

# Taiwan's Macroeconomic Performance in the 1990s: An Overview\*

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## Abstract

By examining a few basic macroeconomic time series, this paper gives a bird's eye view of Taiwan's macroeconomic performance under the Lee administration. Based on this overview, two interpretations are provided to identify the footprints left on these series by the Lee administration. By showing what has been pursued and what has not, the first interpretation characterizes *the economics of Lee Teng-hui*. The second interpretation motivated by the *charisma-irrelevant* hypothesis asserts that it is the laws of nature rather than the Lee administration has shaped our macroeconomy over the last decade.

## 1 Introduction

This paper attempts to give a review of the macroeconomic time series in Taiwan over the last decade. With this review, we shall reflect on the Taiwan macroeconomy under the leadership of President Lee Teng-hui. There are two reasons to do so. The obvious one is that President Lee is going to hand over his political power, and it is time to give such a review. But, the review is also interesting in its own right because of the personal charisma of the outgoing president. Contrary to what politicians want to believe, charisma plays an infinitesimal role in a country's economy, at least in the eyes of economists. As UCLA

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economics professor Edward Leamer asserted in his book on international trade (Leamer, 1984).

The resulting image of the workings of the economy is admittedly *cold* and *mechanical*. Neither Henry Ford nor Vladimir Lenin plays a role. Nor does Thomas Edison, Karl Marx, Adam Smith, Queen Victoria, Christ, or Mohammed.... What distinguishes countries from one another is only their *natural resources*, *work forces*, and *saving rates*. But this mechanical explanation seems surprisingly complete, and the anomalies not explained by this limited list of resources do not elicit a feeling that Ford, Lenin, Edison, Marx,... have much impact on the structure of international trade. (Ibid., pp. xvi-xvii. Italics added.)

While this quotation is borrowed from a book on trade theory, Leamer's assertion holds for other fields in economics as well. For example, can charisma contribute to a *big push* to real GDP of an economy? *No*. By the *Solow growth model*, given a growth rate of knowledge, human and physical capital, the potential GDP growth rate is already determined (Solow, 1956). Will charisma make the domestic capital market more *attractive*? *No*. By *Barro's convergence hypothesis*, other things being equal, poor countries and areas are in a better position to attract foreign capital than their rich counterparts, due to their high marginal efficiency of capital (Barro and Sala-i-Martin, 1992). Will charisma *invigorate* the labor market? *No*. The long-term unemployment rate (or the natural rate of unemployment) is directly affected by institutional arrangements, such as efficiency wage setting (Katz, 1986), unemployment insurance (Woodbury and Spiegelman, 1987), minimum wages (Brown, 1988), and union wage premiums (Summers, 1986). Will charisma help reduce the twin deficits (surplus)? *No*. By the intertemporal optimizing behaviour, these two deficits shall have a long-run equilibrium at zero.<sup>1</sup> So, what is charisma worth? Probably nothing as far as the economy is concerned. That is simply a generalization of what Leamer observed. For orthodox economists, the operation of an economy follows a certain *natural laws*, just like a physical or biological system. The force of these laws is so powerful that it leaves one little room for maneuver.

President Lee has been widely regarded as a very influential, if not the most influential, figure in Taiwan. Therefore, by tracing a set of most basic macroeconomic time series over the last decade, one may give a test on the charisma-irrelevant hypothesis and see whether we can actually identify President Lee's footprints while moving along. Nine macroeconomic time series are considered in this paper. They are the real GDP growth rate, the unemployment rate, the wage growth rate, the saving rate, the inflation rate, the stock return, the GDP share of government expenditures, the budget deficit, and the trade deficit. This nine series covers the three markets in a macroeconomy, namely, the product market, labor market and financial market. The *methodology* adopted here is very simple. For each time series, we ask whether a trend had already started before President Lee took office. If so, did this trend continue, or was it reversed, under the Lee administration? And what were the *major forces* contributing to the continuation or the reversal of the trend?

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<sup>1</sup>For empirical evidence on these long-term balances, the interest reader is referred to Burda and Wyplosz (1993), pp.51-52 and p.59.

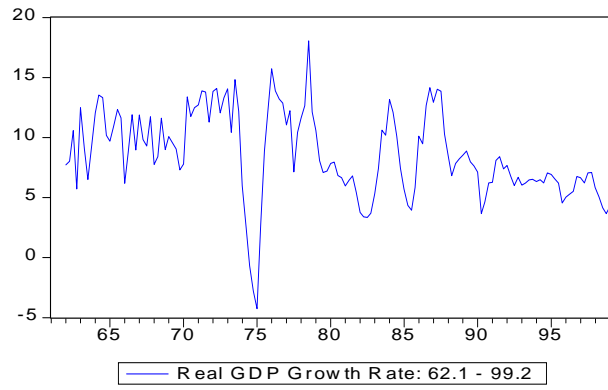


Figure 1: Time Series Plot of the Real GDP Growth Rate: 1961/Q1- 1999/Q2

Are these forces “natural” so that the economic consequences are inevitable, or are they “artificial”, the work of human intervention?

By adopting the above-mentioned research methodology, we are not *directly* addressing the consequence of a specific economic policy or a specific set of economic policies which may “define” Lee’s economic regime, such as his expanding social welfare program. We implicitly assume that if a policy has its non-trivial impact, then one should actually observe its “force” on one or more than one series of macroeconomic measures. By carefully selecting a set of macroeconomic measures, this research methodology, while distinguishes itself from the conventional approach (Lindesy, 1990; Figgie and Swanson, 1995), provides a convenient start for this line of research.

## 2 Economic Growth

We shall start the review from one of the most important measures for economic growth, i.e., **the real GDP growth rate**. The time series behavior of this measure has been extensively studied by economists over the last two decades. One *stylized fact* about this series identified in advanced economies is that economic growth has a tendency to *slow down* and *get steady*; in other words, developed countries tend to experience lower growth rates but less fluctuating economies (Schmidt, 1999).

With this background knowledge, we can easily account for the growth experience over

Table 1: Real GDP Growth Rate in Taiwan: 1962/Q1 - 1999/Q2

Periods	Mean	S.D
62/1-99/2	8.56	3.56
62/1-69/4	9.82	2.05
70/1-79/4	10.26	4.92
80/1-89/4	8.15	3.08
90/1-99/2	6.14	1.13

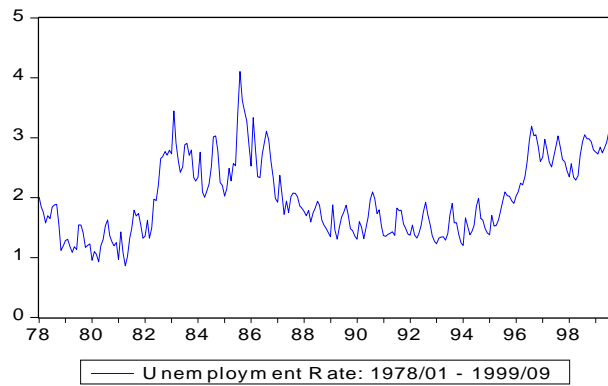


Figure 2: Time Series Plot of the Unemployment Rate: 1978/01- 1999/09

the last decade and its relation to previous decades. Figure 1 is a time series plot of the real GDP growth rate in Taiwan from the first quarter of 1962 to the second quarter of 1999. To see whether the stylized fact mentioned above fits what we experienced, let's take a look at Table 1, which gives the basic statistics of the growth rate over different time horizons. The growth rate over the entire sample period is 8.56 with a fluctuation measured by the standard deviation 3.56. A further examination of the statistics over different subsamples reveals a steady decline in real GDP growth rate from 10.26 in the 1970s to 8.15 in the 1980s, and down to 6.14 in the 1990s. On the other hand, the fluctuation also falls from 4.92 in the 1970s to merely 1.13 in the 1990s. As a result, the growth experience under the Lee Administration shows nothing inconsistent with the stylized fact observed in other advanced economies.

### 3 Unemployment Rate

Real GDP measures the aggregate economic activities of the product market, while the unemployment rate measures the aggregate economic activities of the labor market. Given capital and technology, real GDP (an output) can be considered a function of employment (an input). Figure 2 displays the time series data of the unemployment rate from Jan. 1978 to Sep. 1999. Over this sample period, the monthly unemployment rates range from 0.86 to 4.10 and the average is 1.98. For the first half of the Lee administration, the time series of the unemployment rate is similar to that of the preceding years, and the average unemployment rate is only 1.54, much lower than the historical average (Table

Table 2: Unemployment Rate in Taiwan: 1978/01 - 1999/09

Periods	Mean	Max	Min
78/01-99/09	1.98	4.10	0.86
90/01-95/06	1.54	2.09	1.20
95/07-99/09	2.63	3.21	1.90

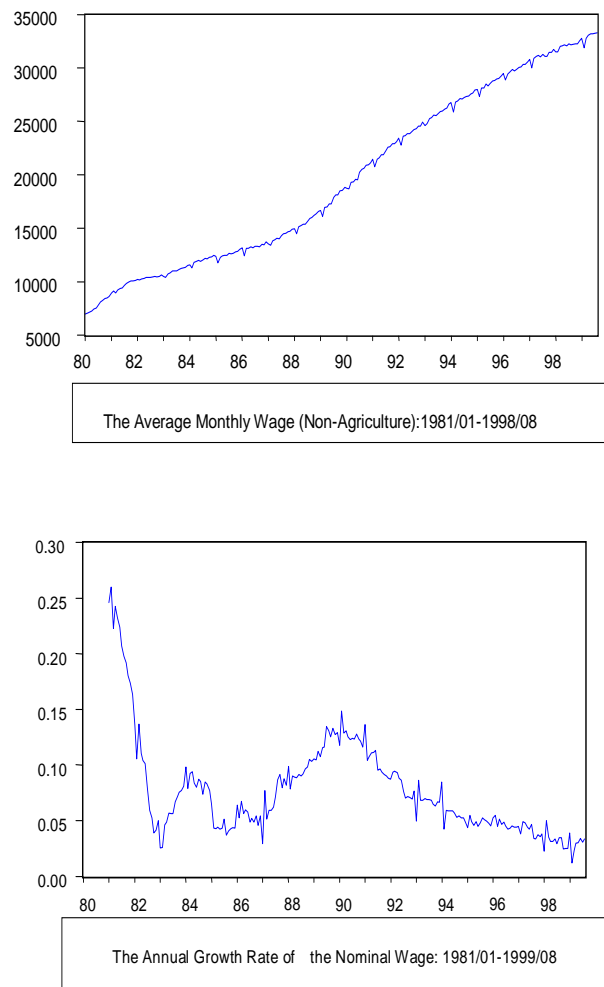


Figure 3: Time Series Plot of Wage: 1981/01- 1998/08

2). Nonetheless, the second half of the Lee administration experienced a transition to a economy with a higher unemployment rate. The average unemployment rate is 2.63.

From Figure 2, we can see that the unemployment rate quickly reached a plateau in 1996 and stayed there ever since. This development is not beyond our anticipation given a series of policy reforms related to the labor market, including the import of unskilled workers, the imposition of the pension plan and the unemployment insurance system. Another contributing factor is the recent social movement, which helps to to strengthen labor unions and to increase their power on wage negotiations. This trend may continue, and, if so, what we are experiencing is a transition to a higher *natural* unemployment rate.

## 4 Wage

Another important statistic related to the labor market is *wage*. Figure 3 depicts the time series of the average monthly wage of non-agriculture employees and its annual growth rate. A typical employee in the non-agriculture sector can now earn about NT\$ 33,000 to

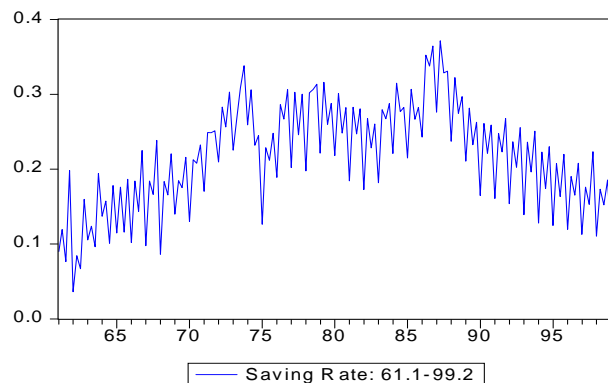


Figure 4: Time Series Plot of the Saving Rate: 1961/Q1- 1999/Q2

NT\$35,000 dollars a month, which is roughly about US1,100 to US1,200. In terms of the annual growth rate (the lower part of Figure 3), after a steady growth in the late 1980s, the upward path of the wage growth rate was interrupted in the early 1990s. Since then wage growth slowed down significantly and has not yet picked up. The slowdown in nominal wage growth, to some extent, reveals one of the most pressing problem facing the Taiwan economy, i.e., the slowdown in labor productivity.

## 5 Saving Rate

One of the key sources for economic growth is *capital formation*, which is in turn determined by the saving rate. Taiwan used to be famous for her high saving rate. Figure 4 exhibits the time series of the saving rate from the first quarter of 1961 to the second quarter 1999. In this figure, Taiwan started with a low 3%, but gradually moved to 10%, 20%, and in the late 1980s, she reached her highest level, 37%. However, the 1990s witnessed a reversal of the trend and the saving rate went down steadily to 20%, about the same level in the 1970s. It is very likely that the saving rate has not hit rock bottom and may drop further in the coming years.

This down-trend development may be partially attributed to the expanding social welfare programs, such as the national health insurance, national annuity, and senior citizens' allowance, and support for the disadvantaged. Under these extensive social welfare programs, the livelihood of a household, which used to be a personal own responsibility, is now taken care of by the society on a gigantic scale. As a result, the incentive to save become weaker.

## 6 Financial Stability: Inflation Rate

One measure of financial stability concerns the inflation rate. Figure 5 is the time series plot of the inflation rate from Jan. 1962 to Oct. 1999. At the beginning of the 1980s, drastic economic, social and political changes took place, creating a long-term macroeconomic imbalance. Rising oil prices caused consumer prices to rise by 16.3 per cent in 1981, followed

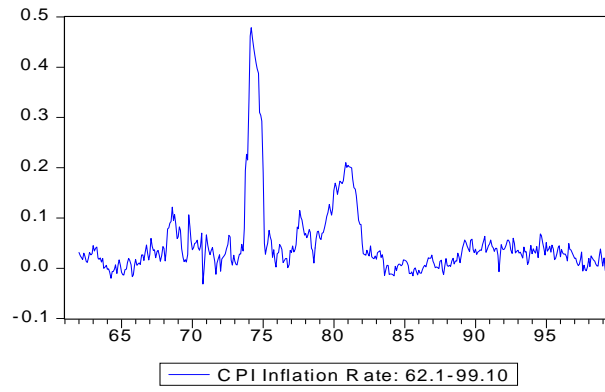


Figure 5: Time Series Plot of the Inflation Rate: 1962/01- 1999/10

Table 3: Volatility: 1978/01 - 1999/09

Periods	Volatility
80/01/04-89/12/28	0.013
90/01/04-99/09/20	0.019
90/01/04-94/12/31	0.023
95/01/02-99/09/20	0.015

by a period of near zero inflation in the mid eighties. From the nineties onwards, inflation has been fluctuating around the 3 per cent mark and hence the control of inflation has not been the mainstay of recent economic policy during the Lee Administration, in contrast to the experience of the western world. Rather, policy under the Lee Administration has focused more on achieving balanced economic and social development.

The revolution in the financial and monetary sectors of Taiwan has occurred since the early 1980s, and the Lee Administration continued to pursue this trend. New types of financial assets and liabilities have emerged and new markets have been created, resulting from the liberalization of the banking sector in the wake of the increased competition in keeping with the monetarist's creed.

## 7 Financial Stability: TAIEX

The second half of the Lee administration seems to experience an increasingly tense relation with Mainland China. The resultant persistent pressure from the military threats imposed by People's Liberation Army, such as carrying out large-scale drills and launching missiles by assuming Taiwan as the target, has created a large degree of uneasiness for the investors. One may anticipate the stock market to suffer a greater fluctuation than before. Figure 6 is the time series plot of the stock return from 1971/1/6 to 1999/9/20. Out of this entire period, we compare the volatility of the stock return among four different subperiods. First, we compare the volatility of the decade before the Lee administration with that of the decade after the Lee administration. The result is shown in Table 6.

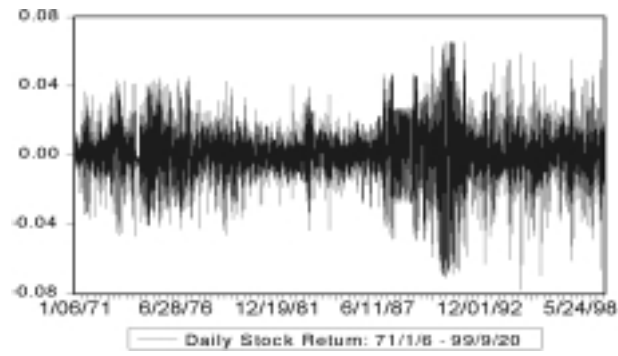


Figure 6: Time Series Plot of Stock Price Return: 1971/1/06- 1999/9/20

From Table 6, it is clear that volatility in the 1990s is almost 50% higher than that in the 80s. This excessive volatility was not unanticipated given the *financial deregulation* set in motion in the early 1990s, when the domestic stock market was for the first time open to foreign investors, and banks were allowed to have a larger share in stock investment. But, if we divide the 1990s, it is a little surprising to see that volatility in the second half of the 1990s is in effect much lower than in the first half. Therefore, this initial evidence does not lend support for the assertion that the tense cross-strait relation has an adverse impact on the stability of the stock market. According to economic theory, particularly in spirit of the *rational expectations hypothesis*, if the Taiwan market (including domestic and foreign investors) is well adjusted to the PLA's military threat, making intimidating gestures on the part of Mainland China will not work like a charm for the communist regime.

## 8 Role of Government

How important a role did the Lee administration play in economic activities? One measure frequently used to address this question is the percentage of government expenditure in GDP. Figure 7 exhibits the time series plot of the percentage of government expenditure in GDP from the first quarter of 1961 to the second quarter of 1999. This figure evidences a discernible downward trend. Back in the early 1960s, this ratio started from 30% to 35% and gradually slipped down to 15% at the very recent.

This trend also goes well with our general impression of the Taiwan economy which now draws heavily on the market economy and private enterprise. There are several other movements espoused by the Lee administration to solidify this trend, including the ownership transfer from the state-owned business to the private sector, and the adoption of the BOT (Build-Operate-Transfer) model in improving the country's infrastructure.

## 9 Budget Deficit

Although the Lee administration inherited *the market-oriented economy* from the Chiang administration, the build-up of a high-deficit economy during the last decade did bring the economy a budgetary conundrum of which she had little experience. Figure 8 plots



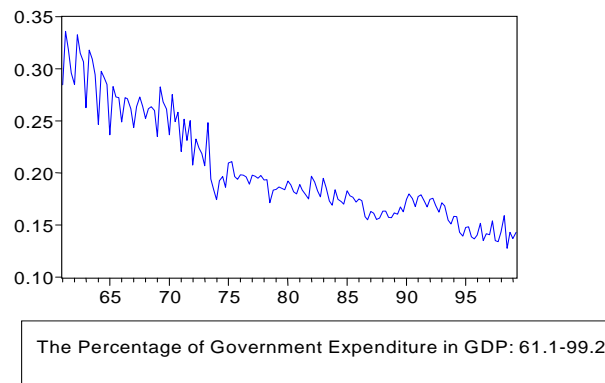


Figure 7: Time Series Plot of the Percentage of Government Expenditure in GDP: 61.1-99.2

the time series of the budget deficit from 1967 to 1998. It is amazing to see how the economy changes from one with an era of a zero deficit to one with a year of a deficit more than NT\$400,000,000,000. There are a couple of factors to account for this dramatic change. Some are healthy, for example, the expanding programs on social welfare, culture and education. But, some are not, for example, the corruption of the government. In fact, during the second-half of his service, President Lee was questioned several times on his capability of disciplining the ruling party KMT, and keeping her away from further corruption. However, his failure in meeting the public demand for a government of high integrity eventually contributed to the defeat of the KMT in the recent presidential election.

## 10 Trade Surplus

The experience of Taiwan economic development, to some extent, provides the empirical counterpart for the theoretical proposition that *trade is an engine of economic development*. Figure 9 shows the time series of percentage of *trade volume*, the sum of exports and imports, in GDP from the first quarter in 1961 to the second quarter in 1992. This statistic, also known as the *trade ratio*, is a measure for the economic *openness* of a country. The figure clearly indicates the increasing reliance of Taiwan on the integration into the world economy. The ratio was between 20 to 30 per cent in 1960, but already increased up to 90 to 100 per cent in the second half of the Lee administration. In other words, the sum of the exports and imports has become as large as the whole GDP.

Another equally important factor is the trade deficit, or the *deficit(surplus) ratio*. Figure 9 displays the time series of the surplus ratio during the same period. From this figure, we can see that before the Lee administration, the deficit ratio has an upward trend. It started with trade deficits in the early 1960s, and then the trade balances gradually improved. In the early 1980s, Taiwan became a country with trade surpluses. Not only that, the surplus ratio continued to enlarge. By the end of 1986, it had increased to 18 per cent. This persistent and enlarging trade surplus created an increasing demand for trade balance negotiations. One of the important missions achieved during the Lee administration is successful management of the trade imbalance issue, exemplified by a series of policy reforms in opening domestic

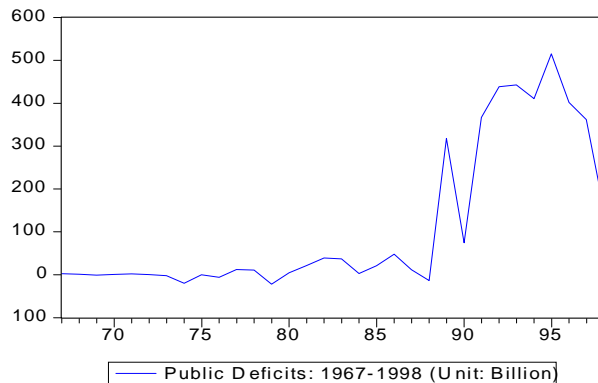


Figure 8: Time Series Plot of the Budget Deficit: 67- 98

capital and commodity markets. As a result, the trade surplus ratio underwent a radical decline during the first half of the 1990s. Nowadays, the trade surplus ratio is, at its best, only 5%.

## 11 Concluding Remarks

As we mentioned at the very beginning of the paper, the purpose of this study is to offer an initial reflection on the essence of the Lee administration from an economic viewpoint. The methodology we use here is to base our evaluation on a list of some basic but important economic measures. There are alternative measures of course. For instance, one may follow the event-study style, detailing a selection of the important policies and reforms conducted by the Lee administration and examining its possible consequences. No doubt this type of research deserves academic attention, but, if the policies or reforms indeed have a significant impact, then one should be able to recognize it somewhere from the time series we examine in this paper. Otherwise, the effect may be only *temporal* and may disappear as time goes on. Therefore, the review of macroeconomic time series done here provides a bird's eyeview of what we have been through and singles out something which we cannot and should not miss.

A total of nine macroeconomic time series are examined in this study. A simple time series plot indicates two types of behavior in these series; one *follows* the trend, and the other *reverses* the trend. For the former, the economic growth rate and the share of government expenditures in GDP follow the downward trend, while the trade ratio follows the upward trend. For the latter, the unemployment rate, the wage growth rate, the saving rate and the trade surplus reverse the upward trend, while the budget deficit starts an upward trend.

One may interpret the former as a pursuit of some policy goals started by Lee's predecessors in the 1980s. In this regard, the downward trend in the share of government expenditures in GDP manifests the pursuit of a market-oriented economy and respect for the market mechanism, whereas the upward trend in the trade ratio symbolizes the pursuit of the integration into a global economy. In fact, deregulation, liberalization, and globalization can be regarded as the primary guidelines of our economic policies over the last decade.

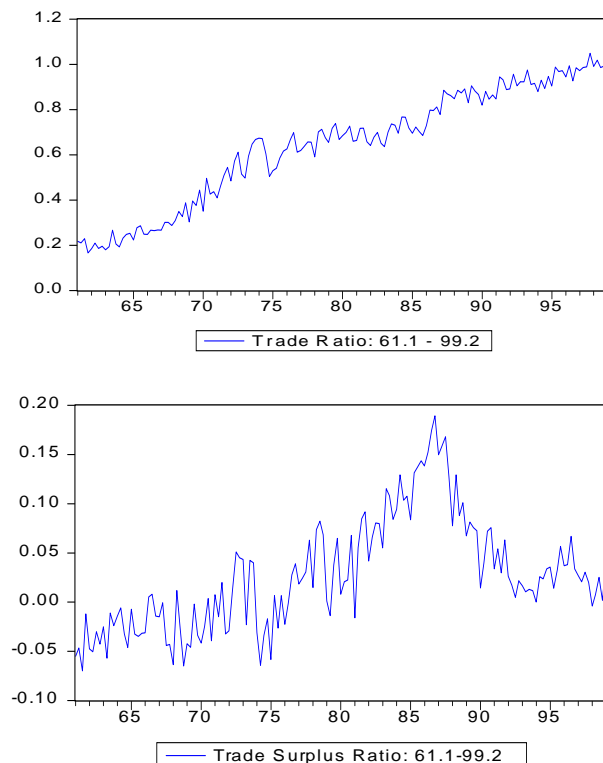


Figure 9: Time Series Plot of the Trade Ratio and the Trade Deficit Ratio: 61.1- 99.2

These guidelines were not determined by a single strongman, but were a consensus reached by a group of influential economists, businessmen and top government officers. When Lee assumed the Presidency, these guidelines were already there, and the role he played was more of a follower than of an initiator. Surprising as it may seem, his charisma finds no place in these series.

But, cases are different for those reverse trends. In particular, for the series of unemployment rate, the saving rate and budget deficits, his footprints are clearly seen. The economic facets represented by the three series deteriorated either over the entire course or in the second half of Lee Teng-hui's administration. While one can have different and unrelated explanations for different series, there is a major and common cause for the deterioration, namely, *increased social welfare expenditures*.

To have an idea of how rapidly social welfare expenditures expanded during the Lee administration, Figure 10 plots the percentage of social welfare expenditures in total expenditures over the last two decades. From 1982 to 1987, the last few years of Chang Chin-kuo's administration, this figure was quite stable around 15%. But, it had gradually moved upward since the Lee administration. In particular, from 1993 to 1997, the ratio increased for five consecutive years and reached an all-time high of 29% (amounting to NT\$ 550 billions). Increased social welfare expenditures clearly have a direct impact on budget deficits.

The effects of social welfare on the saving rate and the unemployment rate have been carefully analyzed in economics. For example, expansive welfare programs which pro-

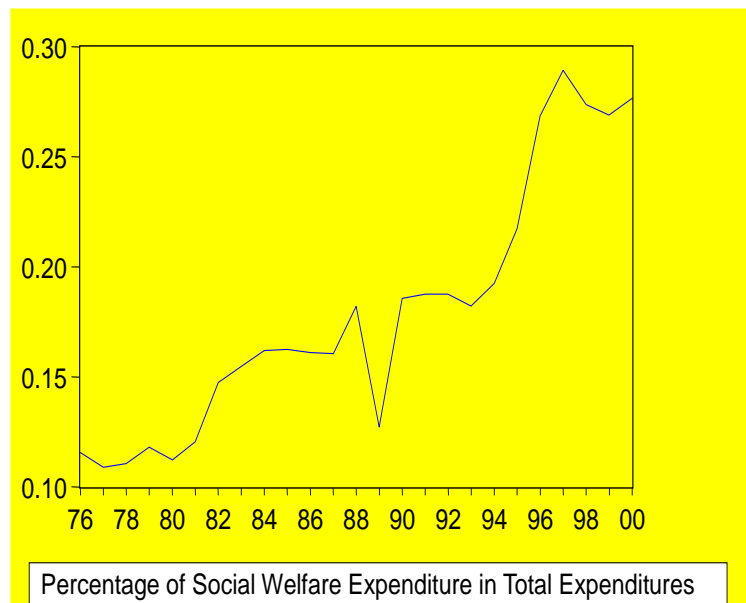


Figure 10: The Percentage of Social Welfare Expenditures in Total Expenditures: 1976-2000

vide insurance against very low levels of consumption (health insurance, senior citizens' allowance, etc.) can discourage saving (Hubbard, et al. 1994), and welfare programs which provide generous unemployment benefits can lead to a higher natural rate of unemployment (Burda, 1988). To what extent these theories account for the declining saving rate and the rising unemployment rate in Taiwan requires more empirical studies. But, it is not absurd to argue that the expanded social welfare program tended to leave people with an expectation of a less risky or more secured future. With these expectations, their saving and job-searching behavior changed in a direction to what the economic theories suggest.

The expanded social welfare programs was mainly attributable to the transition to a welfare state triggered by the regime switch, and *Lee's legacy to the economy lies here*. It is not entirely clear what drove Lee to embrace the idea of welfare states, but it certainly has something to do with *elections*. The idea of a welfare state was originally proposed and promoted by the Democracy Progress Party, the largest opposition party then. To increase the chance of winning the election, the KMT, under Lee's leadership, stood on the same side of the DPP regarding social welfare issues. The interaction between the ruling party and the opposition then evolved to a *cut-throat competition* which ended up with rash promises mainly to please the voters. As a result, the expenditures for social welfare escalated.

Many political scientists argue that Lee should be credited with bringing economic prosperity to this country. While there is some truth in this argument, the road to prosperity had been opened before he took office. Policy guidelines towards a market-oriented economy and a team of technical bureaucrats to work with these guidelines were already there. Lee's main job, and hence his major contribution, was simply to carry on the prosperity. Contrary to what many may believe, Lee's legacy to the economy lies rather in his efforts to make this country a welfare state. His strategic use of welfare programs, however, resulted in

the emergent huge debts and the fiscal difficulties that pursued Taiwan at the turn of the century.

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