

# **East Asian Development Network**

## *Regional Project*

# **INCOME DISTRIBUTION IN VIETNAM**

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# Income Distribution In Vietnam

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## 1. INTRODUCTION

Vietnam has experienced dramatic changes in its transition from a centrally planned to a market-oriented economy. Since launching key reforms through its *Doi moi* (renovation) policy in 1986, the country has made remarkable progress across a broad range of socio-economic development measures. The rate of poverty fell from 58 percent in 1993 to around 37 percent in 1998 and 29 percent of the population in 2002 according to the international poverty line. Much of the poverty reduction can be traced to the high annual economic growth rates of the country in the early 1990s (8-9 percent) and specifically to Vietnam's strong agricultural performance since the late 1980's.

Nevertheless, the pace of both economic growth and poverty reduction has been decelerated in late 1990s, which gives rise to a concern that causes of the slowdown may be associated with the recent unsustainable pattern of growth and deterioration of income distribution. But studies on income equality, its distribution and trends in Vietnam are fewer than in other countries in the region. One of the major reasons is unavailability of data before the 1980s for income distribution analysis. Furthermore, most of the research on income distribution in Vietnam has focused on the size distribution of income of households rather than the functional distribution.

The first comprehensive poverty assessment for Vietnam, which has been conducted by the World Bank in 1995 (World Bank 1995) focused on poverty reduction during the economic reforms in late 1980s and early 1990s rather than income equality. That was not surprising since in early 1990s similar to the situation in many other former socialist countries, income distribution in Vietnam was relatively equal. Nevertheless, some major indicators reflecting income inequality, such as Gini ratio were estimated for 1992-93.

Dollar and Glewwe (1998) were among the first researchers carrying out studies on income inequality in Vietnam in the early reform period. Measuring inequality in terms of Theil L and T indexes using household consumption data in 1992-93, they presented the full picture of the size distribution of income in Vietnam in the early 1990s and came to the main finding that Vietnam had a relatively low level of inequality. The largest sources of inequality came from within-group inequality rather than between-group one (urban-rural, regions, ethnic groups, employer of the household head, occupation, sex and education of the household head).

Research by Pham Lan Huong (2000) using a decomposition approach toward household income proposed by Adams (1999) and a computable general equilibrium (CGE) framework to measure distributional impact suggests that the rural-urban income gap and income disparities between regions during the period before the

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Asian crises were attributable to a larger degree to government adopted trade and investment policies. The implemented policies turned manufacturing and services sectors into inequality-increasing sources of income. Consequently, the manufacturing sector provided fewer jobs than its potential would indicate.

Another study by Glewwe *et al* (2000), based on the two rounds of Vietnam Living Standards Survey (VLSS) attempted to gauge income inequality using both household expenditure and income data. The research found that the rise in inequality had been small, which implies that the country's growth in 1990s has been broad-based. Nevertheless, the between-group income gaps for all types of social disaggregation (between urban and rural areas, ecological regions, occupations, education) except for ethnic groups, have been increasing and served the major cause of increasing income inequality between 1993 and 1998. This conclusion was made based on Theil T and L indexes estimated for 1993 and 1998 using household consumption data. Adopting Shorrocks' decomposition method to income data by sources,<sup>1</sup> the authors suggested that while income from agricultural activities and other income tended to be distributed equally, income from non-agricultural enterprises and remittances were disequalising. Wage income was neither equalising nor disequalising. Thus, Glewwe's decomposition of income inequality by various dimensions was not solely based on income data, with the decomposition into between- and within-group inequality being made just for household expenditure data, which tend to be evened out over time by savings/dissavings.

Vietnam Development Report 2000 (Poverty Working Group 1999) – another comprehensive study on poverty and income inequality - prepared jointly by the government and the donor group concludes that during the period 1993-98 the decline in poverty has been accompanied by a modest increase in inequality with the Gini coefficient rising from 0.33 to 0.35, largely due to the widening of the rural-urban gap. At the same time, inequality *within* rural areas has actually declined somewhat during this period. The gap between the poorest and the richest region of Vietnam has widened. The reforms and the rapid growth, which they have generated, have led to very significant economic and social gains for nearly all groups in all regions. But growth has been more rapid and gains have been more substantial in some areas of the country than in other parts.

Using income data (rather than expenditure data) from multi-purpose household surveys (MPHS) conducted by General Statistics Office (GSO) in 1995 and 1999 to generate Gini coefficients for all 61 provinces, Vietnam's National Human Development Report 2001 (National Centre for Social Sciences and Humanities (NCSSH) 2001) suggests that income inequality may be increasing more rapidly for this period than previously believed. The Gini coefficient for Vietnam appears to have risen significantly from 0.356 in 1995 to around 0.407 in recent years, which implies that given the same level of inequality as in China, Vietnam appears to have reached such a level of inequality much faster and at a much lower level of average income per capita than China. Furthermore, there appears to be no clear link between the rate of economic growth and the change in the Gini coefficient. The study suggests several

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<sup>1</sup> Glewwe divided total income into five major sources: wages, net income from agricultural activities, net income from non-agricultural household enterprises, income from remittances, and other income (including all types of non-labour income, such as government social fund payments, social subsidies, interest income and insurance payment).

reasons for the apparent jump in measured income inequality such as the collapse of commodity prices (especially rice and coffee) since 1998 in parallel with relatively rapid economic growth in major urban areas, and low levels of human development in poorer provinces.

Focus of a study by Do Thien Kinh *et al* (2001) was made on exploring the trend in inequality and determinants of poverty and wealth. Analysing changes in household expenditure, the authors suggested that the trend in inequality in Vietnam was moderate, with the expenditure gap between the richest and the poorest quintiles increasing slightly from 4.6 in 1992-93 to 5.5 in 1997-98. The underlying causes of the gap mainly came from different locations (urban versus rural), ethnicity, education levels of workers, sector of employment (farm versus non-farm activities) and the number of children in a household.

A study carried out by Pham Lan Huong (2000), the Centre for International Economics (2002) and research by Le Dang Doanh *et al* (2002a) used a CGE framework to measure impact of trade barrier's removal on size and functional distribution of household income. These studies came to conclusions that trade policy supporting the import-substitution strategy, which the government adopted during the period before the Asian financial crises resulted in an unbalanced and unsustainable pattern of growth and increasing income inequality. On the other hand, liberalised trade promoted rural development, created demand for low-skilled workers in the cities, and that led to more widespread benefits of economic growth to the lower-income end of the population and improved income equality.

The above discussion suggests that so far no study was made on *measuring income inequality and its trend over time in Vietnam using household income data*, which seem to be more accurate in reflecting household wealth. This study, therefore seeks to understand better past and recent trends of income distribution in Vietnam and sources of inequality as measured by household income data. The study also examines the links between changes in income distribution and inequality on one hand to government policies and economic growth on the other hand to suggest ways the government could do to improve income equity and achieve sustainable growth.

The paper is structured as follows. Section 2 outlines economic development, macro economic performance and structural changes in Vietnam during the 1990s. Income distribution in Vietnam and its trends are subject of discussion in Section 3. The section highlights contrasts in terms of income distribution among regions, groups, between rural and urban areas, as well as makes comparison with the situation in some other countries. Decomposition of income inequality and its analysis are presented in Section 4. Section 5 discusses investment policy and possible linkages between it and income distribution, and the final section measures impact of the investment policy on income distribution using a CGE model of Vietnam.

## **2. REVIEW OF ECONOMIC DEVELOPMENT AND MACRO ECONOMIC PERFORMANCE**

### **2.1. Economic Reforms and Macro Economic Performance**

During the 1980s Vietnamese economy was still a centrally planned economy. There was the strongest pressure on reform in late 1990s, when the failure of the efforts to

stabilise the economy was apparent, as well as the expectation of the drying up of aid from the former Soviet Union became real. In March of 1989, Vietnam adopted radical and comprehensive economic reforms aimed at stabilising and opening the economy, enhancing freedom of choice for economic units and introducing competition so as to create supportive policies and institutional environment for growth and poverty reduction in Vietnam. The major reform measures included:

- Almost complete price liberalisation;
- Large devaluation and unification of the exchange rate;
- Increases in interest rates to positive levels in real terms;
- Substantial reduction in subsidies to the state-owned enterprise (SOE) sector;
- Agricultural reforms;
- Encouragement of the private sector;
- Removal of domestic trade barriers and creation of a more open economy.

The economic reform package in 1989 has created basic conditions for the transformation into a market-oriented economy, and at the same time impressive success of the reforms translated into spectacular economic growth over the period before the Asian crisis. During the 1990s the annual GDP growth rate averaged at 7.2 percent with a period of rapid and stable growth between 1991 and 1997, averaged at 8.5 percent per annum. Per capita GDP rose by 1.8 times and the ratio of domestic savings to GDP increased by 3.2 times (Le Dang Doanh *et al* 2002b). All sectors grew although at different rates. At the same time inflation was kept under control at single-digit levels. Industry grew at the average annual rate of 9.6 percent, enhancing entrepreneurs' income and creating employment opportunities for unskilled labour. The services sector performed well and the quality of services has improved dramatically to support growing private sector. For example, from 1991 to 2000, the value of financial services increased by 3.2 times, education and training services rose by 2.2 times, health and related social services increased by 1.7 times, the transport, storage and communication increased by 1.8 times (Socialist Republic of Vietnam (SRV) 2002).

Between 1989 and 1995 growth was driven by services that contributed up to 82 percent of GDP growth in 1990. From 1996 onward manufacturing took the lead, but it already made a good contribution to GDP since 1992. Although the importance of agricultural sector in terms of GDP has been declining, it has made impressive progress with an average annual growth rate of 5.6 percent over 1990s. Since 1989, Vietnam has not only ensured the food security at the national level, but also turned from a net food importer into one of the largest exporters of rice, coffee, pepper and cashew nut.

As demonstrated in Table 1, the expansion of international trade has been one of the most important factors in Vietnam's economic growth. Vietnam has boosted its exports from 2,404 million US\$ in 1990 to 15,027 million US\$ in 2001 with a substantial shift from member-countries of the Council of Mutual Economic Assistance to the rest of the world. The impressive high growth rates during the period 1992-97 in Vietnam associated with substantial annual export growth of over 20 percent during the past decade. In terms of its share in GDP, exports made significant contribution, which increased from 22.2 percent in 1990 to 25.1 percent in 1995, and 45.6 percent in 2001. This resulted from the more outward looking trade policy and

export promotion measures. Foreign-invested sector became an integrated part of the economy and had played a role, though limited, in transferring technology, management and working skills.

The economy suffered some slowdown over the period 1998-99, when contagious impact of the regional crisis came. Since 2000, it recovered steadily, though at lower growth rates than in the first half of 1990s. In late 1990s, the shift in the sectoral structure was also more slowly than in the early 1990s. Major factors contributing to the economic recovery include some improvement in the quality of growth and in the efficiency of resource allocation, mainly as a result of the dynamic performance of the private sector and the internal structural transformation of agricultural, forestry and fishery sector; increased investment; and acceleration of the international economic integration.

**Table 1: Major Macroeconomic Indicators, 1990-2001**

Year	GDP growth (%)				Inflation (%)	FDI (US\$ mill)**	Export		Import	
	Overall	Agriculture	Industry*	Services			Value (US\$ million)	Annual growth (%)	Value (US\$ million)	Annual growth (%)
1990	5.1	1	2.3	10.2	67.1	839	2404	23.5	2752	7.3
1991	5.8	2.2	7.7	7.4	67.6	1322	2087	-13.2	2338	-15.1
1992	8.7	6.9	12.8	7.6	17.5	2165	2581	23.7	2541	8.7
1993	8.1	3.3	12.6	8.6	5.2	2900	2985	15.7	3924	54.4
1994	8.8	3.4	13.4	9.6	14.5	3766	4054	35.8	5826	48.5
1995	9.5	4.8	13.6	9.8	12.7	6531	5449	34.4	8155	40
1996	9.3	4.4	14.5	8.8	4.6	8497	7256	33.2	11144	36.6
1997	8.1	4.3	12.6	7.1	3.6	4649	9185	26.6	11592	4
1998	5.8	3.5	8.3	5.1	9.2	3897	9360	1.9	11499	-0.8
1999	4.8	5.2	7.7	2.3	0.1	1568	11540	23.3	11742	2.1
2000	6.8	4	10.1	5.6	-0.6	2000	14483	25.5	15637	33.2
2001	6.8	2.7	10.4	6.1	0.8	2503	15027	3.8	16162	3.4

**Note:** \* Including construction.

\* Total commitments, including Vietnam's contribution.

**Source:** GSO (various years).

However, competitiveness of the economy remains low compared with other countries in the region. The pace of reforms in the SOE and banking sector was slow to the extent that improvement of the business climate has been sluggish. Vietnam has been facing a more difficult time in international trade activities when prices of major commodities that it exported to the world dropped since 2000, while prices of agricultural inputs went in the opposite direction. The post-crisis growth may not be sustained unless a new wave of deeper reforms is introduced.

## 2.2. Changes in Labour Market

Table 2 shows that labour employment has been on the rise. Between 1990 and 2001 the average annual increase in the employment was 2.2 percent. The employment growth rates varied across the three sectors of the economy. The agricultural sector

experienced the smallest average annual increase at 1.0 percent, while the industrial and service sectors had growth rates of 2.5 and 6.6 percent respectively over the same period. As a result the service sector made the largest contribution to the creation of new jobs bringing about a change in the structure of employment. Of all new employment created during this period, 52.5 percent was in the service sector; 31.5 percent was in the agricultural sector; and only the remaining 16.0 percent was in the industrial sector.

Table 3, Figure 1 and Table 4 reveal following features of the labour force in Vietnam:

- Dominance of agricultural workers who still accounted for 60.5 percent of the labour force in 2001;
- High and rising educational profile;
- Low overall qualification of the labour force and a slow pace of skill and qualification improvement;
- High female participation of around 50 percent.

**Table 2: Employment Growth Rate**

<i>Year</i>	(percentages)			
	<i>Total</i>	<i>Agriculture</i>	<i>Industry</i>	<i>Services</i>
1990	1.63	2.78	-18.09	15.47
1991	2.46	2.01	2.56	4.46
<b>1990-91</b>	<b>2.04</b>	<b>2.39</b>	<b>-8.35</b>	<b>9.83</b>
1992	2.39	1.97	2.47	4.26
1993	2.34	1.86	2.53	4.34
1994	2.35	1.76	3.11	4.40
1995	2.19	1.64	2.26	4.49
1996	2.21	1.44	3.51	4.51
1997	2.17	1.35	3.42	4.62
<b>1992-97</b>	<b>2.27</b>	<b>1.67</b>	<b>2.88</b>	<b>4.44</b>
1998	2.14	1.27	3.39	4.71
1999	2.11	1.17	3.45	4.74
2000	2.02	1.02	3.37	4.77
2001	2.66	-5.58	22.19	19.21
<b>1998-2001</b>	<b>2.23</b>	<b>-0.53</b>	<b>8.10</b>	<b>8.36</b>
<b>1990-2001</b>	<b>2.22</b>	<b>1.04</b>	<b>2.51</b>	<b>6.56</b>

**Source:** Derived from GSO (various years), GSO (2000b), and data provided by the Ministry of Labour-Invalids and Social Affairs (MOLISA).

**Table 3: Qualification of Labour Force, 1996-2001**

<i>Skills and qualification</i>	(percentages)					
	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
Unskilled workers	87.69	87.75	86.70	86.13	84.36	82.93
Semi-skilled workers	1.77	1.51	1.46	1.52	1.48	1.33
Skilled workers without certificate	2.12	2.34	2.16	2.33	2.26	4.56
Skilled workers with certificate	2.26	2.05	2.59	2.35	3.00	3.89
Vocational colleges	3.84	3.80	4.05	4.22	4.96	3.61
Tertiary education	2.31	2.56	3.05	3.46	3.95	3.67
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

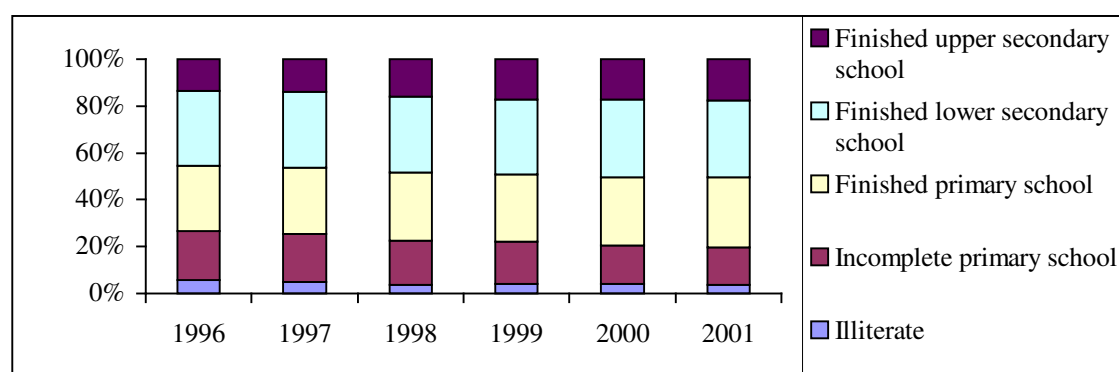
**Source:** MOLISA (1997, 1998, 1999, 2000, 2001, 2002).

### 2.3. Changes in Economic Structure and Sectoral Employment

Rapid growth has been accompanied by a significant change in the structure of the economy, with the share of industry in GDP increasing by 14.6 percentage point from 23.5 percent in 1991 to 38.1 percent in 2001, while that of agriculture declining from 40.5 percent to 23.2 percent. This situation is very similar to that in Indonesia, Malaysia and Thailand during the early stage of industrialisation. The situation in service sector is different. In terms of GDP, the sector expanded between 1991 and 1995 and shrunk thereafter, but remained the largest sector of the economy.

**Figure 1: Education Attainment by Labour Force, 1996-99**

(percentages)



Source: MOLISA (1997, 1998, 1999, 2000).

Correspondingly, the employment shares of industry and services tended to increase while that of agriculture kept falling. This reflects a common pattern of development when the labour force gradually moves out of agriculture to industry and services where it can earn more. Some stylised facts of the structural shifts are:

- The movement of the labour force was slower than the sectoral changes (Table 4), resulting in smaller improvement of agricultural productivity and income than that in the other sectors, especially those in industry.
- Labour force of the service sector has been increasing in both relative and absolute terms despite the relative contraction and decelerated growth of the sector since 1996. In fact, services absorbed up to 84.4 percent of the labour that had moved out of agriculture. This implies that recently the sector became relatively more labour-intensive, meanwhile the sectoral average productivity and income experienced slower growth.
- With the highest growth and rapid expansion, manufacturing is going to turn into the largest sector of the economy. The sector became relatively more capital-intensive and employed less labour at the margin. Despite rapid development of the manufacturing, most of these activities are urban-based due to good infrastructure and availability of labour skills in cities. Furthermore, although the state and foreign direct investment (FDI) sectors dominated industry (78.1 percent of the total industry output in 1998), they employed relatively less workers (35.7 percent of the industrial employees) compared with the private sector being much smaller in terms of the total output, but much more labour-intensive.

**Table 4: Structural Changes during the Period 1991-2001**

	(percentages)										
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>GDP structure</b>											
Agriculture	40.5	34.9	29.1	27.4	27.2	27.8	25.7	26.0	25.4	24.3	23.2
Industry	23.5	23.7	28.6	28.9	28.8	29.7	32.1	32.7	35.5	36.6	38.1
Services	36.0	41.4	42.3	43.7	44.0	42.5	42.2	41.3	40.1	39.1	38.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Employment structure</b>											
Agriculture	73.3	73.2	72.0	70.8	69.7	69.2	68.8	68.6	63.6	62.6	60.5
Industry	12.4	12.3	12.4	12.8	13.3	12.5	12.5	12.5	12.5	13.1	14.4
Services	14.3	14.5	15.6	16.4	17.0	18.3	18.7	18.9	23.9	24.3	25.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Source:** Data provided by GSO and MOLISA.

These facts point to increasing productivity gaps between the three sectors and consequent sectoral income gaps, which must have a considerable impact on income distribution among workers in different sectors as well as between rural (majority of which is engaged in agriculture) and urban population (a larger part works in manufacturing).

### 3. INCOME DISTRIBUTION IN VIETNAM

#### 3.1. Income Composition by Source

Household income per capita in Vietnam, derived from VLSS 1992-93 and 1997-98 and shown in Table 5, consists of the following major components:

- Self-employment farm income. This is the income of self-employed households (in a family farm or private business) in agriculture and forestry.
- Self-employment non-farm income. This type of income derives from family, private and other non-state businesses earned in non-farm activities.
- Wage-earner income, including all income in cash and in kind in the form of working lunches, bonuses, holiday pay, subsidies on food, electricity, transport, work clothing, and other kinds of income received from all jobs in both the state and private sectors.
- Income from pensions, subsidies and scholarships.
- Other income, including housing rents (imputed and received), rents received from premise, machine and equipment lease, interest earnings.

Income composition and its level in Vietnam is affected by a number of factors such as the small size of the state sector, the high share of agricultural labour and some features lingering from a centrally planned economy. VLSS shows the following:

- Income levels in Vietnam are not high but have been improved significantly over the 1990s. Average nominal annual per capita income increased from 1,105 thousand Vietnamese dong (VND) in 1992-93 (about 130 US\$ in terms

of official exchange rates<sup>2</sup>) to 3,389 VND in 1997-98. Poverty incidence<sup>3</sup> has dropped substantially from more than 70 percent by the end of 1980s to 58 percent in 1993, 37 percent in 1998 (Poverty Working Group 1999) and 29 percent in 2002 (GSO 2003).

- Farm self-employed income is very common and dominant for rural households, who account for about 80 percent of the total population. These households have their own plots of land for agricultural activities. Despite the declining trend, the share of farm self-employed income in total income of overall (both rural and urban) population still constitutes 36.3 percent in 1992-93 and 31.0 percent in 1997-98.
- Self-employment non-farm income makes up the predominant source of urban household income.
- Pensions and subsidies are the smallest source of income. Urban households appear to benefit to a greater extent from this source than rural households.
- The share of other income associated with household assets has been increasing during the period of economic reforms.
- Income by source is quite different between rural and urban households. While about half of rural income comes from self-employment on farming activities, non-farm non-state businesses provide the largest source of total urban household income in both periods. The urban population derives roughly one-third of their income from wages, whereas wages account for only one-sixth of rural household income. Non-farm activity is also an important source of rural income, but its size does not match that of the urban counterpart.
- Although average income per capita for both rural and urban areas has increased between 1993 and 1998, urban household per capita income estimated from the 1992-93 VLSS is only about twice urban income, and this gap has been widening to 3.7 in 1998. During the period 1993-98, average per capita income in urban areas increased by 4.9 times while that in rural areas was only 2.6 times. These figures evidence that urban households have benefited to a greater extent from economic growth.
- The overall income structure of Vietnamese households by income source changed slightly during the period 1993-98, implying only a minor shift from primary to secondary and tertiary sectors. Some features of a market-based economy emerged in the income structure where income from factors other than labour has been rising from 1.8 to 17.0 percent. Again, the change was more obvious for the urban income.

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<sup>2</sup> This figure fails to reflect real living standards in Vietnam, as it does not take into account the purchasing power of one US\$ in Vietnam, being several times higher than in industrial countries. A more accurate estimate of household welfare, which can be used for inter-country comparison, is in terms of purchasing power parity (PPP). According to the result of the sixth round of the International Comparison Project commissioned by the United Nations, producing PPP conversion factors so that cross-national comparisons of national account statistics can be made, in 1993 Vietnam's GDP per capita was 1,170 PPP US\$, which is 6.5 times higher than the GDP per capita in terms of the official exchange rates (Le Van Toan 2000).

<sup>3</sup> The poverty line is based upon expenditures required to purchase food for meeting minimum requirements for calories that ensure good nutritional status (2,100 calories per person per day) and minimum non-food expenditure.

**Table 5: Average Nominal Annual Income Per Capita by Sources of Income, 1992-93 & 1997-98**

	<i>Rural</i>		<i>Urban</i>		<i>Overall</i>	
	<i>Thousand VND</i>	<i>Share of total (%)</i>	<i>Thousand VND</i>	<i>Share of total (%)</i>	<i>Thousand VND</i>	<i>Share of total (%)</i>
<b><i>Average nominal annual income per capita 1992-93</i></b>						
Farm self-employment	478.9	51.8	88.1	4.9	401.1	36.3
Non-farm self-employment	261.4	28.1	993.7	54.7	407.1	36.8
Wages	154.1	16.6	588.8	32.4	240.6	21.8
Pension, subsidies, scholarship	26.5	2.8	76.3	4.2	36.4	3.3
Other income	7.8	0.8	68.1	3.8	19.8	1.8
<b>Total</b>	<b>928.7</b>	<b>100.0</b>	<b>1815.0</b>	<b>100.0</b>	<b>1105.0</b>	<b>100.0</b>
<b><i>Average nominal annual income per capita 1997-98</i></b>						
Farm self-employment	1219	49.5	29	0.3	1051	31.0
Non-farm self-employment	495	20.1	3310	36.7	893	26.4
Wages	390	15.8	2969	33.0	754	22.2
Pension, subsidies, scholarship	91	3.7	253	2.8	114	3.4
Other income	268	10.9	2450	27.2	577	17.0
<b>Total</b>	<b>2463</b>	<b>100</b>	<b>9011</b>	<b>100</b>	<b>3389</b>	<b>100</b>

**Source:** State Planning Committee (SPC) and GSO (1994), GSO (2000c).

### 3.2. Regional Income

During the period 1990-97 Vietnam's annual GDP growth rate was quite high, at about 8 percent, while the population grew at 2 percent, implying 6 percent growth of income per capita in aggregate. A number of studies<sup>4</sup> has confirmed the impressive improvement in living standards and poverty alleviation, as well as the further deterioration in income distribution (regional, rural-urban and rich-poor). Although all regions in Vietnam have enjoyed growth, the benefits have not been spread equally. In fact, differences in growth rates experienced by regions may have led to widening the gap between the rich and the poor.

Table 6 summarises per capita annual expenditure by region in 1993 and 1998. Regions are clearly not the same in terms of income level. The poorest regions are the Northern Uplands, the North Central regions and the Central Highlands. The Southeast region, including Ho Chi Minh city, is the richest region. Table 6 demonstrates that growth rates of per capita expenditure between 1993 and 1998 were different among regions, understandably from different bases. The

<sup>4</sup> See e.g. Nguyen Van Bich and Chu Tien Quang (1996), Dang Tho Xuong *et al* (1997), a survey conducted by the Ministry of Agriculture and Food Industries and the GSO during 1990-92 (Nguyen Van Tiem 1993), MPHS (GSO 1998), the second round of the VLSS in 1997-98 (Poverty Working Group 1999), and Boothroyd and Pham Xuan Nam (2000).

Southeast region took the lead thanks to fast industrialisation process and large inflows of FDI to this area.<sup>5</sup> The Red River Delta also grew rapidly. But the income gap between the richest (the Southeast) and the poorest regions (the Northern Uplands) has been widening from 1.9 times to 2.6 times. Generally, poorer regions, usually the mountainous and remote ones, have tended to gain less from growth than richer regions, as reflected in a lower per capita expenditure growth rate. The gap would be larger in terms of income.

**Table 6: Expenditure per Capita by Regions in 1993 and 1998**

(at 1998 prices, thousand VND)

<i>Region</i>	<i>Population share in 1993 (%)</i>	<i>Expenditure per capita</i>		<i>Growth for 93-98 (%)</i>
		<i>1993</i>	<i>1998</i>	
<b>Whole country</b>	<b>100.0</b>	<b>1936</b>	<b>2764</b>	<b>42.8</b>
Northern Uplands	17.0	1442	1920	33.1
Red River Delta	20.2	1866	2938	57.4
North Central	12.8	1486	2197	47.8
Central Coast	11.9	2026	2641	30.4
Central Highlands	3.2	1537	1942	26.4
Southeast	12.6	2801	5019	79.2
Mekong River Delta	22.4	2129	2536	19.1

**Source:** GSO (2000c).

Between the three parts of Vietnam (North, Central and South), average annual income per capita in the South has been always higher than that in the North and the Central Vietnam. In 1998, income per capita in the Southeast region stood at 7,423 thousand VND or 2.2 times higher than the average level of the whole country. Meanwhile, income per capita of all northern and central regions was lower than the country's average level and even that of the Mekong River Delta.

The study by Poverty Working Group (1999) revealed that inequality between regions has grown faster than inequality within regions, with the former contributing 83 percent to the overall increase in inequality, and the remaining 17 percent due to increasing inequality within regions in Vietnam between 1993 and 1998. If this trend persists, income disparity will continue to rise, and it will take a longer period for the low-income sections of the population to move out of absolute poverty for a given growth rate.

### 3.3. Distribution of Rural-Urban Income

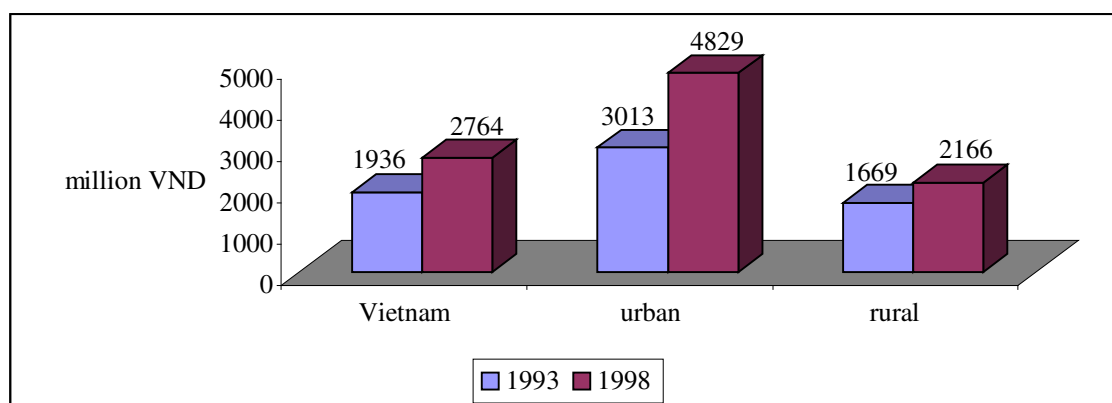
As seen in Figure 2 and Table 7, during the period 1993-98 as urban expenditures have grown at significantly higher rates than rural expenditure, the gap between rural and urban incomes within all regions deteriorated even more than inequality between regions with the only exception for the Red River Delta.

<sup>5</sup> Ho Chi Minh city and Dong Nai province – the two largest industrial areas in the Southeast region are leading in FDI attraction, contributing altogether about 49 percent of total registered capital.

Table 8 summarises Gini ratios estimated for Vietnam. Although the ratios are thought to understate income inequality in Vietnam due to under-reporting problem, they show some trends in dynamics of income distribution for the period under consideration. Consistent with the discussion above, it is found that:

- Income inequality is higher for urban than for rural areas in all regions for both years, and Gini ratios tend to be higher for regions with higher economic growth.
- The income disparity between rural and urban areas tended to be widened as the economy develops. Although income inequality between rural and urban areas is currently lower than that in other countries, this upward trend in income disparity deserves attention as around three quarters of the population is living in rural areas.

**Figure 2: Real per Capita Expenditure by Rural-Urban, 1993-98**



Source: data taken from GSO (2000c).

**Table 7: Rural-Urban Growth in Real Per Capita Expenditures by Region 1993-98**

<i>Region</i>	<i>(percentages)</i>		
	<i>Growth in urban expenditure</i>	<i>Growth in rural expenditure</i>	<i>Difference in urban-rural growth rate of expenditure</i>
<b>Whole country</b>	<b>60.5</b>	<b>30.4</b>	<b>30.1</b>
Northern Uplands	65.8	26.9	38.9
Red River Delta	47.2	51.4	-4.2
North Central	86.4	37.2	49.2
Central Coast	39.1	25.5	13.6
Central Highlands*	na	24.8	na
Southeast	78.1	59.1	19.0
Mekong River Delta	35.7	10.6	25.1

Source: Poverty Working Group (1999).

Note: \* The Central Highlands has no respective urban areas.

Decomposing the increase in inequality during the period 1993-98, Poverty Working Group (1999: 67) estimated that 96 percent of the increase in inequality for Vietnam as a whole could be attributed to an increase in inequality *between* rural and urban areas, and only 4 percent was due to an increase in inequality *within* rural or urban areas. In fact, during this period, it was estimated that inequality within rural areas had decreased slightly, while it had increased in urban areas (Table 9).

**Table 8: Income Inequality and GDP Growth Rate in Vietnam, 1993-98**

Region	1993				1998			
	Total	Gini Urban	Gini Rural	GDP growth (%)	Total	Gini Urban	Gini Rural	GDP growth (%)
<b>Total</b>	<b>0.330</b>	<b>0.340</b>	<b>0.278</b>	<b>8.08</b>	<b>0.354</b>	<b>0.348</b>	<b>0.275</b>	<b>5.76</b>
Northern Uplands	0.244	0.237	0.224	3.08	0.274	0.202	0.249	2.11
Red River Delta	0.310	0.304	0.235	4.60	0.321	0.373	0.253	6.09
North Central	0.244	0.294	0.231	2.50	0.289	0.335	0.255	2.23
Central Coast	0.336	0.340	0.293	6.28	0.335	0.336	0.294	4.83
Central Highlands	0.311	na	0.311	11.34	0.309	na	0.309	10.52
Southeast	0.357	0.331	0.312	15.23	0.340	0.312	0.280	6.40
Mekong River Delta	0.314	0.336	0.285	7.73	0.298	0.350	0.234	6.81

Sources: GSO (2000c), Poverty Working Group (1999).

**Table 9: Decomposition of Inequality by Rural-Urban Using Household Expenditure Data, 1993-98**

<i>Theil L index of inequality</i>	1993	1998	<i>Absolute change between 1998 and 1993</i>
Rural	0.128	0.126	-0.002
Urban	0.187	0.197	+0.010
<b>Decomposition of inequality</b>			
Total inequality in Vietnam	0.177	0.201	+0.024 (100%)
<i>Of which</i>			
Inequality between rural-urban areas	0.037 (21%)	0.060 (30%)	+0.023 (96%)
Inequality within rural-urban areas	0.140 (79%)	0.141 (70%)	+0.001 (4%)

Source: Poverty Working Group (1999: 68).

### 3.4. Income by Quintile

The gap between the rich and the poor has been widening nation-wide. In 1994, the average per capita income of 20 percent of the richest people in the richest province was 25 times higher than that of 20 percent of the poorest people in the poorest province; in 1996 this figure was 34 times (NCSSH 2001).

Increased inequality also shows up in household expenditures between 1993 and 1998. In the first round of the VLSS in 1993 the average per capita income of the richest 20 percent of the population was 4.9 times that of the poorest 20 percent. Measured after five years in the second round of the VLSS, the difference had increased to 5.5 times (Poverty Working Group 1999: 69). MPHS also confirms the increasing disparity, but it indicates an even larger increase in this gap - from 6.5 times in 1994 to 8.9 times in 1999 (Table 10).

**Table 10: Gap between the Highest Income and the Lowest Income Quintile**

	1994	1995	1996	1999
<b>Whole country</b>	<b>6.5</b>	<b>7.0</b>	<b>7.3</b>	<b>8.9</b>
<i>By urban - rural</i>				
Urban	7.0	7.7	8.0	9.8
Rural	5.4	5.8	6.1	6.3
<i>By regions</i>				
Red River Delta	5.5	6.1	6.6	7.0
Northern Uplands	5.2	5.7	6.1	6.8
North Central Coast	5.2	5.7	5.9	6.9
South Central Coast	4.9	5.5	5.7	6.3
Central Highlands	10.1	12.7	12.8	12.9
Southeast	7.4	7.6	7.9	10.3
Mekong River Delta	6.1	6.4	6.4	7.9

Source: GSO (2000a).

### 3.5. International Comparison

The discussion above suggests that Vietnam recorded an increasing trend in income inequality, which was up from 0.33 in 1993 to 0.35 in 1998 in terms of the Gini ratio. However it was still lower than many other developing countries in the region.

Estimates by Deininger and Squire (1996) indicate that income equality in Vietnam in 1993, as measured by the Gini ratio, is better than that of many countries. Among 86 countries (excluding industrial and high-income developing countries) for which data are available, the Gini ratio for Vietnam in 1993 is 0.36<sup>6</sup>, ranked 30<sup>th</sup>, as compared with that of the lowest 0.21 of the Slovak Republic (the most equal) and the highest 0.62 of South Africa (the least equal). In comparison with all former socialist countries, however, Vietnam's Gini ratio is the highest, except for Armenia. A possible explanation is that the Gini ratio for Vietnam is derived from the only observation in 1992 after five years of economic reforms, whereas the Gini ratio for many other socialist countries relies upon data covering the centrally planned period, well known to have been highly egalitarian. Still, it seems that the Gini ratio for Vietnam is under-estimated. As the concept of income, the reporting units and the quality of the data may vary, the Gini ratios quoted here can only serve broad comparison purposes concerning income equality. But it is worth noting that the average Gini ratio of the 87 developing countries is 0.41, 15 percent higher than Vietnam's coefficient.

Vietnam's Gini ratio in 1998 was also lower than those of many other developing countries in the region (see Table 11). Vietnam is, thus, a relatively good performer in terms of income distribution.

<sup>6</sup> This ratio is slightly higher than the one mentioned elsewhere in this paper, as it is a preliminary estimate of the first VLSS.

**Table 11: Level of Income in Vietnam and Other Asia's Countries**

<i>Countries</i>	<i>Year</i>	<i>Gini ratio</i>
Malaysia	1989	0.48
Thailand	1992	0.46
Philippines	1994	0.43
China	1995	0.42
Indonesia	1996	0.37
Vietnam	1998	0.35
Lao People Democratic Republic	1992	0.30
India	1994	0.30

**Source:** United Nations Development Programme (UNDP) (2000).

#### **4. INCOME INEQUALITY**

This section analyses income inequality during the 1990s in Vietnam for ascertaining its major sources in order to trace back to policies that induced this pattern. The section first outlines the source of data, which is used for estimating income inequity, and methodology for its estimation, followed by interpretation of the results.

##### **4.1. Sources of Data on Household Income and Expenditure for Vietnam**

The main sources of household income and expenditure data for Vietnam are VLSS, Vietnam Household Living Standards Survey (VHLSS), MPHS and Labour Force Survey (LFS).

Until now, there are two rounds of VLSS that conducted in 1992-93 and 1997-98. The survey was implemented by the GSO<sup>7</sup> with funding from the Swedish International Development Cooperation Agency (SIDA) and the UNDP, and technical assistance from the World Bank. These nationally representative sample surveys provide data on a wide range of topics, including: expenditures and incomes; education; health; employment; migration; housing; agricultural activities; small household businesses, credit and savings. Income can be constructed from available raw data in many ways that fit purposes of research. Some 4,800 households were included in the first VLSS and about 6,000 households were covered in the second round. Approximately, 4,300 households were included in both the first and second rounds, providing a large panel of households useful for analysing how living standards have changed over time.

MPHS was undertaken by GSO annually between 1994 and 1999, except for 1998, when the necessary information on households was obtained from VLSS 1997-98. MPHS had a considerably larger size than VLSS with a sample of 45,000 households for the years before 1997, 47,700 households in 1997 and 25,170 households in 1999. The survey collects data on household income, expenditure, education, health, housing, assets, household businesses, structure of production costs, credit and savings. However, GSO has never released raw data. In addition, the survey faced some problems of measurement errors.

<sup>7</sup> The SPC (now the Ministry of Planning and Investment) joined GSO in carrying out the first round of VLSS in 1992-93.

The VHLSS, conducted in 2001-02 and being a merger of the two surveys VLSS and MPHS, had substantially larger coverage of 75,000 households, but its data are not released yet. It is intended that this survey will be carried out every two years. VLSS, MPHS and VHLSS allow compilation of income data for a household as a whole, for an individual income earner, as well as on per-capita basis. Information is also available for compiling income by various dimensions such as by sector of employment, by region, by gender, by education or ethnicity.

LFS was conducted annually since 1996 with coverage of about 110 thousand households (or 540 thousand persons). The focus of the survey has been on employment, underemployment and unemployment, as well as labour force structure and its quality (level of education, training, qualification and skills). There is only one question on *wages and income of wage earners*, and this question was asked just since 1999. Thus, the survey does not provide detailed data on income of households, especially for self-employed workers who constitute an overwhelming majority of the labour force in Vietnam. Furthermore, LFS data are not panel data, as there is a gradual annual shift of 20% in households selected for the survey.

Among the data sources mentioned above, the VLSS is chosen due to its superiority over the remainders. This includes raw data availability, flexibility in calculating all types of income that required by the research, and fewer measurement errors.

#### **4.2. Indicators of wealth using for measuring income inequality**

Income inequality may be very different, if it is measured using different indicators of wealth. Below is brief discussion about implication of using these indicators in Vietnam.

##### **Expenditure versus Income**

Both household expenditure and income are used for measurement of income inequality in Vietnam. Many researchers opt for expenditure because of its milder under-reporting problem than income. On the other hand, household expenditure tends to be distributed more equally than income because of savings by high-income groups and dissavings by low-income ones. This may distort the real picture of income distribution and it is the justification for using household *income* data.

##### **Household Income versus Individual Income**

Measures of income inequality, among other things, have to make distinction of households that have a similar level of income but may not have the same size. Statistics show that household size often varies among income quintiles with lower ones having a larger size. The situation is similar between rural and urban households, between regions, between households with different education levels, between occupations or sectors that employ workers. Furthermore, changes in the household size over time do not occur uniformly across all household categories.

Thus, correct measures of income inequality have to be estimated using *average household income per capita*.

## Components of Household Income

Various researchers or institutions use different definition of household income, depending on their intended purposes. Components of household income in Vietnam may include some or all of the following components: wages and salaries, employment benefits, mixed income derived from self-employment, interest earnings, dividends, imputed housing rents, rents, transfers, pensions, explicit subsidies included in wages, scholarship.

Data used for income inequality analysis in this section come from VLHH. These are average household income per capita, which includes all above-mentioned components. A household is a basic income recipient unit. Income earned by each individual household member as well as by businesses run by the members is pooled to obtain an estimate of household income. All household members are assumed to have the same per capita income. To take care of variation in prices across regions, all household incomes were converted to a national average by applying the respective spatial price indices calculated by the World Bank and GSO experts for the survey. Other household characteristics as well as sectors occupying workers are retained to disaggregate households into different social groups for the analysis.

### 4.3. Methodology

The methodology adopted in this section for decomposing income inequality is of Warr (2002). Theil T index is used to explain the pattern of inequality and the changes over time. This class of measures allows identifying the exact sources and causes of inequality, given availability of primary income unit data.

### 4.4. Income Inequality Analysis

Table 12 presents Theil T indexes estimated for various population groups in terms of household income for two years 1992-93 and 1997-98. Over the period 1993-98 the overall inequality increased from 0.3194 to 0.3699, or by 15.8 percent. Although the largest inequality resulted from within-group inequality, the major source of increases in income inequality over the period 1993-98 comes from between-group inequality. These findings are consistent with those in Poverty Working Group (1999) and Glewwe *et al* (2000), estimating Theil indexes for household expenditures. By *urban-rural* dimension, the Theil T indexes suggest that the largest source of inequality came from within urban and rural population. This is due to the fact that income levels are unequal within both urban and rural areas, with distribution of income in cities being more unequal. Only 8.56 percent of overall inequality in 1993 is due to differences in mean per capita income between urban and rural areas. In other words, if mean rural per capita income were raised to be equal to mean urban per capita income, overall inequality would decline only by about 8.56 percent. However, this figure has increased to 13.95 percent by 1998. This suggests that the income gap between urban and rural areas is increasing relative to that within rural or urban income. In fact, rural income inequality almost unchanged over this period (a negligible increase from 0.2776 to 0.2787).

Inequality in mean per capita income across the seven geographic and ecological *regions* contributes just 7.05 percent to overall inequality in 1993. This result implies that if per capita income were equalised across regions, holding the distribution of

income within each region constant, overall inequality would be reduced by about 7.05 percent. Nevertheless, between-group inequality has increased up to 10.34 percent, which suggests that some regions have been growing more quickly. Among all regions, the poorer ones such as the Central Highlands, the Northern Uplands and the Central coasts experienced the largest increases in income inequality during the period 1993-98, implying smaller benefits of growth accruing to the poorest income section of the population in these regions, as well as increasing income disparities national-wide.

**Table 12: Decomposition of Income Inequality**

<i>Region or group</i>	<i>Theil T</i>		<i>Between-group inequality*</i>	
	<i>1993</i>	<i>1998</i>	<i>1993</i>	<i>1998</i>
<b>All Vietnam</b>	<b>0.3194</b>	<b>0.3699</b>		
<b><i>Urban/rural</i></b>				
Urban	0.3258	0.3661	0.0273	0.0516
Rural	0.2776	0.2787	(8.56)	(13.95)
<b><i>Region</i></b>				
Red River Delta	0.1913	0.2726	0.0225	0.0382
Northern Uplands	0.3098	0.3393	(7.05)	(10.34)
North Central Coast	0.2555	0.2747		
South Central Coast	0.3176	0.3782		
Central Highlands	0.2386	0.4230		
Southeast	0.3057	0.3444		
Mekong River Delta	0.3527	0.3073		
<b><i>Education of household head</i></b>				
Illiterate	0.3000	0.3210	0.0047	0.0322
Primary school	0.3199	0.3202	(1.48)	(8.71)
Lower secondary school	0.2879	0.3222		
Upper secondary school	0.2992	0.4179		
Technical	0.2852	0.3578		
University	0.4048	0.3613		
<b><i>Sex of household head</i></b>				
Male	0.3082	0.3721	0.0060	0.0030
Female	0.3474	0.3543	(1.88)	(0.81)

**Note:** \* Figures in parentheses are between-group inequality as percentage of total inequality.

Inequality in mean per capita income across the seven geographic and ecological *regions* contributes just 7.05 percent to overall inequality in 1993. This result implies that if per capita income were equalised across regions, holding the distribution of income within each region constant, overall inequality would be reduced by about 7.05 percent. Nevertheless, between-group inequality has increased up to 10.34 percent, which suggests that some regions have been growing more quickly. Among all regions, the poorer ones such as the Central Highlands, the Northern Uplands and the Central coasts experienced the largest increases in income inequality during the period 1993-98, implying smaller benefits of growth accruing to the poorest income

section of the population in these regions, as well as increasing income disparities national-wide.

Differences in *education levels* of the household heads explains only about 1.48 percent of overall inequality in Vietnam in 1993, while the major source appears to come from differences in earning opportunities among workers with a similar level of education. This fact suggests that the labour market in Vietnam is underdeveloped and fragmented. Yet, education attainment proved to be of an increasing importance over the period 1993-98, where differences in education levels resulted in larger disparities in income, which reflected in substantially higher between-group income inequality of 8.71 percent of the overall inequality. While income inequality among households with the head being illiterate or having finished primary education did not change much, some households with the head having finished upper secondary education fared best, followed by those finishing colleges and vocational schools.

Table 12 also reveals substantial differences in mean income per capita within *male- and female-headed household* groups, which account for 98.12 percent of overall inequality in 1993. The gender income gap reduced somewhat in 1998, while the within-group inequality became larger. It is notable that the inequality became smaller among female-headed households, while it went up for male-headed households.

Decomposition of inequality by *income source* is presented in Table 13. In this regard, income may be divided into four major sources: income from agricultural activities, income from manufacturing, income from services and other income (government social fund payments, social subsidies, interest earnings and insurance payment). The table demonstrates that agricultural income remains the largest source in the total income, though its importance has been declining. Services also serve a major source of income. Over time, manufacturing, services and other income contribute increasing shares to the total income.

**Table 13: Inequality by Sources of Income, 1992-93 and 1997-98**

<i>Income source</i>	1992-93		1997-98	
	<i>Inequality share</i>	<i>Income share</i>	<i>Inequality share</i>	<i>Income share</i>
Agriculture	20.94	48.74	11.52	40.18
Manufacturing	18.58	15.55	26.87	16.45
Services	37.42	24.20	36.45	27.91
Other	23.06	11.51	25.16	15.45
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Shorrocks' decomposition reveals several important findings. First, for both years 1993 and 1998, agricultural income accounts for nearly half of the total income, but contributes only 20.94 and 11.52 percent of the overall inequality. Over the period under consideration, distribution of income from agricultural activities tends to be more equal, implying that agriculture is an equalising source of income. This is the outcome of broad-based reform in agricultural sector, including distribution of land-use right back to farming households and liberalisation of input and product markets that resulted in agricultural intensification and diversification. Consequently, increased agricultural incomes became an important cause of the negligible increase in the inequality of rural incomes over the period 1993-98.

Services bring around one fourth of the total income, but is responsible for 37.42 and 36.45 percent of the total inequality in 1993 and 1998 respectively. Clearly, income from this source is very unequally distributed. Services in Vietnam are very diverse in terms of value added they create for the economy. Unskilled labour, often the low-income section of the population is engaged in simple low-value-added activities such as street sellers. At the same time, some other services like information technology, banking or real estate may bring a fortune to its owners. Nevertheless, over the period 1993-98 income accruing from delivering services tended to be distributed more equally.

Income from manufacturing and other income appeared to be disequalising, and income inequality within each of these sources of income have been more unequal between 1993 and 1998. This suggests that some groups of workers in manufacturing received much higher income than the remainders. Recalling that this is a period of rapid growth of the manufacturing and construction sector at growth rates above 10 percent, accompanied by an increasing share of the sector in GDP from 28.6 percent to 32.7 percent. Obviously the high growth and the expansion of the sector were not accompanied by a relevant increase in sectoral labour employment to create additional jobs and income for workers previously occupied elsewhere in the economy.

#### **4.5. Concluding Remarks**

The decomposition of income inequality discussed above reveals that during 1993-98 *the largest source of inequality* is inequality within each group under consideration, that is the one within urban and rural population, within each region, each education level of the head of households. However, *major sources of increasing inequality* came from inequality between rural and urban areas, between regions and differences in education levels of the head of households. It is also found that among the three main sectors of the economy, *agricultural income was equitable* in terms of income distribution, while *manufacturing and services were disequalising* sources of income under current circumstances. Rapid growth in all the three sectors over this period did not translate into equal growth benefits among all groups of the population. Explanations for that may be numerous, including a low level of human capital and poor endowment of the low-income part of the population to take advantage of the opportunities, unfavourable natural local conditions, physical or social isolation due to poor infrastructure, and those government policies that hinder equitable growth.

The following section will attempt to examine impact of investment policy, being among the most important policies to create more equal opportunities for citizen to share fruits of growth.

### **5. INVESTMENT POLICY DURING THE PERIOD 1990-97 AND ITS POSSIBLE IM PACTS**

#### **5.1. Public Investment Policy**

The Public Investment Program (PIP) 1996-2000 is a program allocating government investment during the period 1996-2000, but it also includes estimated figures for domestic private and foreign investment by sectors. Table shows the projected aggregate allocation of total investment in Vietnam during the period 1996-2000.

**Table 14: Investment Structure for the Period 1996-2000**

	(trillion VND)				
<i>Industry</i>	<i>State &amp; SOE investment</i>	<i>Household investment</i>	<i>FDI</i>	<i>Total investment</i>	<i>% of total</i>
<b>TOTAL INVESTMENT</b>	239.20	76.50	144.30	460.00	100.00
<b>By source</b>					
Domestic	156.00	76.50		232.50	50.54
Foreign	83.2		144.30	227.50	49.46
<b>By industry</b>					
Manufacture	66.90	15.00	112.60	194.50	42.28
Agriculture	64.80	24.20	6.50	95.50	20.76
<i>General agriculture</i>	37.80	14.20	6.50	58.50	12.72
<i>Water management</i>	14.50			14.50	3.15
<i>Forestry</i>	8.00	5.00		13.00	2.83
<i>Storage</i>	4.50	5.00		9.50	2.06
Tourism	2.50		1.50	4.00	0.87
Transport	47.90	10.00	10.80	68.70	14.93
Telecommunication	13.90	5.80	12.90	26.80	5.83
Urban water supply	8.90	11.50		14.70	3.20
Other urban infrastructure	5.80			17.30	3.76
Science, technology & environment	2.90			2.90	0.63
Education & training	7.30	5.00		12.30	2.67
Health & social services	6.50	5.00		11.50	2.50
Information & culture	4.80			4.80	1.04
Public administration	2.00			2.00	0.43
Other				5.00	1.09

**Source:** SRV (1996: 20).

Public investment during this period appeared to support both import-substituting and export-oriented strategies. While some state (concessional) credit was devoted to developing industries which seemed to have a comparative advantage (textiles and garments, food processing), Table demonstrates that 94.66 percent of state credit for manufacturing industries was dedicated to the 20 largest priority projects during the period, most of which was in capital-intensive and infant industries that were likely to fail to compete internationally. They were oil-refining, fertiliser, steel, automobile tyres and cement factories. These industries took resources away from industries exploiting comparative advantages, and led to misallocation and waste of scarce resources.

During this period, in addition to calling on investment to export-oriented industries (food processing, textiles and garments, electronics),<sup>8</sup> the government also encouraged domestic and foreign investors to invest in capital-intensive or uncompetitive industries such as machinery and equipment, transport equipment and sugar. New public investment was being channelled to achieve self-sufficiency in what were believed to be key industrial areas of the economy, and more troublesome in most cases, via SOEs. Although the SOE sector in Vietnam is not large compared with that

<sup>8</sup> The incentives provided by the government to export-oriented industries were eroded by the government announcement in 1996 that applications for investment in the textile and clothing sector would be treated more restrictively in future (Wolff 1999: 87).

of other former socialist countries, it is dominant in the key industries of the economy; it has very close links with policy makers, with major sources of influence; and has preferential access to scarce resources (land, state credit) and markets (licensed through export and import quotas). SOEs were supported by the government via its unwritten policy, which directed foreign investors to joint ventures with SOEs (World Bank 1997). More than half of the planned investment in Vietnam during the period 1996-2000 was expected to be connected with SOEs, often in import-substituting industries (UNDP and UNICEF 1996: 20).

**Table 15: Main Industrial Projects 1996-2000**

(billion VND)				
<i>Industry</i>	<i>No of projects</i>	<i>Estimated annual capacity</i>	<i>Total costs</i>	<i>Government contribution</i>
Gas pipeline	1	1.5 billion m <sup>3</sup>	1870	1870
Oil refinery	1	6.5 million tons	13200	3960
Fertiliser	2	0.59 million tons	4070	553
Automobile tyre	2	1 million pieces	1760	704
Steel	4	2.85-3.15 million tons	27713	8565
Iron ore mine	1	10 million tons	9900	2970
Cement	9	13.56 million tons	20015	6935
<b>Total</b>	<b>20</b>		<b>78258</b>	<b>25557</b>

**Source:** Derived from SRV (1996: 32).

Nguyen Tuan Dung's (1999) research showed that FDI, driven by the government industrial policy (including PIP and trade policy) to support import-substitution strategies, has been distorted toward capital-intensive activities and was primarily for serving the protected domestic market rather than export markets.

The dominance of capital-intensive industries is evidenced by a negligible impact of strong manufacturing growth (13 percent per annum) on its employment (4 percent per annum) between 1992 and 1997. This employment growth rate represents just 30 percent of the rate of manufacturing growth. In sharp contrast, Korea, Singapore and Taiwan during the 1970s and 1980s, and Indonesia in the early 1990s were able to raise manufacturing employment at an annual rate close to 80 percent of their manufacturing growth (Poverty Working Group 1999).

While some highly capital-intensive industries whose efficiency must be in question, like oil-refining, obtained huge funding to support the import-substituting strategy, agriculture and the rural economy, having good reason to get more government funding, and badly needing it, were under-funded. Total government spending on agriculture (with most of it on irrigation) – a sector employing about 70 percent of the work force and contributing 26 percent of GDP - was around 6 percent of the total budget during the period 1992-95 or 1.5 percent of GDP in 1994. Agriculture, forestry and fisheries shared just 2 percent of total committed FDI (UNDP 1996).

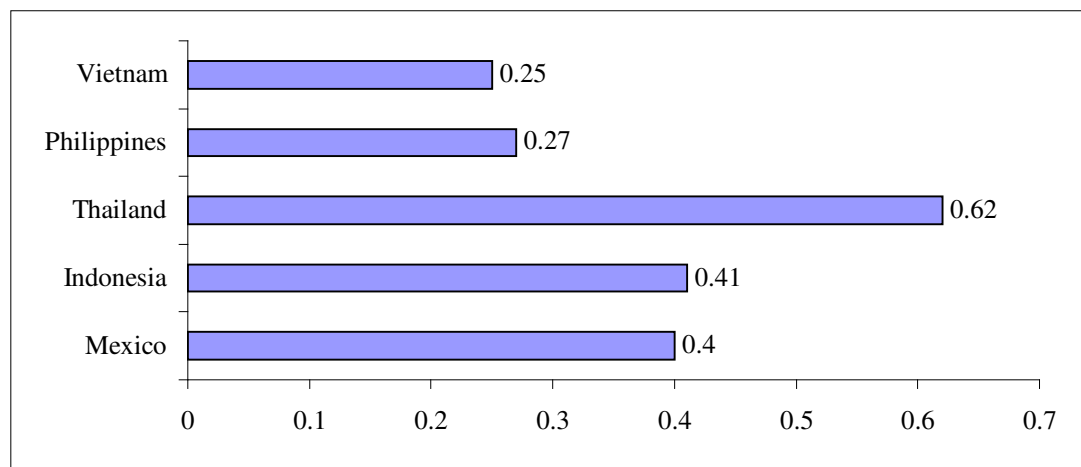
The World Bank (1998), using the “average expenditure bias indicator”<sup>9</sup> indicated that agriculture received substantially less public expenditure support than it contributed to GDP. Figure 3: Expenditure Bias Indicators for Agriculture shows a greater relative discrimination against agriculture in Vietnam compared with the situation in some other countries. Given the relative importance of public expenditure among all

<sup>9</sup> It is defined as the share of budget spending on agriculture divided by the share of agriculture in GDP. The smaller the coefficient, the greater is the bias.

agricultural investment sources (67.8 percent), it is probably too low to make large advances in agricultural output and productivity and to enable agriculture to catch up with other sectors and restructure its production. “The Vietnam Public Expenditure Review” (UNDP 1996: 10-22) suggested that only public investment in irrigation and water resource management was adequate, the remainder fell well short.

One piece of evidence pointing to under-investment in agriculture is that returns to research expenditure in Vietnam seem to be extremely high. Each new rice variety generated an annual incremental production of 500,000 tons of paddy, and just 5 percent of this increment would be sufficient to cover the entire annual research budget of the Ministry of Agriculture and Rural Development. Even with their modest research budget, researchers introduced 50 new improved crop varieties during the period 1991-95 (UNDP 1996: 13).

**Figure 3: Expenditure Bias Indicators for Agriculture**



Source: World Bank (1998).

Moreover, inconsistency exists between allocation of public investment and the government's two-fold conflicting objective of concentrating resources in developing key sectors and focal economic zones<sup>10</sup> and, at the same time, allocating funds to underdeveloped rural and mountainous areas. While focal economic zones were implicitly promoted through the location of large-scale projects and major infrastructure developments in the PIP 1996-2000, neither systematic effort nor priority was given to remote and backward areas to develop them and to provide income opportunities for the poor.

In summary, the main features of PIP during the period 1996-2000 include:

- Stated government objectives were inconsistent with priorities and investment allocation (sectoral and regional).

<sup>10</sup> Three focal economic zones (sometimes called growth centres, or growth triangles) are defined by the government as locations having potential for establishment of industrial agglomerations and are prioritised in government policies. They are Ho Chi Minh city, Dong Nai province and Ba Ria – Vung Tau (southern triangle); Hanoi, Hai Phong and Quang Ninh (northern triangle); Quang Nam - Da Nang (central triangle).

- Major resources were being allocated to SOEs, many of which operated in areas believed to be better left to the private sector. The PIP was heavily biased in favour of investment in capital-intensive manufacturing projects orientated toward the domestic market.
- Agriculture, especially research and extension, was under-funded.
- Priority was given to building up three growth zones through the location of large-scale projects and major infrastructure developments.
- Rural infrastructure was given negligible attention.
- The project selection process was not drawing on clear technical selection criteria such as efficiency, social equity and environment protection.<sup>11</sup>

## 5.2. Impacts of Public Investment Policy

The consequences of these kinds of investment policies are many-fold. All bias measures mentioned above channelled resources, especially scarce one such as capital and land away from industries exploiting comparative advantages, and led to inefficiency of the privileged industries, misallocation and waste of scarce resources. Consequently, the latter expanded at the cost of the remaining industries.

There is increasing evidence of failure of these capital-intensive industries to improve productivity and raise their international competitiveness. In addition, ancillary costs occur from so-called directly unproductive profit-seeking activities such as increasing the use of lobbying for receiving more funding. This kind of public investment policy also affected income distribution, as discussed below.

### Sectoral Productivity Differences

The public investment policy adopted creates the wrong kind of incentives by providing a monopoly position for selected industries within domestic markets and misdirecting domestic and foreign investment in a highly undesirable way towards import-substituting, capital-intensive industries. As shown in Table 16, the public investment policy in particular and industrial policies in general were supposed to support these industries to grow rapidly during the period 1995-2000.

Table reveals that FDI has mostly gone into manufacturing in recent years. FDI was prominent in oil and gas, and real estate, but these investments mostly took place in the 1988-90 period. Indeed, in the subsequent period FDI was being attracted into relatively highly protected heavy industries such as shipping and equipment (41 percent of output), electrics and electronics (50 percent of output), and motor vehicles (69 percent of output). FDI is already excessive in vehicle assembly plants of a non-viable size. The Centre for International Economics (1998: 131) estimated that 65 percent of FDI occurred in sectors with effective rates of protection above 60 percent.

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<sup>11</sup> For more detail on issues associated with the project selection process see Van Arcade (1998).

**Table 16: Selected Industrial Output: 1995 and 2000**

				(million tons)
<i>Product</i>	<i>1995</i>	<i>2000</i>	<i>Growth rates (%)</i>	
Steel	0.47	1.58	236	
Cement	5.83	13.30	128	
Sugar and syrups	0.61	1.37	125	
Paper	0.22	0.41	89	

**Source:** GSO (2002).

**Table 17: FDI by Sector, 1988-98**

		(percentages)
<i>Sector</i>	<i>1988-98 share of the total</i>	
Heavy industries**	15.46	
Oil and gas*	20.39	
Real estate*	17.83	
Light and food industries**	12.41	
Agriculture, forestry and fisheries	6.08	
Transportation, communications and services	9.43	
Other	18.39	
<b>Total</b>	<b>100.00</b>	

**Source:** International Monetary Fund (IMF 1999: 33)

**Note:** \* Mostly took place between 1988-90.

\*\* Mainly established from late 1991 onward.

Paradoxically, throughout the period 1989-97, the high level of manufacturing growth, primarily due to the accelerated growth of capital-intensive industries, did not generate additional employment.<sup>12</sup> In 1998 FDI produced almost one third of manufacturing output, but employed only 12 percent of manufacturing labour. Agriculture, otherwise constrained by limited cultivation areas<sup>13</sup> has been forced to make room for rural youth who had not been able to find jobs in sectors outside agriculture. That has resulted in higher rural underemployment<sup>14</sup> and much lower productivity in agriculture than in manufacturing (outlined in Figure 4). Protection, on the other hand, drew scarce resources (capital and skilled labour) from agriculture and labour-intensive manufacturing into capital-intensive industries,

<sup>12</sup> To be more accurate, during the period 1989-92, agricultural labour force expansion was primarily caused by the SOE reforms. Improvement of productivity in the SOEs in order to survive in the new economic environment resulted in dissolving 2,000 SOEs and amalgamating another 4,000 SOEs. This led to 1.5 million state workers out of the 4.05 million total SOE employees being unemployed, retired or reduced to part-time work (Fahey 1995: 47). Agriculture and the emerging private sector helped to accommodate the retrenched SOE workers. From 1993 onward, the emphasis on capital-intensive industries has meant that manufacturing has not generated employment opportunities.

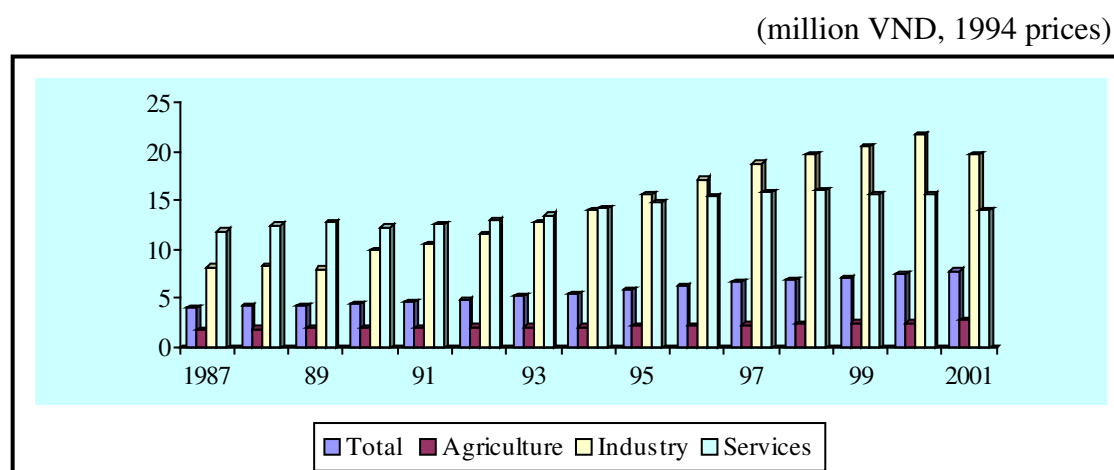
<sup>13</sup> In the Red River Delta the average utilised agricultural area per employee is just 0.06 hectare, one of the smallest ratios in the world (Wolff 1999: 95). The average holding of arable land by households is so small that farmers cannot be employed fully and provide an adequate livelihood. Adding to the difficulty is the much higher rural population growth, resulting in declining land per capita even less capable of providing sufficient employment for rural dwellers who are largely dependent on farm income. Consequently, the extent of underemployment must be increasing.

<sup>14</sup> Rural under-employment has become serious. In 1997 the rural under-employment rate accounted for 25.5 percent of the rural labour force, almost 10 percentage points higher than for the urban labour force. This was caused mostly by under-employment in agriculture, accounting for 77.1 percent of total underemployed. In 1997, all jobs available to farmers occupied just 72.9 percent of their total working time (MOLISA 1998).

leaving the remaining industries, especially agriculture, with unskilled labour and little capital. The urban bias and heavy focus on large-scale manufacturing projects (seldom established in the countryside) in the PIP has contributed substantially to rural backwardness and agricultural under-funding.

Table demonstrates that the rural population, the majority of which works in agriculture, has much lower skill levels and is less educated than urban people who predominantly work in manufacturing and services.

**Figure 4: Sectoral Productivity (GDP per worker), 1987-2001**



Source: Pham Lan Huong et al (2003).

**Table 18: Level of Professional Qualifications as of 1997**

Qualifications	(percentages)		
	Urban	Rural	Vietnam
Unskilled workers	68.1	92.7	87.7
Low-skilled workers	2.5	1.2	1.5
Skilled workers	12.1	2.5	4.4
Workers finishing vocational college	8.3	2.6	3.8
Workers finishing university & higher	8.9	1.0	2.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: MOLISA (1998).

As productivity can be improved by the installation of more physical capital, or employment of more educated and skilled labour, this manner of resource allocation hinders the use of new technology and thereby makes agricultural productivity grow slowly relative to that of manufacturing and services.

All of these factors make agriculture in Vietnam lag behind manufacturing and services. Over the period 1991-97, the annual agricultural growth rate was just 4.5 percent, whereas manufactures and services grew at around 13.5 percent and 9.5 percent respectively.

### Divergences in Regional Industrial Structure and Regional Income Disparity

Due to differences in natural endowments, geographic location, climatic and environmental conditions, population density and other factors, the industrial structure

usually differs across regions. The investment policy has not only relieved the adverse outcomes of these differences but exaggerated them by establishing overwhelming advantages for investment in the largest industrial centres of the country. The current industrial policies caused excessive concentration of businesses, especially FDI in these centres.

Nguyen Tuan Dung (1999) in his empirical study found that the major factors determining FDI location in Vietnam were good infrastructure, a well-developed industrial base/agglomeration economies, public investment in the area, the availability of skilled labour, and large local market. All these features belong to large cities and growth centres. For this reason, FDI has been flowing to areas around Ho Chi Minh City and Hanoi, where advantages created by intentional promotion of growth centres through the PIP and other policies easily outweigh all the concessions and preferential treatments under the Law on FDI for investment in more remote and backward provinces.<sup>15</sup>

As of the end of 1996, about 12 billion US\$ (54 percent) of total FDI was located in the southern growth triangle around Ho Chi Minh City and the Mekong Delta, and about 7 billion US\$ (31 percent of total FDI) was invested in the northern growth triangle around Hanoi and the Red River Delta (Wolff 1999: 84). For the whole economy, over half of non-oil output was concentrated in the two northern and southern growth triangles.

These differences in industrial structure, enlarged by divergences in sectoral productivity are among the most important factors contributing to regional income disparities. Consequently, a region with economic activity dominated by manufacturing tends to have higher aggregate productivity and incomes; moreover, regions with more developed manufactures and services are more likely to have more productive agriculture than poor regions because of higher savings and investment in agriculture, except for the Mekong Delta which has absolute advantage in agricultural production within Vietnam.

### **Widening Rural-Urban Income Gap**

The high priority given by the government to infrastructure in the PIP during the period 1996-2000 was biased against rural people. The PIP reinforced the advantages of urban people by focusing substantially on non-rural projects (major roads, railways and bridges between cities, ports, and airports) almost neglecting rural infrastructure, which was in a poor state. It was planned that 80 percent of the population (the more backward section) received as little as 3.3 percent of total investment for intended transport infrastructure projects during the period 1996-2000 (SRV 1996: 49-50).

This situation was also partly caused by the way expenditure responsibility for infrastructure was assigned, according to which the central government (represented by Ministry of Transport) was responsible for the national network; provinces and cities were responsible for provincial and district networks; and the communes were responsible for the commune networks. Since funding for recurrent and investment

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<sup>15</sup> These concessions and preferential treatments include the ease in obtaining business licenses, longer tax holidays, lower minimum wage rates. However, because of the case-by-case negotiable nature of taxation, tax incentives provided by the government are weakened.

expenditures was scarce and varies greatly from commune to commune, under the tax sharing arrangement stipulated by the 1996 Budget Law, better developed provinces were able to provide better and more infrastructure, whereas poor regions lacked the funding to deliver a reasonably good minimum level of services. This arrangement exacerbated differences among regions in infrastructure development, which was seen as a vital precondition for successful rural development.

Another factor essential for rural people to raise their income is capital. Numerous surveys and studies<sup>16</sup> and other evidence consistently pointed to shortages of capital as the major problem facing farmers in improving agricultural productivity and shifting to off-farm sectors. While under-investment remained the most acute problem for improvement of rural income, capital was wasted in the protected industries.

Shortage of capital, inadequate basic agricultural services (e.g., research and extension, and irrigation), poor rural infrastructure, the low level of human capital and poor access to market information - which were to a certain extent due to the bias against agriculture - led to prohibitively high transaction costs and consequently the neglect of the private domestic and foreign investment in rural areas. That is why the secondary and tertiary sectors in rural areas lagged behind, and rural industries have been confined primarily to traditional craftwork in family enterprises, and small-scale construction and services to meet local needs. These industries were still underdeveloped; production capacity was very limited; and quality of output was poor and unstable. Therefore, except for traditional craftwork, the products were rarely consumed outside the local area.

The discussion above makes it clear that the rural economy was dominated by low-productivity agriculture. Consequently, rural incomes were falling further and further behind urban income.

### **Income Disparity Between the Rich and the Poor**

These policies also affected differently the income of labour with different skill levels. Privileges given to domestic capital-intensive industries, by and large employing skilled labour, hurt unskilled labour, which is the most abundant factor of production in Vietnam. Capital directed to these industries required skilled labour, which is drawn from the rest of the economy to them by high-wage incentives. As the major part of the incomes of the lower income households came from unskilled labour, whereas the majority of skilled workers were in the top income class, the investment policy pursued by the government has contributed significantly to growing income inequality between the rich and the poor.

## **6. MEASURING IMPACT OF THE INVESTMENT POLICY USING A COMPUTABLE GENERAL EQUILIBRIUM FRAMEWORK**

As pointed in the previous section, during the last decade the public investment policy tended to support both import-substitution and export-oriented strategies while maintaining the leading role of the state sector. However, the import-substitution

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<sup>16</sup> See e.g. Nguyen Tuan Khai (1997), Nguyen Thi Hang (1997), Pham Xuan Nam *et al* (2000), Dao The Tuan (1995), Dang Tho Xuong *et al* (1997).

strategy was promoted to a much higher degree. This pattern of policies had resource reallocation impacts in favour of inefficient industries, in most cases strongly associated with SOEs, at the cost of the rest of the economy, to the extent that agricultural productivity has grown slowly relative to the other sectors, particularly manufacturing. Regions dominated by agriculture have tended to gain less from such policies and grew slowly.

As a consequence of this policy combined with other distortions, income disparities between regions, between rural and urban areas, and between different income groups, have been increasing. However, it is not clear to what extent the investment policy may have been responsible for the increasing income disparities. This section uses a CGE framework, that has been developed by Pham Lan Huong (2000) to quantify the likely impact of the investment policy implemented during the period 1990-96 on income distribution in Vietnam.

### **6.1. Major Features of the Income Distribution Model for Vietnam**

The CGE model for the Vietnamese economy used to measure the impact of trade and investment policies on the incomes of the different household groups in rural and urban areas, called Income Distribution Model for Vietnam is a one-period Johansen-style model (i.e. linear in percentage changes) with several extensions to suit various research purposes. The model covers 31 industries, with its database relying upon a 1996 input-output table (GSO 1999), data from the VLSS conducted in 1992-93 (SPC and GSO 1994, and SPC 1994), and various other published and unpublished data. Each industry produces only a single commodity. The industry disaggregation adopted was determined by the specific features of the current policies and issues examined. Therefore, labour-intensive and protected capital-intensive industries are separated. Agriculture, a significant sector, employing 70 percent of the work force is divided into six industries, with rice cultivation standing as a separate industry due to its importance in the agricultural sector and its significant contribution to exports. Land is a specific input in rice, other crops, forestry and fisheries.

The primary factors of production are assumed to substitute for one another via a constant elasticity of substitution function, while the effective primary factor and effective intermediate inputs are in fixed proportions. Imported and domestic commodities are also substituted by constant elasticity of substitution. Because of the assumptions of constant returns to scale and perfect competition, zero pure profit equations imply that the total value of the output of an industry must be equal to the total value of inputs used to produce this output. All markets (except for labour one) are cleared in the model by matching supply with demand. A small open economy assumption is adopted for the model, since Vietnam has no power to affect world prices. Competition is perfect and no money market is involved. There are four major agent groups in the economy: producers, households, government and the rest of the world.

To measure the impact of trade and investment policies on income distribution in Vietnam, the model incorporates several specific features such as:

- Household disaggregation into three groups with rural and urban separation of each group.

- Division of labour into four types: farm self-employed, non-farm self-employed, and wage-earner's unskilled and skilled labour.
- Specific feature of land ownership. In Vietnam land is not privately owned but state-owned. The government, however, shares land income with farmers through granting them land-use right and imposing moderate tax rates on agricultural land (i.e. payment for using land, or in other words land income). To reflect this feature, income on the same parcel of land is modelled to consist of two distinct parts: land income accruing to the government and to households.

## 6.2. Experiment Descriptions

Two experiments are carried out. Firstly, the model is simulated to reproduce the actual average annual development path of the Vietnamese economy from 1990 to 1996. This experiment is conducted by shocking all endowments (labour force, physical capital), policy interventions (taxes or subsidies), and aggregate private consumption by the actual average annual changes.

The second experiment, called the counterfactual, attempts to find the efficient allocation of the scarcest resource (capital) in order to utilise abundant labour and allow the economy reaching a higher welfare level, given the same economic environment (taxation regimes) and endowments (capital, labour, economy-wide aggregate new investment) over the period. In doing so, existing capital in each industry and new capital is allowed to move among all industries to equate the economy-wide net rate of return. Labour – the most abundant factor of the economy – is supplied at the existing real wage rates (except for skilled labour, which is in fixed supply).

The outcomes of the two experiments are contrasted to highlight what the economy gains and loses under these two scenarios. These two experiments draw a distinction between the actual investment policy and a counterfactual policy, which is thought would provide a better alternative in terms of efficiency. It should be noted that no trade policy shocks are involved, and the economy is operating under the actual 1996 trade regime.

The shocks for the first experiment are presented in Table 19. For the first experiment, it is assumed that capital and labour are industry-specific.

In the second, counterfactuals experiment the economic environment (taxes) and private consumption level are exactly the same as in the first experiment. The difference is that instead of shocking capital stock in each industry, only the aggregate capital stock is shocked by the same amount as in the first experiment; further, instead of shocking farming, non-farming and unskilled labour, real wage rates for these types of labour are shocked by the actual changes as in the first experiment. The aggregate supply of skilled labour is shocked at the 1996 level. These modified shocks applied to the counterfactual experiment are given in Table .

The period of six years (1989-96) is sufficiently long for industry capital stocks to adjust to the industry activity level. This is justification for the assumptions adopted for the second experiment of perfect capital mobility across all the industries, given

the change in the aggregate capital stock. Aggregate skilled labour is in fixed supply but perfectly mobile across all the industries. The remaining types of labour are supplied unrestrictedly at the given real wage rates.

**Table 19: Average Annual Shocks for Implementation of Actual PIP over the 1990s**

(percentages)

<i>Industry</i>	<i>Capital</i>	<i>Labour</i>	<i>Tax on intermediate inputs*</i>	<i>Tax on capital goods*</i>	<i>Tax on final consumption*</i>	<i>Tax on exports*</i>
1. Rice	17.71	1.38	-0.26	na	0.27	-1.62
2. Other crops	17.71	1.57	-0.26	na	0.27	-1.62
3. Livestock	26.23	3.95	-0.09	16.47	-0.24	-0.52
4. Agricultural services	28.07	3.27	0.21	na	0.00	0.00
5. Forestry	-48.07	-0.21	-0.38	na	-0.33	-1.03
6. Fishing	10.09	4.11	0.44	na	0.30	0.01
7. Crude oil & natural gas	30.75	3.33	-0.08	na	0.00	3.45
8. Other mining & quarrying	21.16	3.33	0.50	na	0.51	0.49
9. Tobacco, alcohol, other beverage	8.41	2.69	0.54	na	0.11	0.46
10. Sugar	17.93	2.38	-0.09	na	-0.22	-0.23
11. Other food processing	26.10	3.75	0.16	na	-0.09	0.00
12. Textile garment & leather	22.25	2.78	0.83	na	0.64	0.03
13. Paper & products	22.80	3.56	0.32	na	0.46	-0.07
14. Cement	17.92	4.51	0.12	na	0.00	-0.08
15. Fertiliser & pesticides	-7.73	4.42	1.38	na	0.00	16.47
16. Other chemical products	13.34	2.92	0.88	na	1.01	0.37
17. Petroleum & lubricants	33.57	5.15	0.97	na	0.88	0.00
18. Manufacture of ferrous metal	28.86	4.19	0.82	na	16.47	0.35
19. Transport vehicles	-17.53	-2.53	0.61	1.46	0.00	0.13
20. Other equipment & machinery	-17.53	-2.53	0.61	1.46	1.05	0.13
21. Electrical & electronic products	17.73	4.13	0.84	1.22	0.75	0.04
22. Other manufacturing	23.82	1.23	0.42	na	0.53	0.20
23. Electricity & gas	-29.76	5.01	0.21	na	0.17	0.00
24. Water	15.51	4.54	0.18	na	0.18	0.00
25. Construction	28.07	3.27	0.32	0.32	0.00	0.00
26. Trade & freight transport	14.35	3.44	0.00	na	0.00	0.00
27. Communication	25.39	4.32	2.78	na	3.57	2.76
28. Finance, banking insurance	-0.88	4.51	-10.31	na	16.47	-11.00
29. Public administration, education & health	-47.18	3.02	-0.39	na	-0.61	-0.61
30. Personal, household & community services	13.31	0.97	0.79	na	0.82	0.76
31. Other services	32.45	3.49	-0.15	na	0.83	0.67
Shock of private final consumption* 5.75						

**Note:** \* These shocks are also applied in the counterfactual experiment.

**Table 20: Modified Annual Shocks for Counterfactual PIP Allocation over the 1990s**

<i>Variables</i>	<i>Shock</i>
Aggregate capital stock	17.31
Real wage rate for farming labour	-4.63
Real wage rate for non-farming labour	-0.64
Real wage rate for unskilled labour	3.42
Skilled labour employment	3.53

(percentages)

### 6.3. Simulation Results and Discussion

Table 21 to Table 24 present the simulation results of the two investment alternatives. The counterfactual PIP simulation produces superior outcomes to those resulting from the actual implementation in terms of both welfare and income equity. These outcomes were expected, as under the counterfactual experiment the economy moves to more efficient allocation of its resources.

The adjustment mechanism in both experiments works through resource reallocation within the economy, but the alternative assumptions imposed on the factor markets give rise to quite different outcomes. In the experiment involving the actual implementation of investment, the economy is rather rigid when it reproduces the past by the actual changes in industry capital stock and labour. Given the capital stock and labour employment in each industry, the adjustment in the prices of industry-specific primary factors, followed by the interaction of demand and supply in all other markets, leads to a new equilibrium.

In the counterfactual experiment, the driving force to achieve a new equilibrium is equalisation of the rates of return to capital for all industries and employment of additional labour in any industry (except for skilled labour). The change in the supply of primary factors, induced by the adjusted demand, and the return to them impinges on household factor income.

#### Factor Market Impacts

As seen in Table 19, in the experiment involving actual investment allocations over the period 1989-96 the industries having the highest growth rate of capital stock were petroleum and lubricants; other services; crude oil and natural gas; manufacture of ferrous metal, agricultural services<sup>17</sup> (the majority of its investment going to irrigation) and construction. Capital stock in some other industries (forestry; public administration, education and health; electricity and gas; transport vehicles; and other equipment and machinery) declined considerably. Rentals on capital and wage rates (hereafter referred to as capital and labour prices) were adjusted in accordance with relative changes in industry capital and labour. If industry capital stock and labour change by the same proportion, capital and labour prices remain unchanged. But if their quantities change at different rates, the relative price of the factor growing faster will go down and vice versa. Table 21 shows that due to capital immobility, capital prices among industries are quite different to the extent that some industries (rice, forestry, food processing, and electricity and gas) are starving for capital, and the

<sup>17</sup> Irrigation is one of agricultural services.

price of capital there soars; meanwhile it becomes abundant in others (agricultural services, paper, manufacture of ferrous metal, and water), resulting in cheaper capital.

In the second experiment, the restriction is removed by assuming equalisation of the rates of return across industries, so that new capital moves to those industries, which suffer the most severe shortages of capital and hence offer the highest return. These industries (rice; other crops; finance, banking and insurance; textiles, garments and leather; and household and community services) expand considerably, employing additional farming, non-farming and unskilled labour at a fixed wage rate and with the capital price falling. Meanwhile, some other industries do not receive an amount of capital as large as in the actual experiment for the reason that they are only able to attract additional capital up to the point where their rate of return to capital is level with the prevailing rate. Because of its very low rate of return, existing capital also moves out of the most capital-abundant industry (crude oil and natural gas) to those with the highest rates of return. When capital is drawn to an industry, its price is bid down because the shortage eases, and at the same time the reverse situation takes place in capital-contracting industries. This process continues until the rates of return in all industries are the same and the capital market reaches a new equilibrium. Adjustment in other markets follows suit.

Following the capital movement into agriculture, labour employment in all agricultural industries is boosted on average by 11.9 percent compared with 2.9 percent in the actual investment experiment. Non-farming labour also increases in all labour-intensive industries and even in some capital-intensive industries. In the counterfactual experiment with the fixed supply of skilled labour, it is drawn to a larger extent to agriculture, all food processing industries, textiles and garments, and services which are able to offer skilled workers a higher wage rate than in the actual investment experiment.

**Table 21: Contrasting the Annual Effects of Actual PIP Implementation and its Counterfactual Simulation on Primary Factor over the Period 1989-96 (percentage change)**

Industry	Capital stock		Capital price (actual)	Farm labour		Non-farm labour		Unskilled labour		Skilled labour		Land	
	Actual	Counterf actual		Actual	Counterf actual	Actual	Counterf actual	Actual	Counterf actual	Actual	Counterf actual	Actual	Counterf actual
	1. Rice	17.7	55.2	641.8	1.4	14.8	na	na	1.4	4.7	1.4	12.9	39.4
2. Other crops	17.7	95.7	1.7	1.6	22.2	na	na	1.6	10.8	1.6	22.2	-20.2	15.1
3. Livestock	26.2	4.1	-0.1	4.3	7.6	na	na	4.3	-1.0	4.3	7.4	na	na
4. Agricultural services	28.1	8.8	-61.0	3.5	9.7	na	na	3.5	0.8	3.5	9.2	na	na
5. Forestry	-48.1	18.6	592.9	-0.2	5.1	na	na	-0.2	-2.9	-0.2	4.9	-19.2	-14.9
6. Fishing	10.1	16.6	9.0	4.5	4.6	na	na	4.5	-3.3	4.5	4.6	-16.7	-15.7
7. Crude oil & natural gas	30.7	-11.6	-5.6	na	na	3.6	-1.3	3.6	-4.6	3.6	-2.7	na	na
8. Other mining & quarrying	21.2	12.5	-6.3	na	na	3.6	3.9	3.6	0.1	3.6	2.6	na	na
9. Tobacco, alcohol, other beverage	8.4	14.8	0.2	na	na	2.8	3.7	2.8	-0.2	2.8	3.5	na	na
10. Sugar	17.9	37.3	-3.7	na	na	2.5	8.2	2.5	4.0	2.5	4.6	na	na
11. Other food processing	26.1	27.8	210.1	na	na	4.0	6.7	4.0	2.6	4.0	6.5	na	na
12. Textiles, garments & leather	22.2	34.0	-3.6	na	na	2.9	8.2	2.9	4.0	2.9	7.9	na	na
13. Paper & products	22.8	26.7	-15.2	na	na	3.8	5.6	3.8	1.6	3.8	1.9	na	na
14. Cement	17.9	19.2	-6.2	na	na	4.9	3.9	4.9	0.1	4.9	0.7	na	na
15. Fertiliser & pesticides	-7.7	38.2	-0.4	na	na	4.8	8.0	4.8	3.8	4.8	4.7	na	na
16. Other chemical products	13.3	16.6	-5.2	na	na	3.1	4.2	3.1	0.3	3.1	4.0	na	na
17. Petroleum & lubricants	33.6	25.2	-19.2	na	na	5.7	5.9	5.7	1.9	5.7	2.6	na	na
18. Manufacture of ferrous metal	28.9	19.4	-10.4	na	na	4.6	4.0	4.6	0.1	4.6	0.7	na	na
19. Transport vehicles	-17.5	15.6	15.4	na	na	-2.4	3.8	-2.4	0.0	-2.4	0.6	na	na
20. Other equipment & machinery	-17.5	13.0	13.6	na	na	-2.4	3.5	-2.4	-0.3	-2.4	3.2	na	na
21. Electrical & electronic products	17.7	15.3	-2.9	na	na	4.5	3.8	4.5	0.0	4.5	3.7	na	na
22. Other manufacturing	23.8	15.5	-7.7	na	na	1.2	4.1	1.2	0.3	1.2	3.9	na	na
23. Electricity & gas	-29.8	29.3	737.8	na	na	5.5	5.8	5.5	1.8	5.5	2.5	na	na
24. Water	15.5	25.7	-17.1	na	na	5.0	5.3	5.0	1.3	5.0	1.9	na	na
25. Construction	28.1	13.8	-20.0	na	na	3.5	3.0	3.5	-0.7	3.5	1.6	na	na
26. Trade & freight transport	14.4	26.2	-8.0	na	na	3.7	6.4	3.7	2.3	3.7	6.4	na	na
27. Communication	25.4	4.7	-4.8	na	na	4.7	1.3	4.7	-2.2	4.7	-1.2	na	na
28. Finance, banking & insurance	-0.9	66.2	11.9	na	na	4.9	14.0	4.9	9.0	4.9	11.1	na	na
29. Public administration, education & health	-47.2	18.4	28.8	na	na	3.2	4.1	3.2	0.3	3.2	2.9	na	na
30. Personal, household & community services	13.3	36.9	2.8	na	na	1.0	8.7	1.0	4.3	1.0	8.1	na	na
31. Other services	32.4	12.0	-5.3	na	na	3.7	4.0	3.7	0.1	3.7	3.9	na	Na
<b>Economy-wide level</b>	<b>17.3</b>	<b>17.3</b>	<b>-6.3</b>	<b>2.9</b>	<b>11.9</b>	<b>3.1</b>	<b>5.4</b>	<b>3.4</b>	<b>0.4</b>	<b>3.5</b>	<b>3.5</b>	<b>0</b>	<b>0</b>

Given the fixed supply of land, land is drawn from rice cultivation to other crop cultivation. This movement suggests that under the optimal investment policy, rice cultivation may not give as a high return to land as other crop cultivation does. This situation arises because under the existing investment policy, rice production uses irrigation extensively. Irrigation, in turn is a priority in the PIP; therefore it gets cheap capital, and as a result a cheap price of its services. When capital is allocated according to rates of return, irrigation services are more expensive, which adversely affects the rice price, leading to a less favourable situation for rice production. Thus, diversification away from rice to higher-value crops seems to be a better alternative, if investment is to be efficient.

Interestingly, both experiments attest to agriculture being the most under-funded industry in Vietnam, while other industries such as crude oil and natural gas, agricultural services, petroleum and lubricants, manufacture of ferrous metal, and paper, do not utilise their capital efficiently. One point that should be kept in mind is that both experiments were performed under the existing trade policies, which tends to protect capital-intensive industries. Even when unprotected agriculture has to compete with these artificially efficient industries (thanks to high protection and hence high rates of return), it proves to be more efficient, attracting considerably more additional capital from the lower-return sections of the economy.

Given the same aggregate capital stock, total returns from capital, land and labour are higher in the counterfactual experiment for the reason that the net rate of return to capital and land is higher and more labour is employed at the same actual wage rates.

### **Impact on Macro Variables**

Under the counterfactual experiment, real GDP growth is more than one and half times of that in the actual investment experiment (Table ). The GDP increase in the counterfactual experiment is mainly induced by the large expansion in labour employment and the considerably higher capital income as a result of the more efficient capital use. Thanks to the increasing employment of relatively cheap labour, many industries are able to reduce production costs, resulting in a surge in exports of labour-intensive products, such as agricultural and food processing products, textiles garments and leather. Export growth far surpasses import growth, leaving the change in trade balance much higher. At the current nominal consumption level, the nation could save at a significantly higher rate for future investment, and government tax revenues also increase.

### **Production Impacts**

Compared to the outcomes of the actual investment experiment, under the efficient allocation of capital a larger number of industries (20 out of 31) expand to a greater extent (Table 23). Industries enjoying the highest output growth are labour-intensive or export-oriented such as agricultural and food processing industries, textiles and garments, trade, finance, and personal household and community services. The driving force behind their growth is the more efficient utilisation of capital, combined with the intensive use of relatively cheap and abundant labour.

**Table 22: Contrasting the Annual Effects of Actual PIP Implementation and its Counterfactual Simulation on Macro-Economic Variables over the period 1989-96**

(percentage change, except otherwise specified)

<i>Variables</i>	<i>Actual PIP implementation</i>	<i>Counterfactual PIP simulation</i>	<i>Gains from more efficient allocation of capital*</i>
Real GDP	8.56	14.74	6.18
Real private consumption	5.95	7.59	1.64
Real investment	13.70	18.14	4.44
Real government consumption	5.95	7.59	1.64
Real exports	12.14	30.84	18.7
Real imports	8.30	10.23	1.93
Aggregate capital stock	17.31	17.31	0
Employment	3.06	6.85	3.79
Government nominal tax revenues	9.31	10.89	1.58
Consumer price index (CPI)	-0.56	-2.30	-1.74
GDP deflator	-2.87	-2.55	0.32
Real national savings	8.06	40.62	32.56
Real wage	-1.56	-1.69	-0.13
Change in trade balance (billion VND)	1645	17429	15784
Equivalent variation (billion VND)	14865	37854	22989
Agricultural output	8.33	23.69	15.36
Manufacturing output	8.79	10.79	2.00
Service output	8.66	12.60	3.94
Total domestic output	8.65	14.76	6.11

**Note:** \*The column is equal to the column 'Counterfactual PIP simulation' minus the column 'Actual PIP implementation'.

Industries most adversely affected by fair competition for capital are those being most favoured in capital allocation under the present PIP. Many of them are capital-intensive, i.e., crude oil and natural gas, petroleum, paper, cement, and manufacture of ferrous metal. The direction of a large quantity of capital to these industries under the implementation of the PIP artificially forces the rates of return to capital in these industries relatively lower than the economy-wide average rate and leads to substituting out of 'cheap' capital for labour. When these industries have to compete on a fair footing, as in the counterfactual experiment, they fail to do so and as a result their output is lower but the price is higher than when they are privileged.

Furthermore, the change in industry output is also determined by the destination of output sales combined with the price elasticity of demand, the total household expenditure elasticity, and the capacity of the industry to respond to the change (or supply elasticities).

**Table 23: Contrasting the Annual Effects of Actual PIP Implementation and its Counterfactual Simulation on Domestic Output, Exports and Imports over the Period 1989-96**

(percentage change)

Industry	Domestic output		Domestic Basic price		Exports		Imports	
	Count		Count		Count		Count	
	Actual	rfact	Actual	erfact	Actual	erfact	Actual	erfact
1. Rice	11.3	15.5	-16.2	-4.3	54.8	13.4	-17.3	7.8
2. Other crops	2.2	54.5	3.2	-2.3	0.3	107.1	10.4	9.2
3. Livestock	10.6	19.2	-4.8	-9.1	64.0	154.6	-0.3	-5.6
4. Agricultural services	10.0	20.9	-85.1	-11.5	0.0	0.0	-88.5	-5.1
5. Forestry	-3.9	9.1	49.1	4.0	-36.2	2.1	160.6	19.7
6. Fishing	8.5	9.5	-2.1	-0.9	6.8	2.5	5.0	9.2
7. Crude oil & natural gas	13.0	-6.8	-3.2	-2.0	12.7	-7.0	4.0	9.6
8. Other mining & quarrying	9.7	7.0	0.2	-0.5	12.3	4.6	9.5	6.8
9. Tobacco, alcohol, other beverage	6.0	8.8	0.4	-2.0	-7.7	16.0	6.7	8.5
10. Sugar	7.7	16.5	0.2	-1.1	7.9	30.3	8.1	9.4
11. Other food processing	11.3	17.5	-1.1	-3.8	24.7	41.5	4.6	1.5
12. Textiles, garments & leather	8.7	21.2	1.0	-0.8	10.3	23.0	9.6	13.7
13. Paper & products	10.5	8.6	0.6	0.8	28.4	3.5	8.5	10.7
14. Cement	11.3	6.2	-1.4	0.5	27.9	0.0	8.1	7.1
15. Fertiliser & pesticides	4.8	17.0	0.0	0.4	-17.0	-41.3	8.1	27.4
16. Other chemical products	7.9	10.3	-0.5	-0.6	6.7	5.7	7.0	10.3
17. Petroleum & lubricants	13.6	3.7	-3.8	-0.2	0.0	0.0	8.2	11.4
18. Manufacture of ferrous metal	12.9	5.9	-2.7	0.9	55.2	-0.5	5.0	8.2
19. Transport vehicles	-7.0	2.6	3.3	0.7	-22.3	-6.0	6.1	9.9
20. Other equipment & machinery	-7.3	8.4	5.0	-0.3	-27.9	4.3	9.1	8.3
21. Electrical & electronic products	11.1	9.6	-1.3	-0.7	38.9	10.8	6.5	7.8
22. Other manufacturing	6.0	10.1	2.1	-0.9	3.5	11.3	11.9	7.8
23. Electricity & gas	-2.0	11.5	92.3	0.3	0.0	0.0	242.8	12.2
24. Water	10.5	9.7	-9.5	-0.7	0.0	0.0	-16.8	10.1
25. Construction	10.5	5.4	-11.6	-0.5	0.0	0.0	-22.9	10.8
26. Trade & freight transport	9.0	16.6	-9.6	-2.8	0.0	0.0	-15.1	8.0
27. Communication	12.5	-1.2	-4.1	1.7	14.5	-33.3	3.7	12.1
28. Finance, banking & insurance	8.3	32.8	6.7	-1.9	17.7	52.9	13.2	12.3
29. Public administration, education & health	5.6	8.1	1.8	-0.9	8.1	38.5	7.3	6.6
30. Personal, household & community services	3.1	21.8	5.6	-2.2	1.4	110.7	11.1	5.2
31. Other services	13.3	8.2	-4.1	-1.7	35.5	7.4	1.9	5.2

While export demand elasticities are  $-2.5$  for rice and  $-10$  for the remaining commodities, domestic household own-price elasticities are much lower, ranging between 0 and  $-1.14$ . This implies that when output price decreases, those industries (such as other crop cultivation; crude oil and natural gas; and textiles, garments and leather) that sell a large part of their output to the export market have more scope for extension than those supplying an overwhelming part of their output to the domestic market. For the same reason, the service sector, being non-tradable has less chance to increase production. Moreover, if an industry sells a significant part of its products to expanding industries, the selling industry has more chance to develop. This is the case with agricultural services and fertilisers, that supply most of their output to agriculture which expands significantly under the counterfactual experiment.

If there is a large surge in the demand for the output of an industry, the real expansion depends on the capacity of the industry to supply, that is the industry supply response. Vietnam's endowment restrictions in land and capital implies that the more an industry is labour-intensive, the larger is its supply response. In other words, labour-intensive industries could increase their output more for a given price change because they require a larger amount of additional labour, rather than capital. Labour, especially unskilled labour, is abundant to the extent that a quite elastic labour supply can be assumed for Vietnam. In contrast, capital-intensive (or land-using) industries have a capital (land) constraint, resulting in additional capital (land) being charged at an increasing price, and therefore hindering output expansion.

### **Distributional Impacts**

As can be seen from

**Table** , the implemented investment policy makes the whole population better off, as reflected in the positive equivalent variation (EV) value obtained and enhancement of real total income of all the household groups. But the policy does not seem to have an equity-improving effect on household income, neither within the urban or rural populations, nor between these two sectors. Rural real labour income is depressed and can only grow at most by 0.72 percent annually, not to mention the income of the poorest rural group, which hardly grows at all. At the same time, investment funding favouring capital-intensive industries (the majority of which are located in cities) has resulted in the growth of urban labour income by 2-3 percent. This situation occurs because under-funding of agriculture makes it lag behind manufacturing and services. The land constraint together with a rapidly increasing agricultural labour force exaggerates the situation and pushes farming labour income down lower than the remaining types of labour.

The distributional effect on total income is somewhat milder because rural households own larger allotments of land, which are in fixed supply, hence giving increasing land income.

The counterfactual experiment leads to improvement of both household income and income distribution. This outcome is explained by the difference in the primary factor combination in various industries and the reallocation of resources to their best use. An additional unit of capital used in labour-intensive industries goes along with a noticeably greater amount of labour employment, resulting in a large income generating effect. This is the case with the agriculture sector, food processing, textiles and garments, and service industries. The discussion above suggested that under the restricted investment policy, these were under-funded industries and generally had higher returns to capital. Once the restriction on capital allocation is removed, capital is drawn out considerably from the low-return industries (more capital-intensive) to the labour-intensive ones. The low-income section of the population is generally employed in the latter; therefore the hypothetical investment allocation in the counterfactual experiment leads to a greater income-raising effect for them relative to the higher-income section, and hence to a more equitable outcome.

**Table 24: Contrasting the Annual Effects of Actual PIP Implementation and its Counterfactual Simulation on Household Welfare over the Period 1989-96**

		(percentage change)					
		<i>Rural</i>	<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>	<i>Urban</i>
		<i>Poor</i>	<i>Poor</i>	<i>Middle</i>	<i>Middle</i>	<i>Rich</i>	<i>Rich</i>
<b>Real total income</b>	Actual	5.95	6.01	7.87	9.12	10.80	15.11
	Counterfactual	25.70	16.94	21.39	15.10	16.97	12.60
<b>Real labour income</b>	Actual	0.08	2.50	0.29	2.24	0.72	2.80
	Counterfactual	5.13	4.68	5.21	4.79	4.98	4.62
<b>Real farm income</b>	Actual	-2.04	-2.29	-2.11	-2.26	-2.19	-2.13
	Counterfactual	5.55	5.70	5.61	5.65	5.60	5.60
<b>Real non-farm income</b>	Actual	2.45	2.21	2.39	2.21	2.32	2.37
	Counterfactual	4.67	4.65	4.67	4.69	4.65	4.65
<b>Real unskilled</b>	Actual	3.87	3.85	3.87	3.86	3.80	3.76
	Counterfactual	7.21	6.91	7.14	6.89	7.02	7.06
<b>Real skilled</b>	Actual	4.94	4.71	4.98	4.71	4.73	4.86
	Counterfactual	4.23	4.30	4.33	4.37	4.22	4.24
<b>EV</b>	Actual	0.12	0.09	0.18	0.16	0.26	0.43
	Counterfactual	0.21	0.18	0.35	0.31	0.73	0.87
<b>CPI</b>	Actual	-0.85	-0.14	-0.73	-0.15	-0.42	-0.54
	Counterfactual	-2.40	-2.50	-2.32	-2.51	-2.23	-2.30

As agriculture grows at the fastest rate, farmers receive relatively more total income than rural-based employees do, and that narrows the rural-urban income gap. Within the rural/urban groups, the benefits brought about by additional employment are spread quite evenly.

The consumption structure slightly improves income equality within rural household groups in the sense that the reduction in CPI corresponding to the consumption basket is larger for the poor rural household group and slightly smaller for the rich rural group.

#### 6.4. Conclusion

This section measures the impact of the implemented PIP policy during the period 1991-95, comparing it with a more efficient form of implementation. Reproducing the development path between 1991 and 1995, the simulation results indicated that the adopted PIP gave rise to a large differentiation in the capital price among industries as a result of the under-funding of investment in many labour-intensive and export-oriented industries such as agriculture. At the same time there was over-funding of investment in others, most of which were capital-intensive. This situation put downward pressure on agricultural income and led to increasing inequality within and between the rural and urban population.

Based on the situation of factor markets in Vietnam - which are characterised by scarcity of capital and land and an abundance of labour - the section suggests a more desirable way (in terms of income equity) of allocating *the same aggregate amount* of investment for this period of time, which relies on equalisation of rates of return to capital among industries and labour employment at the existing wage rates. The

counterfactual outcomes reveal that this is a superior alternative, because it allows the most efficient use of the resources. This results in higher real GDP growth, expansion of labour-intensive and export-oriented industries, and significantly advanced income of all primary factors. More importantly, the income of all the household groups is enhanced to a greater extent, and the distributional impact of this policy on households is more equitable in the sense that it narrows the income gap between the rich and the poor and between the rural and urban population.

The counterfactual experiment verified that investment in capital-intensive industries could be hardly justified in an economy with a severe shortage of capital like Vietnam. The economic and social returns of capital would be much higher if these funds were invested in labour-intensive and exporting industries. The same amount of investment would have allowed Vietnam to reach a significantly higher growth through making use of its comparative advantage in labour.

While these results show significant differences between the actual and the counterfactual, two important caveats should be kept in mind. First, the exercise has involved comparing the 1989 and 1996 input-output tables. Because of changes in accounting methodology between these two tables some of the observed differences may be artefact rather than actual changes. Second, it has been assumed that in the counterfactual experiment Vietnam still receives the same total amount of capital. In reality, free allocation could result in more or less capital.

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