Labor Productivity and Standard of Living: Empirical Study for the East and South-East Asian Countries

Supachet Chansarn[1]
School of Economics, Bangkok University

Abstract

This article aims to examine the labor productivity and the standard of living as measured by the gross national income (GNI) per capita of nine East and South-East Asian counties which are China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore and Thailand during 1981 – 2005 by calculating the annual growth rate of labor productivity and gross national income per capita. It also investigates the influence of labor productivity growth on the growth of gross national income per capita. The findings reveals that China had the highest average annual growth rate of labor productivity and Korea had the highest average annual growth rate of gross national income per capita while the Philippines had the lowest average annual growth rates (in both areas.) Moreover, we also find that the change in labor productivity and the change in the gross national income per capita are positively related. That is, one percent increase in the growth rate of labor productivity will lead to more than one percent increase in the growth rate of gross national income per capita.

Keywords: Labor Productivity; Gross National Income per Capita; Standard of Living

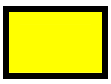
Introduction

In economics, labor is considered as one of the most important factors of production of the country, implying that both the quantity and quality of labor are the major determinants of the amount of output of the country as measured generally by gross domestic product or GDP[2]. Since the aftermath of the World War II, every country in the East and South-East Asia has been going through the demographic transition which is the transition from a largely rural agrarian society with high fertility and mortality rates to an urban industrial society with low fertility and mortality rates (Lee and Mason, 2006). At an early stage of this transition, fertility rates fall, leading to fewer children. During this period, the proportion of working age population (population aged 15 – 64) grows more rapidly than the population dependent on it, indicating the increase in labor force or the quantity of labor of the country. Other things being equal, GDP, as well as GDP per capita, will grows more rapidly too. Of course, this will eventually lead to the increase in standard of living as measured by gross national income (GNI[3]) per capita.

[1] School of Economics, Bangkok University, Thailand

[2] Gross domestic product (GDP) is the market value of all final goods and services produced in a country during a period of time (Tucker, 1997).

[3] Gross national income (GNI) is the total income earned by resource owners, including wages, rents, interests and profits (Tucker, 1997).



However at this time, every country in the East and South-East Asia have completed or nearly completed the demographic transition. The lower fertility rates will eventually decrease the proportion of working age population, implying the reduction in labor force of the country. According to the World Population Prospect (UN, 2009), Labor force of Japan reached its peak at 69.7 percent of total population in 1990 and has been declining since then. In 2010, labor force of Japan will be only 64.2 percent of total population. Labor force of China, Hong Kong, Singapore and Thailand will reach their peaks in 2010 at 71.9, 75.6, 74.2 and 70.8 percent of total population, respectively, and will decrease to 71.5, 74.4, 73.6 and 70.5 percent, respectively, in 2015.

Labor force of South Korea, Indonesia and Malaysia will reach their peaks at 73.0, 69.9 and 67.8 percent of total population in 2015, 2025 and 2035, respectively, and will decline to 71.2, 69.3 and 67.3 percent, respectively, in the next five year. Labor force of the Philippines will reach its peak. In at 66.6 percent of total population, and then decrease to 66.3 percent in 2050.

According to the figures mentioned above, it is clear that labor force of every country in the East and South-East Asia will eventually decline, implying that the opportunity to take advantage from the quantity of labor to generate GDP is going to fade away sooner or later. Consequently, it is really necessary for every country to find the way to increase the quality of labor to compensate the reduction in the quantity of labor. Otherwise, the lower quantity of labor will cause the decrease in GDP per capita and eventually the standard of living.

In economics, the quality of labor is also referred as labor productivity which is the quantity of output produced by a given quantity of labor (Economic Policy Institute, 2000). The increase in labor productivity thus means that a given quantity of labor can produce the greater quantity of output. Consequently, the labor productivity growth is considered the single most important determinant of the country's standard of living. That means that the faster labor productivity growth leads to an increase in the standard of living. There are several studies on labor productivity growth due to the importance of labor productivity growth for the better standard of living, (The Congressional Budget Office, (2007; Kaylor,2007; Khazabi, 2008 and Saari, 2006) and also found the relationship between labor productivity and standard of living (Deiwert et al., 2009; Economic Policy Institute, 2000; Fisher and Hostland, 2002; Husbands (n.d.) and Shaw, 2002).

As a result, this study aimed to investigate the labor productivity and the standard of living as measured by the gross national income (GNI) per capita of the the nine East and South-East Asian counties which are China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore and Thailand during 1981 – 2005 by calculating the annual growth rate of labor productivity and gross national income per capita. It also investigates the influence of labor productivity growth on the growth of gross national income per capita.

Research Methodology

Analytical Method

The analytical method for this study can be divided into three steps. Firstly, the annual growth rate of labor productivity of China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Philippines, Singapore and Thailand during 1981 – 2005 will be calculated by utilizing Growth Accounting Equation which represents the relationship between the rate of output growth and the rate of input growth and productivity growth (Bernanke et al., 2008). It can be expressed as follows :

$$\frac{\Delta Q}{Q} = \frac{\Delta A}{A} + \alpha \frac{\Delta K}{K} + \beta \frac{\Delta N}{N} \qquad \text{…….. (1)}$$

where Q = the amount of output as measured by gross domestic product

K = the amount of capital as measured by gross fixed capital formation

N = the amount of labor as measured by labor force

A = the total factor productivity

α = the elasticity of output with respect to capital

β = the elasticity of output with respect to labor

$\frac{\Delta Q}{Q}$ = the growth rate of output

$\frac{\Delta K}{K}$ = the growth rate of capital

$\frac{\Delta N}{N}$ = the growth rate of labor

$\frac{\Delta A}{A}$ = the growth rate of total factor productivity

Suppose that every country is operating at an optimal level and production function of each country performs constant return to scale (CRS). Therefore, the elasticity of output with respect to capital (α) plus the elasticity of output with respect to labor (β) is equal to one. That is, $\alpha + \beta = 1$ and also $\beta = 1 - \alpha$. Here we have

$$\frac{\Delta Q}{Q} = \frac{\Delta A}{A} + \alpha \frac{\Delta K}{K} + (1-\alpha) \frac{\Delta N}{N}$$

$$\frac{\Delta Q}{Q} = \frac{\Delta A}{A} + \alpha\frac{\Delta K}{K} + \frac{\Delta N}{N} - \alpha\frac{\Delta N}{N}$$

$$\frac{\Delta Q}{Q} - \frac{\Delta N}{N} = \frac{\Delta A}{A} + \alpha(\frac{\Delta K}{K} - \frac{\Delta N}{N}) \quad \text{…….. (2)}$$

According to equation (2) above, the growth rate of labor productivity is $\frac{\Delta A}{A} + \alpha(\frac{\Delta K}{K} - \frac{\Delta N}{N})$. Moreover, based on historical data and previous studies (Bernanke et al., 2008 and Feng and Mason, 2005), the elasticity of output with respect to capital (α) and the elasticity of output with respect to labor (β) are supposed to be $\frac{1}{3}$ and $\frac{2}{3}$, respectively.

The second step is to calculate growth rate of the standard of living as measured by the gross national income per capita of these nine countries by using the conventional calculation method. That is, the growth rate of GNI per capital is equal to $\frac{Y_t - Y_{t-1}}{Y_{t-1}} \times 100$, where Y_t represents GNI per capita in year t.

The final step is to investigate the influence of the labor productivity growth on the gross national income per capita growth by using the regression analysis to regress the growth rate of GNI per capita on the growth rate of labor productivity to estimate the following equation.

$$Y = \lambda_0 + \lambda_1 X + \sum_{i=8}^{n} \delta_i X C_i \quad \text{…….. (3)}$$

where Y_t = The growth rate of gross national income per capita (percent)

X_t = The growth rate of labor productivity (percent)

C_i = Dummy variables for countries where i = 1, 2, 3, … , 8

That is, C_1 = China, C_2 = Hong Kong, C_3 = Indonesia, C_4 = Japan,

C_5 = South Korea, C_6 = Malaysia, C_7 = Singapore and C_8 = Thailand

X_tC_i = Interaction between the growth rate of labor productivity and dummy variables for countries where i = 1, 2, 3, … , 8

λ_1 = Regression coefficient of X, indicating change in growth rate of gross national income per capita when growth rate of labor productivity changes by 1 percent

δ_i = Regression coefficient of C_i, indicating the influence of country i (where i = 1, 2, 3, … , 8) over the change in growth rate of gross national income per capita when growth rate of labor productivity changes by 1 percent

Data and Source of Data

Secondary time series data in annual format of China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore and Thailand are obtained from World Bank's World Development Indicators 2007 CD-Rom over the period 1981 – 2005. Data analyzed in this study is composed of (1) gross domestic product, (2) gross fixed capital formation, (3) labor force and (4) gross national income per capita.

Results and Discussion

The average annual growth rates of labor productivity of nine countries during selected period are presented in Table 1. During the whole study period 1981 – 2005, China had the highest average annual growth rate of labor productivity of 8.08 percent per annum while the Philippines had the lowest one of only -0.13 percent per annum. South Korea, Thailand and Singapore were ranked the second, the third and the fourth, respectively, having the average annual growth rate of labor productivity over 4 percent per annum (4.89 percent for South Korea, 4.23 percent for Thailand and 4.05 percent for Singapore) while Hong Kong, Malaysia and Indonesia had the average annual growth rate of 3.61, 3.02 and 2.64 percent per annum, respectively. Surprisingly, the average annual growth rate of labor productivity of Japan which is the most developed counties in the region is only 1.64 percent per annum.

Table 1: Average Annual Growth Rate of Labor Productivity (Percent per Annum)

Year	CHN	HKG	IDN	JPN	KOR	MYS	PHL	SGP	THA
1981-2005	8.08	3.61	2.64	1.64	4.89	3.02	-0.13	4.05	4.23
1981-1985	7.94	3.28	3.54	1.99	5.91	2.33	-3.71	3.29	2.38
1986-1990	5.57	6.36	3.26	3.40	6.55	2.62	1.81	4.94	7.67
1991-1995	10.79	4.12	5.42	0.61	5.61	6.57	-0.99	6.30	7.92
1996-2000	7.54	1.58	-1.80	0.76	3.38	1.66	1.60	3.24	-0.64
2001-2005	8.55	2.72	2.77	1.38	3.01	1.90	0.62	2.48	3.79

Source: Author's Calculation

Remark: CHN = China, HKG = Hong Kong, IDN = Indonesia, JPN = Japan, KOR = South Korea, MYS = Malaysia, PHL = The Philippines, SGP = Singapore and THA = Thailand

The average annual growth rate of labor productivity of China started at 7.94 percent per annum during 1981 – 1985, and then decreased to 5.57 percent per annum during the next five year period. The growth of China reached its peak at 10.79 percent per annum during

1997 – 1995. During the next five year period, it declined to 7.54 percent per annum and then increased again to 8.55 percent per annum during 2001 – 2005.

Korean labor force also performed very well. The average annual growth rates of labor productivity were over 5.5 percent per annum during 1981 – 1985 and 1991 – 1995 and reached its peak at 6.55 during 1986 – 1990. The average annual growth rate of Korea remained at 3.38 and 3.01 percent per annum during 1996 – 2000 and 2001 – 2005, respectively.

Singapore, Thailand, Hong Kong and Malaysia also show impressive improvement of labor productivity. Singapore's average annual growth rate of labor productivity was 3.29 percent per annum during the first five year period, increased to 4.94 percent during 1986 – 1990 and then increased further to 6.30 percent per annum during 1991 – 1995. Afterward, the growth rate dropped to 3.24 percent per annum during 1996 – 2000 and remained at 2.48 percent per annum during the last period.

The average annual growth rate of labor productivity of Thailand started at 2.38 percent per annum during the first period, then dramatically increased to 7.67 percent during 1986 – 1990 and increased even further to 7.92 percent per annum during the next five year period. During 1996 – 2000 when Thailand faced the economic crisis, its growth rate severely declined to -0.64 percent, however it bounced back to 3.79 percent per annum during the next five year period.

Hong Kong's average annual growth rate of labor productivity during the first period was 3.28 percent per annum, reached its peak at 6.36 percent per annum during 1986 – 1990 and then slightly dropped to 4.12 percent per annum during the next five year period. The growth rate decreased further to 1.58 percent during 1996 – 2000, however it increased again to 2.72 percent per annum during the next period.

Productivity of Malaysian labor force was 2.33 percent per annum during 1981 – 1985, somewhat increased to 2.62 percent during the next five year period, and then significantly increased to 6.57 percent per annum during 1991 – 1995. After that, it remained at about 2 percent per annum during 1996 – 2005, 1.66 and 1.90 percent per annum during 1996 – 2000 and 2001 – 2005, respectively.

Indonesia's labor productivity grew impressively during 1981 – 1995. Its average annual growth rates were 3.54 and 3.26 percent during 1980 – 1985 and 1986 – 1990, respectively, and reached its peak at 5.42 percent per annum during the next period. The economic crisis led to the negative growth rate of labor productivity during 1996 – 2000 of -1.80 percent per annum; nevertheless it increased to 2.77 percent during the next period.

Amazingly, the average annual growth rate of labor productivity of Japan, which is the most developed country in the region, was rather low. It was just 1.99 percent per annum

during 1981 – 1985, reached its peak at 3.40 percent during the next period, and then dropped to 0.61 and 0.76 percent per annum during 1991 – 1995 and 1996 – 2000, respectively. However, the growth rate increased to 1.38 percent per annum during the last period.

The average annual growth rate of labor productivity of the Philippines was very low and very volatile during the study period. It started at -3.71 percent per annum during 1981 – 1985, remarkably increased to 1.81 percent during the next period but then declined to -0.99 percent per annum during 1991 – 1995. During the next five year period, the growth rate went up to 1.60 percent; nevertheless it declined again to 0.62 percent per annum during 2001 – 2005.

Now let's look at the growth rate of standard of living which is measured by GNI per capita in Table 2. It appears that the standard of living of Korea grew the most during 1981 – 2005 with the average annual growth rate of GNI per capita of 9.55 percent per annum. China and Singapore had the second and the third highest growth rate of GNI per capita of 8.82 and 7.50 percent per annum, respectively. In addition, the average annual growth rates of GNI per capita of Hong Kong, Japan and Thailand were also high at 6.81, 6.00 and 5.86 percent per annum, respectively. Indonesia and Malaysia had the average annual growth rate of 4.74 and 4.40 percent while the Philippines had the lowest growth rate of 2.93 percent per annum.

Table 2: Average Annual Growth Rate of Gross National Income per Capita (Percent per Annum)

Year	CHN	HKG	IDN	JPN	KOR	MYS	PHL	SGP	THA
1981-2005	8.82	6.81	4.74	6.00	9.55	4.40	2.93	7.50	5.86
1981-1985	5.13	1.30	1.40	1.17	5.22	1.32	-5.17	7.33	2.39
1986-1990	2.81	15.74	3.26	20.37	20.89	4.60	7.35	11.63	13.57
1991-1995	10.67	13.92	10.43	8.69	12.46	11.03	7.13	14.43	12.54
1996-2000	12.07	2.50	-8.25	-2.74	-0.99	-2.77	0.76	0.13	-5.82
2001-2005	13.42	0.60	16.87	1.59	10.15	7.81	4.59	4.00	6.64

Source: Author's Calculation

Despite the reduction in standard of living with the growth rate of GNI per capita of -0.99 percent per annum during 1995 – 2000, Korea could do very well during the other periods. The average annual growth rate of GNI per capita started at 5.22 percent during 1981– 1985, increased dramatically and reached its peak at 20.89 per cent during 1986 – 1990 and then slightly declined to 12.46 percent per annum during the next five year period. In addition, the growth rate of Korea remained at 10.15 percent per annum during 2001 – 2005.

China had the average annual growth rate of GNI per capita of 5.13 percent per annum during 1981 – 1985 and then decreased to 2.81 percent per annum during the next period. However, China's average annual growth rate of GNI per capita continuously increased during the other three periods. Its growth rate was 10.67 percent during 1991 – 1995, went up to 12.07 percent during 1996 – 2000 and finally increased further to 13.42 percent per annum during the last period.

During 1981 – 1986, the average annual growth rate of GNI per capita of Singapore was 7.33 percent per annum and then increased vastly to 11.63 percent per annum during the next five year period. The growth rate of GNI per capita went up a bit to 14.43 percent during 1991 – 1995 before it sharply dropped to 0.13 percent per annum during 1996 – 2000. Eventually, it remained at 4.00 percent per annum during 2001 – 2005.

The average annual growth rate of GNI per capita of Hong Kong during the first period was rather low only at 1.30 percent per annum. After reaching its peak at 15.74 percent per annum during 1986 – 1990, the growth rate of Hong Kong continuously declined during 1991– 2005. That is, the growth rate during 1991 – 1995 was 13.92 percent, then decreased sharply to 2.50 percent during 1996 – 2000, and finally decreased to 0.60 percent per annum.

During the first period, Japan had the average annual growth rate of standard of living only of 1.17 percent per annum. Then Japan's growth rate increased remarkably and reached its peak at 20.37 percent per annum during 1986 – 1990 before it declined to 8.69 percent per annum during the next period. The economic crisis in 1997 caused the average annual growth rate of GNI per capita of Japan to become negative at -2.74 percent per annum during 1996 – 2000. Afterward, it bounced back to 1.59 percent per annum during the last period.

The movement of the average annual growth rate of GNI per capita of Thailand had the same pattern as Japan. That is, the average annual growth rate reached its peak during 1886 – 1990, started to decline during 1991 – 1995, became negative during 1996 – 2000 and eventually rebounded during the last period. According to Table 2, Thailand's average annual growth rates of GNI per capita were 2.39, 15.57, 12.54, -5.82 and 6.64 percent per annum, during 1981 – 1985, 1986 – 1990, 1991 – 1995, 1996 – 2000 and 2001 – 2005, respectively.

Indonesia and Malaysia had the very similar pattern of the movement of the average annual growth rate of GNI per capita. That is, the average annual growth rate of GNI per capita increased continuously and reached its peak during 1991 – 1995. It turned into negative growth during 1996 – 2000 due to the economic crisis and finally increased sharply during 2001 – 2005. Table 2 reveals that the average annual growth rates of GNI per capita of Indonesia were 1.40, 3.26, 10.43, -8.26 and 16.67 percent per annum, during 1981 – 1985, 1986 – 1990, 1991 – 1995, 1996 – 2000 and 2001 – 2005, respectively. Furthermore, those of Malaysia were 1.32, 4.60, 11.03, -2.77 and 7.81 percent per annum, during 1981 – 1985, 1986– 1990, 1991 – 1995, 1996 – 2000 and 2001 – 2005, respectively.

During 1981 – 1985, standard of living as measured by GNI per capita of the Philippines declined by 5.17 percent per annum and then it increased to 7.35 percent per annum which was the highest average annual growth rate of GNI per capita of the Philippines during the next five year period. The growth rate started to decrease during 1991 – 1995 when it dropped to 7.13 percent per annum. The growth rate of GNI per capita of Philippines decreased even further to 0.76 percent during 1996 – 2000 however, it bounced back to 4.59 percent per annum during 2001 – 2005.

According to the afformentions, the growth of labor productivity and the growth of GNI per capita appear to be positively related. That is, a country with high growth rate of labor productivity is likely to have high growth rate of GNI per capita such as China and Korea in theFigure 1.

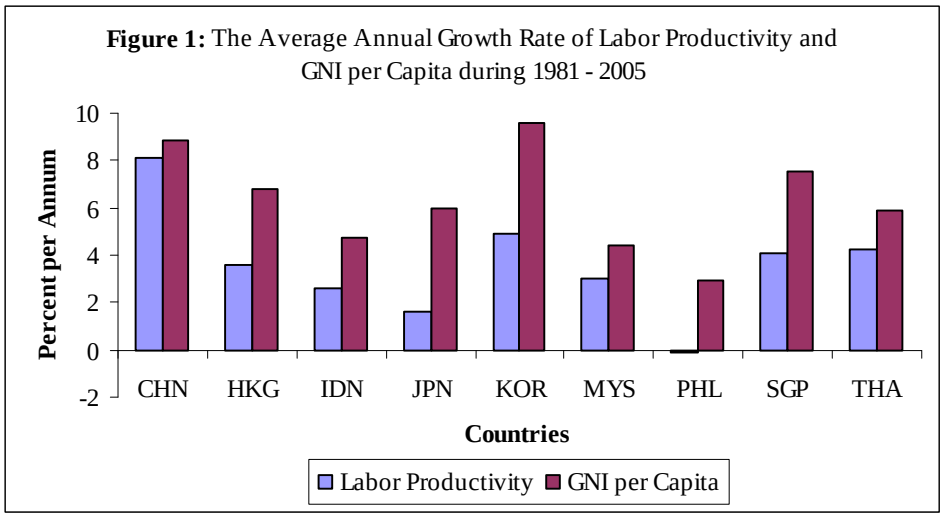


Figure 1: The Average Annual Growth Rate of Labor Productivity and GNI per Capita during 1981 - 2005

The results from the regression analysis presented in Table 3 also proves that the growth of labor productivity and the growth of GNI per capita are positively related. According to Table 3, the growth rate of labor productivity can explain the variation in the growth rate of GNI per capita by 47.2 percent and the regression model is statistically significant at the 5% level. Moreover, the regression coefficient of the growth rate of labor productivity (X) is also statistically significant at the 5% level with the value of 1.283, indicating that 1 percent increased in the growth rate of labor productivity will leads to 1.283 increases in the growth rate of GNI per capita.

Another interesting result in Table 3 is the regression coefficient of the interaction between the growth rate of labor productivity and Japan (XC_4) of 2.503 which is statistically significant at the 5% level. The result implies that the influence of the change in the growth rate of Japan's labor productivity on the change in the growth rate of Japan's GNI per capita is higher than any other countries. That is, 1 percent increased in the growth rate of labor productivity will leads to 3.786 increases in the growth rate of GNI per capita in case of Japan. Consequently, it is reasonable to conclude that Japan's labor force is at the highest quality.

Another conclusion which can be drawn from the analysis is that Japan's labor force has very high productivity in the first place while labor force of other countries especially China started with the lower productivity. That is why the average annual growth rate of labor productivity of Japan was not as high as those of other countries. Despite the smaller labor productivity growth during the study period, its labor force is still more productive than those other countries. The proof is that 1 percent increased in the growth rate of labor productivity leads to 3.786 percent increased in the growth rate of GNI per capita of Japan but only 1.283 percent increased in the growth rate of GNI per capita of the others.

Table 3: Statistical Results from Regression Analysis

Variable	Coefficient	Std. Error	t-Stat	P-Value
Intercept	0.500	0.628	0.796	0.427
X	1.283*	0.361	3.558	0.000
XC_1	-0.223	0.401	-0.555	0.579
XC_2	0.345	0.455	0.759	0.449
XC_3	0.536	0.446	1.201	0.231
XC_4	2.503*	0.725	3.455	0.001
XC_5	0.585	0.444	1.317	0.189
XC_6	0.145	0.458	0.317	0.751
XC_7	0.346	0.450	0.770	0.442
XC_8	0.327	0.431	0.796	0.427
Dependent Variable	Y (the growth rate of gross national income per capita			
Number of Observations	224			
Std. Error of the Estimate	6.8583			
Adjusted R-Square	0.472			
F-Statistic	23.167			
P-Value	0.000			

Remark: * = Statistically Significant at the 5% Level

Conclusion and Recommendation

The findings of this study revealed the importance of labor productivity to the improvement of standard of living of people in the country. Our findings reveals that one percent increase in the growth rate of labor productivity will lead to more than one percent increase in the growth rate of standard of living which is measured as gross national income per capita such as China and Korea. That is, 8.08 and 4.89 percent increased in the growth rate of labor productivity of China and Korea led to 8.82 and 9.55 percent increase in the standard of living of both countries, respectively, during 1981 – 2005. However, it seems that Japan's labor force had the highest productivity during 1981 – 2005 despite the average annual growth rate of labor productivity only of 1.64 percent per annum. This is because such a small growth rate of labor productivity of Japan could lead to 6.00 percent increase in standard of living.

In summary, the governments as well as the authorities in the countries must focus on the improvement of labor productivity if they wish to raise the standard of living of their

people. Therefore, the further study on labor productivity should focus on the factors which determine labor productivity in order to find the way to improve labor productivity. Infinite improvement of labor productivity will eventually lead to sustainable growth of the standard of living.

References

Bernanke, B.S., Abel, A.B. and Croushore, D. (2008). *Macroeconomics*. 6th Edition. Boston, MA: The Addison-Wesley.

Congressional Budget Office. (2007). *Labor Productivity: Development Since 1995*. Washington, D.C.: Congressional Budget Office.

Diewert, E.W., Mizobuchi, H. and Nomura, K. (2009). *On Measuring the Productivity and the Standard of Living in Japan, 1955-2006*. KEO Discussion Paper, No. 115.

Economic Policy Institute. (2000). *The Link between Productivity Growth and Living Standards*. Retrieved on March 9, 2009, from Economic Policy Institute Website: http://www.epi.org/economic_snapshots/entry/webfeatures_snapshots_archive_03222000.

Feng, W. and Mason, A. (2005). *Demographic the Dividend and Prospects for Economic Development in China*. Paper Presented at UN Expert Group Meeting on Social and Economic Implications of Changing Population Age Structures, Mexico City: August 31 – September 2, 2005.

Fisher, T. and Hostland, D. (2002). The Long View: Labor Productivity, Labor Income and Living Standards in Canada. *The Review of Economic Performance and Social Progress 2002*, 2.

Husbands, C. (n.d.). *The Impact of Labor Productivity upon Wages and Standard of Living*. Barbados: Barbados National Productivity Council.

Kaylor, C. (2007). *Labor Productivity Improvement: History and Future*. Oregon: Oregon Employment Department.

Khazabi, M. (2008). Knowledge-Based Labor Productivity Improvements: Canada Case Study, 1961-2004. *Applied Econometrics and International Development*, 8(1).

Lee, R. and Mason, A. (2006). What is the Demographic Dividend?. *Finance and Development*, 43(3).

Saari, S. (2006). *Productivity: Theory and Measurement in Business*. Finland: European Productivity Conference.

Shaw, D.J. (2002). *Canada's Productivity and Standard of Living: Past, Present and Future*. Retrieved on March 5, 2009, from Depository Services Program Website: http://dsp-psd.tpsgc.gc.ca/Collection-R/LoPBdP/BP/prb0223-e.htm.

Tucker, I.B. (1997). *Macroeconomics for Today*. Minnesota: West Publishing Company.

United Nations (2009). *World Population Prospect: The 2008 Revision Population Database*. Retrieved on March 12, 2009, from United Nations Website: http://esa.un.org/unpp /index.asp?panel=1.