Methods for Estimating Rents and Capital by Sector: With Results by Sector Using My Data-Sets Derived from IMF Data

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(Received on May 2, 2006)

1. Introduction

This paper presents the outline of the methods for estimating rents and capital by sector. A system for national accounts (SNA) may improve still as a system and statistics as has been tried by Canberra Group. I indicate, however, that national accounts will have to use the perpetual inventory method (PIM) for the estimation of capital stock by asset and by sector. This may show a limit of statistics in SNA. The PIM is used for capital stock and independent of the returns or profit by sector since Jorgenson (1963). National accounts as a system measures both wages and operating surplus in *GDP* or *GNP*. We cannot divide these two items into the government sector and the private sector. This is because wages are earned in the households sector and operating surplus is earned in a few sectors except for the government sector. Total economy in SNA is divided into such sectors as non-financial corporations, financial corporations, general government, households (including private unincorporated enterprises), private non-profit institutions serving households. SNA never thinks of total economy as the sum of the government sector and the private sector. Nevertheless, the balance of payment as the difference between saving and net investment is the sum of budget deficit and the difference between saving investment in the private sector. In other words, *GDP* is independent of national disposable income (*NDI*) in SNA.

In this respect, I will raise serious questions in this introduction. How can I

compare the government sector with the private sector using available data in SNA? Is it appropriate for the government sector to set returns/profit as zero? The government sector is a public sector and cannot earn profit, yet uses capital (stock) of the government sector.[1] What is the relationship between capital and its returns or rents? SNA assumes that no returns in the government sector, yet this assumption is applicable not only to a condition of budget deficit=zero but also to all the levels of government surplus or deficit. Nevertheless, if SNA deletes this assumption, how can the government sector be settled as a system?

My proposal in this paper is summarized as follows: Rents and capital are connected each other in SNA and estimated by dividing total economy into the two sectors, where *NDI* is a base. Assume that total economy can estimate rents and capital, but these estimations are incomplete without taking into consideration the sectors that constitute total economy. The idea underlying this proposal is that national economy in an open system uses capital and labor consistently; apart from the use of statistical data or that we need a whole estimation of rents and capital by sector, principally based on a system of national accounts. Of course, I will compare statistical capital by sector with my estimated capital by sector. However, I cannot compare rents that correspond with the capital by sector with the operating surplus that is not divided into sectors.

Then, why do I insist on the tight relationship between rents and capital by sector? This comes from a fact that consumption and wages are tightly related as I have shown in my functions of consumption and investment since Feb 2005. The tight relationship between consumption and wages is not an

1) Jorgenson (1963) estimated desired level of capital stock using exogenous user costs of capital, and later Paul Schreyer's (OECD, 2001, 2004) "measuring capital" takes into this idea to some extent, where their cost of capital (shown as the price of capital services less the growth rate of output) is external in the current situation.

accounting identity. Externally given the consumption-coefficient, (*rho*/*r*), rents or wages are estimated consistently within an economy as a whole system. Then, how are rents related to capital? Externally given the ratio of rents to the wage rate, (*r*/*w*), the capital-labor ratio and accordingly, capital are estimated consistently within an economy as a whole system. I do not use wages and operating surplus in *GDP*. I modify/estimate these values so that *NDI* will integrate rents and wages as the sum of consumption and saving and so that the capital estimated without using the PIM is consistent with wages and rents. I prefer external (*rho*/*r*) and (*r*/*w*) to the conventional capital based on the PIM, although all of these are external values. By so doing, my data-sets will step off SNA itself. I prefer the estimated values of rents and capital to the capital estimated by the PIM, without stepping off SNA statistics as much as possible. By so doing, basic variables in my endogenous growth model are all measured and able to present and test hidden findings/hypotheses. These analytical results are composed of two benchmarks: (1) the relative share of rents to output and (2) the capital-output ratio. These two benchmarks are essentially related to endogenous levels of technology and endogenous rates of technological progress.

All of available data such as IMF, the World Bank, OECD, PWT and others do not estimate such rents as I explained above. For capital, some countries publish capital stock by sector based on the PIM, yet independently of corresponding rents. For example, OECD publishes capital stock by country yet until 1995. After 1995, OECD publishes capital stock only for the manufacturing or the corporate sector. PWT 6.2 and 6.5 will not publish the data of capital stock any more in the future, after 6.5. I confirmed these facts,[2)] which suggests

2) I confirmed, by contact, that OECD publishes capital stock in the private sector and no more capital stock of the total economy by country. The similar is true in Penn World Table (PWT6.2 and 6.5). In statistics, capital input (investment) is available. ↗

that SNA cannot easily disclose capital appropriately or that SNA should review a theoretical relationship between consumption and wages by using *NDI*. As for SNA in Japan, capital stock has been precisely estimated based on the PIM by asset and by sector, yet independently setting operating surplus untouched. These come from the character of SNA. There is no consistent data between rents and capital by sector. If rents and capital are consistently estimated, a whole picture of an economy will be clarified much more consistently than before. This is my intention in this paper.[3)]

For the estimation of rents and capital, I start with IFSY and GFSY, IMF. Some countries do not publish budget surplus/deficit and national income from abroad. I intended to increase the numbers of countries for my data-sets, but I had to exclude many countries (oil-producing Arab, Latin America, and African countries) that do not publish budget surplus/deficit. This is because saving by sector is obtained using the balance of payment and budget surplus/deficit if net investment is available by sector. The total saving is not domestic but national saving since the balance of payment/the external balance includes

↘ Capital stock will be externally estimated by using the market cost of capital, and at the current year (not under convergence). For these confirmations, I am thankful to Dr. Schreyer Paul, OECD, and Drs. Heston Alan and Ye Wang. Also, I am thankful to Dr. Steve Landefeld, Director of Bureau of Economic Analysis, Drs. Francois Bourguignon, Serven Luise, and Laliberte Lucie, the World Bank, Shigeo Kashiwagi, Director, IMF, and Dr. Carole Brookins, and Shigeru Endo, and Dr. Andrew Sharpe, Managing Director, IARIW, and Statistics and Finance Canada, for the discussions with me in Oct 2005.

3) In this respect, my approach differs from the Canberra Group on Capital Stock Statistics, where Peter Hill (1998, 1999) discusses capital stock based on statistics. Similarly, my approach differs from an established approach of Jorgenson-Griliches (1967). Recently, Nomura Koji (2005) thoroughly reviews the measurement of capital, where we can find various issues and problems. I am thankful to his study in that I could find the direction and characteristics of my methods more clearly than before, although I do not discuss the differences between two approaches in this paper.

national income from abroad. However in this case, many countries, particularly in developing countries, do not publish national income from abroad. I include this income if it is available and, I calculated the balance of payment to maintain the numbers of countries in my data-sets. As a result, my data-sets 1995–2004 are now composed of thirty countries and I will divide these countries into three clubs by the level of saving.

This paper will concentrate on the estimation of rents and capital by presenting the two methods for estimating rents and capital. Comparisons of the results in the government sector with those in the private sector will be basically discussed at the IARIW, Finland, Aug 2006. The extension of my endogenous growth model is required for the above two methods, but this will in parallel be discussed in Kamiryo (2006b).

2. The first method for estimating wages and rents and capital by sector

The estimation of rents and capital is composed of two basic methods and supplemental methods. The two methods are composed of the first method for estimating wages and rents using the relative share of rents to output and, the second method for estimating capital stock using the capital-labor ratio. This section treats the first method and related supplemental methods.

Rents and capital by sector are estimated using two external parameters, the coefficient of consumption, rho/r, and the ratio of rents to capital to the wage rate, r/w. First, the value of rho/r determines the relationship between consumption and wages (or the ratio of consumption to output and the relative share of rents), using the ratio of consumption to output. Second, the value of r/w determines the relationship between the relative share of rents to output and the capital-labor ratio, though which capital is estimated. Supplemental methods support basic methods. Supplemental methods are composed of (1) the ratio of

the growth rate of embodied[4] technology to the growth rate of disembodied technology, $g_{A(FLOW)} / g_{A(STOCK)}$, (2) the difference between the growth ratio of per capita wages and the growth rate of per capita output, $g_{w(actual)} - g_{y(actual)}$, (3) the ratio of rents to capital as the relative share of rents to output divided by the capital-output ratio, $r=a/\Omega$, and (4) the money neutral-coefficient as the ratio of rents to capital to the Central Bank discount rate/market rate, $c_{CB} = r/r_{CB}$. These supplemental methods are needed not only to adjust and test the results obtained by basic methods but also to take into consideration such broader aspects as price-inflation/deflation and assets-inflation/deflation. I will explain the above methods using equations each by each.

The first method for estimating wages/compensation:

This method directly comes from the function of consumption. The function is shown as, $(1-\alpha)(c)$ or $1-\alpha = c/(rho/r)$, (1)

where the coefficient of consumption, rho/r, is externally given.[5] I call this parameter as the first external parameter. For my methods to determine rents and capital, I use only two external parameters and this is the first.[6]

Eq. 1 determines the relationship between consumption and wages or between

4) Denison Edward (1964) indicates that embodied implies the changes in the quality of capital goods. In my model, I divide conventional capital to quantitative capital and qualitative level of technology.

5) See Kamiryo (46(1)Sep 2005): (rho/r) is the ratio of the discount rate for consumption to the ratio of rents, where a discount rate, rho, is used for the present values of saving and consumption each as an annual flow, and r is the ratio of rents to capital and used for the present values of rents and wages each as an annual flow. In Kamiryo (2006b), I distinguish the ratio of rents to capital at the current situation that starts with constant returns to scale and the ratio of rents to capital at the current situation but under diminishing/increasing returns to scale.

6) I find a way to avoid an aggregation problem in the measurement of different kinds of capital by using the first external parameter in an economy.

saving and rents as a dual one. The function of $(1-\alpha)(c)$ is generally shown as a quadratic curve and its correlation-coefficient R or R^2 is extremely high using panel data of 300 (see **Table 1**). This implies that $(1-\alpha)(c)$ is close to an accounting identity. I justified the relationship between three kinds of saving ratio and the relative share of rents to output in Kamiryo (46(1)). However, if I classify the ratio of saving to output according to the level of saving, hidden characters are clarified by club. I divide thirty countries 1995-2004 into the three clubs: Club c-cc, Club s, and Club ss-sss (for each definition, see **Table 2**). I find that the correlation-coefficient R or R^2 is low in Club s. This implies that in Club s the function of consumption significantly differs by country, where the differences of national taste are expressed in Club s more than in the other two clubs. There are more opportunities for an economy in Club s to usefully select the direction and policies for economic growth.

Supplemental methods for estimating wages/compensation:

The relative share of rents to output and accordingly, wages and rents are important in that if the relative share of rents to output is constant over years, the above equal relationship between embodied and disembodied technology exists. Also, if the relative share of rents to output is constant over years, the growth rate of per capita wages equals the growth rate of per capita wages. This implies that the price level is constant or no inflation exists. In this respect, wages and rents are tightly related to such external values as the changes in technology, ΔA, and consumer price index, *CPI*. Furthermore, rents are tightly related to the neutrality of financial assets: the ratio of rents to capital is tightly related to the discount rte/market rate of the Central Bank. Thus, the above method for estimating wages will be supplemented and reviewed using such external indicators as the changes in technology, *CPI*, and the money neutral-coefficient. These indicators will help to determine the above method for

estimating wages and rents. Let me summarize using equation.

1. Embodied versus disembodied technology:

I set up this model by distinguishing an annual flow of technology with a stock of technology or the level of technology. This method will be more effective when a model measures an endogenous rate of technological progress as in my model: comparing an actual rate of technological progress (derived from the Cobb-Douglas production function) with an endogenous rate of technological progress.

The level of technology, A, is derived also from the Cobb-Douglas production function. Using and the capital-labor ratio, Ω, and the capital-labor ratio, k, in $y=Ak^{\alpha}$:

$$A = k^{1-\alpha} / \Omega. \tag{2}$$

This is a simple key equation. For this relationship to be able to show cause and effect, I raised two production functions, Models A and B, in Kamiryo (2006b). The level of technology, A, is a weighted average of technology accumulated in the past. I call it a "disembodied"[7] level of technology when I compare it with a new flow of embodied technology. Total factor productivity (*TFP*) in the literature[8] corresponds with the above level of technology, A. *TFP* has been treated as a residual since Jorgenson Dale (1963) and Jorgenson and Zvi Griliches, (1967), where capital has included qualitative capital. On the contrary,

7) Zhou Fang (2000, p. 291–306) indicates that disembodied or Solow's technical progress is independent of the changes in production scale. This is true in that when a production function is considered under convergence, the situation is under constant returns to scale (CRS). I clarified the relationship between CRS and diminishing returns to scale (DRS/IRS) comparing Model B with Model A as my endogenous growth model in Kamiryo (2006b). Since Model B corresponds with Model A of $y=Ak^{\alpha}$, marginal productivities of capital and labor hold in an economy.

8) For example, Jorgenson and Griliches (1967) clarify the limit of *TFP*. In my model, the level of technology (*TFP*) has its own positive implication. This is not just a residual but a stock of past-embodied technologies accumulated before new investment.

I excluded qualitative capital from capital in my model and call it the level of technology. Then, what is an embodied technology? I define it as an embodied rate of technology as an annual flow at the current period/year. The revolution of technology is only realized through a new inflow of technology or, in other words, by my endogenous rate of technology as the ratio of qualitative investment to output at the current year. Then, how is the embodied rate of technological progress measured? This is shown in the case of actual one as Eq. 3:

Using an annual/actual flow, $g_{A(actual)} = g_{y(actual)} - \alpha \cdot g_{k(actual)}$. (3)

Eq. 3 is compared with the disembodied rate of technological progress shown as Eq. 4:

$$g_{A(t)DISEMBODIED} = (A(t) - A(t-1)) / A(t-1). \quad (4)$$

Besides, the embodied rate of technological progress is shown under convergence as Eq. 5: $g_A^* = i \cdot (1 - \beta^*)$. (5)

For the relationship between the embodied and disembodied technology, I use the following ratio:

$g_{A(FLOW)} / g_{A(STOCK)}$, where (6)

$g_{A(FLOW)} = g_{A(EMBODIED)} = g_{A(actual)}$ and $g_{A(STOCK)} = g_{A(DISEMBODIED)}$.[9)]

The yearly changes in $g_{A(FLOW)} / g_{A(STOCK)}$ are normal in any economy. The level of technology does not remain unchanged due to competition in the world: sometimes improving and sometimes deteriorated due to the budget deficit in the government sector and the heavy competition in the private sector. In developing countries, the changes in $g_{A(FLOW)} / g_{A(STOCK)}$ is thus violent while in advanced

9) I simply prefer FLOW versus STOCK to EMBODIED versus DISEMBODIED in this ratio. I emphasize an accumulated STOCK in the level of technology, similarly to the capital as an accumulated stock. Embodied flows are divided into (1) an actual flow as shown by Eq. 4 and (2) a flow under convergence as shown by Eq. 5. Fisher, Franklin (1965) tries to directly derive embodied technical change, but here I need to separate disembodied and embodied technology as information for the estimation of rents and capital.

countries the changes in $g_{A(FLOW)} / g_{A(STOCK)}$ is more stable than those in developing countries. I admit this shortage of $g_{A(FLOW)} / g_{A(STOCK)}$ and do not change the results of the first method so that $g_{A(FLOW)} / g_{A(STOCK)}$ will be closer to 1.0. I must pay attention to other external indicators as below.

2. *CPI* and the growth rate of per capita wages versus the growth rate of per capita output:

The changes in embodied and disembodied technology are related to the actual growth rates of per capita wages and output, $g_{w(actual)}$ and $g_{y(actual)}$. These two growth rates are directly related to the price level. The price level is external and expressed by *CPI*. To clarify these relationships, I use the following equation:

$$g_{w(actual)} - g_{y(actual)}, \tag{7}$$

where $g_{w(actual)} = (w(t)_{actual} - w(t-1)_{actual}) / w(t-1)_{actual}$ and

$$g_{y(actual)} = (y(t)_{actual} - y(t-1)_{actual}) / y(t-1)_{actual}.$$

When $g_{w(actual)} - g_{y(actual)}$=0, the relative share of rents to output is constant. Then, empirically and based on the wage hypothesis towards inflation,

If $g_{w(actual)} - g_{y(actual)}$>0, the price level increases, where *CPI* increases.

If $g_{w(actual)} - g_{y(actual)}$=0, the price level increases, where *CPI* remains constant.

If $g_{w(actual)} - g_{y(actual)}$<0, the price level decreases, where *CPI* decreases.

My model is based on the real assets-side or the supply-side. The above relationship between the growth rates of per capita wages and output and *CPI* comes from the supply-side. However, in the real world, such monetary policies as the adjustments of the discount rate and money supply are preceded by the Central Bank to stabilize the price level and economic growth by country. I will partly take into consideration these adjustments to attain a better estimation of rents and capital by country as below:

3. Comparison of the ratio of rents to capital and the discount rate of the Central Bank

As an indictor to judge the extent of the neutrality of financial assets, I use the

following ratio:

$$c_{CB} = r/r_{CB}, \tag{8}$$

where c_{CB} is the money neutral-coefficient in the financial assets, Γ is the ratio of rents to capital, and r_{CB} is the discount rate/money rate of the Central Bank. I distinguish the three situations:

Case 1 If $c_{CB} > 1$ the situation is normally inflation-oriented, where $r > r_{CB}$.

Case 2 If $c_{CB} = 1$, the situation is an extremely neutral-oriented, where $r = r_{CB}$.

Case 3 If $c_{CB} < 1$, the situation is against inflation-oriented, where $r < r_{CB}$.

Usually, Case 1 is normal since a sound inflation is expected by monetary policy. However, if a country is under severe inflation as seen in some countries and years, Case 3 is taken for some years. As shown tables in Appendix, several countries have experienced this policy after 1995. Many countries have mostly enjoyed long-term low interest periods and maintained hopeful economic growth until 2004.

Here, I will explain the character of the ratio of rents to capital, r. The ratio of rents to capital is the relative share of rents to output divided by the capital-output ratio. It is true that the ratio of rents to capital is related to both the relative share of rents to output, which belongs to the method for estimating wages and rents. However, the ratio of rents to capital is also related to the changes in the capital-output ratio. This belongs to another method for estimating the capital-labor ratio (see, soon below). Moreover, the ratio of rents to capital is influenced by the capital-output ratio more than the relative share of rents to output. This is because under an assumption that the relative share of rents to output is constant, the ratio of rents to capital is inverse to the capital-output ratio, and I find three kinds of the capital-output ratio. This implies that the ratio of rents to capital corresponds with each of these three kinds of capital-output ratio. Here in Eq. 8, I simply use the actual/current ratio of rents to capital.

3. The second method for estimating capital by sector

This section discusses the second method for estimating capital stock using the capital-labor ratio. This method is processed after the first method, yet each procedure of the two methods is done independently. The first method determined wages and rents using the first external parameter, (rho/r), and the relative share of rents to output by country and by year, as shown in the previous section. In the second method, I will decide the capital-labor ratio first using an external parameter, (r/w). (r/w) is the second parameter in my methods to determine rents and capital. Capital is obtained by multiplying the capital-labor ratio with labor given.

As a characteristic of the second method, the capital-labor ratio is tightly related to the capital-output ratio. The suitableness of the capital-labor ratio is examined using the smooth changes in the capital-output ratio by year. The capital-output ratio is, however, obtained by dividing the relative share of rents to output with the ratio of rents to capital. The capital-output ratio is not directly related to the capital-labor ratio. Nevertheless, once the relative share of rents to output (using the first method) and the capital-labor ratio (using the second method) are determined, the capital-output ratio and the level of technology are simultaneously determined by an equation of $k^{1-\alpha} = A \cdot \Omega$ in the Cobb-Douglas production function. This implies that the capital-labor ratio determines both the level of technology and the capital-output ratio at the same time. Then, how can the relationship between the level of technology and the capital-output ratio is determined from the capital-labor ratio? For this, I need the supplementary methods that I described in the first method above. Also, I need to examine the relationship between the first method and the second method using an equation between the two external parameters, (rho/r) and (r/w). I will below discuss the implication of this equation as a supplementary method after the sec-

ond method.

In short, the second method is related to the first method for estimating wages and rents, yet it is basically independent of the first method. After determining the capital-labor ratio, we need to adjust the level of wages and rents by reviewing the smoothness of the trend of the relative share of rents to output by year (as suggested by Solow (1958)). We cannot find any direct relationship between the relative share of rents to output and the capital-labor ratio, which comes from the characteristics of the Cobb-Douglas production function and accordingly, my endogenous growth model.

The second method for estimating the capital-labor ratio and accordingly capital:

This method is directly expressed by connecting the relative share of rents to output, α, in the first method with the second external parameter, r/w. The value of r/w is the ratio of rents to capital to the wage rate. The value of k is the current capital-labor ratio:

$$k = \frac{\alpha / (1-\alpha)}{r / w}, \text{ which is an accounting identity.} \tag{9-1}$$

$$k = \frac{\alpha}{r / w}, \text{ which is not an accounting identity but used for the estimation of the capital-labor ratio.}^{10)} \tag{9-2}$$

When I connect the above equations with the relative share of rents to output in Eq. 1, the following equation is derived.

$$k = \frac{\alpha(rho / r)}{c(r / w)} \text{ or } (r / w) = (rho / r)\frac{\alpha}{c} \cdot \frac{1}{k}. \tag{10}$$

Supplemental methods for estimating capital:

Similarly to Tinbergen Jan (1956, 60), I intended, at my first stage, to intro-

10) I started with Eq. 9-2 at first and then used both equations for the estimation of the capital-labor ratio in my data-sets of 300. There is no necessity to avoid an accounting identity in this case. Also, I found negligible differences of results between the two.

duce the capital-output ratio into the above Eq. 10 using another external parameter, $(rho/r)_{\Omega} \equiv (rho/r)/\Omega$. However, I finally decided not to take this idea. Instead, I established Models A and B in Kamiryo (2006b), where the capital-output ratio is determined together with the level of technology at the current situation[11] and under convergence. The results under convergence are summarized (as in Eq. 24-2):

$\Omega^*_{\alpha\to\alpha} = \dfrac{1}{B^{*(1-\alpha)}_{\alpha\to\alpha}}$ in the transitional path from the current to the convergence situation, where $B^* \equiv (1-\beta^*)/\beta^*$.

$\Omega(0) = \dfrac{1}{B^{*(1-\alpha)}}$, when $beta^*$ uses the current capital-output ratio.

In the above cases, the level of technology is obtained once the capital-output ratio is determined by using $k^{1-\alpha} = A \cdot \Omega$.

Why the level of technology and the capital-output ratio are determined at the same time? This is because a unique parameter neutralizing DRS/IRS, *delta*, controls both $beta^*$ and the capital-output ratio: $\delta = 1 - \dfrac{LN(1/\Omega^*)}{LN((1-\beta^*)/\beta^*)}$. The *delta* is a value at the current situation and *delta* gradually converges to *alpha* at the convergence, where *delta=alpha*.

As a result, the above second method determines the capital-labor ratio. If the capital-output ratio changes significantly by year, the estimation of the capital-labor ratio is not properly estimated. Furthermore, unstable changes in the capital-output come from unstable changes in the relative share of rents to output

11) Model B shows a limit of a least level of technology: $A=(B\cdot k)^{1-\delta}$. It implies that unless the level of technology needs to cooperate with the ratio of investment to output, the level of technology has no positive meaning. My approach differs from the dual approach to capital in the capital measurement (for the udal approach, see Nomura Koji, pp.39–62) in that my ratio of rents to capital is endogenous while the dual approach uses a weighted average of interest rate and ROE. The valuation value of capital in my model differs from the capital stock at the current situation; see Kamiryo (2006a, c).

determined by the first method. Therefore, by using a resultant capital-output ratio, the two methods of determining rents and capital are well-checked. The smoothness of both the relative share of rents to output and the capital-output ratio are vital in determining rents and capital by year. This is examined using the relationship between the level of technology and the capital-output ratio. As I showed in a method supplemental to the first method, the differences between embodied and disembodied technology is indispensable. In a sense, the smoothness of the capital-output ratio is required at the sacrifice of the differences between embodied (coming from an annual flow) and disembodied technology (coming from an accumulated stock of technology). This is a supplement to the second method and also an interpretation of the supplemental methods described in the first method.

Finally, I will indicate a difficulty of estimating the first year of capital stock. Capital stock changes by year. If the starting year of capital is more satisfactorily estimated, the following series of capital stock will be more consistent with the results of the supplemental methods, and vice versa. Therefore, by examining the results derived from the first and second methods for rents and capital, I may replace a temporal estimation of capital stock at the firs year by a better estimation of capital. This happens when the original data at IMF are inaccurate due to each country's unsatisfactory data and/or when such data in an economy as national income from abroad is not published or the depreciation estimated by sector is not accurate in my learning-by-doing. Of course, when an economy is under a national crisis as in 1997 or 1998 both the relative share of rents to output and the capital-output ratio become unstable or significantly change. Note that I do not principally estimate my data-set of a country if its budget surplus/deficit is not disclosed. This is a minimum requirement for estimation of rents and capital.

4. Results of rents and capital in my data-sets

I will explain the contents of my data-sets using tables in Appendix and the fact-findings using figures in this section.

First, my data-sets show the results of wages, rents, and capital, by country (thirty countries classified by 'club' of the level of saving), by sector (two sectors, the government and private sectors), and by year (1995–2004). The comparisons of data by area with data by club are vital since by club unique facts or hypotheses are found (for the definition of three clubs, see Tables 1-1 and 1-2). My data-sets are shown typically as the relative share of output, the capital-labor ratio, and the capital-output ratio, following the two methods for estimating rents and capital. Just here, I indicate that the range of the relative share of rents to output is 7 to 15%, which is about one-half in the literature. Also, the capital-output ratio lies between 0.6 to 4.0 at maximum, which is lower than those in the literature and suggestive in terms of the limit of economic growth. My data-sets for thirty countries 1995–2004 present the above data by club and by sector, but the tables in Appendix only summarize the 'basics' of the total economy by country and by club, where basics are related to the two methods (by sector, see Kamiryo, IARIW, Finland, 2006).

The basics of my data-sets are composed of two external parameters, (rho/r) and (r/w), and the current values of A, k, y, and n, together with the relative share of rents to output, the capital-output ratio, and the years for convergence. In these basics, I added such supplemental data as the ratio of embodied to disembodied technology, the rate of change in *CPI*, and the Central Bank discount rate. The basics of my data-sets show how I connect the two external parameters with variables. Other parameters and variables are arranged in my data-sets, but here I have to omit.

The processes of the two methods are each by each examined using my equa-

tions of my endogenous growth model and showing related figures (see Figures 1 to 8-2). In national accounts, we need capital stock derived from the PIM by assets, which I do not deny as a character of statistics. Nevertheless, from a viewpoint of an economy as a whole apart from statistics, I cannot reply on capital stock only derived using the PIM by assets. If I use the data of capital when it is available in statistics by country, the whole results are not consistent, in terms of the Cobb-Douglas production function or at least using Models A and B in my endogenous growth model. In other words, when I use my data-sets starting with the estimation of rents and capital, the results are more reliable as a whole set of data or more useful to the fact-findings and setting up of policies in the transitional path.

Second, I will summarize unique findings in Figures 1 to 8-2. These findings will be tested as hypotheses in the future. I selected these figures from the viewpoint of the method for estimating rents and capital stock. Some of these figures show no relationships between two selected values and others interesting relationship between two selected values. Typically, the correlation coefficient of the capital-output ratio and *delta* is significantly weak while the correlation coefficient of the capital-output ratio and $beta^*$ is strong. However, these differences come from the character of the capital-output function of $beta^*$, $\Omega^*(\beta^*)$, where $\Omega(0)=\Omega^*$. The value of *delta* controls $\Omega^*(\beta^*)$ and needs to be flexible to maintain $\Omega^*(\beta^*)$. And, these differences partly depend on the characteristics of clubs and/or sectors. Thus, I will also include some figures by club and by sector: For example, Figures 6-1 to 6-3 for the government sector by club and, Figures 7-1 to 7-3 for the private sector by club. Conclusively speaking, some two values in Club ss-sss and the private sector have more significant correlation coefficients than those in the Club s and the government sector. This implies that the method for estimating rents and capital is more strictly applicable to the club and sector. Why do Club s and the government sector show weak correlation

coefficients between selected two values? This is partly because Club s lies between Club c-cc and Club ss-sss and has much room for free saving and investment policies. This is also because the government sector is free from the market principle and its policies are much more arbitrary than those in the private sector.

Let me briefly summarize interesting results in some figures.

1. (*rho*/*r*)(*c*) in Figure1 by area: Ten Asian countries as a whole shows the strongest correlation between (*rho*/*r*) and the ratio of consumption to output, *c*: R^2=0.9595. Ten advanced countries as a whole shows the weakest correlation between these values: R^2=0.8643. However, the differences are not so much since each area has both saving-oriented countries and consumption-oriented countries.

2. (*rho*/*r*)(*c*) in Figure 2 by club: Eleven saving-oriented countries as a whole shows the strongest correlation between (*rho*/*r*) and the ratio of consumption to output, *c*: R^2=0.9405. Eight saving neutral-oriented countries as a whole shows the weakest correlation between these two values: R^2=0.4643.

3. (*r*/*w*)(1-α) in Figure 3: The correlation between (*r*/*w*) and (1-α) are significantly weak by area and accordingly, by club. It implies that this function is required for maintaining the necessary conditions that the contents of my data-setting are consistent in every respect.

4. As a whole (thirty countries of the total economy) in Figure 4: the character of (*rho*/*r*)(*c*) differs from that of (*r*/*w*)(1-α). I use only two external parameters, (*rho*/*r*) and (*r*/*w*) in my model and (*rho*/*r*)(*c*) is close to an accounting identity and (*r*/*w*)(1-α) is an accounting identity itself.

5. The speed of convergence in Figures 5-1 to 5-3 by club: the speed-coefficient, *l*, is strongly correlated to *delta* in Club c-cc and Club ss-sss. The higher the *delta*, the longer the years for convergence are. There is much room for Club s to have various policies. The value of λ is not directly related to the capital-out-

put ratio and the rate of technological progress in any club.

6. Embodied versus disembodied technology in Figures 6-1 to 6-3 for the government sector and 7-1 to 7-3 for the private sector: There is no certain relationship between embodied and disembodied rates of technological progress. The rate of technological progress as an annual flow, $g_{A(FLOW)}$, differs from that calculated using the difference between the two levels of technology, $g_{A(STOCK)}$. There is much room for technology to change by country and by year and also by club and by sector.

7. $delta(beta^*)$ and $\Omega^*(beta^*)$ in Figures 6-1 to 6-3 and 7-1 to 7-3, where I use $B^* \equiv (1-\beta^*)/\beta^*$: There is no correlation in $delta(beta^*)$ and $\Omega^*(beta^*)$, except for those in Clubs c-cc and ss-ss in the private sector.

8. As a whole (thirty countries by sector) in Figures 8-1 to 8-2: The government sector has no correlation between the above two selected values. The private sector has a strong correlation for $\Omega^*(beta^*)$: R^2=0.4368. This fact confirms that economic growth is maintained by the private sector. By decreasing $beta^*$ or improving structural reform and qualitative investment, the capital-output ratio is able to increase. Or, if $beta^*$ is high, an economy cannot increase quantitative investment.

Some of the above findings will be raised as propositions, in particular for the limit of growth using the range of the capital-output ratio. These will be discussed soon after concentrating on the comparisons of the government sector with the private sector by country.

5. Conclusions

This paper showed the methods and procedures of how to estimate wages, rents, and capital, starting with IMF data 1995–2004 and presenting the basics of my data-sets for thirty countries by club. Some parts of these date-sets are shown in tables in Appendix. Also, using the figures for the two external pa-

rameters, (rho/r) and (r/w), and the figures for selected two values related to the above method, I summarized and interpreted related results and findings in my data-sets.

The above methods challenges for a consensus after Hall and Jorgenson (1967) that *TPF* is a residual and should be replaced as much as possible by introducing other factors into 'capital' of the production function. My methods are supported by a contrary idea that capital should be limited to quantitative physical capital as pure as possible and this is justified by only using my endogenous growth model, where the dual approach in the measurement of capital is not required. There is a room for comparing each magnitude of capital measured using the two approaches, yet an implication is that the product of the level of technology (or *TFP*) and the capital-output ratio is equal to $k^{1-\alpha}$.

The results and findings in this paper are consistent as a whole system in the total economy and also by sector. In statistics, capital stock by country is not available after 1995 except for the corporate sectors' in OECD. The capital-labor ratio is no more available by country in PWT 6.2 and 6.5, which I confirmed. These suggest that capital is possible to measure by using the PIM by asset and that the capital thus measured may not guarantee the consistency with other data in statistics. Thus, up to date, economic models and econometrics usually test data without using the capital-labor ratio and/or the capital-output ratio. This paper advocates that fact-findings should be justified by using the capital-labor ratio and the capital-output ratio that are each consistently derived in a whole system of an economy. My data-sets are beyond the range of statistics. Nevertheless, my data-sets make it possible to clarify fundamental relationships among variables and parameters in my endogenous growth model.

The methods for measuring rents and capital are supported by Models A and B, which were, at the same time, discussed in Kamiryo (10 (1), 2006). Model A (as my endogenous growth model) and Model B treat the level of technology

(known as total factor productivity) differently from the approach that was established by Griliches, Z. (1963), Jorgenson Dale (1963, 1966), Jorgenson and Griliches (1967), Hall and Jorgenson (1967), Hall Robert (1968), Hulten Charles (1992), Griliches and Jorgenson (1996), and Koji Nomura (2005). The approach is partly related to the perpetual inventory method based on the micro-economy. My approach uses the function of consumption based on the macro-basis, yet satisfies marginal productivities of capital and labor, where the ratio of rents to capital is endogenously measured. I will soon compare both approaches in a separate paper.

In short, there is no information for rents and capital in statistics by sector. This shows a limit of statistics and we need to estimate rents and capital hidden behind the curtain in statistics. A system of national accounts cannot clarify rents and capital by sector consistently. This comes partly from the character of SNA, where the government sector has no rents under the any level of budget surplus/deficit. When this restriction is removed, we need other methods for estimating rents and capital. This paper intended to clarify a version of these methods, together with empirical results by country, by club, and by sector. I will discuss the government and private sectors in more detail, in a coming paper (IARIW, Finland, Aug, 2006).

A list of tables and figures

In text: 17 pages:

In Appendix: Eleven pages:

References

Denison, Edward, F., 'The Unimportance of the Embodied Question,' *American Economic Review* 54 (2, March): 90–93, 1964.

Fisher, Franklin, M., 'Embodied Technical Change and the Existence of an Aggregate Capital,' *Review of Economic Studies* 32 (Oct, 4): 263–287, 1965.

Hall, Robert E., and Dale W. Jorgenson, "Tax Policy and Investment Behaviour," *American Economic Review* 57 (3, June): 391–414, 1967.

Hall, Robert E., "Technical Change and Capital from the Point of View of the Dual," *Review of Economic Studies* 35 (1, Jan) : 35–46, 1968.

Hill Peter, 'The Productive Capital Stock and the Quantity Index for Flow of Capital Services,' Third Meeting of the Canberra Group on Capital Stock Statistics, Agenda Item 5, No. 3, 1999.

Jorgenson, Dale W., "Capital Theory and Investment Behaviour," American Economic Review: 53 (2, May): 247–259, 1963.

Jorgenson, Dale, W., "The Embodiment Hypothesis" *Journal of Political Economy* 74 (Feb, 1): 1–17, 1966.

Jorgenson, Dale W., and Zvi Griliches, "The Explanation of Productivity Change," *Review of Economic Studies* 34 (2, April): 249–283, 1967.

Kamiryo, Hideyuki, "Basics of the Cost of Capital and the Valuation Ratio: Capital versus Consumption Using Extended Equations," *Journal of Economic Sciences* 9 (Feb, 2): 71–103, 2006a.

Kamiryo, Hideyuki, "Towards the Relationship between Constant Returns to Scale and Di-

minishing /Increasing Returns to Scale Using Two Production Functions, " *Journal of Economic Sciences* 10 (Sep, 1): 131–166, 2006b.

Kamiryo, Hideyuki, "Productivity Comparisons by country: the government sector versus the private sector," Proceedings, Joensuu, Finland, *International Association for Research in Income and Wealth*, Finland, 51pp, 2006c.

Kamiryo, Hideyuki, "Function of the Cost of Capital and the Valuation Ratio Based on Aggregative Investment Function: with Differences between India and China," *Finance India* 21 (March, 1): Forthcoming, 2007.

Nomura, Koji, "Measurement of Capital," Keio University Press (in Japanese), 633pp, 2005.

Samuelson, Paul, A, "Law of the Conservation of the Capital-output ratio," In: Proceedings, the National Academy of Sciences, *Applied Mathematical Science* 67: 1477–79, 1970.

Schreyer, Paul, "Capital Stocks, Capital Services and Multi-Factor Productivity Measures," *OECD Economic Studies*, No. 37 (Feb): 163–184, 2004.

Sen Amarta Kumar, "On Optimising the Rate of Saving," *The Economic Journal*, 71 (Sep, 3): 479–496, 1961.

Solow, Robert, M., "A Skeptical Notes on the Constancy of Relative Shares," *American Economic Review* 48 (Sep): 618–631, 1958.

Tinbergen Jan, "The Optimum Rate of Saving," *Economic Journal 66* (Dec, 4):603–609, 1956.

Postscript

1. For comparisons with Jorgenson's framework, see a summary of Appendix S-3 in Kamiryo, Finland, IARIW.
2. Historically, embodiment and disembodiment are related to vintages and ages of assets. In my model, after treating K and L as purely quantitative factors, I divide conventional current net investment into "qualitative" and "quantitative." Accordingly, I distinguish qualitative $TFP=A$ with quantitative K each as a stock. Therefore, for comparison, I just treated in this note the current investment as embodiment and TFP as disembodiment. More accurately, in my parameter of $\delta = 1 - \frac{LN(1/\Omega^*)}{LN((1-\beta^*)/\beta^*)}$, the numerator shows disembodiment and the denominator shows embodiment, where the values of related *beta* are a surrogate of vintages and ages. If the numerator equals the denominator, the current situation starts with CRS and the transitional path is continuously under CRS.
3. For confirmation, the ratio of rents to capital corresponds with the rate of return in the literature.

Table 1-1 The **relationship between the ratio o**f consumption, *c*, to output and (*rho*/*r*):

By area (Asia, America, and Europe): developing versus advanced

		1995		2004		2004
	By club	**c**	**rho/r**	**c**	**rho/r**	less 1995
1. Japan	**s to cc**	0.8536	0.9788	0.9001	1.0532	more C
2. Korea	**sss**	0.7272	0.8080	0.7590	0.0000	more C
3. China	**sss**	0.6693	0.7700	0.5755	0.6900	More S
4. India	**s**	0.8615	0.9700	0.8460	0.9670	
5. Brazil	**c**	0.8962	1.0000	0.8510	0.9500	More S
6. Singapore	**sss**	0.5305	0.6600	0.5506	0.6300	
7. Malaysia	**sss**	0.6908	0.8504	0.6236	0.8083	More S
8. Indonesia	**ss**	0.7837	0.9410	0.8187	0.9724	
9. Thailand	**ss**	0.7464	0.9000	0.7878	0.9370	more C
10. Philippine	**cc**	0.9133	1.0350	0.8298	1.0000	More S
1. The US	**cc**	0.9174	1.0495	0.9525	1.0900	more C
2. Canada	**c**	0.9150	0.9890	0.8571	0.9480	More S
3. Russia	**ss**	0.8125	0.9300	0.7429	0.8430	
4. Australia	**s**	0.8953	0.9780	0.9051	0.9790	more C
5. New Zealand	**s**	0.9080	0.9770	0.9046	0.9770	
6. The UK	**cc**	0.9389	1.0580	0.9384	1.0887	more C
7. Sweden	**s**	0.8826	0.9800	0.8549	0.9750	
8. Germany	**s**	0.8692	0.9770	0.8698	0.9755	
9. France	**c**	0.9019	0.9950	0.8894	0.9956	
10. Italy	**s**	0.8745	0.9730	0.8855	0.9800	more C
1. Finland	**ss**	0.8498	0.9720	0.8245	0.9620	
2. Norway	**ss**	0.8269	0.9630	0.7456	0.9200	More S
3. Nethrelands	**ss**	0.7899	0.9580	0.8178	0.9640	
4. Spain	**s**	0.8572	0.9610	0.7895	0.9100	
5. Hungary	**s**	0.8659	0.9730	0.8908	0.9810	more C
6. Argentina	**cc**	0.9349	1.0300	0.8623	0.9450	More S
7.Mexico	**c**	0.8979	0.9999	0.9051	1.0070	
8. Peru	**c**	0.9060	0.9950	0.8727	0.9800	More S
9. Kenya	**cc**	0.9392	1.0500	1.0316	1.1600	more C
10. S. Africa	**sss**	0.6265	0.7480	0.6178	0.7390	
Average of 30 countries		**0.8361**	**0.9490**	**0.8233**	**0.9143**	
Average of 10 Asian countries		**0.7673**	**0.8913**	**0.7542**	**0.8008**	
Average of 10 advanced countries		**0.8915**	**0.9907**	**0.8800**	**0.9852**	
Average of 10 other countries		**0.8494**	**0.9650**	**0.8358**	**0.9568**	

By classification (Club c-cc, Club s, and Club ss-sss)

		1995		2004		2004
	By club	**c**	**rho/r**	**c**	**rho/r**	less 1995
1. The US	**c-cc**	0.9174	1.0495	0.9525	1.0900	More C
2. Canada	**c-cc**	0.9150	0.9890	0.8571	0.9480	More S
7. Mexico	**c-cc**	0.8979	0.9999	0.9051	1.0070	
8. Peru	**c-cc**	0.9060	0.9950	0.8727	0.9800	More S
6. Argentina	**c-cc**	0.9349	1.0300	0.8623	0.9450	More S
5. Brazil	**c-cc**	0.8962	1.0000	0.8510	0.9500	More S
6. The UK	**c-cc**	0.9389	1.0580	0.9384	1.0887	More C
9. France	**c-cc**	0.9019	0.9950	0.8894	0.9956	
1. Japan	**c-cc**	0.8536	0.9788	0.9001	1.0532	More C
10. Philippine	**c-cc**	0.9133	1.0350	0.8298	1.0000	More S
9. Kenya	**c-cc**	0.9392	1.0500	1.0316	1.1600	More C
Average of 11 countries		**0.9104**	**1.0164**	**0.8991**	**1.0198**	
7. Sweden	**s**	0.8826	0.9800	0.8549	0.9750	
8. Germany	**s**	0.8692	0.9770	0.8698	0.9755	
10. Italy	**s**	0.8745	0.9730	0.8855	0.9800	More C
4. Spain	**s**	0.8572	0.9610	0.7895	0.9100	
5. Hungary	**s**	0.8659	0.9730	0.8908	0.9810	More C
4. Australia	**s**	0.8953	0.9780	0.9051	0.9790	More C
5. New Zealand	**s**	0.9080	0.9770	0.9046	0.9770	
4. India	**s**	0.8615	0.9700	0.8460	0.9670	
Average of 8 countries		**0.8768**	**0.9736**	**0.8683**	**0.9681**	
1. Finland	**ss-sss**	0.8498	0.9720	0.8245	0.9620	
2. Norway	**ss-sss**	0.8269	0.9630	0.7456	0.9200	More S
3. Netherlands	**ss-sss**	0.7899	0.9580	0.8178	0.9640	
3. Russia	**ss-sss**	0.8125	0.9300	0.7429	0.8430	More S
2. Korea	**ss-sss**	0.7272	0.8080	0.7590	0.8820	More C
3. China	**ss-sss**	0.6693	0.7700	0.5755	0.6900	More S
6. Singapore	**ss-sss**	0.5305	0.6600	0.5506	0.6300	
7. Malaysia	**ss-sss**	0.6908	0.8504	0.6236	0.8083	More S
8. Indonesia	**ss-sss**	0.7837	0.9410	0.8187	0.9724	More C
9. Thailand	**ss-sss**	0.7464	0.9000	0.7878	0.9370	More C
10. South Africa	**ss-sss**	0.6265	0.7480	0.6178	0.7390	
Average of 11 countries		**0.7321**	**0.8637**	**0.7149**	**0.8498**	
Average of 30 countries		**0.8361**	**0.9490**	**0.8233**	**0.9143**	

Note: Classification of three clubs is the following.

cc-c	**1. The US**	**2. Canada**	**3.Mexico**	**4. Peru**	**5. Argentina**	**6. Brazil**
	7. The UK	**8. France**	**9. Japan (from s to cc)**		**10. Philippin**	**11. Kenya**
s	**1. Sweden**	**2. Germany**	**3. Italy**	**4. Spain**	**5. Hungary**	
	6. Australi	**7. New Zea**	**8. India**			
ss-sss	**1. Finland**	**2. Norway**	**3. Nethrela**	**4. Russia**	**5. Korea**	
	6. China	**7. Singapore**	**8. Malaysia**	**9. Indonesia**	**10. Thailand**	**11. S. Africa**

by club	**s**	**c**
cc	below 0.08	above 0.92
c	around 0.1	around 0.9
s	around 0.15	around 0.85
ss	0.2 to.0.25	0.80 to 0.75
sss	0.3 to 0.45	0.70 to 0.55

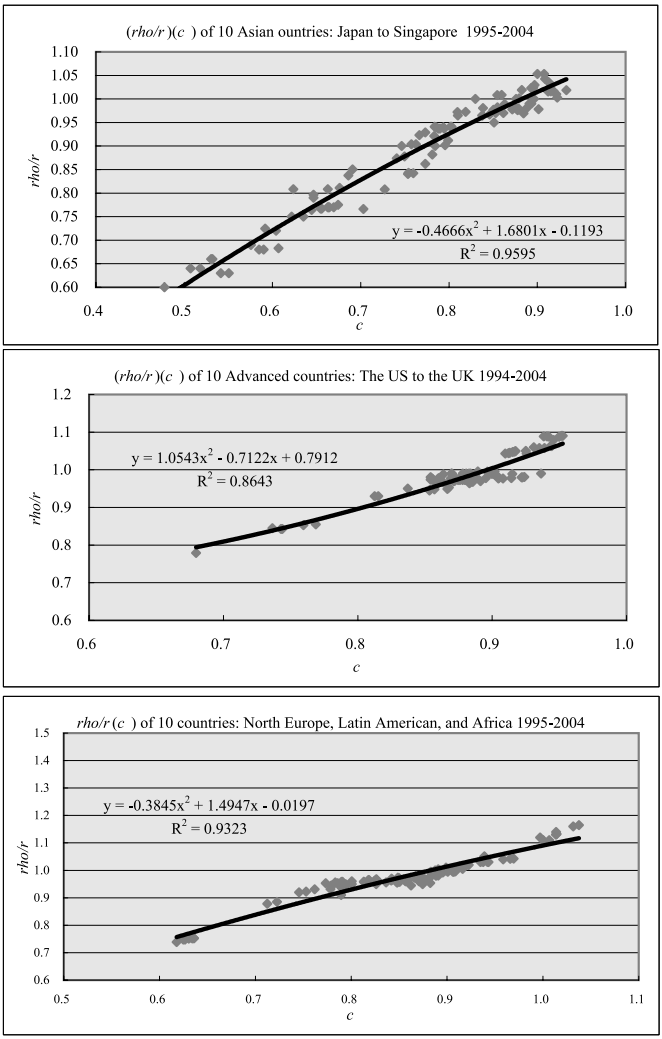


Figure 1 *rho/r* (*c*) by area: Asia, North & Latin America, and Europe

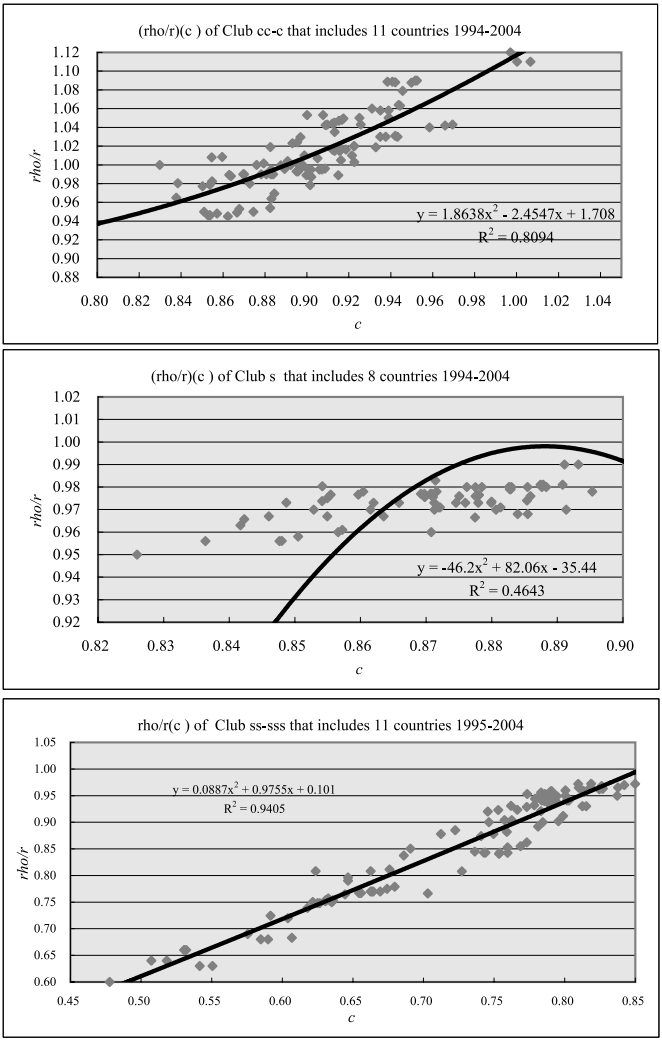


Figure 2 *rho/r* (*c*) by club of saving-level: Asia, North & Latin America, and Europe

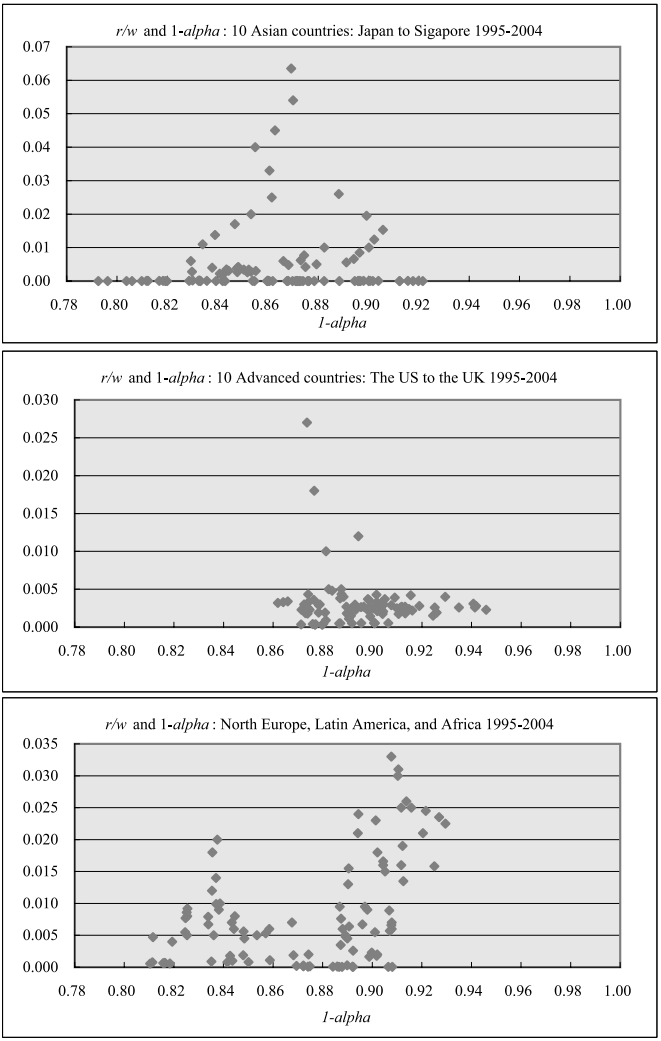
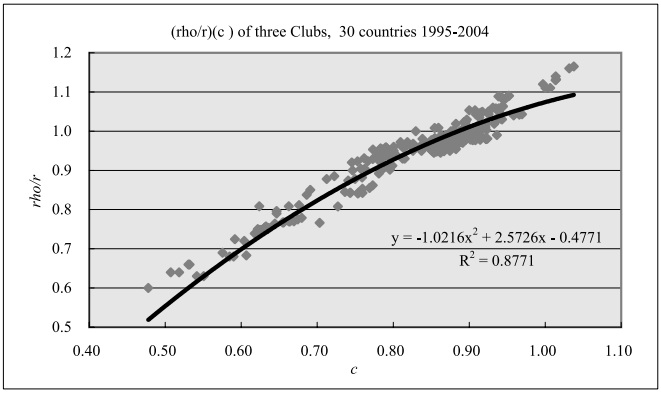


Figure 3 *r/w* and 1-*alpha* by club of saving-level: Asia, N. & Latin Am., and Europe



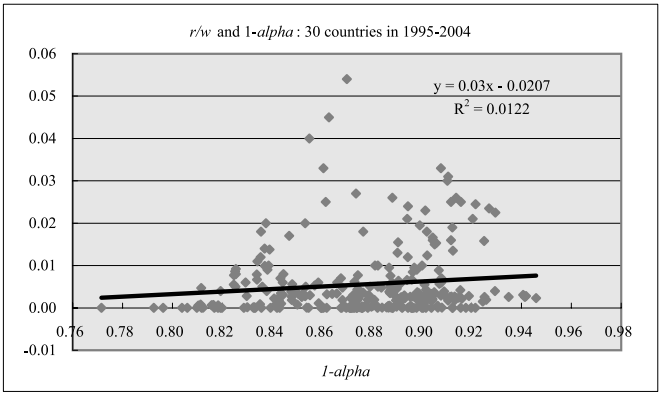


Figure 4 *r/w* and 1-*alpha* by area: Asia, North & Latin America, and Europe

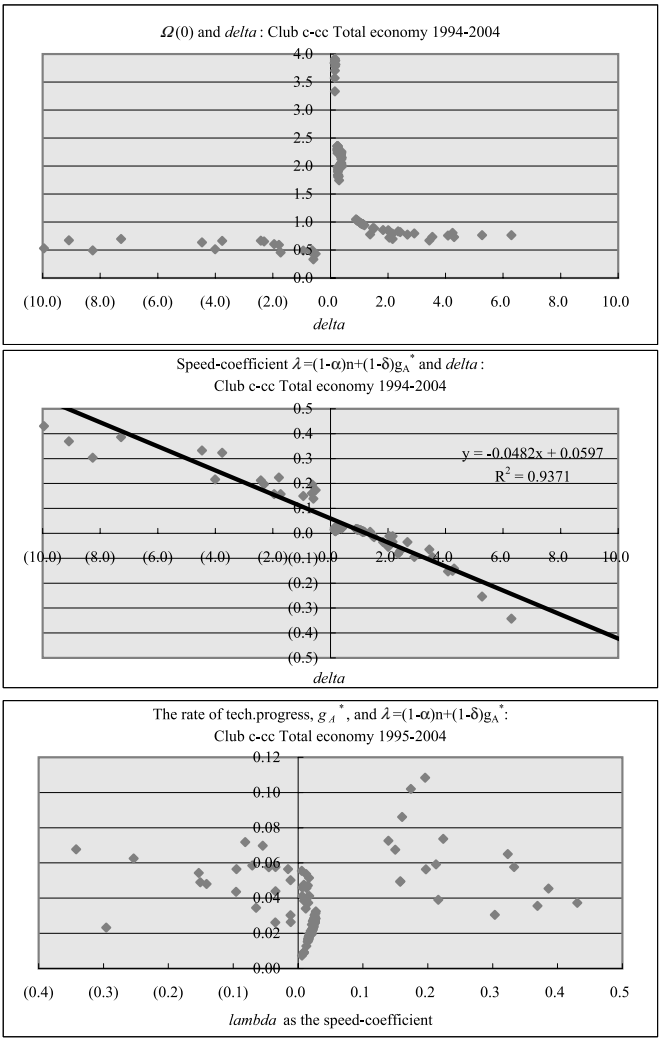
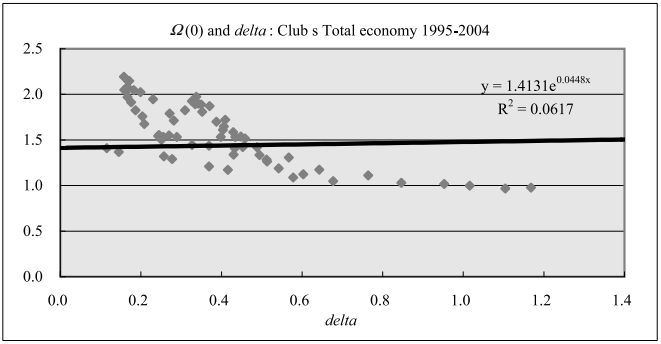
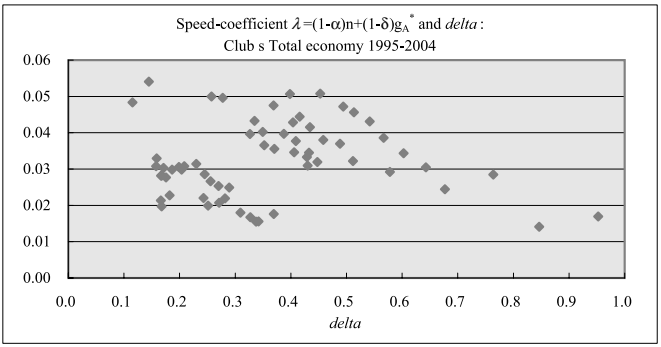


Figure 5-1 The relationships of the speed of convergence in Club c-cc





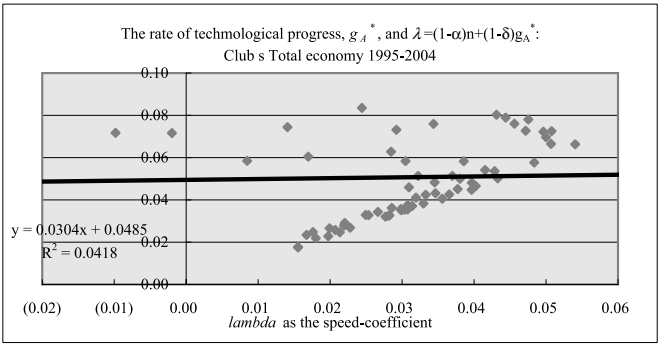


Figure 5-2 The relationships of the speed of convergence in Club s

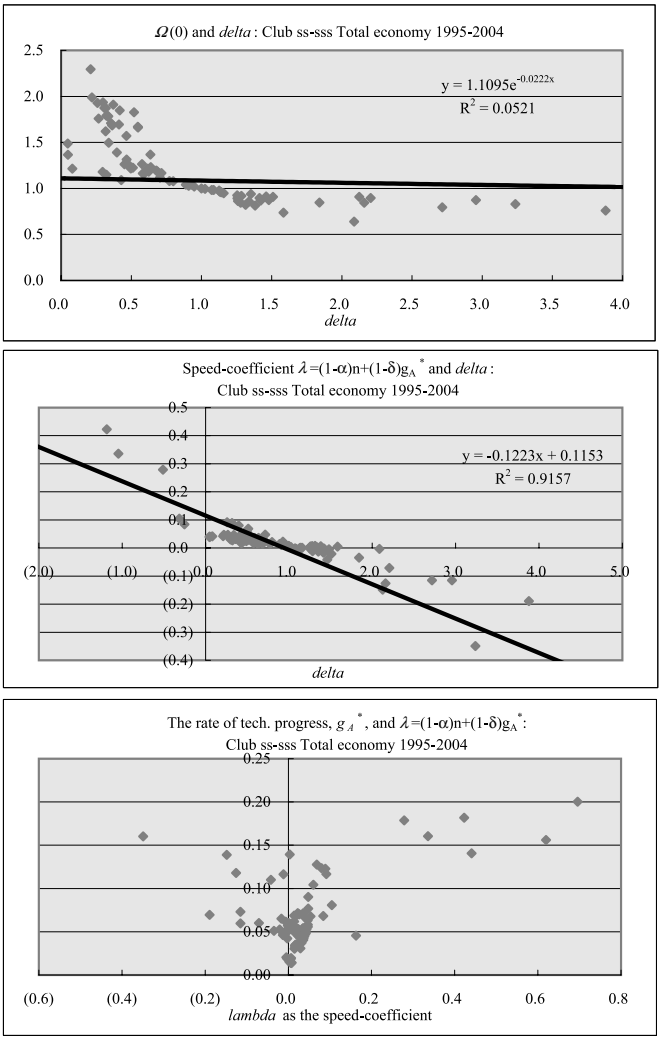


Figure 5-3 The relationships of the speed of convergence in Club ss-sss

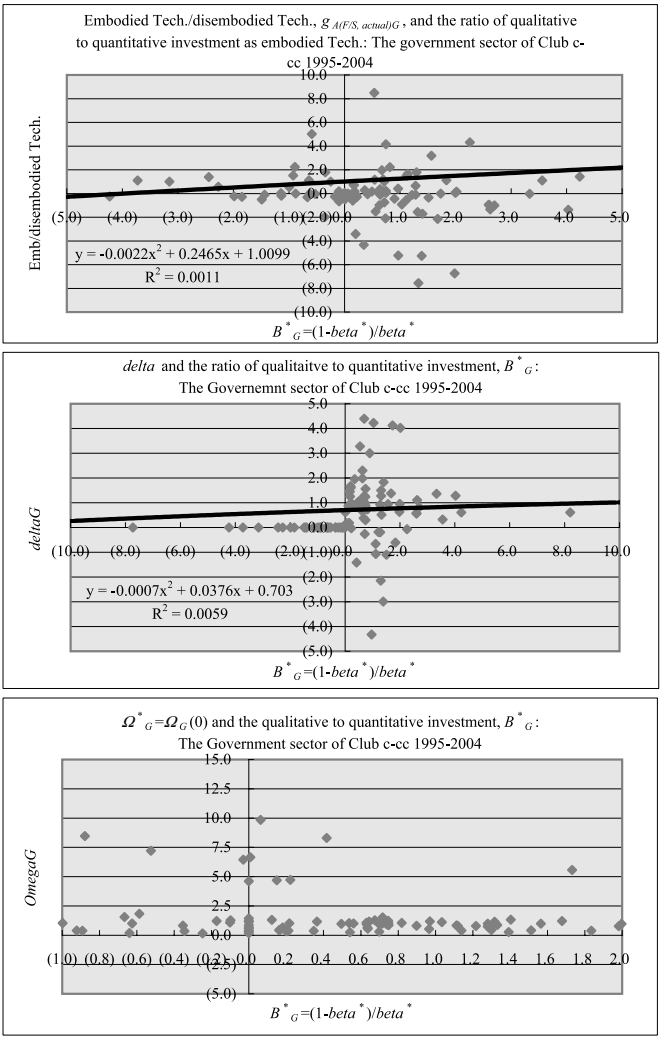


Figure 6-1 The relationships of technology og the government sector in Club c-cc

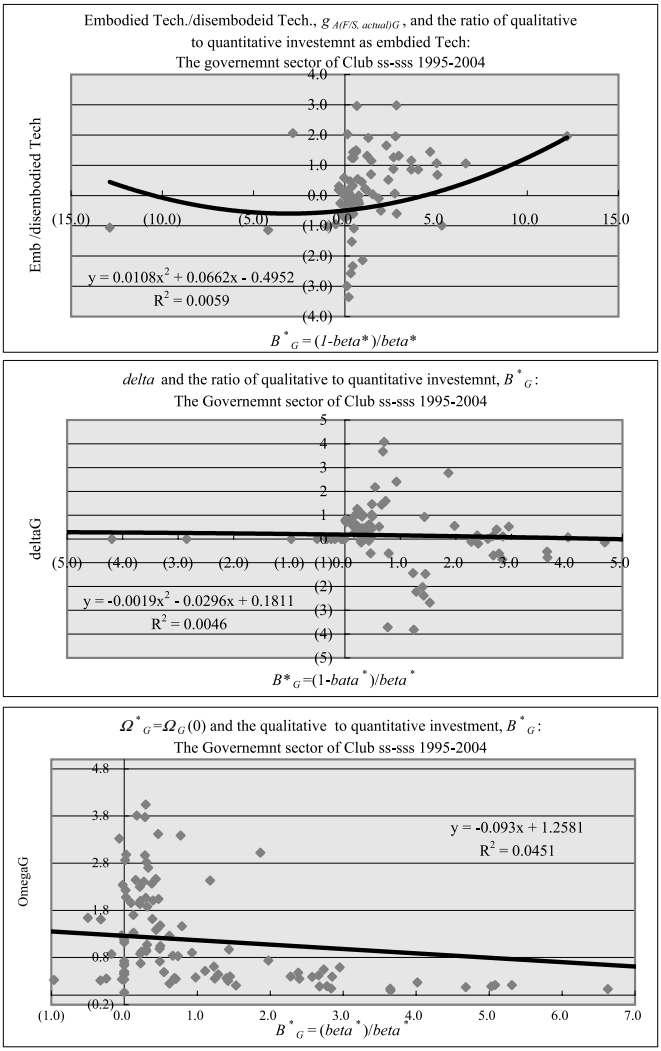


Figure 6-2 The relationships of technology of the government sector in Club s

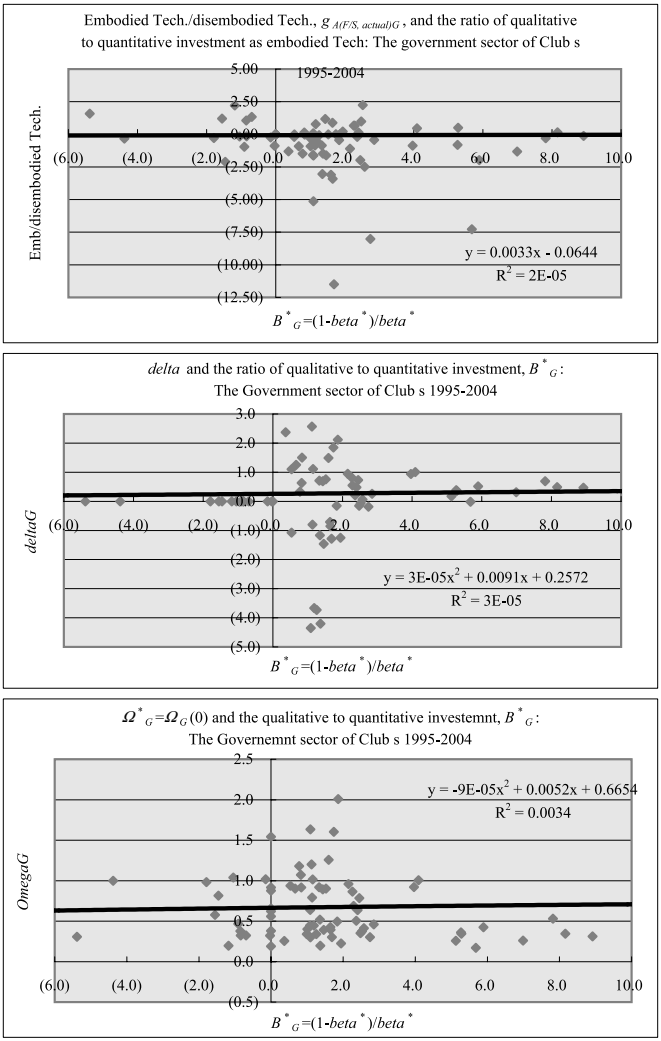


Figure 6-3 The relationships of technology of the government sector in Club ss-sss

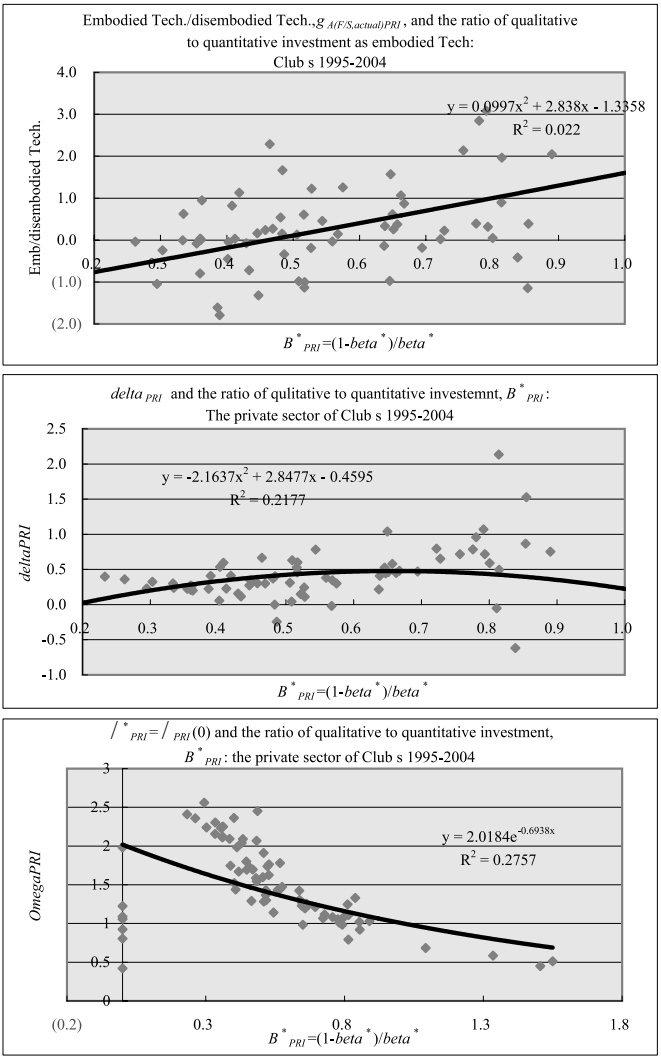


Figure 7-1 The relationships of technology og the Private sector in Club c-cc

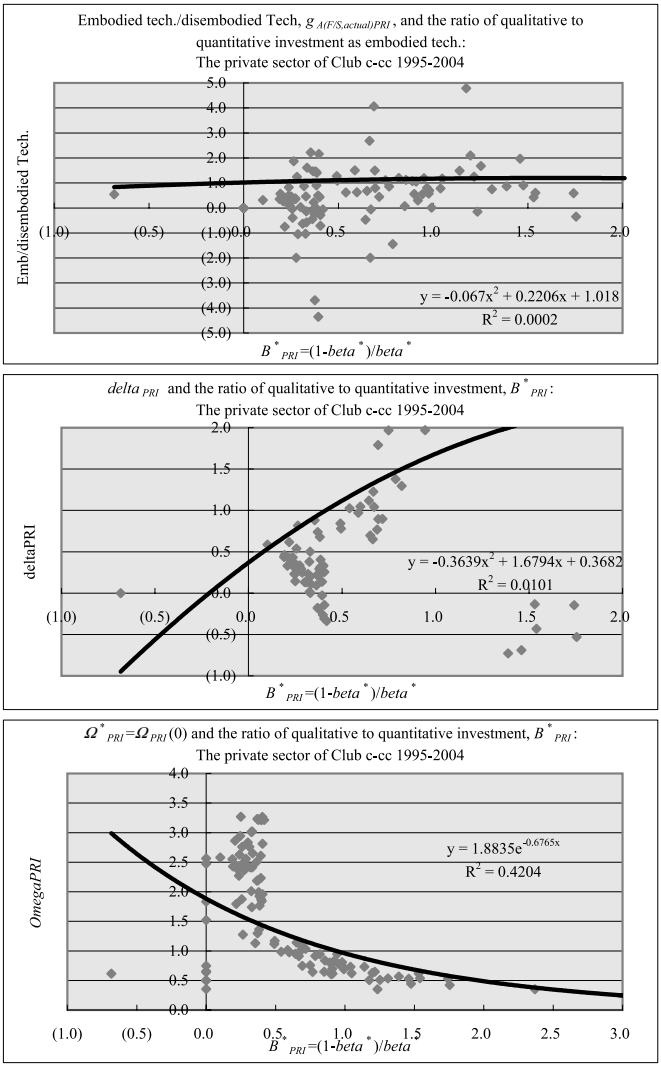
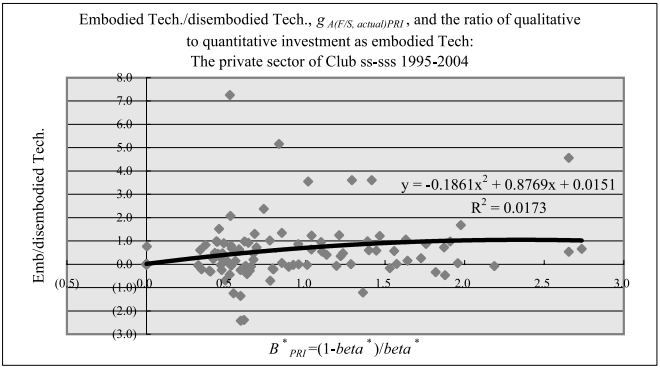
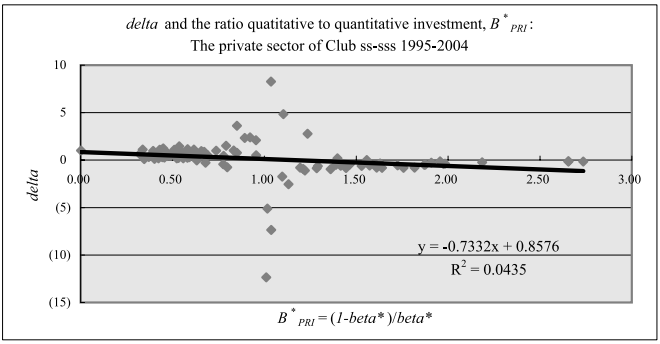


Figure 7-2 The relationships of technology of the Private sector in Club s





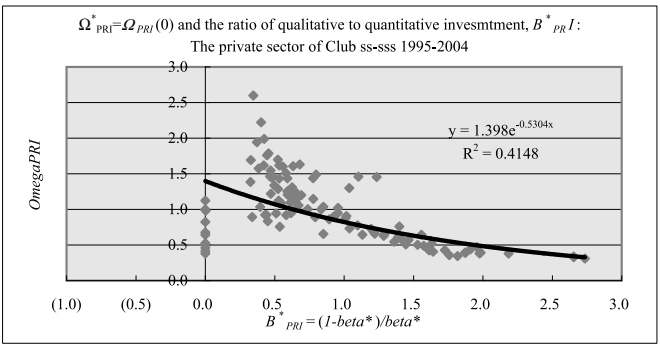


Figure 7-3 The relationships of technology of the Private sector in Club ss-sss

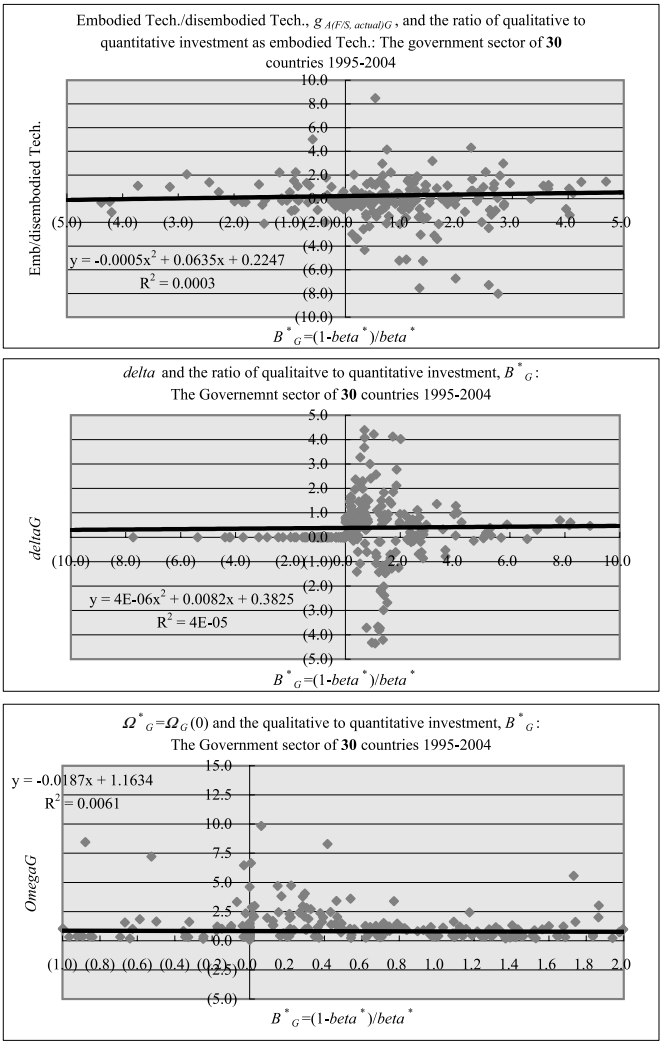


Figure 8-1 The relationships of technology of the government sector in 30 countries

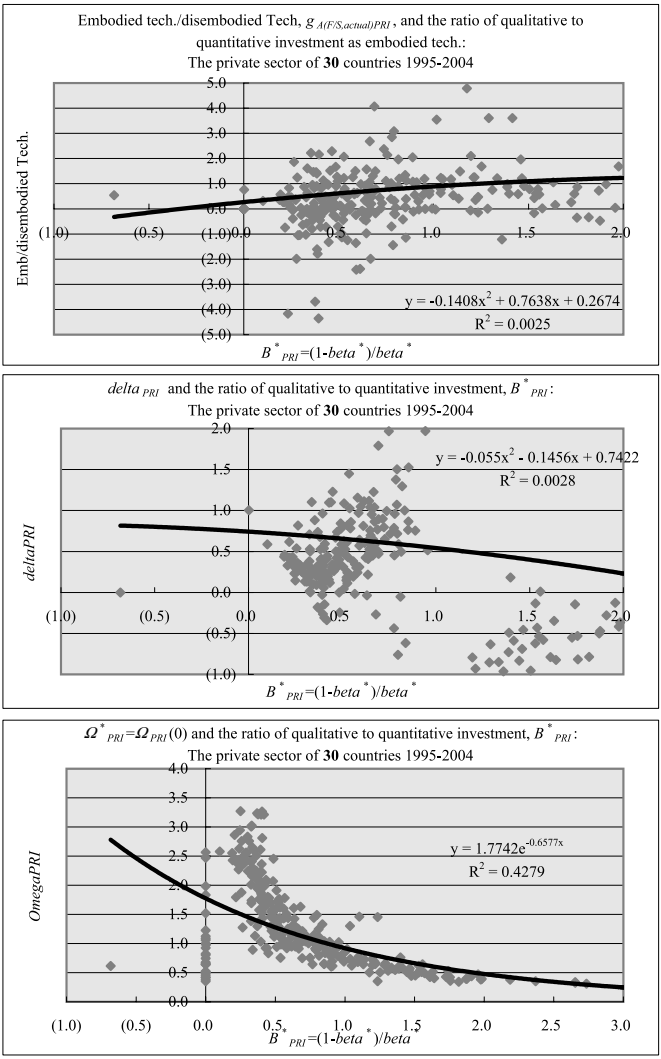


Figure 8-2 The relationships of technology of the Private sector in 30 countries

Data-set (4-1)	Club c-cc			Embodied vs. disembodied rate of tech.			Central Bank discount rate					y=Ak$^{\alpha}$	Years for convergence	
1. U S	$\Omega^{*}_{\alpha\to\alpha}$	**Ω(0)**	***n***	**(rho/r)**	(rho/r)$_{PRI}$	**g_A(F/S)**	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	***1/λ***
1995		2.3334	—	**1.04950**	1.06150		**0.00250**	0.0558	0.1259	14.819	57.590	24.68		
1996	2.9939	2.2363	0.0095	**1.04500**	1.05558	1.0322	**0.00250**	0.0530	0.1262	15.483	57.767	25.83	0.0294	46.93
1997	2.9400	2.2148	0.0107	**1.04300**	1.05293	1.1988	**0.00245**	0.0546	0.1278	16.006	59.787	26.99	0.0231	44.85
1998	2.8778	2.1615	0.0106	**1.04400**	1.05391	0.8645	**0.00238**	0.0535	0.1263	16.729	60.745	28.10	0.0161	41.85
1999	2.8146	2.1081	0.0105	**1.04800**	1.05879	0.9171	**0.00230**	0.0497	0.1253	17.604	62.272	29.54	0.0211	39.55
2000	3.0744	2.2919	0.0102	**1.05000**	1.06116	0.5507	**0.00190**	0.0624	0.1190	18.679	71.121	31.03	0.0341	39.68
2001	3.0411	2.2767	0.0100	**1.06000**	1.07371	1.6634	**0.00190**	0.0389	0.1217	19.003	72.909	32.02	0.0280	43.21
2002	3.0721	2.3072	0.0098	**1.08760**	1.10897	(1.6364)	**0.00193**	0.0167	0.1267	18.848	75.160	32.58	0.0165	49.40
2003	3.1318	2.3425	0.0097	**1.09000**	1.11255	1.0403	**0.00183**	0.0113	0.1270	19.465	79.469	33.92	0.0220	49.79
2004	3.0624	2.2689	0.0095	**1.09000**	1.11247	0.9332	**0.00178**	0.0135	0.1261	20.530	81.100	35.74	0.0272	44.58
2. Canada														
1995		1.3129	—	**0.98900**	0.98496		**0.00260**	0.0692	0.0749	18.327	31.123	23.71		
1996	1.8128	1.5258	0.0099	**0.98890**	0.98502	(0.5445)	**0.00260**	0.0432	0.0886	17.783	37.403	24.51	0.0153	41.67
1997	1.9138	1.5666	0.0091	**0.98890**	0.98523	1.1956	**0.00248**	0.0326	0.0901	18.282	39.926	25.49	0.0161	33.49
1998	1.8257	1.5130	0.0090	**0.98712**	0.98293	0.6434	**0.00238**	0.0487	0.0861	19.062	39.590	26.17	0.0106	33.06
1999	1.8013	1.5005	0.0090	**0.96400**	0.95280	0.8686	**0.00220**	0.0474	0.0839	20.291	41.632	27.74	0.0167	33.22
2000	2.1407	1.7124	0.0095	**0.94644**	0.93001	6.5270	**0.00210**	0.0552	0.0980	20.488	51.641	30.16	0.0277	35.38
2001	2.0125	1.6282	0.0098	**0.94500**	0.92800	0.9092	**0.00210**	0.0411	0.0970	21.447	51.143	31.41	0.0250	34.59
2002	1.9542	1.6184	0.0103	**0.94900**	0.93312	0.3714	**0.00182**	0.0245	0.0867	22.883	52.190	32.25	0.0224	34.46
2003	2.0490	1.6836	0.0105	**0.95300**	0.93822	1.5063	**0.00174**	0.0293	0.0894	23.373	56.439	33.52	0.0277	35.31
2004	2.1423	1.7218	0.0101	**0.94800**	0.93131	2.2712	**0.00174**	0.0225	0.0959	23.871	60.955	35.40	0.0186	34.03
7. Mexico														
1995		0.7361	—	**0.99990**	0.99988		**0.00900**	0.6092	0.1020	13.236	12.618	17.14		
1996	0.7571	0.7339	0.0171	**0.99500**	0.99426	1.1546	**0.00760**	0.3361	0.1126	16.568	16.693	22.75	0.3429	(10.40)
1997	0.7773	0.7567	0.0164	**0.99943**	0.99934	0.9995	**0.00600**	0.2191	0.1119	19.744	21.008	27.76	0.2071	(6.49)
1998	0.8326	0.8016	0.0157	**1.01000**	1.01156	0.9765	**0.00450**	0.2689	0.1101	23.806	27.482	34.28	0.1583	(10.49)
1999	0.9541	0.8882	0.0153	**1.00400**	1.00466	1.0742	**0.00350**	0.2410	0.1127	27.261	36.295	40.87	0.1660	(63.80)
2000	1.0569	0.9645	0.0139	**1.00000**	1.00000	0.8807	**0.00260**	0.1696	0.1077	31.838	46.429	48.14	0.0953	182.27
2001	1.0317	0.9497	0.0153	**1.01500**	1.01758	0.6423	**0.00230**	0.1289	0.1002	34.564	48.427	50.99	0.0640	161.15
2002	1.1068	1.0065	0.0140	**1.01500**	1.01768	0.8346	**0.00200**	0.0817	0.0980	36.484	54.315	53.96	0.0498	74.98
2003	1.1459	1.0350	0.0135	**1.01600**	1.01895	1.0152	**0.00180**	0.0683	0.0982	39.064	60.486	58.44	0.0457	64.39
2004	1.1954	1.0671	0.0130	**1.00700**	1.00820	1.2003	**0.00165**	0.0715	0.1012	41.708	68.233	63.94	0.0471	52.64

Data-set (4-1) Club c-cc

8. Peru	$\Omega^{*}_{\alpha\to\alpha}$	$\Omega(0)$	n	**(rho/r)**	$(\text{rho/r})_{PRI}$	$g_A(F/S)$	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	$1/\lambda$
1995		0.7003	---	**0.99500**	0.99432		**0.03100**	0.1844	0.0894	4.081	3.168	4.52		
1996	0.7772	0.7660	0.0176	**1.00500**	1.00571	0.9857	**0.02500**	0.1816	0.0883	4.488	3.874	5.06	0.1158	(3.08)
1997	0.8659	0.8319	0.0173	**0.99300**	0.99203	1.1682	**0.02300**	0.1594	0.0986	4.901	4.755	5.72	0.0863	(11.57)
1998	0.8880	0.8518	0.0174	**0.99600**	0.99542	0.6585	**0.01900**	0.1872	0.0877	5.154	5.062	5.94	0.0713	(17.01)
1999	1.0676	0.9777	0.0171	**0.99300**	0.99193	5.1177	**0.01800**	0.1780	0.0979	5.174	6.032	6.17	0.0354	83.78
2000	1.0098	0.9406	0.0161	**0.99500**	0.99426	0.7001	**0.01600**	0.1400	0.0883	5.489	6.052	6.43	0.0373	199.90
2001	1.0852	0.9921	0.0158	**1.02000**	1.02304	0.3628	**0.01660**	0.1400	0.0956	5.378	6.368	6.42	0.0200	73.69
2002	1.0973	1.0013	0.0152	**1.02000**	1.02293	1.0025	**0.01600**	0.0475	0.0956	5.510	6.609	6.60	0.0020	72.36
2003	1.0939	0.9993	0.0149	**0.99500**	0.99429	0.9739	**0.01500**	0.0425	0.0948	5.813	6.984	6.99	0.0225	74.30
2004	1.1645	1.0403	0.0147	**0.98000**	0.97720	1.6681	**0.01550**	0.0425	0.1095	6.077	7.931	7.62	0.0364	61.91
6. Argentina														
1995		0.4748	---	**1.03000**	1.03605		**0.03300**	0.0946	0.0923	5.850	3.082	6.491		
1996	0.4288	0.4925	0.0126	**1.03000**	1.03567	0.8751	**0.03000**	0.0623	0.0897	5.993	3.284	6.668	0.0020	9.35
1997	0.4400	0.5120	0.0119	**1.03100**	1.03659	0.9266	**0.02600**	0.0663	0.0862	6.343	3.630	7.089	0.0050	8.60
1998	0.4368	0.5141	0.0115	**1.03000**	1.03562	0.7751	**0.02500**	0.0681	0.0843	6.415	3.681	7.160	0.0089	8.40
1999	0.4479	0.5109	0.0111	**1.04000**	1.04820	1.1851	**0.02450**	0.0699	0.0784	6.165	3.473	6.797	(0.0118)	9.97
2000	0.4579	0.5056	0.0110	**1.04200**	1.05077	1.4181	**0.02350**	0.0815	0.0730	6.067	3.351	6.627	(0.0089)	11.61
2001	0.5220	0.5456	0.0100	**1.04300**	1.05230	1.0435	**0.02250**	0.2490	0.0705	5.670	3.371	6.177	(0.0110)	12.38
2002	0.5958	0.5844	0.0099	**0.95000**	0.94070	1.1153	**0.02100**	0.4135	0.0795	6.291	4.114	7.040	0.2588	(42.78)
2003	0.5913	0.6134	0.0098	**0.95400**	0.94612	0.9628	**0.01580**	0.0374	0.0750	7.399	5.131	8.364	0.1349	9.07
2004	0.6846	0.7100	0.0095	**0.94500**	0.93588	1.1689	**0.01350**	0.0196	0.0875	8.427	7.102	10.004	0.0439	4.95
5. Brazil														
1995		0.5933	---	**1.00000**	1.00000		**0.05500**	0.5337	0.1038	3.287	2.107	3.55		
1996	0.5285	0.5791	0.0151	**1.01600**	1.02083	0.9999	**0.04650**	0.2745	0.1021	3.853	2.444	4.22	0.1578	5.94
1997	0.5480	0.5964	0.0151	**1.01627**	1.02110	0.9737	**0.04000**	0.2500	0.0994	4.183	2.759	4.63	0.0694	5.55
1998	0.5777	0.6183	0.0151	**1.01627**	1.02141	0.8840	**0.03600**	0.2950	0.0961	4.306	2.955	4.78	0.0324	5.19
1999	0.6110	0.6411	0.0150	**1.01882**	1.02473	0.7022	**0.02900**	0.2626	0.0844	4.497	3.179	4.96	0.0483	4.94
2000	0.6480	0.6721	0.0147	**1.01000**	1.01317	1.0486	**0.02600**	0.1759	0.0876	4.902	3.694	5.50	0.0707	3.99
2001	0.6908	0.7064	0.0145	**1.00300**	1.00396	0.8522	**0.02100**	0.1747	0.0802	5.244	4.152	5.88	0.0680	3.00
2002	0.7745	0.7681	0.0142	**0.97833**	0.97103	0.9726	**0.01700**	0.1911	0.0785	5.749	5.011	6.52	0.0852	(2.09)
2003	1.0063	0.9394	0.0141	**0.96948**	0.95898	1.1911	**0.01400**	0.2337	0.0877	6.172	6.866	7.31	0.1467	731.19
2004	1.2680	1.1142	0.0138	**0.95000**	0.93408	1.4585	**0.01250**	0.1624	0.1042	6.621	9.309	8.35	0.0662	39.79

Data-set (4-1) Club c-cc

6. The UK $\Omega^*_{\alpha\to\alpha}$		$\Omega(0)$	n	(rho/r)	$(\text{rho/r})_{PRI}$	g_A(F/S)	r/w	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	$1/\lambda$
1995		2.2889	---	**1.05800**	1.07705		**0.00500**	0.0608	0.1126	7.702	25.367	11.08		
1996	3.3846	2.3195	0.0035	**1.05800**	1.07658	1.2871	**0.00480**	0.0596	0.1162	8.039	27.391	11.81	0.0240	61.01
1997	3.4048	2.3309	0.0033	**1.04292**	1.05579	0.7974	**0.00435**	0.0661	0.1125	8.553	29.126	12.50	0.0312	60.91
1998	3.8298	2.4959	0.0034	**1.04700**	1.06079	11.8645	**0.00432**	0.0721	0.1259	8.589	33.332	13.35	0.0346	56.05
1999	3.3229	2.2848	0.0036	**1.06300**	1.08216	0.4013	**0.00400**	0.0520	0.1116	9.357	31.411	13.75	0.0157	54.39
2000	3.3712	2.3033	0.0034	**1.06400**	1.08382	1.1103	**0.00380**	0.0577	0.1130	9.786	33.517	14.55	0.0288	56.70
2001	3.8760	2.5603	0.0034	**1.07900**	1.10423	(4.5927)	**0.00360**	0.0508	0.1236	9.721	39.158	15.29	0.0180	63.21
2002	4.2840	2.8032	0.0036	**1.08800**	1.11793	25.5613	**0.00340**	0.0389	0.1341	9.737	45.544	16.25	0.0167	75.26
2003	4.2869	2.7781	0.0034	**1.08870**	1.12047	1.1771	**0.00330**	0.0359	0.1359	10.147	47.663	17.16	0.0290	75.32
2004	4.3550	2.7731	0.0034	**1.08870**	1.12096	1.2426	**0.00320**	0.0429	0.1381	10.516	50.056	18.05	0.0300	69.03
9. France														
1995		1.6268	---	**0.99500**	0.99293		**0.00053**	0.0635	0.0936	73.121	194.863	119.78		
1996	2.3120	1.7364	0.0041	**0.99500**	0.99292	(9.4373)	**0.00051**	0.0373	0.0991	72.918	215.618	124.18	0.0202	43.65
1997	2.5674	1.8598	0.0038	**0.99000**	0.98579	(0.6575)	**0.00051**	0.0324	0.1082	70.773	238.008	127.97	0.0125	48.03
1998	2.7514	1.9255	0.0034	**0.99000**	0.98591	(52.8862)	**0.00050**	0.0339	0.1129	70.739	254.651	132.25	0.0062	45.57
1999	3.1056	2.0690	0.0034	**0.98800**	0.98307	0.9039	**0.00330**	0.0272	0.1258	13.106	43.593	21.07	0.0051	43.82
2000	3.1230	2.0921	0.0037	**0.99000**	0.98595	0.6707	**0.00300**	0.0423	0.1212	13.818	45.977	21.98	0.0173	40.23
2001	3.1126	2.0940	0.0039	**0.99000**	0.98599	1.0476	**0.00290**	0.0426	0.1216	14.245	47.721	22.79	0.0170	40.42
2002	2.7836	1.9701	0.0042	**0.99000**	0.98588	0.3829	**0.00270**	0.0300	0.1104	15.292	45.981	23.34	0.0187	41.72
2003	2.7083	1.9323	0.0042	**0.99000**	0.98582	0.6449	**0.00260**	0.0269	0.1072	15.846	46.170	23.89	0.0212	40.47
2004	3.0289	2.1109	0.0042	**0.99560**	0.99373	0.8785	**0.00230**	0.0225	0.1067	16.143	51.940	24.61	0.0217	40.71
1. Japan														
1995		2.9078	---	**0.97880**	0.97337		**0.000015**	0.0121	0.1279	1012	9492	3264.33		
1996	5.4452	3.0899	0.0028	**0.98236**	0.97777	(1.5795)	**0.000014**	0.0047	0.1299	1005	10312	3337.35	0.0010	42.01
1997	5.8117	3.2548	0.0026	**0.97720**	0.97128	1.0106	**0.000013**	0.0048	0.1299	1017	11103	3411.22	0.0183	45.49
1998	6.4019	3.6287	0.0025	**0.98928**	0.98640	4.7123	**0.000012**	0.0037	0.1277	1011	12202	3362.59	0.0060	59.85
1999	6.4539	3.6902	0.0024	**1.00000**	1.00000	(0.8041)	**0.000012**	0.0006	0.1240	1031	12216	3310.29	(0.0030)	65.99
2000	6.6057	3.7105	0.0021	**1.00144**	1.00186	(0.0131)	**0.000011**	0.1080	0.1219	1051	12289	3311.86	(0.0070)	67.77
2001	6.5969	3.7517	0.0020	**1.02962**	1.03891	0.1833	**0.000012**	0.0580	0.1289	970	12244	3263.52	(0.0070)	80.91
2002	5.8422	3.4687	0.0018	**1.04246**	1.05634	(1.2988)	**0.000013**	0.0110	0.1282	973	11145	3212.91	(0.0091)	104.14
2003	5.9553	3.4829	0.0017	**1.05315**	1.07085	0.0477	**0.000014**	0.0010	0.1381	883	11140	3198.53	(0.0030)	113.44
2004	6.0984	3.3988	0.0014	**1.05315**	1.07093	(0.3885)	**0.000015**	0.0010	0.1454	841	11062	3254.55	0.0000	108.41

Data-set (4-1) Club c-cc

10. Philipp	$\Omega^{*}_{\alpha\to\alpha}$	$\Omega(0)$	n	(rho/r)	$(rho/r)_{PRI}$	$g_A(F/S)$	r/w	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	I/λ
1995		0.5112	----	1.03500	1.04060		0.01000	0.1193	0.1176	19.228	13.330	26.08		
1996	0.6070	0.6294	0.0215	1.02400	1.02801	1.2844	0.00770	0.1277	0.1256	20.528	18.661	29.65	0.0751	2.60
1997	0.7230	0.7180	0.0212	1.02300	1.02729	1.0463	0.00620	0.1616	0.1270	21.887	23.457	32.67	0.0559	(0.70)
1998	0.7237	0.7093	0.0206	1.01894	1.02241	1.3292	0.00600	0.1390	0.1339	23.512	25.766	36.33	0.0927	(2.94)
1999	0.8165	0.7717	0.0202	0.96490	0.95884	0.9302	0.00480	0.1017	0.1318	25.997	31.629	40.99	0.0595	(22.63)
2000	1.0417	0.9249	0.0199	0.93680	0.92580	25.9271	0.00420	0.1084	0.1518	26.069	42.621	46.08	0.0395	152.79
2001	1.3239	1.1237	0.0194	1.00845	1.00993	1.6954	0.00340	0.0975	0.1476	25.375	50.938	45.33	0.0680	44.48
2002	1.3738	1.1616	0.0190	0.98047	0.97730	0.8326	0.00300	0.0715	0.1449	27.099	56.466	48.61	0.0300	43.41
2003	1.6002	1.3145	0.0185	1.00800	1.00929	(0.9314)	0.00270	0.0697	0.1522	26.704	66.495	50.58	0.0345	42.12
2004	1.5989	1.2925	0.0181	1.00000	1.00000	4.7020	0.00280	0.0705	0.1702	27.290	73.262	56.68	0.0598	44.80
9. Kenya														
1995		0.3210	----	1.05000	1.06136		0.02400	0.1829	0.1056	12.946	4.917	15.32		
1996	0.2735	0.3329	0.0261	1.05000	1.06249	1.0090	0.02100	0.2225	0.1058	14.095	5.634	16.92	0.0887	7.19
1997	0.4689	0.4888	0.0251	1.12000	1.15069	0.9472	0.01300	0.2287	0.1097	15.153	9.482	19.40	0.1133	5.11
1998	0.5779	0.5733	0.0241	1.13000	1.16347	0.7692	0.00950	0.2283	0.1030	16.311	12.088	21.08	0.0670	(2.52)
1999	0.5239	0.5233	0.0232	1.11000	1.13920	0.6561	0.00890	0.1387	0.0932	17.564	11.542	22.06	0.0570	(0.43)
2000	0.6034	0.5967	0.0227	1.13200	1.16148	1.1543	0.00670	0.1205	0.1040	21.575	17.319	29.02	0.1001	(3.65)
2001	0.6508	0.6421	0.0218	1.16500	1.20402	7.7475	0.00640	0.1260	0.1093	21.624	19.177	29.86	0.0570	(3.55)
2002	0.6613	0.6470	0.0217	1.11000	1.13659	0.4702	0.00550	0.0895	0.0989	22.936	19.951	30.84	0.0199	(9.80)
2003	0.8261	0.7715	0.0215	1.14000	1.17855	(1.4187)	0.00500	0.0351	0.1108	22.617	24.914	32.29	0.0983	175.45
2004	0.8147	0.7645	0.0226	1.16000	1.20369	0.9971	0.00480	0.0317	0.1107	23.657	25.932	33.92	0.1166	2109.47
Average	1.6345	1.5449	0.0117	1.0205	1.0259	0.8529	0.00932	0.106	0.1088	102.92	1283.78	323.87	0.0481	69.34
variance	1.1635	1.16	0.0000	0.0023	0.0037	46.7747	0.00012	0.011	0.0004	74557	15779691	893462	0.0032	49818.88
Maximum	4.5525	4.54	0.0261	1.1650	1.2040	25.9271	0.05500	0.609	0.1702	1036.34	14810	3403.92	0.3429	2109.47
Minimum	0.3148	0.3210	0.0014	0.9368	0.9258	(52.8862)	0.00001	0.0006	0.0705	3.2867	2.1067	3.5511	(0.0118)	(63.80)
1. The US	3.0009	2.2541	0.0101	1.0607	1.0752	0.7293	0.00215	0.0409	0.1252	17.72	67.79	30.05	0.0242	44.43
2. Canada	1.9614	1.5783	0.0097	0.9659	0.9552	1.5276	0.00218	0.0414	0.0891	20.58	46.20	29.04	0.0200	35.02
7. Mexico	0.9842	0.8939	0.0149	1.0061	1.0072	0.9753	0.00410	0.2194	0.1055	28.43	39.20	41.83	0.1307	49.36
8. Peru	1.0055	0.9101	0.0162	0.9992	0.9991	1.4042	0.01951	0.1303	0.0946	5.21	5.68	6.15	0.0474	59.36
6. Argentina	0.5117	0.5463	0.0108	1.0095	1.0118	1.0523	0.02348	0.1162	0.0816	6.46	4.02	7.24	0.0469	3.51
5. Brazil	0.7392	0.7228	0.0146	0.9978	0.9969	1.0092	0.02970	0.2554	0.0924	4.88	4.25	5.57	0.0827	88.61
6. The UK	3.7906	2.4938	0.0034	1.0677	1.0900	4.3165	0.00398	0.0537	0.1223	9.21	36.26	14.38	0.0253	63.54
9. France	2.8325	1.9417	0.0039	0.9914	0.9878	(6.4947)	0.00189	0.0359	0.1107	37.60	118.45	64.19	0.0155	42.73
1. Japan	7.6336	4.1709	0.0022	1.0107	1.0153	(0.5983)	0.00001	0.0205	0.1302	958.81	13744	3297.75	(0.0004)	89.36
10. Philippine	1.0899	0.9157	0.0198	1.0000	0.9999	4.0907	0.00453	0.1067	0.1403	24.37	40.26	41.30	0.0572	33.77
9. Kenya	0.6001	0.5661	0.0232	1.1167	1.1462	1.3702	0.00898	0.1404	0.1051	18.85	15.10	25.07	0.0798	253.03
Average	2.1954	1.5449	0.0117	1.0205	1.0259	0.8529	0.00914	0.1055	0.1088	102.92	1283.78	323.87	0.0481	69.34

Data-set (4-2) Club s

7. Sweden	$\Omega^{*}_{\alpha\to\alpha}$	$\Omega(0)$	n	**(rho/r)**	$(\text{rho/r})_{PRI}$	g_A**(F/S)**	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	$1/\lambda$
1995		1.1607		**0.98000**	0.96922		**0.00055**	0.0854	0.0993	102.041	200.550	172.78		
1996	1.3385	1.1398	0.0023	**0.98000**	0.96903	0.9439	**0.00054**	0.0628	0.0990	105.469	203.464	178.51	0.0061	66.43
1997	1.4501	1.1844	0.0011	**0.97991**	0.96918	10.7117	**0.00053**	0.0421	0.1045	105.792	220.158	185.89	0.0061	63.48
1998	1.8531	1.3364	0.0000	**0.98288**	0.97355	(1.6833)	**0.00049**	0.0424	0.1134	103.922	261.048	195.33	(0.0020)	48.23
1999	2.0592	1.4207	0.0000	**0.97660**	0.96396	3.6983	**0.00046**	0.0314	0.1197	105.313	295.661	208.11	0.0041	43.60
2000	2.3023	1.6181	0.0023	**0.97660**	0.96439	8.7201	**0.00040**	0.0381	0.1240	105.635	353.980	218.76	0.0091	44.06
2001	2.3977	1.6716	0.0023	**0.97380**	0.95988	0.7919	**0.00037**	0.0409	0.1229	109.211	378.599	226.49	0.0240	46.14
2002	2.5223	1.7870	0.0034	**0.98037**	0.96944	(4.1894)	**0.00035**	0.0419	0.1287	108.479	422.098	236.20	0.0215	54.69
2003	2.5625	1.8964	0.0045	**0.97800**	0.96565	0.2639	**0.00030**	0.0329	0.1202	116.433	461.647	243.43	0.0191	64.23
2004	2.4436	1.8077	0.0045	**0.97500**	0.96114	2.3507	**0.00031**	0.0200	0.1232	118.013	453.076	250.64	0.0038	60.57
8. Germany														
1995		1.7497		**0.97700**	0.96944		**0.00180**	0.0450	0.1103	24.684	68.898	39.38		
1996	2.7120	1.8497	0.0032	**0.97700**	0.96941	0.8209	**0.00166**	0.0327	0.1098	25.030	74.297	40.17	0.0149	30.64
1997	2.9112	1.8991	0.0021	**0.97700**	0.96958	0.6746	**0.00158**	0.0318	0.1088	25.357	77.288	40.70	0.0189	31.08
1998	3.1765	1.9639	0.0012	**0.97700**	0.96962	0.9189	**0.00150**	0.0341	0.1086	25.657	81.239	41.37	0.0093	30.58
1999	3.2175	1.9693	0.0010	**0.97600**	0.96834	0.9998	**0.00270**	0.0273	0.1034	14.715	42.735	21.70	0.0061	29.71
2000	3.0653	1.8978	0.0009	**0.97600**	0.96850	0.7204	**0.00266**	0.0411	0.1009	15.238	42.185	22.23	0.0142	28.58
2001	3.0185	1.9069	0.0011	**0.97600**	0.96860	0.9609	**0.00256**	0.0437	0.1006	15.669	43.689	22.91	0.0300	33.21
2002	3.0165	1.9019	0.0010	**0.97550**	0.96779	(2.4825)	**0.00270**	0.0328	0.1071	15.558	44.420	23.35	(0.0039)	40.83
2003	3.0618	1.9271	0.0008	**0.97650**	0.96916	0.0971	**0.00248**	0.0232	0.1008	15.974	45.206	23.46	0.0175	44.11
2004	3.3444	2.0437	0.0008	**0.97550**	0.96799	(0.5096)	**0.00249**	0.0205	0.1084	15.673	48.815	23.89	0.0163	48.59
10. Italy														
1995		1.1777		**0.97300**	0.96483		**0.00350**	0.1046	0.1012	19.225	32.168	27.32		
1996	1.8318	1.3808	0.0017	**0.96700**	0.95691	1.7344	**0.00296**	0.0882	0.1070	19.731	40.483	29.32	0.0395	38.79
1997	1.9661	1.4464	0.0016	**0.97300**	0.96471	0.7805	**0.00264**	0.0688	0.1046	20.577	44.238	30.58	0.0206	38.37
1998	1.9150	1.4140	0.0012	**0.97300**	0.96486	0.6726	**0.00246**	0.0499	0.0997	21.785	45.029	31.85	0.0191	36.40
1999	2.0693	1.4942	0.0014	**0.97900**	0.97290	0.9796	**0.00428**	0.0295	0.0983	12.400	25.472	17.05	0.0167	34.35
2000	2.2646	1.5801	0.0012	**0.98100**	0.97540	0.7857	**0.00370**	0.0439	0.0950	13.062	28.356	17.95	0.0256	31.35
2001	2.5986	1.7521	0.0016	**0.97900**	0.97259	1.4648	**0.00330**	0.0426	0.0982	13.358	32.989	18.83	0.0280	33.13
2002	2.7419	1.8129	0.0014	**0.98100**	0.97515	0.7010	**0.00300**	0.0332	0.0954	13.807	35.150	19.39	0.0243	33.01
2003	2.6743	1.7993	0.0014	**0.98900**	0.98552	0.4784	**0.00270**	0.0233	0.0881	14.515	35.799	19.90	0.0266	34.38
2004	3.1031	1.9672	0.0012	**0.98000**	0.97377	6.9920	**0.00260**	0.0210	0.0965	14.588	41.068	20.88	0.0222	35.59

Data-set (4-2) Club s														
4. Spain	$\Omega^{*}_{\alpha\to\alpha}$	$\Omega(0)$	n	**(rho/r)**	$(\text{rho/r})_{PRI}$	$g_A(F/S)$	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	I/λ
1995		0.8800		**0.96100**	0.94981		**0.00008**	0.0898	0.1080	754.723	1458.303	1657.26		
1996	0.9863	0.9332	0.00251	**0.96000**	0.94858	0.9528	**0.00007**	0.0765	0.1077	788.030	1631.269	1748.11	0.0353	(16.09)
1997	1.0663	0.9751	0.00250	**0.95800**	0.94625	3.6351	**0.00007**	0.0549	0.1122	798.283	1805.615	1851.76	0.0198	(82.54)
1998	1.1061	0.9961	0.00299	**0.95600**	0.94376	1.1929	**0.00007**	0.0434	0.1133	835.828	1966.583	1974.36	0.0183	1423.40
1999	1.2197	1.0601	0.00472	**0.95610**	0.94385	0.8913	**0.00950**	0.0272	0.1131	9.438	13.420	12.66	0.0233	42.26
2000	1.2137	1.0740	0.00717	**0.97000**	0.96171	0.4991	**0.00700**	0.0411	0.0921	10.550	14.496	13.50	0.0341	30.51
2001	1.2186	1.0804	0.00982	**0.97100**	0.96292	1.0139	**0.00660**	0.0436	0.0923	11.082	15.412	14.27	0.0360	29.40
2002	1.2833	1.1249	0.01192	**0.96650**	0.95705	0.9886	**0.00600**	0.0328	0.0921	11.587	16.916	15.04	0.0309	24.23
2003	1.2937	1.1315	0.01274	**0.96000**	0.94857	1.0520	**0.00570**	0.0231	0.0929	12.146	17.977	15.89	0.0300	22.83
2004	1.3983	1.1632	0.01210	**0.91000**	0.88558	5.8332	**0.00700**	0.0204	0.1324	12.462	21.796	18.74	0.0300	27.94
5. Hungary														
1995		0.8485		**0.97300**	0.96867		**0.00030**	0.2800	0.1101	250.47	412.45	486.12		
1996	0.9677	0.9243	(0.0010)	**0.96570**	0.96043	3.4650	**0.00027**	0.2300	0.1278	262.58	542.74	587.19	0.2359	(7.73)
1997	1.2060	1.0331	(0.0019)	**0.95000**	0.94197	1.1310	**0.00020**	0.2050	0.1306	306.19	750.92	726.88	0.1827	67.27
1998	1.2430	1.0489	(0.0029)	**0.95600**	0.94920	0.7862	**0.00016**	0.1700	0.1252	364.16	894.09	852.43	0.1421	40.86
1999	1.3109	1.0799	(0.0019)	**0.97305**	0.96890	1.2191	**0.00014**	0.1450	0.1278	398.55	1046.56	969.16	0.1002	31.69
2000	1.2866	1.0745	(0.0020)	**0.97300**	0.96900	0.5011	**0.00011**	0.1100	0.1141	486.62	1170.74	1089.59	0.0977	29.66
2001	1.4131	1.1159	(0.0029)	**0.96300**	0.95740	2.5295	**0.00010**	0.0980	0.1260	516.68	1441.22	1291.56	0.0920	25.79
2002	1.3628	1.1049	(0.0020)	**0.96700**	0.96177	0.6083	**0.00008**	0.0850	0.1159	628.91	1638.26	1482.70	0.0531	27.01
2003	1.4740	1.1355	(0.0029)	**0.98000**	0.97683	0.2993	**0.00006**	0.1250	0.0936	803.20	1843.00	1623.01	0.0461	20.93
2004	1.5132	1.1399	(0.0030)	**0.98100**	0.97809	0.8699	**0.00005**	0.0950	0.0920	882.23	2025.22	1776.69	0.0682	22.75
4. Australia														
1995		*0.9241*		**0.97800**	0.97146		**0.00420**	0.0750	0.0845	18.323	21.989	23.79		
1996	1.1258	*1.0240*	0.0123	**0.97400**	0.96619	2.1001	**0.00390**	0.0720	0.0910	18.656	25.666	25.06	0.0264	58.97
1997	1.3351	*1.1564*	0.0127	**0.97000**	0.96120	18.0081	**0.00370**	0.0550	0.1018	18.694	30.621	26.48	0.0021	29.91
1998	1.3577	*1.1754*	0.0125	**0.97350**	0.96573	0.5951	**0.00330**	0.0499	0.0961	19.629	32.206	27.40	0.0086	26.54
1999	1.4425	*1.2353*	0.0124	**0.97600**	0.96905	0.6718	**0.00290**	0.0478	0.0923	20.442	35.068	28.39	0.0148	23.76
2000	1.5893	*1.3254*	0.0117	**0.97300**	0.96510	1.6195	**0.00270**	0.0590	0.0977	21.096	40.100	30.26	0.0449	23.96
2001	1.8248	*1.4779*	0.0115	**0.97100**	0.96272	1.6504	**0.00240**	0.0506	0.1019	21.588	47.250	31.97	0.0440	25.22
2002	1.8486	*1.4818*	0.0114	**0.97100**	0.96264	1.0184	**0.00228**	0.0455	0.1020	22.570	49.834	33.63	0.0297	22.08
2003	1.8204	*1.4695*	0.0113	**0.97300**	0.96511	0.6098	**0.00205**	0.0481	0.0957	24.080	51.605	35.12	0.0279	20.50
2004	1.8141	*1.5086*	0.0106	**0.97900**	0.97279	0.2208	**0.00150**	0.0525	0.0755	26.696	54.468	36.11	0.0235	21.66

Data-set (4-2) Club s

5. New Zeal $\Omega^*_{\alpha\to\alpha}$	$\Omega(0)$	n	(rho/r)	$(rho/r)_{PRI}$	$g_A(F/S)$	r/w	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	I/λ
1995	0.8907		**0.97700**	0.97030		**0.00400**	0.0980	0.0706	17.33	19.00	21.33		
1996 0.9573	0.9243	0.0109	**0.98000**	0.97430	0.4352	**0.00310**	0.0880	0.0593	18.40	20.33	22.00	0.0226	(25.25)
1997 1.0073	0.9634	0.0081	**0.98100**	0.97535	0.9149	**0.00280**	0.9700	0.0582	19.14	22.07	22.91	0.0116	(89.27)
1998 1.0776	1.0130	0.0054	**0.98000**	0.97421	1.0529	**0.00260**	0.0560	0.0587	19.64	23.97	23.66	0.0135	101.20
1999 1.1293	1.0545	0.0080	**0.99000**	0.98686	(0.4458)	**0.00230**	0.0500	0.0542	19.83	24.89	23.61	(0.0020)	43.52
2000 1.1814	1.0855	0.0106	**0.97800**	0.97142	9.0800	**0.00260**	0.0650	0.0651	19.92	26.79	24.68	0.0267	39.18
2001 1.3682	1.1996	0.0105	**0.97000**	0.96084	(15.5380)	**0.00280**	0.0475	0.0811	19.86	31.51	26.27	0.0260	29.47
2002 1.4943	1.2769	0.0104	**0.96800**	0.95834	2.0450	**0.00270**	0.0575	0.0868	20.24	35.22	27.58	0.0273	26.89
2003 1.5777	1.3425	0.0128	**0.96800**	0.95832	0.8703	**0.00240**	0.0500	0.0852	21.17	38.83	28.92	0.0171	23.57
2004 1.6601	1.4076	0.0101	**0.97700**	0.96976	0.3988	**0.00190**	0.0650	0.0741	22.68	42.13	29.93	0.0233	23.72
4. India													
1995	0.4363		**0.97000**	0.96513		**0.02600**	0.1200	0.1118	9.30	4.84	11.10		
1996 0.3798	0.4582	0.0184	**0.97620**	0.97247	0.8548	**0.01950**	0.1200	0.1008	10.52	5.75	12.55	0.0892	6.20
1997 0.4461	0.5076	0.0181	**0.98000**	0.97657	0.8017	**0.01530**	0.0900	0.0943	11.19	6.80	13.40	0.0713	6.20
1998 0.5226	0.5694	0.0177	**0.99000**	0.98814	1.0671	**0.01240**	0.0900	0.0978	12.42	8.74	15.35	0.1332	5.43
1999 0.6275	0.6523	0.0172	**0.99000**	0.98805	1.0540	**0.01000**	0.0800	0.0999	13.38	11.10	17.02	0.0457	3.52
2000 0.7587	0.7507	0.0168	**0.98000**	0.97621	1.2432	**0.00850**	0.0800	0.1036	13.82	13.59	18.11	0.0406	(1.67)
2001 0.9953	0.9212	0.0164	**0.98000**	0.97629	1.0939	**0.00660**	0.0650	0.1059	14.35	17.95	19.48	0.0370	(213.64)
2002 1.2055	1.0673	0.0160	**0.97800**	0.97405	1.3973	**0.00560**	0.0625	0.1088	14.61	21.80	20.43	0.0434	42.18
2003 1.4332	1.2081	0.0156	**0.97000**	0.96488	1.8867	**0.00500**	0.0600	0.1207	15.24	27.46	22.73	0.0388	28.82
2004 1.6475	1.3411	0.0152	**0.96700**	0.96168	1.2138	**0.00420**	0.0600	0.1251	16.33	34.05	25.39	0.0374	25.51
Average **1.7196**	**1.2841**	**0.0060**	**0.9733**	**0.9656**	**1.4137**	**0.00338**	**0.078**	**0.1015**	**126.52**	**296.66**	**269.75**	**0.0366**	**44.62**
variance **0.5613**	**0.1555**	**0.0000**	**0.0001**	**0.0002**	**12.8770**	**0.00002**	**0.012**	**0.0003**	**53420**	**286797**	**271120**	**0.0017**	**28708**
Maximum **3.3444**	**2.0437**	**0.0184**	**0.9900**	**0.9881**	**18.0081**	**0.02600**	**0.970**	**0.1324**	**882.23**	**2025.22**	**1974.36**	**0.2359**	**1423.40**
Minimum **0.3798**	**0.4363**	**(0.0030)**	**0.9100**	**0.8856**	**(15.5380)**	**0.00005**	**0.0200**	**0.0542**	**9.3044**	**4.8421**	**11.0991**	**(0.0039)**	**(213.64)**
7. Sweden **2.1033**	**1.5023**	**0.0022**	**0.9783**	**0.9665**	**2.4009**	**0.00043**	**0.0438**	**0.1155**	**108.03**	**325.03**	**211.61**	**0.0102**	**54.6036**
8. Germany **3.0582**	**1.9109**	**0.0013**	**0.9764**	**0.9688**	**0.2445**	**0.00221**	**0.0332**	**0.1059**	**19.36**	**56.88**	**29.91**	**0.0137**	**35.2591**
10. Italy **2.3516**	**1.5825**	**0.0014**	**0.9775**	**0.9707**	**1.6210**	**0.00311**	**0.0505**	**0.0984**	**16.30**	**36.08**	**23.30**	**0.0247**	**35.0418**
4. Spain **1.1985**	**1.0418**	**0.0074**	**0.9569**	**0.9448**	**1.7843**	**0.00421**	**0.0453**	**0.1056**	**324.41**	**696.18**	**732.16**	**0.0286**	**166.883**
5. Hungary **1.3086**	**1.0505**	**(0.0023)**	**0.9682**	**0.9632**	**1.2677**	**0.00015**	**0.1543**	**0.1163**	**489.96**	**1176.52**	**1088.53**	**0.1131**	**28.6925**
4. Australia **1.5731**	**1.2778**	**0.0118**	**0.9739**	**0.9662**	**2.9438**	**0.00289**	**0.0555**	**0.0938**	**21.18**	**38.88**	**29.82**	**0.0247**	**28.0672**
5. New Zeal **1.2726**	**1.1158**	**0.0096**	**0.9769**	**0.9700**	**(0.1318)**	**0.00272**	**0.1547**	**0.0693**	**19.82**	**28.47**	**25.09**	**0.0184**	**19.2245**
4. India **0.8907**	**0.7912**	**0.0168**	**0.9781**	**0.9743**	**1.1792**	**0.01131**	**0.0828**	**0.1069**	**13.11**	**15.21**	**17.55**	**0.0596**	**(10.8285)**
Average **1.7196**	**1.2841**	**0.0060**	**0.9733**	**0.9656**	**1.4137**	**0.00338**	**0.0775**	**0.1015**	**126.52**	**296.66**	**269.75**	**0.0366**	**44.6179**

Data-set (4-3) Club ss-sss

1. Finland	$\Omega^*_{\alpha\to\alpha}$	Ω **(0)**	***n***	**(rho/r)**	$(\text{rho/r})_{PRI}$	g_A**(F/S)**	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	$1/\lambda$
1995		0.7449		**0.97200**	0.96001		**0.00200**	0.0575	0.1257	56.393	71.900	96.53		
1996	0.7816	0.7937	0.0039	**0.97000**	0.95719	2.6605	**0.00187**	0.0363	0.1318	57.294	81.178	102.27	0.0065	1.94
1997	0.8977	0.8644	0.0019	**0.95900**	0.94201	(1.7585)	**0.00187**	0.0323	0.1521	55.429	95.908	110.95	0.0118	(5.90)
1998	0.9109	0.8698	0.0019	**0.95000**	0.92977	1.6974	**0.00180**	0.0357	0.1573	57.449	103.709	119.23	0.0138	(7.07)
1999	1.0358	0.9340	0.0019	**0.94900**	0.92865	0.8928	**0.00990**	0.0296	0.1629	12.957	19.658	21.05	0.0115	(35.99)
2000	1.2064	1.0170	0.0039	**0.94500**	0.92382	4.7765	**0.00920**	0.0439	0.1745	13.076	22.983	22.60	0.0341	147.57
2001	1.2428	1.0343	0.0019	**0.94400**	0.92241	1.0288	**0.00860**	0.0426	0.1749	13.604	24.640	23.82	0.0260	105.16
2002	1.2108	1.0241	0.0039	**0.94800**	0.92746	0.5082	**0.00790**	0.0332	0.1662	14.406	25.225	24.63	0.0156	128.24
2003	1.3585	1.1120	0.0019	**0.96300**	0.94816	(0.1321)	**0.00600**	0.0233	0.1415	15.458	27.470	24.70	0.0086	51.44
2004	1.5584	1.2255	0.0038	**0.96200**	0.94643	1.2808	**0.00530**	0.0211	0.1430	15.685	31.473	25.68	0.0019	39.39
2. Norway														
1995		0.8119		**0.96300**	0.94767		**0.00110**	0.0675	0.1413	90.806	149.619	184.28		
1996	0.9951	0.9045	0.0069	**0.94000**	0.91634	(28.7538)	**0.00100**	0.0600	0.1564	90.569	185.425	205.01	0.0135	(41.15)
1997	1.1648	0.9999	0.0068	**0.93200**	0.90543	(9.6316)	**0.00090**	0.0550	0.1649	90.194	219.338	219.35	0.0254	175.56
1998	1.1409	0.9949	0.0068	**0.95700**	0.93898	0.0976	**0.00080**	0.1000	0.1499	98.674	220.391	221.52	0.0227	243.68
1999	1.1198	0.9789	0.0045	**0.93800**	0.91246	2.8970	**0.00080**	0.0750	0.1584	101.200	235.226	240.31	0.0232	(423.15)
2000	1.3076	1.0678	0.0067	**0.87800**	0.83236	(2.5488)	**0.00077**	0.0900	0.1887	96.301	301.994	282.82	0.0309	85.04
2001	1.3371	1.0883	0.0067	**0.88500**	0.83840	0.5138	**0.00070**	0.0850	0.1836	102.296	321.251	295.18	0.0300	78.26
2002	1.4929	1.1682	0.0044	**0.92300**	0.88896	0.6889	**0.00065**	0.0850	0.1843	101.220	347.516	297.49	0.0126	64.79
2003	1.5255	1.2006	0.0066	**0.93100**	0.90023	0.6016	**0.00060**	0.0425	0.1816	105.258	369.912	308.11	0.0249	66.03
2004	1.6136	1.2285	0.0044	**0.92000**	0.88522	445.168	**0.00058**	0.0375	0.1896	105.270	403.339	328.32	0.0047	59.73
3. Netherlands														
1995		0.9706		**0.95800**	0.93869		**0.00550**	0.0422	0.1754	20.988	38.681	39.85		
1996	1.2240	1.0271	0.0058	**0.95800**	0.93969	0.8501	**0.00500**	0.0289	0.1747	21.424	42.329	41.21	0.0202	98.46
1997	1.4192	1.1234	0.0058	**0.95300**	0.93270	(2.2861)	**0.00470**	0.0307	0.1885	21.090	49.407	43.98	0.0220	47.47
1998	1.5594	1.2020	0.0058	**0.95600**	0.93715	0.4067	**0.00400**	0.0321	0.1807	22.226	55.130	45.87	0.0204	37.30
1999	1.5750	1.2103	0.0051	**0.95800**	0.94001	0.9724	**0.00800**	0.0274	0.1746	12.332	26.440	21.85	0.0221	33.49
2000	1.5160	1.1820	0.0057	**0.95300**	0.93304	1.0493	**0.00770**	0.0289	0.1753	13.056	27.611	23.36	0.0299	36.47
2001	1.5652	1.2123	0.0050	**0.96000**	0.94213	0.5348	**0.00670**	0.0310	0.1661	13.959	29.728	24.52	0.0420	34.25
2002	1.6474	1.2722	0.0056	**0.96500**	0.94859	0.2168	**0.00560**	0.0277	0.1519	14.853	31.989	25.15	0.0326	32.62
2003	1.7876	1.3490	0.0050	**0.96800**	0.95233	0.0708	**0.00500**	0.0249	0.1465	15.160	34.336	25.45	0.0214	31.90
2004	2.1372	1.5248	0.0050	**0.96400**	0.94634	0.0291	**0.00450**	0.0231	0.1516	14.904	39.713	26.04	0.0118	30.29

Data-set (4-3)	Club ss-sss													
3. Russia	$\Omega^*_{\alpha\to\alpha}$	$\Omega(0)$	n	**(rho/r)**	$(\text{rho/r})_{PRI}$	$g_A(F/S)$	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	I/λ
1995		0.6341		**0.93000**	0.90671		**0.02700**	1.9043	0.1263	6.833	5.356	8.45		
1996	0.4351	0.6577	(0.0016)	**0.93000**	0.90624	1.0029	**0.01800**	0.4765	0.1235	9.229	7.826	11.90	0.4757	9.40
1997	0.4703	0.7020	(0.0018)	**0.96000**	0.94544	0.7814	**0.01200**	0.2097	0.1056	11.008	9.838	14.01	0.1480	11.67
1998	0.7159	0.8294	(0.0020)	**0.95000**	0.93475	1.3785	**0.01000**	0.5056	0.1187	11.926	13.469	16.24	0.2779	11.61
1999	0.7801	0.8875	(0.0025)	**0.84300**	0.80844	1.0318	**0.00500**	0.1479	0.1176	20.415	26.656	30.04	0.8565	14.56
2000	1.3815	1.0838	(0.0032)	**0.77887**	0.72640	1.1449	**0.00300**	0.0714	0.1275	27.384	48.706	44.94	0.2077	46.34
2001	1.6681	1.1711	(0.0039)	**0.84500**	0.80355	1.0375	**0.00230**	0.1010	0.1285	32.076	64.131	54.76	0.2150	29.18
2002	2.6909	1.2017	(0.0045)	**0.85500**	0.81420	0.5728	**0.00140**	0.0819	0.1009	42.849	80.120	66.67	0.1572	23.98
2003	4.3788	1.3511	(0.0049)	**0.85300**	0.81165	1.3157	**0.00111**	0.0377	0.1095	48.968	110.775	81.99	0.1366	24.24
2004	5.1519	1.4714	(0.0050)	**0.84300**	0.80112	1.3622	**0.00090**	0.0333	0.1188	56.140	149.759	101.78	0.1089	25.74
2. Korea														
1995		0.7978		**0.80800**	0.77606		**0.000018**	0.1260	0.1000	3232	6170	7734		
1996	0.8975	0.8756	0.0089	**0.84300**	0.81476	3.7969	**0.000016**	0.1240	0.1055	3290	7373	8421	0.0498	(2.22)
1997	1.3651	1.1528	0.0084	**0.84085**	0.81248	0.6665	**0.000011**	0.1320	0.1039	3492	10538	9141	0.0440	18.18
1998	1.0333	0.9680	0.0079	**0.76620**	0.72237	0.1035	**0.000010**	0.1500	0.0823	4381	8973	9270	0.0754	(99.80)
1999	1.1454	1.0290	0.0072	**0.84238**	0.81204	(0.2627)	**0.000011**	0.0500	0.0983	3898	9913	9634	0.0082	59.97
2000	1.4633	1.2099	0.0065	**0.86213**	0.83626	3.1218	**0.000009**	0.0520	0.1032	3983	12793	10573	0.0225	21.71
2001	1.9755	1.4731	0.0056	**0.90175**	0.88150	(0.3693)	**0.000008**	0.0470	0.1177	3605	16678	11322	0.0410	21.36
2002	2.6036	1.7768	0.0049	**0.91189**	0.89360	(56.9459)	**0.000006**	0.0420	0.1239	3601	22093	12434	0.0269	21.49
2003	3.1463	2.0064	0.0038	**0.89200**	0.86881	1.0999	**0.000005**	0.0400	0.1242	3698	26273	13095	0.0355	21.52
2004	3.8613	2.3178	0.0040	**0.88200**	0.85556	(0.3165)	**0.000005**	0.0360	0.1395	3285	32413	13984	0.0361	23.97
3. China														
1995		0.5748		**0.77000**	0.72840		**0.06350**	0.1044	0.1308	3.682	2.369	4.12		
1996	0.4358	0.5742	0.0096	**0.77500**	0.73463	1.0054	**0.05400**	0.0900	0.1300	4.222	2.768	4.82	(0.0736)	3.55
1997	0.5814	0.6694	0.0093	**0.77000**	0.72808	1.1139	**0.04500**	0.0855	0.1372	4.440	3.535	5.28	(0.0508)	2.98
1998	0.7140	0.7513	0.0089	**0.76700**	0.72368	1.2939	**0.04000**	0.0459	0.1451	4.578	4.242	5.65	(0.0350)	1.61
1999	0.8354	0.8269	0.0085	**0.77000**	0.72591	0.7621	**0.03300**	0.0324	0.1394	4.755	4.908	5.94	(0.0060)	(0.53)
2000	1.1295	0.9950	0.0078	**0.77000**	0.72454	0.9111	**0.02500**	0.0324	0.1385	4.994	6.430	6.46	0.0172	306.56
2001	1.5768	1.2252	0.0072	**0.76700**	0.71944	1.4713	**0.02000**	0.0324	0.1468	5.119	8.601	7.02	0.0020	14.60
2002	1.9256	1.3902	0.0067	**0.75000**	0.70016	1.3203	**0.01700**	0.0270	0.1532	5.328	10.641	7.65	(0.0129)	12.50
2003	2.4424	1.6199	0.0063	**0.72000**	0.66761	1.3241	**0.01380**	0.0270	0.1611	5.620	13.913	8.59	0.0202	11.21
2004	3.1614	1.9287	0.0062	**0.69000**	0.63423	1.3144	**0.01100**	0.0333	0.1660	5.801	18.090	9.38	0.0277	10.93

Data-set (4-3)	Club ss-sss													
6. Singapore	$\Omega^*_{\alpha\to\alpha}$	**Ω(0)**	***n***	**(rho/r)**	$(\text{rho/r})_{PRI}$	g_A**(F/S)**	**r/w**	(60b) r_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	***I/λ***
1995		0.5436		**0.66000**	0.61675		**0.000014**	0.0256	0.1962	4720	17435	32071		
1996	0.4634	0.5328	0.0316	**0.64000**	0.59046	0.5247	**0.000013**	0.0293	0.1902	5357	18493	34711	0.0146	2.18
1997	1.0173	0.8860	0.0306	**0.64000**	0.59011	0.4737	**0.000008**	0.0435	0.2074	4274	32715	36923	0.0196	(33.44)
1998	0.8430	0.7769	0.0324	**0.60000**	0.54301	0.2986	**0.000009**	0.0500	0.2038	4528	28433	36596	(0.0030)	(6.32)
1999	1.2053	1.0068	0.0262	**0.66000**	0.60929	17.8416	**0.000007**	0.0204	0.1940	4501	34388	34155	0.0010	43.88
2000	1.2756	1.0951	0.0255	**0.68000**	0.62647	0.0061	**0.000004**	0.0257	0.1324	8619	38152	34840	0.0132	24.35
2001	1.6660	1.3331	0.0199	**0.68000**	0.62467	0.0555	**0.000003**	0.0199	0.1401	7942	47906	35935	0.0100	19.60
2002	1.7291	1.4037	0.0146	**0.68300**	0.62708	(0.0697)	**0.000003**	0.0096	0.1116	10545	49473	35245	(0.0040)	21.60
2003	2.2234	1.6830	0.0144	**0.63000**	0.57235	(0.2508)	**0.000003**	0.0074	0.1404	8186	65313	38808	0.0050	26.38
2004	2.1160	1.6150	0.0118	**0.63000**	0.57634	0.2039	**0.000002**	0.0104	0.1261	10029	65584	40610	0.0168	24.49
7. Malaysia														
1995		0.4037		**0.85040**	0.81877		**0.000060**	0.0560	0.1877	2026	3850	9537		
1996	0.3622	0.4802	0.0260	**0.79655**	0.75928	1.0274	**0.000045**	0.0692	0.1883	2147	5154	10733	0.0350	2.29
1997	0.4670	0.5560	0.0258	**0.79018**	0.75268	0.2569	**0.000035**	0.0761	0.1817	2325	6345	11412	0.0271	1.95
1998	0.4407	0.5141	0.0247	**0.72449**	0.68042	0.1676	**0.000039**	0.0846	0.1832	2290	5751	11188	0.0527	3.29
1999	0.5902	0.6095	0.0241	**0.75015**	0.70369	(0.2702)	**0.000030**	0.0338	0.1714	2487	6893	11309	0.0271	1.76
2000	0.6888	0.6931	0.0227	**0.76437**	0.72258	0.2366	**0.000022**	0.0266	0.1570	2953	8466	12215	0.0152	0.35
2001	1.1180	0.9692	0.0213	**0.81130**	0.77051	0.5108	**0.000017**	0.0279	0.1668	2544	11774	12149	0.0140	92.57
2002	1.5642	1.2370	0.0204	**0.83739**	0.79677	0.0974	**0.000014**	0.0273	0.1808	2220	15761	12742	0.0187	27.80
2003	1.6695	1.3049	0.0196	**0.80827**	0.76175	0.9215	**0.000012**	0.0274	0.1802	2395	18312	14034	0.0097	28.94
2004	1.8804	1.3851	0.0184	**0.80827**	0.76301	(0.3266)	**0.000013**	0.0270	0.2284	1642	22431	16194	0.0153	34.84
8. Indonesia														
1995		0.5420		**0.94100**	0.93399		**0.00018**	0.1364	0.1672	637	1115	2057		
1996	0.4479	0.5573	0.0140	**0.92338**	0.91487	1.1911	**0.00015**	0.1396	0.1699	718	1365	2449	0.0818	3.31
1997	0.7101	0.7280	0.0136	**0.92884**	0.92156	0.6560	**0.00010**	0.2782	0.1676	773	2014	2767	0.0609	0.94
1998	0.4198	0.5318	0.0134	**0.87792**	0.86901	0.6986	**0.00007**	0.6279	0.1461	1470	2445	4597	0.5842	4.54
1999	0.4107	0.5120	0.0132	**0.96509**	0.96209	0.4495	**0.00006**	0.2358	0.1320	1812	2622	5122	0.2050	5.93
2000	0.3759	0.4906	0.0131	**0.90000**	0.89056	0.7899	**0.00005**	0.1032	0.1284	2081	2833	5775	0.0373	5.76
2001	0.6232	0.6600	0.0130	**0.94000**	0.93389	(0.5927)	**0.00004**	0.1503	0.1643	1735	4572	6927	0.1150	2.86
2002	0.8048	0.7754	0.0129	**0.97217**	0.96927	1.4571	**0.00003**	0.1354	0.1673	1827	6088	7852	0.1184	(4.10)
2003	0.8151	0.7837	0.0127	**0.96500**	0.96099	0.5877	**0.00003**	0.0776	0.1607	2111	6837	8724	0.0666	(4.87)
2004	0.9205	0.8548	0.0126	**0.97240**	0.96912	0.7133	**0.00002**	0.0538	0.1580	2300	8160	9547	0.0624	(13.32)

Data-set (4-3) Club ss-sss

9. Thailand	$\Omega^{*}_{\alpha\to\alpha}$	$\Omega(0)$	n	(rho/r)	$(rho/r)_{PRI}$	$g_A(F/S)$	r/w	(60b) τ_{CB}	alpha	A(0)	k(0)	y(0)	(64) g_{CPI}	$1/\lambda$
1995		0.5658		**0.90000**	0.88355		**0.00600**	0.1096	0.1707	33.161	34.303	60.63		
1996	0.6983	0.7333	0.0113	**0.90400**	0.88786	0.3605	**0.00400**	0.0923	0.1622	35.179	48.398	66.00	0.0578	1.27
1997	0.7923	0.7868	0.0108	**0.90400**	0.88829	0.2013	**0.00350**	0.1459	0.1565	36.192	53.007	67.37	0.0558	(0.37)
1998	0.6829	0.6997	0.0102	**0.87400**	0.85207	0.5212	**0.00380**	0.1302	0.1523	37.561	47.295	67.59	0.0815	2.22
1999	0.8217	0.7886	0.0100	**0.92100**	0.90629	1.3478	**0.00340**	0.0177	0.1497	36.363	51.761	65.64	0.0031	(8.57)
2000	0.9509	0.8735	0.0097	**0.94000**	0.92875	(1.6501)	**0.00310**	0.0195	0.1557	36.049	59.485	68.10	0.0152	(29.16)
2001	0.9428	0.8748	0.0094	**0.94100**	0.93016	0.4614	**0.00278**	0.0200	0.1468	38.606	61.880	70.73	0.0160	(20.07)
2002	0.9888	0.9029	0.0092	**0.94100**	0.93036	1.2001	**0.00260**	0.0176	0.1482	39.747	66.897	74.09	0.0069	(36.60)
2003	1.0620	0.9439	0.0088	**0.93700**	0.92606	2.9910	**0.00247**	0.0131	0.1573	40.545	75.558	80.05	0.0176	(99.67)
2004	1.1121	0.9729	0.0087	**0.93700**	0.92560	1.1490	**0.00223**	0.0123	0.1592	43.030	84.895	87.26	0.0279	(762.36)
10. South Africa														
1995		0.5740		**0.74800**	0.69661		**0.02000**	0.1307	0.1625	11.682	9.700	16.90		
1996	0.6223	0.5889	0.0215	**0.75700**	0.70448	1.0745	**0.01800**	0.1554	0.1645	12.531	10.937	18.57	0.0746	(45.22)
1997	0.7352	0.6797	0.0192	**0.75400**	0.70125	0.9106	**0.01400**	0.1559	0.1630	13.325	13.913	20.47	0.0848	(238.32)
1998	0.8180	0.7468	0.0170	**0.74800**	0.69601	1.0903	**0.01200**	0.1711	0.1647	13.874	16.426	22.00	0.0699	(645.07)
1999	0.9233	0.8229	0.0151	**0.75200**	0.70129	0.7783	**0.01000**	0.1306	0.1614	14.514	19.252	23.40	0.0509	127.02
2000	0.9234	0.8245	0.0131	**0.75200**	0.70185	1.0237	**0.00900**	0.0954	0.1619	15.844	21.458	26.03	0.0537	170.10
2001	0.9052	0.8170	0.0114	**0.75300**	0.70248	0.7722	**0.00800**	0.0849	0.1554	17.296	23.004	28.16	0.0570	344.93
2002	0.9293	0.8383	0.0093	**0.75200**	0.70082	1.0532	**0.00700**	0.1111	0.1567	18.940	26.538	31.66	0.0918	1398.86
2003	1.0009	0.8947	0.0077	**0.75300**	0.70041	0.9515	**0.00600**	0.1093	0.1558	20.159	30.757	34.38	0.0581	1841.44
2004	1.1712	1.0047	0.0062	**0.73900**	0.68381	1.4800	**0.00500**	0.0715	0.1640	21.391	39.221	39.04	0.0139	186.10
Average	**1.2851**	**0.9790**	**0.0097**	**0.8531**	**0.8224**	**4.4065**	**0.00606**	**0.097**	**0.1530**	**1327.06**	**6354**	**5889**	**0.0587**	**43.09**
variance	**0.6622**	**0.1220**	**0.0001**	**0.0105**	**0.0137**	**2049.82**	**0.00012**	**0.039**	**0.0007**	**5029804**	**171966431**	**112196311**	**0.0142**	**70780**
Maximum	**5.1519**	**2.3178**	**0.0324**	**0.9724**	**0.9693**	**445.17**	**0.06350**	**1.904**	**0.2284**	**10545**	**65584**	**40610**	**0.8565**	**1841.44**
Minimum	**0.3622**	**0.4037**	**(0.0050)**	**0.6000**	**0.5430**	**(56.9459)**	**0.000002**	**0.0074**	**0.0823**	**3.6820**	**2.3692**	**4.1216**	**(0.0736)**	**(762.36)**
1. Finland	**1.1337**	**0.9620**	**0.0028**	**0.9562**	**0.9386**	**1.2172**	**0.00544**	**0.0356**	**0.1530**	**31.18**	**50.41**	**57.15**	**0.0144**	**47.20**
2. Norway	**1.2997**	**1.0443**	**0.0060**	**0.9267**	**0.8966**	**45.4481**	**0.00079**	**0.0698**	**0.1699**	**98.18**	**275.40**	**258.24**	**0.0209**	**34.31**
3. Netherlan	**1.6034**	**1.2074**	**0.0054**	**0.9593**	**0.9411**	**0.2049**	**0.00567**	**0.0297**	**0.1685**	**17.00**	**37.54**	**31.73**	**0.0247**	**42.47**
3. Russia	**1.9636**	**0.9990**	**(0.0033)**	**0.8788**	**0.8459**	**1.0698**	**0.00807**	**0.3569**	**0.1177**	**26.68**	**51.66**	**43.08**	**0.2871**	**21.86**
2. Korea	**1.9435**	**1.3607**	**0.0063**	**0.8550**	**0.8273**	**(5.4562)**	**0.00001**	**0.0799**	**0.1099**	**3646.67**	**15321.64**	**10561**	**0.0377**	**9.58**
3. China	**1.4225**	**1.0556**	**0.0078**	**0.7549**	**0.7087**	**1.1685**	**0.03223**	**0.0510**	**0.1448**	**4.85**	**7.55**	**6.49**	**(0.0124)**	**40.38**
6. Singapore	**1.3932**	**1.0876**	**0.0230**	**0.6503**	**0.5977**	**2.1204**	**0.00001**	**0.0242**	**0.1642**	**6870.25**	**39789.16**	**35990**	**0.0081**	**13.64**
7. Malaysia	**0.9757**	**0.8153**	**0.0226**	**0.7941**	**0.7529**	**0.2913**	**0.00003**	**0.0456**	**0.1825**	**2302.91**	**10473.75**	**12151**	**0.0239**	**21.53**
8. Indonesia	**0.6142**	**0.6436**	**0.0132**	**0.9386**	**0.9325**	**0.6612**	**0.00007**	**0.1938**	**0.1562**	**1546.36**	**3805.18**	**5582**	**0.1480**	**0.12**
9. Thailand	**0.89**	**0.8142**	**0.0098**	**0.9199**	**0.9059**	**0.7314**	**0.00339**	**0.0578**	**0.1558**	**37.64**	**58.35**	**70.75**	**0.0313**	**(105.92)**
10. South Africa	**0.8921**	**0.7791**	**0.0134**	**0.7508**	**0.6989**	**1.0149**	**0.01090**	**0.1216**	**0.1610**	**15.96**	**21.12**	**26.06**	**0.0616**	**348.87**
Average	**1.2851**	**0.9790**	**0.0097**	**0.8531**	**0.8224**	**4.4065**	**0.00606**	**0.0969**	**0.1530**	**1327.06**	**6353.80**	**5889**	**0.0587**	**43.09**