- Number of HH members working in exporting industry is total number of members of each household working in exporting industry[5]
- Number of HH members working in importing industry is total number of members of each household working in importing industry[6]
- Number of HH members working in service industry is total number of members of each household working in service industry[7].

Table 5: Results of panel data regression for rural and urban areas

	Rural areas		*Urban areas*		*All sample*
	Coefficient (Model 1)	*Coefficient (Model 2)*	*Coefficient (Model 1)*	*Coefficient (Model 2)*	*Coefficient*
HH Head Gender					
HH Head is Male	-0.0546**	-0.015	-0.0322	-0.0193	-0.0399**
(HH Head is Female)					
HH Head Ethnicity					
(Vietnamese)					
Chinese	-0.1211	-0.1001	-0.0541	-0.0062	0.0025
Other	-0.0571*	-0.04987*	-0.0206	-0.0605	-0.0814**
HH Head Religion					
Buddhist	0.0594**	0.0566**	-0.1149**	-0.1279	0.0203
(None)					
Other	-0.0545***	-0.0594*	-0.1111	-0.1093	-0.0543*
Region					
Northern Uplands	-0.0739	-0.0724*	-0.0618	-0.0351	-0.0366
Red River Delta	0.0306	0.0049	-0.1887**	-0.1487*	0.0005
(North Central)					
Central Coast	-0.0925**	-0.0863**	-0.1361*	-0.0659	-0.0412
Central Highlands	0.0386	0.0699	(dropped)	(dropped)	0.061
South East	0.1281**	0.1486**	-0.0276	0.0639	0.134**
Mekong River Delta	-0.1431**	-0.1291**	-0.1848*	-	-0.1573**
				0.1220***	
HH Head Education					
Never	0.0068	0.0049	0.0168	0.0149	-0.0031
(Primary School)					
Junior High School	0.0572**	0.0591**	0.1177*	0.1246*	0.0786**
High School	0.0871*	0.0643***	0.1429*	0.1309***	0.0930**
Technical Training	0.0878**	0.0896**	0.0741	0.0689	0.0990**
Vocational Training	-0.01	-0.0097	0.0298	0.0151	0.035
University or Higher	0.3529**	0.3760**	0.1862**	0.1776**	0.274**

[5] Export industry includes agriculture, fishing, food processing, garments and textiles, shoes and leather, wood products and furniture, and electrical and electronic products.

[6] Import industry includes tobacco, paper, coke, petroleum products, chemicals and chemical products, rubber and plastics products, other non-metallic mineral products, basic metals, fabricated metal products, machinery and equipment, and transportation vehicles.

[7] Service industry includes forestry, mining, printing, and other services.

HH Head Occupation					
White Collar	-0.0508***	-	0.0602	-	-
Sales/Service	-0.1199***	-	0.0801	-	-
(Agriculture)		-		-	-
Skilled Worker	-0.1427**	-	0.0987	-	-
Unskilled Worker	-0.0037	-	0.006	-	-
Other not working	-0.0212	-	0.1046***	-	-
Log HHsize	0.1397**	-	0.1519**	-	-
HH Head age	0.0036	0.0097*	-0.0045	-0.0031	0.0078*
HH Head age square	-0.00003	-0.0001**	0.00003	0.000028	-0.00008*
Commune characteristics					
Factory nearby commune	-0.0257	-0.0301	-	-	-
(No Factory)					
Traditional handicraft in commune	0.0138	0.0106	-	-	-
(No traditional handicraft)					
Car passable road	0.1205**	0.1120**	-	-	-
(No car passable road)					
Market	-0.0064	-0.0114	-	-	-
(No market)					
Electricity	0.0078	0.0195	-	-	-
(No electricity)					
Cultivated land per capita	-0.00004**	-0.00004**	-	-	-
Trade variables					
Number of HH members working in export industry	-	0.0275**	-	0.0197	0.0223**
Number of HH members working in import industry	-	-0.0036	-	-0.0089	0.004
Number of HH members working in service industry	-	-0.011	-	0.0111	0.0185***
Constant	-0.0118	0.0082	0.4159*	0.5358**	0.1347*
No. of Obs.	3494	3389	808	779	4168
R-squared	0.1052	0.096	0.095	0.065	0.063

Note: Dependent variable is log of change of real total consumption per capita
*: denotes significant at 5%; **: denotes significant at 1%; ***: denotes significant at 10%
- Since there are no urban data on Central Highlands in VLSS9293, it is dropped from the regression in the urban areas.
- Regressions with robust standard error
Source: Author's calculations

3.7.1. In rural areas

As can be seen in Table 5, in the rural areas households with the head having a higher level education improved their living standard by a greater margin from 1993 to 1998 than those where the household head had a lower level of education. For example, households headed by individuals having a university or higher degree improved their expenditure 42 percentage points[8] *ceteris*

[8] Exp(0.3529)=1.423. Since the dependent variable is log of the change in expenditure between two years, the improvement is about 42 percentage points. Other comparisons are done in the same way.

paribus higher than those headed by someone having a primary school degree.

Regarding region, households situated in the South East regions experienced improvement in consumption 13 percentage points more than households in the reference region—the North Central region. Those households in the Mekong River Delta improved their standard of living 15.4 percentage points less than households in the North Central region, which is consistent with what we found in the previous sections.

Turning to occupation of the household head, we find that households with the head having a job such as white collar, skilled worker, or work in the sales/service sector and being skilled workers improved their standards of living less than those involved in the agricultural sector in both years. In detail, households with the head involved in agricultural jobs improved their expenditure 5.2, 12.7, and 15.3 percentage points more than those with the head having a white collar, skilled and sales/services job, and being skilled laborers, respectively. This means that during period 1993–1998, economic growth rewarded more benefit for the farmer and those working in the agriculture sector. This still appears to be a good finding since most households involved in agriculture were poor.

Other findings are that households headed by a female improved their welfare more than those headed by a male. Households headed by ethnicities other than Chinese experienced a lower improvement in welfare when compared to those headed by the Vietnamese.

Regarding religious characteristics, those households headed by someone adhering to no religion improved their welfare 6.1 percentage points less than those with the head adhering to Buddhism, but 5.6 percentage points more than those with the head adhering to a religion other than Buddhism.

Turning to communal characteristics, only the coefficient of the road passable by cars variable shows a positive statistical significance, meaning that individuals residing in communes having at least one road passable by car improved their welfare 12.8 percentage points more than those living in communes without any road passable by car. This is understandable because communes with roads passing through have more chances to trade with other communes.

Interestingly, communes with more cultivated land per capita had a lower standard of living, which is contrary to the conventional thought that because households in rural areas given more cultivated land can diversify their

crop as well as increase their output, they should improve their living standard more than those with less cultivated land. This finding is difficult to interpret on the face of the data.

3.7.2. In urban areas

Regarding education and region characteristics, findings are consistent with those found in rural areas. However, there were differences in that in urban areas, occupation, ethnicity, and religion of the head of households showed no statistical significance in the period 1993–1998. The exception was households with the head adhering to Buddhism, which improved their welfare less than those with the head adhering to no religion.

Trade variables are presented in Model 2. Note that, in Model 2, some variables (i.e., *hhsize* and *occupation of HH Head*) are dropped from the regression because they likely auto-correlate with the variable *number of household members*, which would lead to inconsistent results if included.

The results show that there was strong impact of trade liberalization on household welfare. As is evident, trade liberalization actually rewarded greater benefits to those working in the exporting industries as both coefficients of *Number* of *HH members working in the exporting industry* in the regression with rural area sample and all sample are statistically significant at 1 percent. On average, those working in the export industry increased 2.75 percentage points from 1993 to 1998. This result is expected because the export turnovers increased remarkably from 1993 to 1998, from US$4 billion in 1994 to US$9.4 billion in 1998 (GSO, 2001), which certainly brought positive effects to those people working in the industry. Also, there is evidence that those working in the service sector also improved their well-being from 1993 to 1998. Meanwhile, there is no evidence of the improvement for those people working in the importing sector.

4. Economic Growth, Social Welfare, and Equality

4.1. Income data and related issues

Household income in these surveys came from five main sources: wages, agriculture, non-farm self employment, remittances, and other incomes.

Wage incomes include cash and in-kind revenues that household members received from both main and secondary jobs during the most recent 12 months. Agriculture income comes from farm and non-farm work, in which non-farm work includes producing fishery and other water products as well as processing crop products. Because in some cases, cost and revenue from agricultural work are calculated in quantity and not in cash as normally is the case, they were then converted into Vietnamese dong using the respective prices collected by the price questionnaires. Income from non-farm self employment was collected from data on non-farm self employment. Remittances were collected based on the questionnaires on assistance received by household members during the most recent 12 months. Finally, other income includes income from government subsidies, pensions, scholarships, insurance payments, and interest.

If income is to be used to compare social welfare at different points of time, the income used for analysis should be real income. To make income of different years comparable, household income from the three surveys first is divided by the monthly overall price index at January 1998 prices. Moreover, in one survey, the prices were different among regions, thus the income once again is deflated by the regional price indices, which were obtained in the price questionnaires, to derive real income. The real income of a household then is divided by its number of household members to obtain real income per capita.

In many studies because of the shortage of data, gross income at household level was adopted to examine the changes of inequality and well-being of households. However, this method may lead to incorrect estimates since households differ from one another in size as well as composition. Thus, it is difficult to identify whether a small household with lower income is poorer than a large household with higher income. The more accurate judgment should be based on real income per capita. Luckily, in these surveys, data are collected from each household member, and thus we can use real income per capita, which is calculated as discussed above, for the purpose of ranking the levels of household welfare.

Nevertheless, as pointed out by Deaton (1997), and Chatterijee *et al*. (2003), using real income per capita as a unit for welfare comparison, although

appearing more advantageous when compared to unadjusted income (i.e., gross income), is still likely to provide inappropriate results since the needs of household members are distinctive from each other if one classifies them by characteristics such as sex or age. The problem is completely resolved if an equivalent-adult scale is used to adjust real income.

In practice, equivalent-adult scales were employed in many studies using various methods, such as the consumption pattern or nutrition requirements. Unfortunately, to my best knowledge, no equivalent-adult scale has been applied in Vietnamese studies, and constructing a new equivalent-adult scale is beyond the scope of this study. Thus, I assign the same weight to each household member or in other words, weight equal to 1 assigned for each household member. The income used for analysis is real income per capita and the deciles used in the analysis represent 10 percent of the population, not 10 percent of the households.

4.2. Methodology

In contrast to the previous section, income data of the surveys are taken advantage of to identify the changes of inequality among social economic groups and then an attempt is made to investigate the changes of level of social welfare by both ordinal and cardinal methods. The former method is based on the dominances of ordinary Lorenz and general Lorenz curves, while the latter follows the social evaluation function, which provides the complete welfare ordering of income distributions. Moreover, with the help of the cardinal method, the sources of the changes of level of social welfare which come from inequality and mean income effects are brought out. In this paper, social welfare is measured by income. Thus, strictly speaking, it refers to economic welfare.

The method for ranking a pair of income distributions with the same mean based on welfare grounds was introduced by Atkinson (1970). According to his study, of the two income distributions with the same mean income, the distribution of the dominating Lorenz curve has a higher level of per capita social welfare. It means that a Lorenz curve dominates the other Lorenz curve if its opposition is nearer the egalitarian curve. This expression can be described by the theorem below.

Theorem 1: Given Z(y) and Z'(y) are two income distributions with the same mean income [9] μ and have density functions z(y) and z'(y) respectively, in the interval , $0 \le p \le 1$, we have:

$$L_Z(p) \ge L_{Z'}(p) \Leftrightarrow \int_0^{\infty} u(y)z(y)dy \ge \int_0^{\infty} u(y)z'(y)dy \quad (3)$$

for all utility function satisfying $u'(y) > 0$ and $u''(y) < 0$[10], where L_Z and L_Z' are Lorenz curves constructed from distribution $Z(y)$ and $Z'(y)$, respectively.

However, in reality, the application of this theorem appears to be limited because we are usually more interested in comparing the social welfare of two societies at a given point in time, or investigating welfare changes of a society over time. The mean incomes are not likely to be the same in these situations. In addition, the ordinary Lorenz cannot accurately explain the welfare ordering of the two distributions if their Lorenz curves cross each other. The reason is simply that we may find two concave utilities which then bring about different orderings.

In order to rank distributions with different mean incomes, Theorem 1 was revised by Shorrocks (1983) based on the generalized Lorenz (GL) curve. If the Lorenz curve of a distribution with mean μ is L(p) then the GL of that distribution is defined as μ L(p). Theorem 2 can be stated as follows.

Theorem 2: Given Z(y) and Z'(y) are two income distributions with the mean income μ' and and have density functions z(y) and z'(y) respectively, in the interval $0 \le p \le 1$, we have:

$$\mu L(p) \ge \mu' L(p) \Leftrightarrow \int_0^{\infty} u(y)z(y)dy \ge \int_0^{\infty} u(y)z'(y)dy \quad (4)$$

for all strictly concave utility functions.

While the GL curve dominance can resolve the limitation of the ordinary Lorenz curve in comparing two distributions with different mean incomes, it still cannot completely resolve the remaining limitation of the ordinary Lorenz curve, i.e., the intersection of the two Lorenz curves, because it is possible that GL curves may also cross each other at other points, thereby generating

[9] It is noted that the theorem is true when the dominating Lorenz curve has a higher level of mean income.

[10] In assumption of the view point of an income seeking and inequality adverse person.

other different welfare rankings of the two distributions. Thus, one important point is worth noting that both the ordinary Lorenz and the generalized Lorenz curves provide only partial ordering of income distributions. However, there is a difference between the two curves in that the ordinary Lorenz curve provides the relative economic positions among population groups (the poorest to richest group), while the generalized Lorenz curve presents the absolute economic positions of the same population.

Because both the Lorenz and GL curves can provide only partial welfare ordering of income distributions, we must rely on a cardinal social evaluation function through assigning specific values to all possible income distributions in order to obtain a complete ranking based on welfare grounds. The abbreviated social evaluation function was introduced to help evaluate the social welfare with small arguments that summarize the complete income distribution. The function is formed as:

$$v = v(\bar{y}, \phi), \tag{5}$$

where $\bar{y}$ is the average income of the society, and $\phi = \phi(y_1, y_2 ... y_n)$ is the measure of inequality. Equation (5) satisfies the following conditions:

$$\frac{\partial v}{\partial \bar{y}} > 0 \text{ and } \frac{\partial v}{\partial \phi} < 0 \ . \tag{6}$$

The conditions provided in (6) imply that when the average income increases, social welfare increases holding inequality unchanged; and holding the average income unchanged, when inequality increases, social welfare decreases.

Sen (1976) introduced a social evaluation function (SEF) which shows the relationship between the average income of a society and its inequality indicator, which is represented by the Gini coefficient as follows.

$$v = \bar{y}(1 - T), \tag{7}$$

where T is the Gini coefficient of the income distribution. Equation (7) also satisfies the conditions in (6).

Therefore, we can investigate the changes of the social welfare over time by differentiating equation (5) with respect to

time t to get $\frac{dv}{dt} = \frac{\partial v}{\partial \bar{y}} \frac{d\bar{y}}{dt} + \frac{\partial v}{\partial \bar{\phi}} \frac{d\phi}{dt}$.

If the same derivation is applied to equation (7), we obtain:

$$\frac{dv}{dt} = (1-T)\frac{d\bar{y}}{dt} - \bar{y}\frac{dT}{dt}. \quad (8)$$

For the changes between two discrete points in time, equation (8) can be approximated as follows.

$$\Delta v \approx (1-T)\Delta \bar{y} - \bar{y}\Delta T, \quad (9)$$

where $\Delta v = v_t - v_{t-1}; \Delta \bar{y} = \bar{y}_t - \bar{y}_{t-1}$, and $\Delta T = T_t - T_{t-1}$.

The former part of equation (9) denotes the changes of social welfare due to the changes of efficiency, and the latter part presents the changes due to changes of equity.

4.3. Empirical results and analysis

4.3.1. Ordinary Lorenz curve

First, it is necessary to reiterate that in this study, we constructed the Lorenz curve based on cumulative shares of income per capita in the various deciles of population instead of cumulative share of income as an ordinary Lorenz curve.

Table 6: Ordinates of ordinary Lorenz curves

Decile	*Cumulative income (%) per capita*		
	1993	*1998*	*2002*
Lowest	1.51	1.81	2.23
Second	4.94	4.97	5.97
Third	9.62	9.16	10.77
Fourth	15.39	14.31	16.55
Fifth	22.33	20.57	23.39
Sixth	30.61	28.15	31.38
Seventh	40.5	37.39	40.85
Eighth	52.58	49.08	52.53
Ninth	68.21	64.92	67.97
Top	100	100	100
Gini	***0.38***	***0.45***	***0.41***

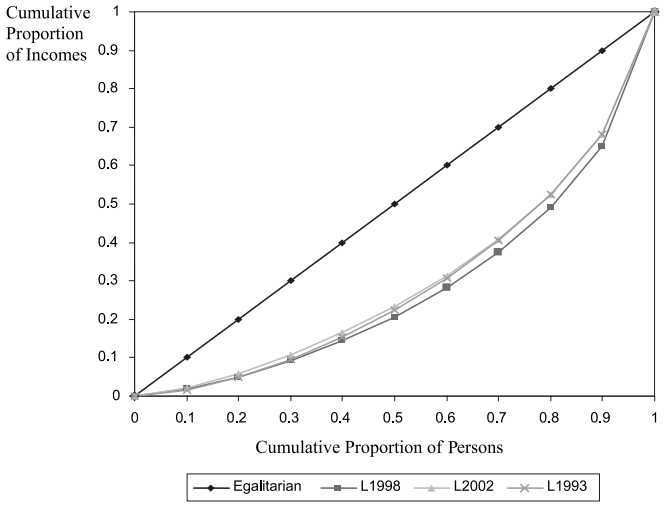
Source: Author's calculations

Table 7: Relative income shares

Decile	*1993*	*1998*	*2002*
Lowest	1.51	1.81	2.23
Second	3.43	3.17	3.73
Third	4.69	4.19	4.8
Fourth	5.77	5.15	5.78
Fifth	6.94	6.26	6.84
Sixth	8.28	7.59	7.99
Seventh	9.89	9.23	9.47
Eighth	12.09	11.69	11.68
Ninth	15.63	15.84	15.44
Top	31.79	35.08	32.03

Source: Author's calculations

Figure 1: Ordinary Lorenz curve



Source: Author's calculations

In order to build the Lorenz curve, we first calculate the sum of real income per capita of each decile. After having all the sums of the deciles, we obtain the total sum of cumulative income per capita by adding the sum of real income per capita of all quintiles.

The sum of real income per capita of each decile is then divided by the total sum of cumulative income per capita to obtain the real income per capita share of each decile. The share of each decile then is cumulatively added

from the poorest to the richest decile to form Table 6. Based on Table 6, we can easily draw the ordinary Lorenz curve, which is described by Figure 1.

From Table 6, if we look at the Gini coefficients of three years, we can see that inequality increased sharply from 1993 to 1998 but declined considerably from 1998 to 2002. This means that in 1993 and 2002, generally the relative position of the bottom 90 percent of the population was better off when compared to that of 1998 with the only exception being for the lowest decile, for which the income share was lower in 1993 when compared to that of 1998 (Table 7).

For social welfare ranking, because the mean income changed across the period, we are unable to make any judgment on the social welfare among these years if we only base this on the dominance of the ordinary Lorenz curves (Theorem 1). However, we can draw some general statements on inequality from the ordinary Lorenz curves.

Figure 1 shows that the Lorenz curves of the year 2002 absolutely dominated those of the year 1998. Thus, we can conclude that inequality in 2002 was greatly improved when compared to that of 1998 by any inequality measure which satisfies the Pigou-Dalton transfer condition. Note that, Pigou-Dalton transfer sensitivity implies that under this criterion, the transfer of income from the rich to the poor reduces the measured inequality. While the Lorenz curve of 1993 dominates that of 1998 from the 2nd to 10th deciles and only crosses at the bottom decile, there is also no doubt that inequality in 1993 was lower than that of 1998 by any inequality measure which satisfies the transfer condition. For the two years 1993 and 2002, since the Lorenz curve of 2002 dominates that of 1993 up to the 5th decile but is dominated by 1993 at the remaining deciles, the inequality comparison of the two curves can be judged only by looking at the size of their Gini coefficients.

For more details of the inequality comparison, we must look at Table 7, which presents the relative income share of different population deciles. For the top decile, the relative income share increased sharply from 31.79 percent in 1993 to 35.08 percent in 1998 but decreased to 32.03 percent in 2002, while the bottom decile experienced an increased though modest trend across the time. For the remaining deciles, the relative incomes decreased from 1993 to 1998, but then increased slightly.

Because the mean income changed during this period, we cannot

compare the social welfare of these years using the ordinary Lorenz curve. Thereby, in order to evaluate social welfare we must rely on the GL curve discussed in Theorem 2.

4.3.2. Generalized Lorenz (GL) curve

Since $GL\left(\frac{i}{P}\right)=\frac{\sum_{i=1}^{n} y_i}{P}$ or $GL\left(\frac{i}{P}\right)=\frac{\sum_{i=1}^{n} y_i}{Y}*\frac{Y}{P}=L\left(\frac{i}{P}\right)*\bar{y}$, the GL ordinates belong to the range (0; $\bar{y}$), where $\bar{y}$ is the mean income of the distribution; i = 1,…, n is the position of each person in the income distribution; P is total number of individuals in the distribution; y_i is the income of i^{th} person in the distribution; and $\sum_{i=1}^{n} y_i$ is cumulated income up to the i^{th} person. In this paper, we will construct GL as follows. First, we calculate the mean income per capita of each year and then multiply these numbers with the cumulative income share in Table 6 to obtain Table 8. The real mean income per capita of 1993, 1998, and 2002 are 2,048,200; 3,121,600; and 3,881,600 Vietnamese Dong (VND), respectively.

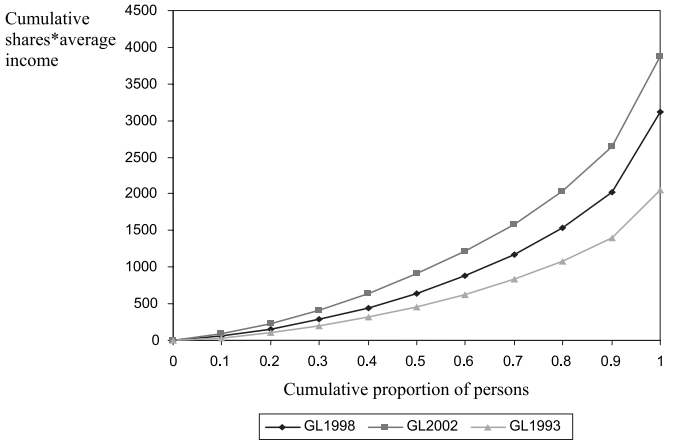
It is important to note that the numbers presented in Table 8 are not the average income of the cumulative proportion of population. The GL curves for the three years, drawn based on Table 8, are presented in Figure 2. The figure shows that the curve of GL2002 absolutely dominates those of GL1998 and

Table 8: Ordinates of generalized Lorenz curves

Cumulative Real Income Per Unit Person (1000 VND)			
Decile	**1993**	**1998**	**2002**
Lowest	30.92	56.35	86.59
Second	101.1	155.19	231.56
Third	197.12	285.94	417.98
Fourth	315.21	446.61	642.52
Fifth	457.41	641.98	907.87
Sixth	626.96	878.83	1218.01
Seventh	829.43	1167.06	1585.7
Eight	1077	1532.13	2039.18
Ninth	1397.09	2026.47	2638.39
Top	2048.2	3121.6	3881.6

Source: Author's calculations

Figure 2: Generalized Lorenz curves



Source: Author's calculations

Table 9: Change in social welfare in Vietnam, 1993–2002

Year	*Real Mean Income (1,000 VND)*	*Gini Coefficient*	*Social Welfare*
1993	2048.2	0.38	1269.884
1998	3121.6	0.45	1716.88
2002	3881.6	0.41	2290.144

Source: Author's calculations

GL1993. Thus, according to Theorem 2, social welfare in 2002 was higher when compared to that of 1998 and that of 1993 for all strictly concave utility functions. In the case of 1998 and 1993, the curve of GL1998 also dominates GL1993, meaning that total social welfare of 1998 also improved against that of 1993. At this point, we can conclude that the economic growth increased social welfare from 1993 to 2002.

These judgments are reconfirmed in Table 8. The cumulative real incomes of all deciles in 2002 were higher when compared to those of 1998 and 1993. The same statement can be made for 1998 in comparison with 1993.

While the GL curve dominances in this paper provide complete[11] orderings of social welfare of the period, it is still essential to have concrete

[11] Actually, Vietnam in this study is a special case because no GL curves cross each other. If the GL curves cross each other, we have to rely on a cardinal social evaluation function for complete ordering comparison.

estimated values of the social welfare, which can be calculated based on equation (6). The estimated values are reported in Table 9 for comparison. Social welfare absolutely increased during the period, from 1269.8 (in 1993) to 1716.8 (in 1998) and then to 2290.1 (in 2002), despite the fact that inequality first increased in the period 1993–1998 but fell in the period 1998–2002.

The results also reveal that in the early period of trade liberalization (1993–1998), the income increase sharply outpaced that of the period 1998–2002, but the negative impact of higher inequality in 1993–1998 led to an increase in total social welfare only relatively the same as that in 1998–2002, which is examined in more detail in Table 10.

Table 10 presents compositions of the changes of social welfare during the periods, which are calculated by equation (8). For the first period 1993–1998, mean income increased with the rise in inequality. While the former had a positive impact on total social welfare, the latter had an affect in the opposite direction. However, the combination of the two effects still led to an increase in social welfare.

Turning to the period 1998–2002, the combination of the two positive effects of the increase of real mean income, accompanied by a decline in inequality, increased total social welfare absolutely to levels well above those of the period 1993–1998.

Finally, for the whole period from 1993–2002, we find that mean income increased remarkably with a slight increase in inequality; the magnitude of the former was much bigger than that of the latter, which then led to an increase of total social welfare.

In short, using the dominance of Lorenz and generalized Lorenz curves, we find that economic growth—for which trade liberalization contributed the most—increased the real cumulative income per capita of all population deciles, which then led to increases in social welfare during the period 1993–2002. The estimates show that in the period 1993–1998, the increase in income was accompanied by a rapid rise in inequality, while in the latter period (1998–2002), income increased in parallel with greater equality in income. Moreover, with the help of the social evaluation function, we are able to have a complete welfare ranking of the income distributions of the three years in the period, showing an increasing trend from 1993 to 2002. Also, the sources of

Table 10: Sources of change in welfare

	1993–1998	*1998–2002*	*1993–2002*
Welfare Change	446.996	573.264	1020.26
Mean Income Change	1073.4	760	1833.4
Inequality Change	0.07	-0.04	0.03
Due to Mean $(1-T)\Delta\bar{y}$	665.508	418	1081.706
Due to Inequality ($-\bar{y}\Delta\bar{T}$)	-143.374	124.864	-116.448

Source: Author's calculations

changes of social welfare were brought out in the paper.

5. Concluding Remarks

The decision of the government to adopt *Doi moi* (renovation) policies in 1986 appears to have been a good one which brought about big changes in the standard of living of the Vietnamese people. Social welfare also improved remarkably from 1993 to 2002 in absolute terms. However, the increase in income was also accompanied by a rapid rise of inequality from 1993 to 1998 while the inequality fell slightly in the latter part of the period 1998–2002. Thus, social welfare increased more in the period 1998–2002 in comparison to that of 1993–1998.

There was evidence that the benefits were not equally distributed among the Vietnamese households. An examination by expenditure data shows that those living in communes with facilities such as electricity, a market, and a road passable by cars were able to make the most of opportunities from economic growth and improve their standard of living more than those living in communes without such facilities were able to do. This finding emphasized the importance of such facilities in improving the living standard of the poor.

Economic growth provided greater benefits for those people with higher levels of education and those working in the export industry. Individuals involved in the service sector such as in white collar or sales/service jobs or those who had professional skills benefited from a higher absolute living stan-

dard than farmers and others engaged in agriculture. However, utilizing the panel data we also found the good news that there is evidence that the living standards of farmers improved more than those of people from other sectors from 1993–1998.

Geographical location appeared to play an important role in determining the welfare of households, with more benefits for those living in the South East and the Red River Delta regions while other regions like North Central, Northern Uplands, and Central Highlands, where most of the poor and ethnic minorities resided, received fewer benefits from economic growth.

The findings reveal the imbalance in development among regions and in different welfare received between the poor and the rich, and between rural and urban areas in the country, suggesting that the less developed regions and the poor deserve to be made a higher priority in the policies of the government.

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