Journal of Economics and Development Vol. 13, No.2, August 2011, pp. 27 - 46 ISSN 1859 0020

The Impact of Trade Policy Reform on Social Welfare, Inequality and Poverty: The case of Lao PDR

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Abstract

In 1997, Lao PRD became a full member of ASEAN and continued trade reform as per AFTA commitments in following year. International trade and economic growth were related during the reform periods. This paper examines the impact of trade policy reform on social welfare, inequality, and poverty in Lao PDR from 1997- 2003. In addition, we investigated the effect of price changes under AFTA commitments by the pass-through approach between 2005 and 2007. We also analyzed the social welfare and inequality measurement indices which were based on the Atkinson-(1970) and Sen (1973) approaches by using Lao Expenditure Consumption Survey data. We found that during trade liberalization process could increase households' social welfare by 196,529 LAK and inequality declined by 10 percent. Moreover, the import commodity prices change under AFTA commitments decreased significantly in 2007 especially consumption goods and investment capital goods. Those effects seem to benefit poor households and farmers who could then purchase lower imported commodity prices and higher quality investment capital goods.

Keywords: Trade Policy, Household Analysis, Social Welfare, Inequality, and Poverty.

JEL Classification: F13, R2, F15, D63, I32

1. Introduction

Many developing countries in Asia adopted their trade policy in order to benefit from international trade by looking for their own resource abundance and comparative advantage. The regional economic integration is important and are essential factors of economic development in the period of globalization. The Lao PDR is one of least developed countries in South East Asia, with income per capita of US$390[1]. The government had begun opening doors to integrate the world economy since 1989 after introducing "New Economic Mechanism" to transit from a centrally planned to a market-oriented economy. Trade reform accelerated after Lao joining ASEAN and AFTA in 1998 and reduce tariff on Common Effective Preferential Tariff (CEPT) scheme.

According to Lao Expenditure and Consumption Survey 2002/03 (LECS III), it found that incidences of poverty have declined by 33.5% compare with 1992/93 and 1997/98 accounted for 46% and 39.1%, respectively. It also showed that the percentage of poor people who live in rural areas has fallen about 14.2% from 1992/93 to 2002/03. Therefore, openness and economic growth in the past decade could reduce poverty in rural areas which is the highest poverty ratio of the country.

This paper discusses the impact of trade policy reform as tariff reduction on poverty in Lao PDR through imports and domestic commodity price changes. Poor people have the lowest income and lowest purchasing power in society. If government imposed high tariff rates and other non-trade barriers, the country may face high inflation or high basic goods prices because of high imported commodity prices and high costs of production for the inefficiency of domestic industries. The welfare of poor people and government officials are certainly affected from trade protection. Thus, government and concerning policy makers could relieve those effects by continuing trade policy reforms in order to lower domestic prices and increase consumer goods. This may occur in both short and long term for sustainable development within country.

The second objective of this paper is to examine the effect of trade policy reform on social welfare and inequality as a whole during the reform process. Those effects may increase inequality among people who are living in urban area rather than poorer people in the countryside. After Lao PDR became full member of ASEAN and AFTA in 1998, the government of Lao PDR recognized that openness country and trade reform are very important for country development and international relationships especially with neighboring countries. However, the openness and joining regional trade agreements may have both negative and positive effects on economy and society as a whole. Hopefully, those benefits gains from trade liberalization may be greater than the country's losses and those gains transfer to poor people who are high proportion of domestic consumers via market mechanism and government distributions.

The primary data analyses changes in social welfare and inequality during the reform process in Laos is Lao Expenditure and Consumption Survey 2002/03 (LECS3). It is the third comprehensive national living standard survey of households throughout country of Laos during 2002-2003. Moreover, the secondary data source is taken from various sources such as the World Bank, Asian Development Bank (ADB), International Financial Statistics (IFS, IMF), ASEAN Secretariat, and Lao Authorities especially Ministry of Industry and Commerce and customs department of ministry of finance for analyzing the impact of cutting tariffs on price change.

2. Trade Reform and Poverty in Laos

2.1 The process of Lao trade reform after 1990

Lao PDR introduced the New Economic Mechanisms (NEM) by changing from a central planning economy to market oriented economy since 1986. The country has continued improving and reforming institutions in order to integrate the world economy. The Lao government begun implementing trade policy reform from 1993 by reducing tariff rates and they can range from 5 percent to 100 percent as maximum rates in 1993 (See appendix Table A1). It was difficult to calculate the average tariff rates because tariff data reported only the ranking rate of product categories. Therefore, the IMF proposed new tariff rate structures as working as technical assistance to the Lao government with three different rates such as 10, 20, 30, and 40 percent (World Bank 1994) which is the maximum rate for protection of domestic industry including Lao Beer and other import-substituting industries.

After the IMF gave recommendations on reducing the maximum import tariff rates from 150 percent to 40 percent in 1995, the new tariff structure can be ranked from a minimum of 5 percent to 40 percent with six numbers of different rates at the end of year 2000 (IMF 2002) as showing in appendix Table A1. The highest tariff rates still wanted to apply for domestic industry protections and unnecessary consumer goods especially non-food goods in order to relieve huge trade deficit each year.

Moreover, non-tariff barriers are very significant restrictions of international trade in Laos including quantitative restrictions, domestic regulations, geography barriers, and others. The Lao government has been continuing to use trade licensing system since the 1980s to control the import and export sectors. The private companies had to obtain import and export licenses. Moreover, they had to submit annual plans to the State committee for Foreign Economic relations and Trade (IMF 2002) before importing and exporting goods. The main purposes of implementing those systems are to protect domestic infant industries and to earn government revenues from quotas' licensing and reducing huge trade deficits. After trade reforms in 1993, import-export systems have become simplified and liberalized, but the import and export licenses are still necessary to import and export some goods.

The import procedures of all goods from aboard in 2004 can be classified into three groups (World Bank 2006): general goods, under controlled goods, and prohibited goods. Each group has to submit a report plan to office authorities differently such as provincial trade offices, foreign trade department in Ministry of Industry and Commerce (MOIC), and other official authorities (see Figure A1 in the appendix). Some companies and importers don't need to obtain import licenses, but they must present their own business documents including business registration, tax registration, and others. If they need to import those under controlled products, they are required to present approval documents from relevant or higher level authorities. For example, there are 25 categories of goods subjected to import approval or certificates from related government agencies including the luxury consumer goods (such as alcohol, cigarettes, perfumes), fuel, steel bars, cement, beer, rice, auto vehicles, tobacco, etc.

Similarly to import goods, export procedures for general goods which are not included in the list of controlled or prohibited goods in the Notification No, 1376/MOIC.DIMEX of 10 October 2006, producers can export their products without any licensing, but they have to prepare some necessary documents such as annual business and tax registrations, invoices, packing list, and others to present to customs officers at border checkpoints (See Figure A2 in the appendix). However, if those goods are subjected to export control and prohibition, exporters must receive approval certifications from relevant authority agencies such as the Prime Minister Office, the foreign trade department of the Ministry of Industry and Commerce (MOIC), and other ministries (World Bank 2006).

2.2 Poverty Reduction during Reform

There are about 25,000 people who died because of hungers or hunger-relative causes[2]. They don't have enough money to buy food, medicines, clean water and other necessary things.. Thus many least developed and developing countries pay careful attention to poverty reduction programs recently in order to alleviate poverty in their countries. The Lao government also set poverty reduction programs as their first priority in social-economic planning every year to help people with limited public resources. Therefore, the government of Lao PDR believes that rapid economic growth can help and improve the living conditions of poor people to escape from poverty. Moreover, the government needs to escape from its current status as a least developed country by 2020 and meet the Millennium Development Goals (MDGs). In order to achieve those goals, the government developed national development strategies such as the National Social-Economic Development Plan (NSEDP), the National Growth and Poverty Eradication Strategy (NGPES), and the Poverty Reduction Strategy Paper (PRSP). These strategies will be a master plan for national development with assistance from international organizations.

Poverty in Lao PDR is mainly in rural areas. People work mostly working in agricultural sectors, but their livelihoods are still based on natural environments, and they lack knowledge and technologies. Poor people always work hard on their own fields and farms, but they receive

outputs which are less than they should be (low productivity of agricultural land). According to three times Lao Expenditure and Consumption Survey: 1992/93(LECS I), 1997/98(LECS II), and 2002/03 (LECS III), we found that the percentage of the poorest region is in the Northern part of country especially Huaphanh (71.3% in 1992/93) and Phongsaly (72.0% in 1992/93) provinces while Vientiane Municipality is the richest region. However, the national poverty rate has fallen from 46 percent in LECS I to 33.5 percent in LECS III by 12.5 percent within the decade.

You may ask "Why is the Northern part of Laos poorer than other regions? In order to answer this question we need to understand what are the causes and factors of poverty. Magnus Andersson, Anders Engvall, and Ari Kokko (2006) examined the determinants of income and poverty in Laos by using household survey data (LECSI-III). They found that poor households are characterized by large household size, large dependency rations, low levels of human capital, simple technology, limited access to agricultural inputs, poor essential infrastructure, and limited access to health services. From that study we see that poor households in rural areas which accounted for 40.97 percent (WDI-2007) could not access roads particularly in the rainy season (several months a year). Thus, Peter Warr (2005) who studied "Road Development and Poverty Reduction in Laos" by using National Household Survey data between 1992/93-1997/98 suggested that improving road access in wet weather could decline rural poverty by 13 percent. He also pointed out that about 31.6 percent of the rural households don't have road access.

3. Theoretical Framework and Methodology

3.1 The linkage between trade policy reform and poverty

At present, there is a lot of research including theoretical and empirical papers which discuss the effect of trade reform and economic growth on poverty reduction. Winters (2000) provided a very fundamental analysis framework on the relationship between trade policy reform and poverty reduction. His studies mainly focused on consumer price changes and import availability, income distribution and employment, government revenue and expenditure effects due to reducing the trade tax. Many extended empirical and theoretical papers on trade liberalization, economic growth, poverty alleviation followed. Many articles try to prove and answer the question "how is trade reform linked to poverty reduction?", and "who will gain and lose within society from reform?" The linkages of trade liberalization and poverty reduction could be discussed as channels of price changes and importing availability, income distribution and employment, and government revenue and its expenditure. However, in this paper we will focus on the first channel as the impact of price change on poverty reduction.

The greatest effect of trade liberalization on poverty via price change channels and imported goods is when government releases trade barriers especially import tariffs. Those effects have been discussed extensively in developing countries among policy makers. The poor households

could be both consumers and producers at the same time so that reducing particular tariffs may hurt domestic producers who are producing those products with lower prices than before reforms. However, their lost income may compensate by imported lower intermediate prices as lower cost of production. In general the more consumers get benefits and gains from trade reforms by enjoying low prices, good quality of products, imported availability.

Figure 1 shows the effects of trade policy reform on poverty via price channels including prices of final consumption goods and intermediate goods. The poor households who could be consumers and producers at the same time, may suffer from the transmission of price change from world markets to local markets. For example,land locked countries that don't have direct shipping. They have to transport their products through neighboring countries. Those countries have disadvantages in terms of transportation costs. The neighboring country markets should be first priority developed and extend market shares in order to reduce transportation costs. The poor households who are buying necessary goods for their daily lives (foods, clothing, etc), they may gain from trade liberalization by lowing import commodity prices. Especially importing countries, consumers will get benefits from cutting tariff rates and removing non tariff barriers.

3.2 Inequality and Social Welfare

In order to analyze the degree of inequality and changing social welfare of household especially poor households throughout country, we simply use Atkinson (1970) of inequality index. He had a fundamental idea of measure inequality through social welfare function. We begin with social welfare function as an increasing function of all variable y 's in the population. Thus, we have as follow equation:

$$SW = f(y_1, y_2, ..., y_N) \qquad \text{or } SW = \sum_{h=1}^{N} (y_h) \tag{3.1}$$

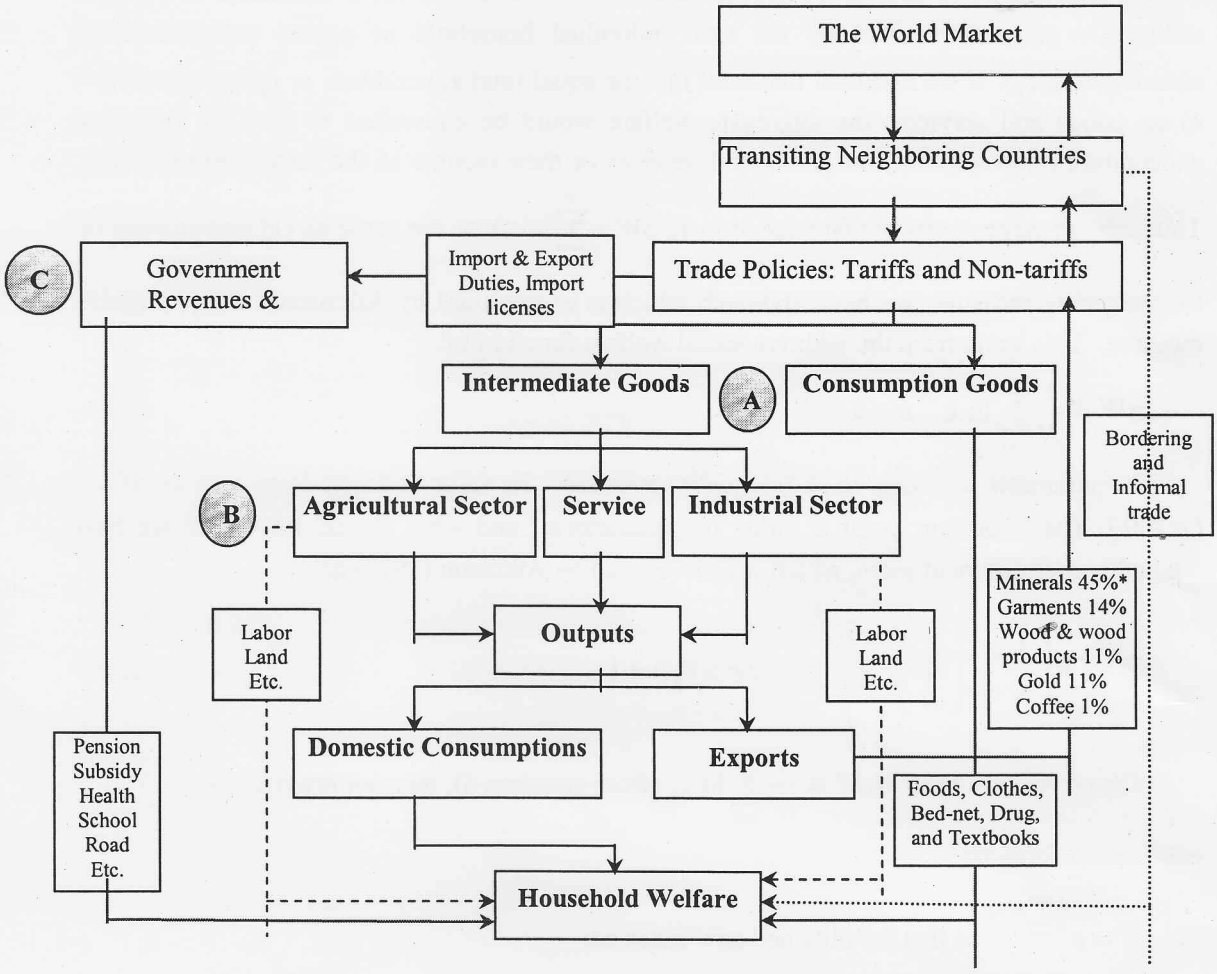
where SW is social welfare, which the sum of all individual household utility as per capita real income. y_h is per capita household real income (consumption) of household or person h (h = 1, 2,3,....N) in certain period. N is the population size. If data is available at the level of household, it is better to discuss household or family welfare as individual of household members to see clearly individual welfare. Therefore, the aggregated welfare can be measured as summing all individual welfare. It could be implied that if the amount of individual income change, it will be effect the same amount of change on social welfare. Suppose function $f(.)$ is the function of homogeneous of degree one so that we can rewrite (1) as:

$$SW = \mu f(\frac{y_1}{\mu}, \frac{y_2}{\mu}, ..., \frac{y_N}{\mu}) \text{ or } SW = \mu \sum_{h=1}^{N} \left(\frac{y_h}{\mu} \right) \tag{3.2}$$

where μ is the mean income of y 's. If individual real income is equaled to the mean, the society would have perfect equality and everyone would have the mean level as to their welfares.

Figure 1: Analyzing Approach of the Effects of Trade Reform on Poor Households

Trade Policy and Its effect on Poverty



*Note: * Export data based on FY2005-2006, MOC, Vientiane, Lao PDR 2007.*

For any unequal income distribution, the welfare of each person can not be greater than the mean. Sen's (1973)[3] introduced social welfare functions in term of inequality measurement as below:

$$SW = \mu(1-I) \qquad \text{or } I = 1-\frac{1}{\mu}(WS) \tag{3.3}$$

where I is a measure of inequality in society. The value of I ranges from 0 to 1. For instant, the value of I would be zero when the incomes were equally distributed so that the income mean

(μ) will be the same as individual social welfare. Then, Increase in its values, it means that society has high degree of inequality.

In order to have inequality index with a social welfare function, we would define social welfare function as an individual household or person. The individual household or person's utility; $U = g(c_h)$ determined by the total individual household or person expenditure (or consumption, c_h). If we assumed that total income equal total expenditure or consumption ($y = c$) on goods and services, the aggregate welfare would be equivalent to sum all individual expenditure (consumption) on goods and services or their income in the same period of time. Thus we can write social welfare function as $SW = \sum_{h=1}^{N} g(c_h)$ or the same as (1) and solving for the inequality measure; we have approach which is exemplified by Atkinson's own inequality measure. This starts from the additive social welfare function as:

$$\ln W = \frac{1}{N}\sum_{i=1}^{N} \ln x_i \,,\ \varepsilon = 1 \tag{3.4}$$

The parameter ε is degree of "inequality aversion". Its value arranges from zero to infinity ($\varepsilon \geq 0$). The important point is value of parameter ε, and what should be value? we have inequality measurement index which was developed by Atkinson (1970) as:

$$I_A = 1 - \left[\frac{1}{N}\sum_{h}^{n}\left(\frac{y_h}{\mu}\right)^{1-\varepsilon}\right]^{\frac{1}{(1-\varepsilon)}},\ \forall \varepsilon > 0, \varepsilon \neq 1 \tag{3.5}$$

When $\varepsilon = 1$, we have $\ln W = \frac{1}{N}\sum_{h=1}^{N} \ln y_h$ (from equation 4), then we rewrite into exponential form as:

$W = e^{\frac{1}{N}\sum_{h=1}^{N} \ln y_h}$ so that we obtained new index as:

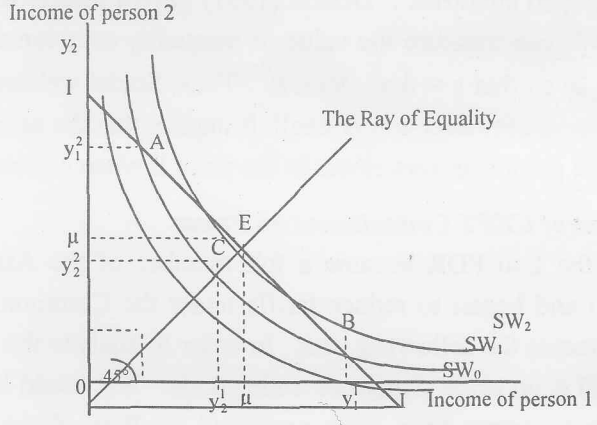
$$I_A = 1 - \frac{1}{\mu} e^{\frac{1}{N}\sum_{h=1}^{N} \ln y_h} \tag{3.6}$$

where $e \approx 2.71828183$. The index value arranges from zero to one as measuring the percentage of inequality. Suppose index I equals 0.1, it implies that society could achieve the same level of social welfare only 90% of the total income if income were equally distributed.

In Figure 2 showed analysis of social welfare and inequality measurements for the case of a two-person world. Each person has a given identical individual total income on the line II which represents all possible distributions of this given total income. This approach has been suggested by Sen (1973). The point A is the actual allocation of income distribution by laying on II line

and social welfare indifference curve; SW_1 with person 2 obtaining income y_1^2. Since social welfare curves is convex to origin and symmetrical function of individual income. Thus, point B is reflected in the point A with the 45 degree line and lies on the same total income line II (any point allocating on straight line IEI is implied that everyone corresponds the same total income and social welfare value becomes higher when the income distributed between A and B) with $0\,y_1^1$ income of person 1 and $B\,y_1^1$ which is the income of person 2. As Atkinson assumed that social welfare is the function of individual utility functions and they are strictly concave with respect to income. Social welfare indifference curve can be shifted upward from SW_1 to SW_2 when people in society could be redistributed income from richer one to poorer and the poorest. Point C is actual income distribution among two persons and that post also lies somewhere on the 45 degree line with sharing the same social welfare curve W_1 (as the line ACB). Even thought the point C received income which was less than point A and B ($y_1^1 = y_1^2 < \mu$), they can obtain the same social welfare.

Figure 2: Inequality Measurements and Social Welfare



Source: Deaton (1997) and Sen (1973).

It is clear that level of social indifference curve in figure 2 ranks from low to high with the higher one farther from the origin ($SW_0 < SW_1 < SW_2$). The total income line is tangent to social indifference curve, at point E where everyone has the same income (μ) and obtains social welfare, even if it is very rare in practice. Dalton (1920) suggested that the degree of inequality measure can be defined as the ratio of total social welfare be able achieved actual income distribution (measuring as distance OC or income, $y_1^1 = y_1^2$) to the total social welfare attainable under income equal distribution (OE or μ). Therefore, we can measure equality by $\frac{OC}{OE}$

or $\frac{y_2^1}{\mu} = \frac{y_2^2}{\mu}$, since the point C lies on the same social indifference curve, SW_2, as A and B so that OC or $y_1^1 = y_1^2$ is the equally distributed equivalent income y. If we subtract that ratio from unity, we can get a result as equation (3.3) or equivalent to the ratio $\frac{CE}{OE}$ (if denoted distance CE as function of d(x), where x is any real number of distances CE, $\lim_{x \to 0} \frac{d(x)}{\frac{1}{N}\sum_{h=1}^{N} f(y_h)} = 0$ the income distributed equally and everyone has the same social welfare as mean income).

Moreover, Atkinson inequality index has raised important question on inequality aversion or Constant Relative Inequality Aversion; CRIA, (the value of parameter ε) on his equations, see (3.5) and (3.6). He emphasized the relative degree of inequality between developing and developed countries in that they depend on the degree of inequality aversion. In developing countries, for example, the distribution of income at low degrees of inequality aversion is more equal than at a higher one, while the low degree of inequality increase the value of inequality aversion in developed countries[4]. Deaton (1997) gave a clearer explanation on parameter ε by using diagram. We can measure the value of inequality aversion as distance CE or function of d(x) (see Figure 2) so that ε = d(x), $\forall x \in R^+$. Thus, Social welfare indifference curves become flatter when the inequality aversion is small. It implies that the same as distribution of income at point A and B, the point C moves closer to the point E when ε decreases ($\lim_{x \to 0} d(x) = 0$).

3.3 The Effect of CEPT Commitment on Prices

Since 1997 the Lao PDR became a full member of the Association of Southeast Asian Nations (AFTA) and began to reduce tariffs under the Common Effective Preferential Tariff (CEPT) commitments the following year. In order to analyze the effect of trade reform of Lao PDR joining AFTA on price change of trade goods. We would like to introduce pass-through rate from tariffs to prices have been presented by Porto Guido G. (2006). This analytical approach used import share data, CEPT tariff rates (noting intra-ASEAN tariff rates), and MFN rates (noting as extra-ASEAN tariff rates). The equation of price changes in the form of logarithmic can be written as following:

$$d \ln P_i = \theta_{iA} d \ln(1 + \tau_{iA}) + \theta_{iNA} d \ln(1 + \tau_{iNA}) \tag{3.7}$$

Equivalent to

$$d \ln P_i = \theta_{iA} \frac{d\tau_{iA}}{(1 + \tau_{iA})} + \theta_{iNA} \frac{d\tau_{iNA}}{(1 + \tau_{iNA})} \tag{3.8}$$

It can be modified in term of periods as:

$$d\ln P_i^t = \theta_{iA}\frac{(\tau_A^{t-1} - \tau_{iA}^t)}{(1+\tau_{iA}^t)} + \theta_{iNA}\frac{(\tau_{iNA}^{t-1} - \tau_{iNA}^t)}{(1+\tau_{iNA}^t)} \quad (3.9)$$

Where: $d\ln P_i^t$ is the change of price for goods i at period t. $\theta_{iA} = \frac{\sum_{i=1} M_{iA}}{TM_A}$ is import share of goods i from intra-ASEAN members, which defines as the ratio of total import of goods i ($\sum_{i=1} M_{iA}$) from ASEAN members to total import all goods from members (TM^A), and $\theta_{iNA} = \frac{\sum_{i=1} M_{iNA}}{TM_{NA}}$ the rest of the world, which defines the ratio of total import of goods i ($\sum_{i=1} M_{iNA}$) from Non-ASEAN members to total import all goods from Non-ASEAN members (TM_{NA}) in the t^{th} period. τ_{iA} and τ_{iNA} are intra-ASEAN tariffs and common external tariffs, respectively.

4. The Empirical Results and Discussion

4.1 The Effect of Trade Reform on Social Welfare and Inequality

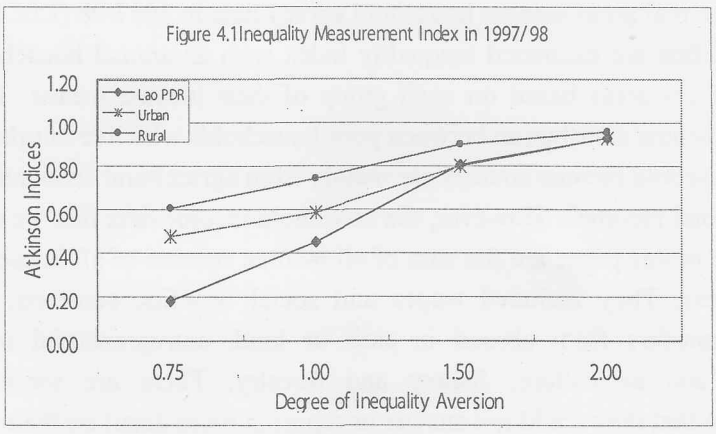
This section reports the results of estimating social welfare equations (3.3) by following Sen's (1973) and inequality measurement index in equation (3.5) and (3.6) which were developed by Atkinson (1970). The data used to analyze social welfare and inequality as representive of household income distribution during the reform process, we have estimated directly from real gross income household survey data in 1997/98 (LECSII) and 2002/03 (LECS III)[5]. In the first we estimated inequality index with an annual household income data among urban and rural areas based on each group of their income means. Then we could estimate household income distribution between poor households who live in urban and rural areas.

The household income sources are mainly from agricultural sections which accounted for 50 percent of total income[6]. However, the household income data that we used to calculate indices and welfare in this paper are the sum of all income sources of all household members that earn within a year. They included wages and social benefits, pensions, dividend and royalties received, transfers from abroad in cash or kind, entrepreneurial income from household businesses and agriculture, fishery and forestry. There are some error messages from interviewees that they could not answer or report in more detail on their earning income because they could not memorize and record what they was doing in the past. Moreover, they could not report their non money earning from natural resources such as fish from rivers, vegetables, wood and animals from the forest and so on for their own consumptions. Many poor households who live in urban areas have to sell their unskilled labor in order to get money otherwise they

can not survive in the city circumstances. Therefore, locality is a very important factor to determine poor households' employment and income sources.

There are many papers and reports discussing the changes of poverty in Lao PDR in the last decade by based on three times the household expenditure survey data (LECS I, LECS II, and LECS III) during 1992/93 and 2002/2003. All of them used the same basic household income data in order to estimate things such as consumption per capita, headcount poverty rate, Gini coefficient, and so on. Their main findings are not very different from each other and they also had the same conclusions on declining headcount poverty rates during 1992/93 and 2002/03, but there is evidence of increase in inequality from 1992/93 to 1997/98 as increase in Gini coefficients which resulted IMF-IDA (2001), Kakwani, Nanek, Gaurav Datt, Bounthavy Sisouphanthong, Phonesaly Souksavath and Limin Wang (2002), and Magnus Andersson, Anders Engvall, and Ari Kokko (2006).

Therefore, trade reforms and economic growth over the past decade could benefit poor households in urban and rural areas differently. Although inequality significantly increased between 1992/93 and 1997/98, it has slightly declined from 1997/98 to 2002/03. Table A2 in appendix showed the result of households social welfare and inequality measurement indices in 1997/98 and 2002/03 (Atkinson, 1970 and Sen's, 1973). In figure 4.1 showed Inequality measurement indexes or Atkinson indexes of Lao PDR in 1997/98 with different levels of degrees of inequality aversion[7]. We could analyze different levels of inequality aversion such as increases in the degree of inequality aversion (value of ε) and it led to increases in income distribution inequality[8].



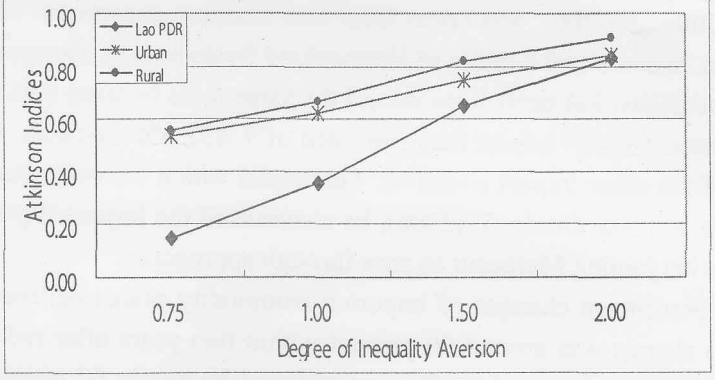
Source: Based on author's calculation

Figure 4.1 also showed the different inequality between urban and rural areas in Lao PDR because they could not access all public social welfare channels such as school, primary public health care, electricity, good gravel roads connecting to main roads, clear water, and so on. If

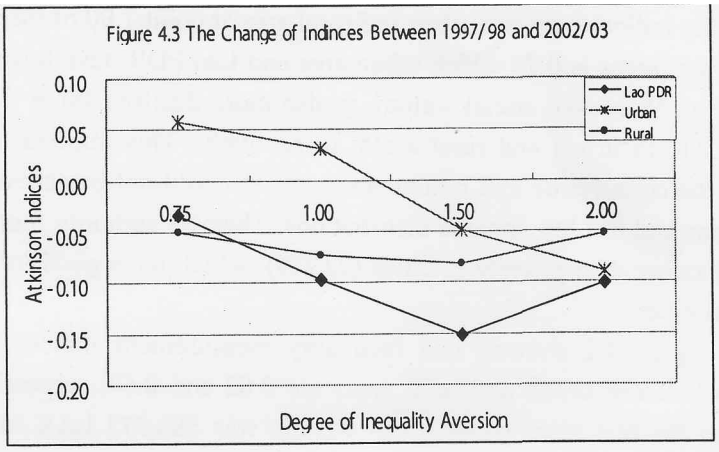
we compare inequality indices between urban and rural area at point 1.00 of inequality aversion, the index value of rural areas is 0.74 which urban area and Lao PDR have lower values at 0.59 and 0.45, respectively. Moreover, social welfare is also more thanfour times different 268,855 LAK and 63,966-LAK in urban and rural areas, respectively. This implied that most of the population lives in the countryside and remote areas which could not be accessed in cities and markets in all seasons and has low income distributions. Thus we certainly found many poor in rural areas (42.5%) rather than poverty in cities (22.1%)[9] which have good infrastructures and high earning opportunities.

After 5 years, figure 4.2 showed that inequality measurement indices at one level of inequality aversion between urban and rural areas are 0.62 and 0.67, respectively. It became more equal between the two areas while social welfare was 580,573 LAK in urban area and rural area's social welfare was 216, 597 LAK. Furthermore, the poverty rate gradually reduced from 39.1 percent (1997/98) to 33.5 percent (2002/03). The government of Lao PDR implemented pilot projects to rural areas especially poverty reduction projects. Moreover, NGOs and International grant aids also gave priority to rural poverty alleviation. Therefore, the inequality in the whole country was reduced by 0.10 (20%) in figure 4.3 and it slightly declined by 0.07 (9.45%), but it has increased by 0.03 (5%) in urban areas because of immigration from rural to city in order to look for jobs and better public welfare.

Figure 4.2 Inequality Measurement Index in 2002/03



Source: Based on author's calculation



Source: Based on author's calculation

4.2 The Effect of Price Change under AFTA Commitments

As Lao PDR is a land locked country. This means that goods must be shipped through countries such as Vietnam or Thailand. After the government of Lao PDR introduced trade reforms in 1993 by cutting off maximum tariff rates from more than 100 percent to 40 percent, and became a full member of ASEAN (AFTA) in 1997, trade reform gradually continued and the government put 3,551 tariff lines into CEPT schemes under AFTA rules. International trade flow increased by 21 percent between 2004 and 2005.

The data used to analyze price changes of imported commodities during the trade reform process between 2005 and 2007 was taken from Lao customs department authorities, and the ministry of finance. It contained 8 digits of Harmonized System (HS). However, we need to see price change in two digits. For tariff lines we did the same thins because data is not available in two digits level. Intra ASEAN import data consisted of 9 ASEAN members. Non ASEAN data was the sum all of the other import countries. The model which we employed to analyze price change is the same as Porto Guido G. (2006), he constructed the imported price index for trade goods from Argentina joining Mercosur as pass-through approaches.

The result of percentage changes of imported commodity prices between 2005 and 2007. The average price change was around 60 percent within two years after reducing tariffs under AFTA, commitments that averaged tariffs were reduced by nearly 80 percent within ASEAN members while Non ASEAN member increased by 2.23 percent. If we see each commodity, the price of iron and Steel (72), Articles of Iron or Steel (73), Computer/Machinery (84), and Cars, Trucks, Autos (87) declined over 300 percent because those commodities had high tariff rates before reforms. However, it was very surprising that the price change that is Lubricants/Fuels/Oil (27) was over 1,000%. It might cause of huge amount of import fuel every year from ASEAN.

Our calculation also told that some basic need commodities for lower income and the poor who always consume daily such as Live Animals (01), Meat & Edible Meat Offal (02) Dairy Produce (04), Cereals (10), Fats & Oils (15), Sugars (17), and others. Their prices also significantly declined continuously. Thus those price changes generated benefitss for domestic consumers as increases in social welfare and gains from international trade.

5. Conclusion

In this paper we examined the impact of trade policy reform on social welfare, inequality, and poverty in Lao PDR, by focusing on the changes in inequality and social welfare during the reform process between 1997/98 and 2002/03. We found that national poverty gradually declined around 3% annually. Moreover, the inequality also went down during the analysis periods and Urban and Rural areas become closer in terms of income distribution. We certainly made sure that cutting tariff rates particularly under AFTA could bring benefits to domestic consumers who could buy imported commodities with lower prices and better quality than before the reforms. We also believed that domestic producers are protected for along time periods. They might be survived under high competitions after Lao PDR completed reducing 95% of total CEPT packages by 2008.

Our studies found that many poor households who are living in remote areas could not access main roads and markets. They can not escape from poverty unless the government or local authorities gives them the basic infrastructures, capital (investment capital such as credit loans for their livelihoods), and agricultural knowledge in order to make their lives better under market oriented economy. Otherwise, the benefits of trade reform will have negative effects in the long term because the country has weaks economic basic units. Thus, the government of Lao PDR has to be careful about the effect of WTO member accession in the near future.■

Note: This paper is part of PhD thesis on International Trade and Development Economics. I would like to sincerely acknowledge and thank Professor YAMAMOTO Hiromi, Economic professor from Graduate School of Economics, Kyoto University who kindly read, gave me comments, and edited this paper, which could not been written without him. I also thank my seminar classmates that gave me suggestion and comments to improve my writing. I really thank them all for helping and supporting me.

1. World Development Indicators (WDI) database, April 2006.
2. United Nations World Food Program (WFP), Oxfam, UNICEF
3. Sen, A. K. (1973)
4. Please see empirical results from Atkinson (1970) on Ranking of income distributions for different values of ε
5. LECS III stands for Lao Expenditure Consumption Survey in third time of year 2002/03 by conducing from National Statistic Center of Lao PDR.

6. According to table 5.4 income generating activities was reported of the household of Lao PDR, Social and Economic Indicators, LECS III.

7. According to James Harvey (2005), he estimated that the relationship between Gini coefficient and Atkinson index by using different levels of natural rate of subject inequality (or degree of inequality aversion). He found that Atkinson index had very close relationship with Gini coefficient at more than 0.99 of correlation coefficient when degree of inequality aversion less than 1.

8. Atkinson, A.B. (1970) stated that the distribution of income in the least developed or developing countries has more 9.equal at the low value of inequality aversion and high inequality when increase its while developed country is reverse.

9. Kakwani, Nanek, Gaurav Datt, Bounthavy Sisouphanthong, Phonesaly Souksavath and Limin Wang (2002).

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Appendix:

Table A1. Import duties immediately after the reforms of 1993 and 2000

	Post-1993 Reforms	Proposed by IMF 1993	End 2000
Agriculture:			
Seeds	20%	10%	5%
Fertilizer	5%	10%	5%
Other	5%	10%	5% – 40%
Fisheries	5% – 10%	10%	N/A
Stock farming			
Feed	5%	10%	5%
Other	5% – 30%	20%	5% – 30%
Manufacturing			
Raw materials	5% – 10%	10%	5% – 10%
Packaging	10% – 20%	10%	10% – 20%
Energy	5% – 15%	10%	5% – 20%
Machinery and equipment	5% – 20%	10%	5% – 20%
Trucks	5% – 30%	20%	5% – 30%
Manufactured Prods	30% – 80%	30%	30% – 40%
Protection Industries	30% – 80%	40%	30% – 40%
Consumer luxury imports			
Food	20% – 80%	30%	10% – 30%
Non-food	10% – 100%	30%	10% – 40%

Source: Rates at end-2000: IMF (2001: 15). Rates post -1993: World Bank (1994: 76).

Figure A1. Import procedures in Laos for different groups of goods

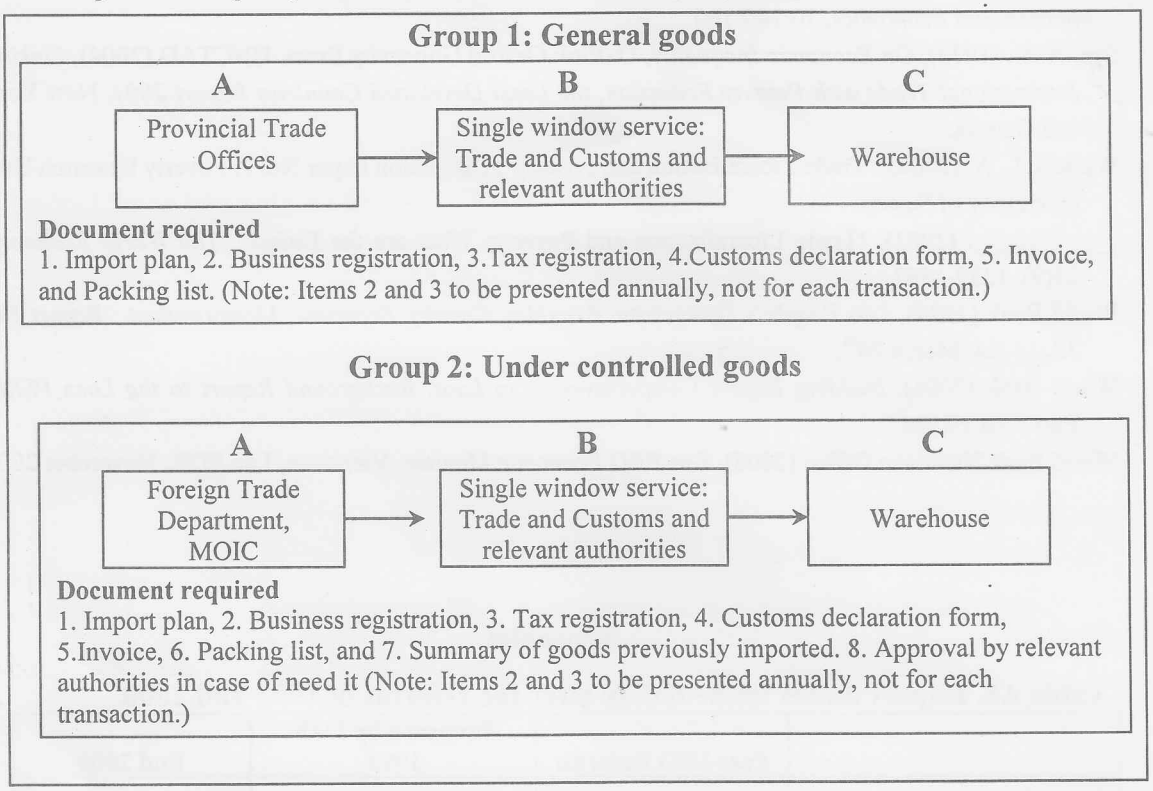

Figure A2. Export procedures in Laos for different groups of goods

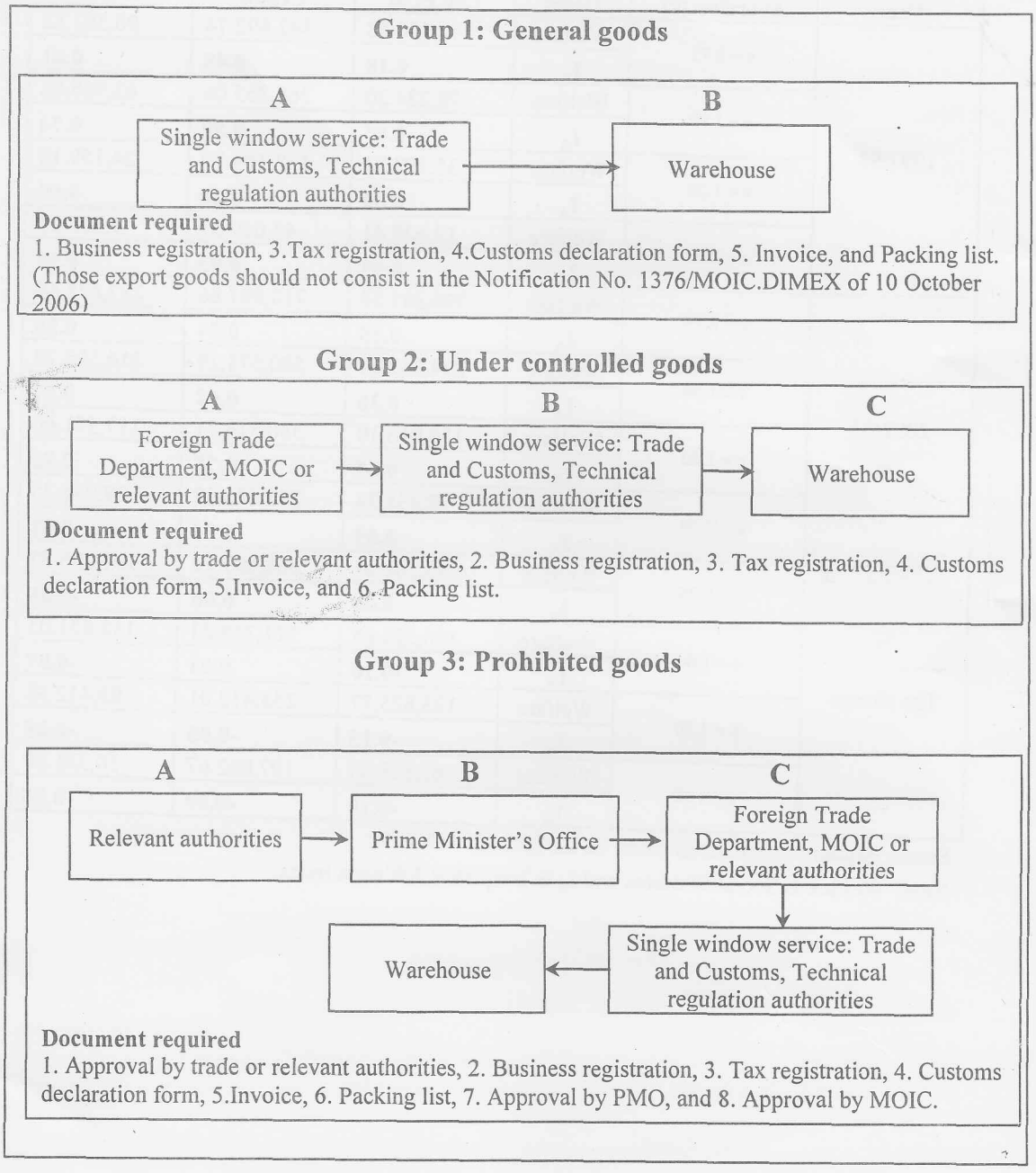

Table A2: Social Welfares and Inequality Measurement Index 1997/98-2002/03

Year	Aversion (ε)	Items	Lao PDR	Urban	Rural
1997/98	ε = 0.75	Welfare	147,126.58	342,892.74	96,382.82
		I_A	**0.18**	**0.48**	**0.61**
	ε = 1.00	Welfare	98,224.30	268,855.06	63,965.68
		I_A	**0.45**	**0.59**	**0.74**
	ε = 1.50	Welfare	35,192.33	133,104.70	24,159.12
		I_A	**0.80**	**0.80**	**0.90**
	ε = 2.00	Welfare	12,629.41	45,619.31	9,655.25
		I_A	**0.93**	**0.93**	**0.96**
2002/03	ε = 0.75	Welfare	390,395.59	710,991.86	287,678.64
		I_A	**0.15**	**0.54**	**0.56**
	ε = 1.00	Welfare	294,752.94	580,573.29	216,596.73
		I_A	**0.36**	**0.62**	**0.67**
	ε = 1.50	Welfare	159,018.10	386,516.71	117,571.66
		I_A	**0.65**	**0.75**	**0.82**
	ε = 2.00	Welfare	78,438.24	242,681.98	59,986.25
		I_A	**0.83**	**0.84**	**0.91**
The change	ε = 0.75	Welfare	243,269.01	368,099.12	191,295.82
		I_A	**-0.03**	**0.06**	**-0.05**
	ε = 1.00	Welfare	196,528.65	311,718.23	152,631.05
		I_A	**-0.10**	**0.03**	**-0.07**
	ε = 1.50	Welfare	123,825.77	253,412.01	93,412.53
		I_A	**-0.15**	**-0.05**	**-0.08**
	ε = 2.00	Welfare	65,808.83	197,062.67	50,331.00
		I_A	**-0.10**	**-0.09**	**-0.05**

Souce: Author's calculations based on LECSII and LECSIII.

Note: Welfare is Social Welfares and I_A is Inequality Atkinson Index.