which was involved in planning, coordination, and review of economic and monetary policies, agricultural and industrial projects, and the utilization of US aid for the purpose of stabilizing the ROC economy. The ESB went through continuous evolution and refinement over the period of its life until it was ultimately merged in 1958 into the second large conduit of economic planning and control in the ROC government – the Council for US Aid (CUSA). The operation of CUSA dated from as early as 1948 with the signing of the Sino-American Economic Aid Agreement between the ROC and the US. CUSA enjoyed a great deal of independence, it was well staffed, and it had a separate budget from other government agencies. Maintaining this wall of separation between US aid and the Chinese budget was important for keeping aid effective and transparent. CUSA co-existed with the ESB during the transition from the mainland to Taiwan. It was the principal interface with US aid agencies during the aid period and its position gradually evolved into the most important planning agency within the ROC government. In 1963 it was reconstituted as the Council on International Economic Cooperation and Development. The current Council for Economic Planning and Development (CEPD) is a descendant of CUSA. During the late 1950s CUSA took over economic planning from the ESB after Taiwan was able to effectively control inflation and manage its budgets. Stabilization had been achieved and the ESB was no longer needed. The last major interface between the ROC government and USAID was the Sino-American Joint Commission for Rural Reconstruction (JCRR). The JCRR was originally established in 1948 and experimented with land reform in China. It initially consisted of five commissioners of which three were appointed by the ROC and two by the US. Later the number of members was reduced to two Chinese and one American. In contrast to its operation in mainland China, the JCRR in Taiwan moved forcefully to promote land reform, agricultural reforms and education. It took a decentralized position and tried to raise the standard of living of the many thousands of farmers who were struggling on the island. The importance of this institution to Taiwan could scarcely be exaggerated. Jacoby claimed it was a de facto Department of Agriculture for the ROC and that it constituted the closest relation between the two governments, although its effectiveness diminished in later years. It was a major channel of influence between agricultural interests in Taipei and Washington, and since Taiwan’s economy was predominately agricultural, the JCRR wielded great influence at the time. It has also been considered one of the most successful aid instruments ever created by the US. As one observer noted, “JCRR is viewed by many, including me, as the most effective in-country development assistance institution in the
U.S. aid program’s history. It also appears to be the most effective national rural development institution of the last 50 years.” (Butterfield, p.49)

The sheer number of different agencies and aid instrumentalities, both in the US and the ROC, along with the complex evolution of aid including the reorganizations, the planning and design of aid, the type of aid, the modes of delivery and financing of aid, makes a proper evaluation of the effectiveness of the US foreign aid to Taiwan difficult to precisely measure. Bureaucracies are notoriously hard to measure and are constantly in danger of becoming self-serving institutions of dependency. However, one can infer that the constant change and innovation that occurred on both sides of the Pacific Ocean reflected the important element of flexibility and accountability, coupled with the absence of entrenched vested interests. It would have been all too easy for institutions of aid to become permanent fixtures on the economic scene with directors and bureaucrats ensconced in privileged and opulent lifestyles. This did not happen. The continuous evolution and innovation in aid administration was powered by a sense of accountability and national purpose. Perhaps it was the shock attendant with loss of the mainland in 1949 and the existential threat of communism of the 1950s that focused the minds of those

Figure 1 -- A Basic Outline of US and ROC Aid Administration

![Diagram of US and ROC Aid Administration]
involved. There can be no doubt that the sense of urgency and need to succeed has rarely been seen before, nor will likely be seen again in the future.

III. Taiwan’s Three Consecutive Five-Year Aid Periods

The choice to preserve the fundamental integrity of Taiwan was made even before the end of the Second World War. MacArthur purposively bypassed the island in his northward conquest from the Philippines to Guam and Okinawa. Bombing of Taiwan was focused on military targets and industrial infrastructure such as harbors, airports, rail lines, bridges, and selected factories. This made it difficult to transport food and necessities from the south to the north. Initial post-war reconstruction was centered on restoring the basic productive capacity of the economy. With the later influx of nearly 1.5 million refugees (including 600,000 servicemen) from the mainland following the civil war, there was a significant problem of maintaining basic human sustenance in the face of hyperinflation, which had raged for years in China. Aid from the US in the form of commodity imports helped to moderate the inflation in Taiwan, to feed and clothe the millions of newly settled mainlanders, and to stabilize the country’s economy during the early 1950s.

Only a few places around the world during this time were the concentrated focus of Washington cold war policymakers. In Europe, the Marshall Plan was in full swing by 1948 and great effort was made to create a buffer in West Germany between the dangers posed by Soviet expansionism and Allied forces engaged in post-war reconstruction. In South Korea, a costly war against communism was fought beginning in June of 1950 for the defense of freedom of the Korean people. Likewise, in Taiwan, there was a need to brook no expense to ensure the military, political, and economic success of the people, as they stood up to Mainland China’s communist fanaticism. In this sense, Taiwan was the beneficiary of tremendous goodwill from the US – goodwill that was nevertheless tied to the island’s continued fight against communism. Much of the initial goodwill directed at Taiwan from the US came from programs originally designed to strengthen and benefit all of China. However, by the summer of 1949, with the de facto loss of China to communism, it became impossible to continue aid administration on the mainland and these programs ceased operations, later moving to Taiwan, after a short hiatus, along with the ROC government.

Between the years 1951-1965 US assistance totaled roughly $1.5 billion USD, with over 24% of that figure coming in the initial years of 1951-1954. US aid was split between project aid (20%) and non-project aid (80%). Generally speaking, the amounts of aid that were authorized or obligated did in fact become outlays or deliveries to Taiwan. Throughout the 1950’s and early 1960’s US aid averaged roughly $80-100 million USD per year. This dropped precipitously in 1965 and remained low until 1968 when all aid was finally delivered and no further aid was forthcoming. After 1968 the remaining money from US aid was collected together into a fund that exists today under the title National Development Fund.

Jacoby (1966) conveniently divided periods of US economic aid to Taiwan into three consecutive five-year periods, which nevertheless blend in with one another smoothly. The first period was devoted to the goal of economic and political stabilization and corresponded to the
period 1951-1955. The second period was mostly concerned with economic development and occurred during the period 1956 – 1960. The last period of US aid was 1961-1965 and was focused on developing the private sector of the economy, expanding exports, and preparing Taiwan for a termination of US economic aid.

In the first period, aid was centered on providing the basic necessities of life for large numbers of people in Taiwan. This meant direct imports of food and clothing paid for by outright grants from the US to the government of Taiwan. In some cases the food and clothing would be distributed by relief agencies at no cost to the population. At other times, the materials would be sold at a very low price and local currency would be earned by the government or by the USAID Mission to China.7 The local currency earned was then placed in special bank accounts that were tightly controlled to avoid any deposit multiplication which might lead to unwanted increases in the money supply. This policy was very useful since Taiwan was experiencing high inflation at the time and the government was intent on controlling inflation. Supply of goods was increased by grant-financed imports, while demand for output was restrained by monetary and depository controls on the proceeds from the retail sale of the imports. The goal was to help Taiwan reach a level of self sufficiency, meaning a basic standard of living with continued military readiness. In this early period of economic aid, Congress elected to make the aid renewable each year. Thus, Taiwan needed to show improvement if aid was to be continued. This was another important policy choice that now seems correct, although it made long range planning hard. Because of the precarious nature of the aid appropriations, it was impossible at first to devote much aid to large scale infrastructural projects, although the local currency earned was in fact a fungible resource that could be expended for both military and non-military needs. Some public infrastructural work was accomplished during this early period by the military using these local currency funds. Upkeep of US bases and facilities (both military and non-military) was also funded in part by local currency deposits from these imports. Jacoby (1966) took notice of the fact that the civil service in Taiwan at that time was in general poorly paid and therefore had trouble attracting the best and brightest of Taiwan’s human resources. Part of the aid was therefore directed at rectifying pay discrepancies within the civil service.

In the second period, Taiwan regained its per-capita income and was poised to undertake significant economic development. USAID, which was the organization under the State Department in Washington, DC, that was liaising between the ROC government, USAID Mission to China, and the Congress, continued to request foreign aid for Taiwan under the banner of military support for Taiwan and US forces based there, but in fact much of the aid was now earmarked as economic aid, in particular. US politicians became much more confident of the viability of the ROC on Taiwan and were willing to make larger and more lasting investments in the government there. This confidence was won by steady increases in economic growth and by the successful repulsion of communist forces attacking Quemoy and Matsu in 1954. In the previous five-year period, aid was allocated through two main channels – Defense Support and the Direct Forces Support. The former was designed to offset the burden placed on the ROC economy due to military expenditures, while the latter was used for military construction and other resources used directly by the military (both ROC and US). Nevertheless, much of this had been dual use. These two channels of aid peaked in 1955 and declined monotonically thereafter. In their place, during the second period, Taiwan saw a rise in surplus commodity imports made available through the famous Public Law 480 (PL 480) in which US
surplus agricultural products bought up under US agricultural price support programs were made available to Taiwan at artificially low prices. Their sale in Taiwan created alternatively NT dollar or US dollar receipts for Taiwan’s government and the USAID Mission to China depending on the regulations in force. The second period was also the period when capital imports picked up and large scale public works and industrial projects were funded. Imports of capital and raw materials surged as a percentage of total imports, while the percentage of imports devoted to consumer goods fell off. This was an important turning point in Taiwan’s development history, and we will return to it when we discuss the relevance of the Kaldor-Verdoorn Law and Thriwall’s Law in the context of Taiwan’s growth performance.

During the third five-year period of aid, corresponding to the interval 1961–1965, Taiwan began implementing a 19 point program of Economic and Financial Reforms. Taiwan’s growth experience was maturing. Internal sources of economic growth were coming into being. Loans made by the US to Taiwan went from concessional (low interest below 3.5%) to commercial terms. In addition, the ROC began developing broader external relations with political and economic organizations such as the UN and the World Bank. Most importantly, the private sector began to expand much faster and took the reins from the public sector in powering development. To quote Jacoby directly, “Effective encouragement of private enterprise was a key to the success of US aid in Taiwan”. (Jacoby, 1966, p. 92)

Agriculture in Taiwan expanded rapidly and productivity freed workers to pursue jobs in the emerging manufacturing and export sector. Land reform Agricultural output increased an average of 5% per year during the period 1951-1965, and this was done with only a small increase in labor and no increase in arable land. USAID was quite helpful in the import of pesticides, seeds, tilling machines, irrigation equipment, and other forms of technology. The rise in productivity of labor in agriculture mirrored the rise in agricultural output. The government was also quite successful in expanding the private sector of the economy. In 1952, only 45% of output was produced by the private sector in Taiwan. By 1963, this figure had risen to 62% of output. Output of industry and manufacturing was increasingly becoming more important to economic growth. The number of non-farm firms in Taiwan between 1951 and 1964 nearly quadrupled, while the number of corporations increased ten times. Jacoby was correct in noting the importance of the rise in the private non-farm sector.

This then gives us some indication of how growth and development proceeded in Taiwan during the aid period 1951-1965. First, there was a period in which US aid provided essential consumer goods to ensure a reasonable standard of living in the face of large scale refugee movements from the mainland and continued military threats from China. Domestic saving at this time was impossible, but US aid acted to fill this void. The infusion of aid was instrumental in reducing inflation and in stabilizing the economic situation. At the same time, a furious effort was undertaken to raise agricultural productivity, especially in sugar production, the surplus of which could be used to earn foreign exchange that could in turn be used to import needed raw materials. Diversifications of crops, multiple cropping, better irrigation, pest control were successfully accomplished using US aid. Agricultural output and exports rose and this led to further scale effects and increasing returns. The rising scale of the output market brought forth a clear demand for greater infrastructure – roads, bridges, power generation, etc. and a dramatic increase in the demand for imported raw materials and capital goods. This demand was a rational outgrowth of
the gradually improving business milieu, which was becoming clearer and less risky – both in terms of profits and personal safety. The rising scale made an uncertain future easier to predict and led people to willingly develop skills that they knew would be used for decades to come. Schools likewise saw the need to offer courses in civil and mechanical engineering, international trade and accounting, and English. Educational institutions offered night school for those who were occupied with a job during the day.

Given the commitment of the US to the island, ensuring safety and continuity, private business began to thrive and invest their personal fortunes. The importation of cotton, the relocation of mainland textile businesses, the creation of sufficient power generation, along with the opening of the huge US and Japanese consumer markets, rationalized the spread of textile firms in Taiwan. Again, the rising trade volumes increased scale and brought about the creation of outsourcing and specialized firms devoted to supplying intermediate goods and services to these larger textile concerns. These small and medium sized enterprises later became the backbone of the Taiwan economy, and as with most economies, they provided the bulk of the employment opportunities to the population.

The initial period of aid gave way to more predictable and longer term aid which was used to fund major infrastructural projects. Many of these projects were small in nature. Roads were paved, airports were refurbished, and irrigation systems were constructed. However, some of these were extremely large projects including the Shihmen Dam and Reservoir, the Silo Bridge, and the East-West Highway. About 4/5s of all aid during the period 1951-1965 was given to public organizations, with only 1/5 of the aid being made available to private interests. Yet it was private interests who required the public infrastructure due to the ever increasing scale of production and distribution of goods and services. Jacoby (1966) claimed that some of these large scale projects, such as the Shihmen Dam project, were a waste of money and that the aid could have been better spent on more mundane projects such as the construction and paving of roads. He also pointed out that the ROC government wanted the US to provide them with sufficient aid to construct an integrated steel plant, a nuclear power plant, and an international airline. The US rejected all three, but it is interesting that Taiwan was to eventually have all three in the future, financed without the help of foreign aid.

Industrial output in Taiwan rose 13% per year during the aid period. This rise was mainly concentrated in processed foods, nonmetallic minerals, chemicals, textiles, electric power, coal, electrical machinery, appliances, and transportation.

IV. Theoretical Considerations – Reflections on Adam Smith

There have been literally hundreds of studies addressing in some way the effect of US aid on the Taiwan economy. Usually these analyses have been embedded in larger studies attempting to explain the so-called Taiwan growth miracle. Part of the reason for this interest in growth and US aid is that Taiwan was eminently successful and therefore its experience offered some guidelines for developing countries seeking higher growth themselves. Taiwan’s growth record was unusual at the time and stood as a parable for developing countries who wished to duplicate its results. It argued persuasively for the use of greater foreign aid in the world – something
developing countries were all too happy to accept. Another reason for the interest in Taiwan was that its success came at a time when the ideological debate over communism versus capitalism was at its peak. During the 1960s leaders in many countries continued to believe that there was a positive role for central planning. For these people Taiwan represented a country that was nurtured by a wise and thoughtful government’s benign and paternalistic hand. For them, socialism worked. By contrast, economists who defended capitalism saw in Taiwan the inevitable growth of a country that, although lacking in raw materials, nevertheless allowed people to be free to form companies, produce goods and services, and trade without great encumbrances. Yet another set of economists, who grew up on the island, criticized what had happened by saying Taiwan’s growth was due to party capitalism; that is, to monopolistic practices of the KMT party operating under martial law.

The Taiwan economy today continues to be an enigma since it has so many different facets capable of numerous interpretations. It is what people want it to be; what is convenient at the time; or what bolsters a particular political argument. Indeed, it may be impossible to come to any definitive conclusions or consensus about the effect of US aid on growth simply because such analyses require the contemplation of a hypothetical or counterfactual – viz., the case of no US aid for Taiwan.

Recognizing that there may be considerable differences in opinion as to the effectiveness of US aid to Taiwan, we will adopt a slightly different approach. Our approach will be to appeal to a much older body of theory that is intuitively strong and is readily applicable to the data on Taiwan. It differs from many growth models because it emphasizes dual direction in causation between growth and productivity. Although based on the observations of Adam Smith from over 200 years ago, modern expositions and extensions of this theory have been around for decades. The ideas are immediate and intuitive. They are easily understandable by anyone who has observed the growth of industries and has studied the growth of Taiwan.

The underlying theory for why Taiwan was so successful in expanding exports and using US aid comes from Adam Smith. First, the rise in average labor productivity, which forms the basis for the rapid production of wealth and indeed its distribution to the lowest elements of labor in any nation, is dependent on the degree of specialization of industry and division of that labor. Smith found that countries that are rich are countries that have found ways to enhance the specialization of industry and the division of labor. This is such an important point that it forms the entire first part of his book. As he writes (Smith, 1957, Book I, Chapter I, p. 10)

“It is the great multiplication of the productions of all the different arts, in consequence of the division of labor, which occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people”

Smith next explains that there is only one real sure-fire means of enhancing the specialization of industry and the division of labor – and that is to somehow enlarge the size of the market. Ultimately, nothing else will work. Thus, he writes (Smith, 1957, Book I, Chapter III, p. 15),
“As it is the power of exchanging that gives occasion to the division of labor, so the extent of this division must always be limited by the extent ... of the market”

Thus, Smith notes that it is the scope or size of the market that allows labor to be efficiently allocated to particular occupations and which allows labor (and industry) to focus on those activities that will most likely aid them in producing more. One might summarize this by saying that a large and dependable market encourages people and firms to find and employ the most efficient ways to produce large outputs. We might add that the very same principle is what determines the extent of specialization within any industry. Firms, like labor, can become specialized in their production of output – activities which are known today as outsourcing, external and internal economies of scale, and learning by doing. Companies involved in exporting manufactured goods will naturally nurture the formation of smaller, feeder companies which act as satellites to the larger firms, supplying them with intermediate products and services. These firms, though small in scale, nevertheless represent an important source of employment in Taiwan. Smith recognized that the productivity of a country would determine its standard of living (or its wealth) and that this productivity was heavily influenced by the division of labor (or the specialization of industry).

Smith did not stop there though; he next asked how that the size or scope of a market could be most readily expanded. His answer was remarkable for its simplicity. The size of the market could be increased by free trade between countries. Allowing both exports and imports to increase would not necessarily raise the amount of gold a nation could acquire, but it could certainly expand the markets and allow the efficient division of labor and specialization of industry. More than anything else, this was what Smith saw as the key to a rising standard of living – greater transactions brought on by greater trade, which then allows increases in productivity due to rising division of labor and specialization of industry. Smith drives this point home much later (Smith 1957, Book IV, Chapter I, p. 392) when he states

“By means of it (trade) the narrowness of the home market does not hinder the division of labor in any particular branch of art or manufacture from being carried to the highest perfection. By opening a more extensive market for whatever part of the produce of their labour may exceed the home consumption, it encourages them to improve its (labour's) productive powers, and to augment its annual produce to the utmost, and thereby increase the real revenue and wealth of the society.” (our parenthetical additions)

What Smith apparently failed to include in analysis, however, is that when exports pay for imports due to unavailable borrowing and when imports are principally raw materials and producer goods, then the productivity of labor will be even further enhanced beyond that of scale effects. Productivity must rise if labor has greater raw materials and capital to accomplish their jobs. Thus, free trade coupled with incentives to reduce or postpone private consumption (and perhaps wasteful military expenditures) could drive productivity growth even higher than simply expanding the market. Such incentives are successful because they prevent consumer and military imports from crowding out the needed raw materials and capital goods. In such as case, productive specialization resulting from expanded exports would be maximized.
It should be noted how that both exports and imports are supposed to grow in a balanced manner in Smith’s system. From Smith’s point of view, the object of promoting exports was not to gain a favorable balance of trade. After all, surpluses of any size are consistent with trade levels of virtually any size. The object was to expand total trade which we may take as exports plus imports. Indeed, imports are essential in the case of Taiwan. Not only because they provide the raw materials and capital which are deficient on the island, but also because they increase the size of the market, providing employment and opportunity to importing companies, freight companies, construction, communications, and a myriad of other satellite companies surrounding the import of these goods. Moreover, import related transactions and business entities have their own set of domestic investment, income, and scale multipliers associated with them. Smith recognized the importance of imports and did not see them as a simple drag or net loss to the income stream. Modern expositions of leakages and injections so prevalent in macroeconomic texts do not properly gauge the value of imports. All too often they are wrongly seen as something which merely reduce the spending multiplier, or worse yet, create a dependency on the outside world. Focusing on the demand side of the economy causes one to lose sight of the productive importance of imports and how they bolstered the growth of the economy.

Much of modern development theory has been enmeshed in a debate over the primacy of export promotion or import substitution as means of achieving higher per capita incomes and higher growth rates. This development debate over import substitution versus export promotion has had much less effect on growth theory. Neoclassical growth models have focused on the role of saving as a way of increasing the capital per worker under conditions of full employment. Later, these highly aggregated growth models were extended to include changes in the growth of technological progress as a means of explaining modern growth of economies. The most recent trend is to explain growth in terms of endogenous factors including education, institutional factors, even religion. Nevertheless, few of these have clearly linked the growth of trade to the growth in productivity and hence standards of living, as Smith did so long ago. Some early works which attempted this were Verdoorn (1949) which was later followed by Kaldor (1966) and then by Thirwall (1979). These researchers claimed that output growth would itself give rise to growth in average labor productivity – something which we have said is clear from Smith’s work nearly 200 years before. Thirwall’s Law is based on the simple notion of export led growth. Thirwall’s Law states that output growth is roughly equal to the growth of exports divided by the elasticity of imports with respect to output. Interestingly, Thirwall’s original paper assumes balanced trade. Thus, both exports and imports expand with rising exports. There is no trade surplus or deficit. Nevertheless, output increases along with exports and both variables grow in tandem if the import elasticity is equal to unity. Once again we find that this type of analysis ignores the composition of imports between consumer and producer goods, something which played an important part in Taiwan’s early growth record and which was closely related to US aid to Taiwan. All of the models related to Verdoorn’s Law are demand driven models. This is why in such models the division between consumer imports and producer imports does not play a role in driving the growth in productivity.

The idea that Verdoorn’s Law is to some extent behind the Taiwan growth experience is supported indirectly by Rima (2004) who argues that the economic reforms in China have similarly been due to Smith’s “vent of surplus” coupled with the scale effects discussed by
Verdoorn. This is in sharp distinction to the usual arguments about comparative advantage and labor intensive industries made by traditional growth and trade theorists.

But, the important fact to remember about Taiwan’s economy during the aid period was that it had very few natural resources and even less in the way of productive physical capital. Taiwan had enormous amounts of labor resources, especially as farm productivity rose and freed labor to move to the cities. Thus, the importation of raw materials and capital was absolutely essential to the growth record for Taiwan. To ignore this is to miss much of the growth story. Jacoby (1966) notes that 60% of imports to Taiwan during the aid period were raw materials, 25% were capital goods, and only 10% were consumer goods. The 2002 Taiwan Statistical Databook published by the CEPD has Taiwan with roughly 20% of imports being consumer imports in 1952, 9% in 1955, 8% in 1960, and 5% in 1965. By contrast, capital goods as a percentage of imports were 14% in 1952, 16.5% in 1955, 27.9% in 1960, and 29% in 1965. The reduction in consumer imports exactly mirrors the climb in producer imports during the 15 year period of aid.

To better understand the importance of foreign aid within a national income account setting, consider the following two equations

\[ Y = C + I_d + G + NX \]  \hspace{1cm} (1)

\[ NX + AID + KA - \Delta FER = 0 \]  \hspace{1cm} (2)

Equation (1) is the typical national income identity showing domestic output, \( Y \), distributed among four different end uses -- consumption, \( C \), domestic investment, \( I_d \), government spending, \( G \), and net exports, \( NX \). Equation (2) is the familiar balance of payments identity with foreign aid being given a separate account for convenience of exposition. In this equation, we ignore invisibles, services, and factor income, and focus on \( NX \) as the current account. Foreign aid is given a separate account, \( AID \), and the balance on financial account is written as \( KA \). Finally, the net accumulation of foreign reserves is written as \( \Delta FER \). These two equations can be combined to show a relation between total national saving and total investment that relies directly on the level of foreign aid and the amount of foreign exchange reserves being accumulated. Thus, we can write

\[ S_p + S_G + AID = I_d + I_f + \Delta FER \]  \hspace{1cm} (3)

where private saving, \( S_p = Y - Taxes - C \), public saving, \( S_G = Taxes - G \), and private foreign investment, \( I_f = -KA \). Note that the change in foreign exchange reserves in Equation (3) translates into changes in the government’s holding of foreign assets or public foreign investment. This identity shows that foreign aid can be used in the same way as national saving. The aid actually allows a country which has a low level of saving to achieve a high level of investment. But, in fact aid can be used to replace any of the items in the equation. Higher aid can allow the government to run larger fiscal deficits, often important in building the needed infrastructure of an economy. The identity also shows that aid can be used to help a country obtain foreign exchange reserves. The easiest way in which this could be accomplished is to have the aid go straight to the government in the form of grants paid in foreign currency. Naturally,
the holding of foreign reserves is of little value to the country in possession of them, except as these funds are used to stabilize exchange rates, to pay back foreign currency loans made to the government by foreign entities, or to make foreign currency loans to domestic businesses seeking to import. Of course, in the case of Taiwan, war with the mainland was an ever-present threat. The holding of reserves could therefore be justified also as a means of financing war materials in a short period of time if they were needed. Taiwan’s holdings of foreign reserves barely covered three months of imports during the early part of the aid period. Jacoby (1966) has claimed that this was a small sum, but considering the situation of Taiwan at the time, it was not particularly small. Indeed, three months of reserves would have been about the correct level to maintain. Holding particularly large sums of foreign exchange would have been wasteful, just as holding large sums of cash can be wasteful for a consumer.

Equation (3) provides the basis for understanding how that US aid to Taiwan augmented national saving and spurred investment for the initial period of 1951-1965. It also shows that all important foreign exchange could be expanded temporarily and that this expansion could be consistent with an initially low saving rate. But, this equation is an aggregate outcome. It does not show how that the aid affected each of the other components, it merely shows that after all is done, things add up. More importantly, the type of aid and how dependable the aid was no doubt had a profound effect on the other variables in Equation (3), although a simple aggregation does not answer these questions. For example, a rise in aid that is accompanied by a significant and offsetting reduction in private saving ceteris paribus cannot be as productive as the case of a rise in aid that is accompanied by a significant inflow of private capital.

Moreover, the aid may at times be directed at import substitution (e.g. bolstering agriculture and reducing dependence on foreign food imports) or at export generation (e.g. importing cotton at concessionary prices for textile exports). In general, the efficacy of aid in promoting greater productivity and growth must be seen through the overall lens of the Smith-Verdoorn-Thirwall framework where a rise in the scale of the market leads to enormous and somewhat unpredictable gains in productivity. The unpredictable gains come from the fact that it is the aggregate market outcomes that determine how best to cope with the increased scale of the market.

V. Using Aid to Jump-start Growth and Escape the Poverty Trap

As we have pointed out, the growth story of Taiwan is actually an amalgam of theories, including the familiar theories on import substitution, export promotion, agricultural and labor surpluses, neoclassical growth, new endogenous growth, and economies of scale. They all share, though not equally, in explaining Taiwan’s success. We have chosen to emphasize the Smith-Verdoorn-Kaldor framework on growth and development since it places special emphasis on the role of expanded scale, increasing returns, and agglomeration economies. The special role of US aid was to reinitialize the economy to a higher level of capital and skill per worker, while allowing greater saving, investment, and import of raw materials and capital goods. Eighty percent of US aid went to public investment and consumption. The impact of this additional social capital and public infrastructure was to dramatically increase the return on private capital. US commitment to the ROC and its military capability and continuity also helped to spread confidence in these higher private yields. Thus, even as physical capital on the island was
increasing, the return to capital was rising as well. This is a key element of Taiwan’s growth story that is seldom discussed. Normally, in growth models, accumulation of capital is expected to lead to a decline in the marginal product of capital. Just the opposite was true for Taiwan during the initial stage of the aid period 1951-1965. As capital expanded due to US aid and increased foreign and domestic investment, the rates of return on capital rose. This unusual behavior of capital accumulation reflected the increasing returns which Smith and others had emphasized long before. But, even more than this, the US aid permitted Taiwan to leapfrog past its low initial capital stock and escape what would otherwise be a poverty trap.

Figure 2 shows theoretically how this plays out in the context of the standard Solow-Swan growth model with initial increasing returns. Suppose that the economy is initially at point C and is caught in a poverty trap. If nothing is done and the economy is left to its own devices, the capital per worker will begin to decline as will per capita income. It is only when the economy is re-initialized at point D that a stable, long run equilibrium point emerges and the economy expands out along a normal growth path. The poverty trap can be accentuated if there is a high growth rate of the population, which was true for Taiwan in the 1950s. This is the typical Malthusian trap familiar from the 18th century. A high rate of depreciation of capital, due to war, poor quality, lack of upkeep, a failing educational system, lack of personal security, a failing system of power generation, etc., all of which are common in countries struggling with poverty traps, could also accentuate the depth or severity of the poverty trap. Naturally, a low level of per capita saving at low capital levels (i.e. low per capita income levels) could also accentuate this poverty trap. The key condition however is sufficiently low marginal productivity at low levels of capital that is nevertheless subject to increasing returns. We are arguing that this was the case for Taiwan during the early 1950s and US aid was fundamentally important in freeing Taiwan from this poverty trap.

We now see that US aid was not only instrumental in raising the growth of Taiwan and speeding the process of development, it was also a key element in re-initializing the economy from point C to point D, thus allowing the economy a chance to grow normally, eventually converging to the growth performances of developing economies. In addition, it is important to realize that while the escape from point C to point D required external help in the form of US aid, the movements of the economy after reaching point D were self-financing and self-sustaining. This was, in fact, the goal of the third period of US aid, when the private economy was expected to become self-sustaining and US aid to Taiwan was to be terminated. Economic planners, both in Washington and those in Taipei, could see that during the early 1950s Taiwan was enmeshed in a poverty trap, complicated by the threat of military engagement. They recognized that the island had little hope to grow normally without significant US economic assistance. With determined but limited help, Taiwan could be made self-sufficient.

Is there any empirical evidence to back up this explanation?

Comprehensive and high frequency data on Taiwan’s economy during the 1950s and early 1960s simply do not exist. This includes data on GDP and its components. However, Jacoby (1966) collected data on real GDP and investment during the time he spent in Taiwan in the early 1960s. Taiwan has published only fragments of these early data and there is much controversy regarding their reliability. Using the early Jacoby data, along with an overall depreciation rate on capital of
6% and the familiar perpetual inventory method, we have constructed an annual real capital stock series for Taiwan for the period 1952 – 1964. We next fit three regressions to the available data – the first regression was over the whole period, and the next two regressions were over the sub-periods 1952-1957 and 1958-1964. The function estimated is referred to in the table as a production function, but that is only vaguely descriptive since there are many other variables that would ultimately determine production. Alternatively, the function which we are estimating could be thought of as related to the equilibrium output/capital ratio. This ratio would be increasing in K if there are increasing returns and would be decreasing in K if there are 

Figure 2 A Solow-Swan Growth Model with Increasing Returns and Poverty Trap
diminishing returns. The function estimated was kept extremely simple and was assumed equal to

\[ Y_t = AK_t^\beta e^{\epsilon_t} \]  

(4)

where \( Y_t = \) real GNP valued in 1964 base year prices and \( K_t = \) real capital stock valued in 1964 base year prices. The object of the regressions were to determine the value of \( \beta \) to see if it was less than or greater than 1. A value of \( \beta \) greater than 1 corresponds to increasing returns, while a value less than 1 corresponds to the more typical decreasing returns. We did not include labor or time in the regressions for two reasons – first, inclusion of employment was statistically insignificant and the employment series is furthermore known to have measurement error and second, the period under estimation was extremely short making technical and human skills progress less importantly than the actual accumulation of physical capital. Taking the natural

<table>
<thead>
<tr>
<th>Period</th>
<th>Variable</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>t-Statistic</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952-1964</td>
<td>Constant</td>
<td>0.280</td>
<td>0.0978</td>
<td>2.859</td>
<td>**</td>
</tr>
<tr>
<td>(Full)</td>
<td>ln(K_t)</td>
<td>0.860</td>
<td>0.0219</td>
<td>39.280</td>
<td>***</td>
</tr>
<tr>
<td>R^2 = 0.989</td>
<td>D-W = 0.63</td>
<td>Number of observations = 13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1952-1957</td>
<td>Constant</td>
<td>-0.690</td>
<td>0.2426</td>
<td>-2.837</td>
<td>**</td>
</tr>
<tr>
<td>(1st Half)</td>
<td>ln(K_t)</td>
<td>1.091</td>
<td>0.0580</td>
<td>18.820</td>
<td>***</td>
</tr>
<tr>
<td>R^2 = 0.989</td>
<td>D-W = 1.29</td>
<td>Number of observations = 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1958-1964</td>
<td>Constant</td>
<td>0.498</td>
<td>0.1180</td>
<td>4.221</td>
<td>***</td>
</tr>
<tr>
<td>(2nd Half)</td>
<td>ln(K_t)</td>
<td>0.813</td>
<td>0.2512</td>
<td>32.36</td>
<td>***</td>
</tr>
<tr>
<td>R^2 = 0.995</td>
<td>D-W = 1.56</td>
<td>Number of observations = 7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
logarithm of Equation (4) produces a linear regression equation. Table 1 shows the results of the estimation. Over the entire period from 1952-1964 we find that capital and output are clearly related and that there are diminishing returns. This is evident from the estimate of $\beta$ which is equal to 0.86. Obviously, “having” capital and “using” capital are quite different things. There is no way that we can separate out the “skill aspect” of labor from the “creation-use aspect” of capital with the data that are available. It follows that the high coefficient value of 0.86 is probably due in some part to the skill component of labor which uses the capital. Nevertheless, additions to capital, according to the full period estimation would tend to reduce the marginal product of capital. When we turn instead to the sub-periods we find that the first half sub-period shows increasing returns with an estimate of $\beta$ equal to 1.091. Note that this is almost two standard errors above 1.0 and therefore the likelihood that there were diminishing returns in the first period is low. This means that additions to capital in the first period of US aid would have had the effect of raising the marginal product of capital and therefore of encouraging investment and private capital formation. This completely conforms to the predictions of the Smith-Verdoorn-Kaldor framework. Moreover, it lends strong support to the idea that US aid helped Taiwan escape a poverty trap – something that few observers have noted before. By contrast, the second period, corresponding to 1958-1964, shows diminishing returns to capital and thus additions to the capital stock would have exactly the opposite effect from the first half sub-period. This means that by roughly 1958 US aid had done its job of lifting Taiwan from the dangers of continuous stagnation and poverty into a region corresponding to normalcy and convergent growth. It is therefore not surprising that Taiwan found the private sector expanding at a rapid rate in the second period, as the neoclassical growth model predicts. Another important aspect of the simple estimation above is that the constant term increases substantially in the second period. This corresponds to all other factors increasing in importance to the growth process. US aid in the first half of the aid period created conditions which allowed total factor productivity and human capital to play more important roles in output determination than before. By 1958, physical capital had relinquished its role as the main determinant of growth. US aid had re-initialized the Taiwan economy and the economy was then able to grow normally according to increases in TFP, human capital, and employment growth. In addition, the export expansion during the second period and the decline in the importance of consumer imports both served to expand the scale of output and produce internal sources for financing further growth in the future. US aid had accomplished its purpose of letting Taiwan achieve self-sufficiency.

VI. Conclusions

The period of 1951-1965 marked a crucial time in the history of Taiwan’s economic and political development. Monumental changes in the world placed Taiwan on the frontline in the war against communism. As such, US policymakers saw Taiwan as an essential part of the fight for individual freedom and capitalism. The period saw important changes in the nature and administration of US foreign aid. Taiwan was the crucible in which the administration of economic and military aid was designed, tested, and improved. Over the fifteen year period, the US delivered an average of $100 million per year using various methods of aid distribution. The operation of this aid divided neatly into three separate periods. In the first period, aid was designed to stabilize both the economy and military forces, while ensuring the continuity of the government and a decent standard of living for the population. In the second period, economic aid was organized to specifically promote economic expansion, transition from farming, and
public infrastructure. In the third period, the aid was shaped so as to expand the private sector, promote exports, and prepare Taiwan for self-sufficiency.

By almost any measure, US aid to Taiwan was manifestly successful in its aims. Most importantly, it set the stage for a long and sustained period of high economic growth. US aid helped to produce a better growth record by allowing Taiwan to re-initialize its post-war economy with a higher capital stock, a more productive labor force, and a clear, predictable, and safe business environment. Transition from agriculture to light manufacturing was smoothed due to the availability of financing and the open consumer markets in the US and Japan. As exports and imports rose, scale and agglomeration economies led to continued success and increased labor productivity. This is in line with the theoretical framework that began with the works of Adam Smith and others. Not only did US assistance promote higher growth in Taiwan, it quite likely let Taiwan escape what would have been a deep and formidable poverty trap. US aid was successful at this in part since it augmented domestic saving, allowing the capital stock to rise much more than would have been possible without the aid. There is no question that Taiwan today would be much different had the US not instituted such a comprehensive and thoughtful aid program. The lessons learned from the US aid experience in Taiwan, though in some cases quite specialized, can nevertheless continue to inform modern discussions on economic aid to developing countries.

Endnotes

1. I have been told that there is a Chinese proverb that goes something like this. Perhaps "授人以魚, 不如授人以漁." - 老子 "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime." - Lao Tzu

2. There is an enormous body of both theoretical and empirical literature on economic development that deals with the determinants of growth, the dangers of dependency, and the outright failure of some countries to achieve a high level of per capita income or real economic growth. Early research on Taiwan focused on the dual model of Lewis (1954) which was refined and extended to the Taiwan experience by Fei and Ranis (1964). This model later came under attack by neoclassical theorists and others and is used much less today, although see Ranis (2003). Other scholars have wished to emphasize the importance of government planning and involvement in the economy, such as Amsdem (2005), Amsdem (1979), Barrett and Whyte (1982), Clark (1982), Hsu, Hsueh, Hsu and Perkins (2001). A recurring issue in development economics is whether economic policy should be fostering industrialization through import substitution such as that advocated by Prebisch (1959) or through export promotion as exemplified by the empirical studies of Michael (1977), Belassa (1978) Tyler (1981), Feder (1982), and Frankel and Romer (1999). Modern studies of growth have turned instead to the importance of increasing returns to scale and endogenous factors affecting performance, such as Romer (1986), Romer (1987), and Barro (1991). Tsiddon (1992) has provided an alternative explanation for disparate performances of growth that relies on asymmetric information and the
market for loans. As he says “…history matters since different initial conditions are shown to direct economies to different equilibria.” Azariadis (1996) has carefully studied theoretically the issue of poverty traps in the context of general equilibrium growth models.

3. The most complete research work on US economic aid to Taiwan remains Jacoby (1966). Although judged by today’s standards his work is deficient in terms of data presentation and analysis, Jacoby made a remarkable and timely contribution to the debate over the effectiveness of total US economic aid program to Taiwan. To our knowledge, his work has not been reproduced in completeness by any other researchers for any other country.

4. Much has been made of the egotism and megalomania of MacArthur for wanting to bypass Taiwan and return instead to the Philippines, against the advice of Admiral Nimitz and the US Navy. In fact, the Philippine campaign proved to be costly to the US military with over 13,000 killed and 48,000 wounded, see Cannon (2001) and Smith (2005). MacArthur was at least forthright in stating that he did not know how to protect his rear if he invaded Taiwan and then attacked Japan from China. By attacking the Philippines, he also made use of the more than 300,000 Filipino guerillas who fought the Japanese valiantly. From the US perspective, this sacrifice was already an enormous form of aid to the people of Taiwan, regardless of whether it was welcomed or not. A direct assault on Taiwan would have surely meant thousands of Taiwanese would have lost their lives, completely changing the nature and composition of Taiwan’s society. Indeed, one wonders if Taiwan would have been returned to Chinese control at all, if there had been significant loss of US life in liberating Taiwan by a direct assault. This underscores again the fact that initial conditions matter for history and development.

5. US aid began with the passage of the China Aid Act of 1948, but military aid was abruptly terminated by Truman in January 1950 when he announced that “the US government would not provide military aid or advice to Chinese forces on Formosa” Roy (2003), Taiwan: a political history p. 109). It resumed shortly after the start of the Korean War on June 25, 1950. Small amounts of economic aid continued throughout the period in one form of another. One useful source of early Taiwan history is the collection known as the Taiwan Political and Economic Reports 1861 – 1960. For the period 1952 -1960, Volume 10 of these British Foreign Ministry communications from Taiwan to London contains numerous observations and information on a monthly and quarterly basis. The British Mission to Taiwan closely monitored the US aid program, both military and economic aid.

6. Parts of the data discussed in this section are taken from the *Taiwan Statistical Data Book*, 1999, published by the Council for Economic Planning and Development, Republic of China. See Chapter 12, pp. 243-256, exclusively for USAID to Taiwan. In addition, the Taiwan Political and Economic Reports 1861 – 1960 were especially helpful in adding particulars that are missing from the aggregate data. A short list of these would include the following:

7. Prior to 1961 the Mission was known as the Mutual Security Agency Mission to China, since the Mutual Security Agency was the forerunner of USAID. A short history of USAID can be found at

8. The effect of a rise in small satellite companies which provide goods and services to export companies (sometimes referred to as agglomeration economies) has been duly recognized as an important factor in Taiwan’s economic development by the Small and Medium Sized Enterprise Administration under the Ministry of Economic Affairs when they state that during the 1960s…” Initially, most export-oriented firms were in the food and textiles industries. Later on, it was enterprises in the electromechanical, electrical appliance and plastics industries that had the highest production value and export growth. Large enterprises played a key role here, and their growth stimulated the growth of SMEs producing components for the larger firms. “ (my emphasis). Obviously Smith would say that the “large enterprises” spoken of in the quote above emerged as a natural process of the export promotion, which was balanced by the import of raw materials and capital goods. That is, exports provided a means of increasing the market size that allowed the growth of “big enterprises”, which in turn created a rational environment for the emergence of satellite SMEs to service these large export companies. Add to this the fact that these SMEs were not merely providing “components” to the companies, but were engaged in a full range of economic activities, with supply chains of their own and scale multipliers associated with their own investments, constructions, imports and purchases, and one can well understand how that Smith’s ideas fit well with the facts. For a short discussion of SMEs and their relation to Taiwan’s development see the following link:


9. The essential assumption in the basic model is that exports are equal to imports. Letting $X = \text{exports}$ and $M = \text{imports}$, with $Y = \text{real output}$, we can readily show that if balanced trade $X = M$ holds continuously, then

$$\frac{\Delta Y}{Y} = \frac{\Delta X}{X} = \eta \left( \frac{\Delta Y}{Y} \right)$$

which is Thirwall’s Law, depicting the relation between the growth of exports and the growth of the economy.

10. The details of the data construction and the estimation have been suppressed in order to save space. An initial estimate of the capital stock for 1953 was made assuming the capital/output ratio was nearly constant and this corresponded to a value of $59.29$ billion NT in 1964 constant dollars.