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Urban-biased policies and the increasing rural-urban expenditure gap in Vietnam in the 1990s

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Urban-biased Policies and the Increasing Rural–Urban Expenditure Gap in Vietnam in the 1990s*

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There was a significant and widening rural–urban gap during the economic boom in Vietnam in the 1990s. Using an econometric decomposition, we find that differences in individual characteristics such as education, ethnicity and age are the primary explanation for this widening gap, whereas differences in the returns to these characteristics are the primary explanation for the increase in the gap at higher percentiles. We then argue that government investment policies and the manipulation of price incentives were important factors behind the gap. In particular, we argue that government policies created some benefit to urban dwellers at the expense of rural areas, lending support to Lipton's urban-bias hypothesis, which states that government, under strong political pressure from the urban population, directs resources from rural to urban areas without consideration of efficiency or equity.

Keywords: rural–urban gap, urban-biased policy, Vietnam.

JEL classification codes: O15, O18.

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I. Introduction

In the late 1980s and the early 1990s, the Vietnamese government embarked on an ambitious program of economic reform called *Doi Moi*, or renovation. The aim of the reform was to transform the centralized state-planned economic system into a more decentralized and market-oriented economy in which the private sector was the key driver of growth. Key elements of the reform program included land and agricultural reform (the 1987 *Land Law* and the 1988 *Decree 10*), an overhaul of the public sector and state-owned enterprises (unprofitable enterprises were closed or sold off and the number of employees in the public sector was sharply cut), private business reform (in 1992 the constitution officially recognized the role of the private sector in the economy), and an opening of the economy to international trade and FDI (tariffs were reduced and a large number of quantitative restrictions on trade were relaxed or abolished). After these reforms were

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implemented, there was rapid economic growth (the average annual GDP growth rate during the 1990s was 7.3 percent).[1,2] Some regions benefited more than others, however, which is evidenced by a relatively high Gini inequality index of 0.32 in 1993, which increased to 0.36 in 1998. The data reveal that most of this increase in inequality came in the form of a widening gap between rural and urban areas. Using the decomposable Theil inequality index, we find that over the 1993–1998 period the within-rural and urban inequality was almost unchanged (a minor increase of 0.6 percent), whereas the between-rural and urban inequality increased by 61.9 percent.

The present paper will investigate the sources and causes of this rural–urban gap during this period. In Section II, we summarize the neoclassical view and the institutional view of rural–urban gaps. Briefly stated, the neoclassical view argues that a rural–urban gap is the manifestation of a characteristics gap, the difference in individual characteristics between rural and urban areas, whereas the institutional view argues that a rural–urban gap derives from a returns gap, the difference in returns to characteristics across rural and urban areas. In Section III, we use an econometric decomposition to decompose the rural–urban gap in Vietnam into a characteristics gap and a returns gap in order to quantify the contribution of each factor. Finding evidence that both the characteristics and the returns gap were substantial in Section IV, we examine government policies in Vietnam to determine whether they could have been the root cause of the gaps. An important guidepost to our analysis is Lipton's (1977) theory of urban-biased government policy. Lipton believed that urban-biased policies were a leading cause of rural–urban inequality. In the remainder of the paper we provide several examples of government policy in Vietnam that were urban-biased.

Our work is most similar to Yang (1999), who studied the rural–urban gap in China, and Mundle and Arkadie (1997) and Nguyen et al. (2007), who studied rural–urban differences in Vietnam. We extend their studies by including the role of government policy.

II. Theoretical Framework

This section will very briefly review two different views of the rural–urban gap. The neoclassical view focuses on differences in worker quality, and the institutional view focuses on segmented labor markets.

II.1 Neoclassical view/characteristics gap

In this view, under perfect labor mobility the same wage must be paid for a given grade of labor no matter where it is (Reder, 1971). The assumption that migration

1. Source: Vietnam General Statistical Office, Statistical Yearbook, 1996–2000.
2. There is no reliable data to measure inequality in Vietnam under central planning, but given the slow economic growth and the egalitarian policies pursued by the government, the inequality level was likely to have been moderate (Forde and Vylder, 1996).

is costless is crucial. If migration was impossible, high-skilled workers living in the rural areas would be forced to accept a low-skill wage because few high-skill jobs exist in rural areas. With costless migration, skilled workers in rural areas migrate to urban areas to find higher-paying jobs and 'over time, the net result will be a nearly perfect correlation between human capital and wages' (Farkas et al. 1988, p. 107). Consequently, under the assumption of perfect labor mobility, the difference in wages between rural and urban areas and, therefore, the rural–urban gap, is due to differences in individual characteristics in the areas.

Consistent with the neoclassical view, there exist differences in individual characteristics in rural and urban areas in Vietnam. The typical urban worker is more educated and more likely to work in a well-paid occupation. They are also more likely to be men, ethnically Vietnamese, to have a smaller family than their rural counterpart, and to have accumulated more assets (see Appendix Table 1). The econometric decomposition in Section III will measure the importance of these differences.

The neoclassical view provides an important framework to explain the rural–urban gap. However, the assumption of completely free labor mobility is usually unrealistic. Recognizing this deficiency, institutional economists developed a new argument to explain the rural–urban gap.

II.2 Institutional view/returns gap

The institutional view focuses on government policies that block labor mobility and increase urban wages relative to rural wages. In Vietnam, the government used labor laws and urban registration to block movement between rural and urban areas. With labor movement blocked, the labor market was divided into two distinct segments. Urban workers generally earned higher wages than rural workers for several reasons, including: union power, favorable government policies, such as a minimum wage, and the fact that state-owned enterprises and the administrative system, providers of a large fraction of high-paying jobs, were typically urban-biased.[3] This difference between urban wages and rural wages, after controlling for differences in individual characteristics, is called the returns gap.

III. Rural–Urban Gap and Econometric Decomposition

The previous section outlines two factors that affect the rural–urban gap: a characteristics gap and a returns gap. In this section, we will quantify the contribution of each factor to the rural–urban gap in Vietnam using the 1993 and 1990 Vietnam Living Standard Surveys. These household-level surveys were conducted by the Vietnam General Statistical Office (GSO), with technical assistance provided by the World Bank. Both rural and urban areas are well represented in

3. Kwoka (1983) argues that this sector is more inclined to pay 'higher, non-market clearing' wages.

Table 1 Average per capita expenditure

Items	*1993*	*1998*
Share of rural population (%)	80	76.5
Urban–rural expenditure ratio	1.81	2.21
Urban per capita expenditure	3 058 229	4 874 854
Rural per capita expenditure	1 692 291	2 206 269
Share of rural poverty (%)	88	90.1

Source: Authors' calculation based on 1993 and 1998 VLSS.

the surveys. There were 4800 households surveyed in 1993 and 6000 households in 1998. Further details about these surveys together with reasons for using expenditure data instead of income data in the analysis can be found in Appendix I.

III.1 Rural–urban gap in Vietnam

The rapid economic growth after the economic reforms in the late 1980s and early 1990s has not been distributed equally between rural and urban areas. This is clearly demonstrated in Table 1. Average per capita expenditure in rural areas was much lower than in urban areas. In 1993, the ratio of average expenditure between rural and urban areas was 1.81; this number increased to 2.21 in 1998. Poverty was largely a rural phenomenon as 90 percent of the poor resided in rural areas in 1998 (note that the poor accounted for 36.9 percent of the total population).

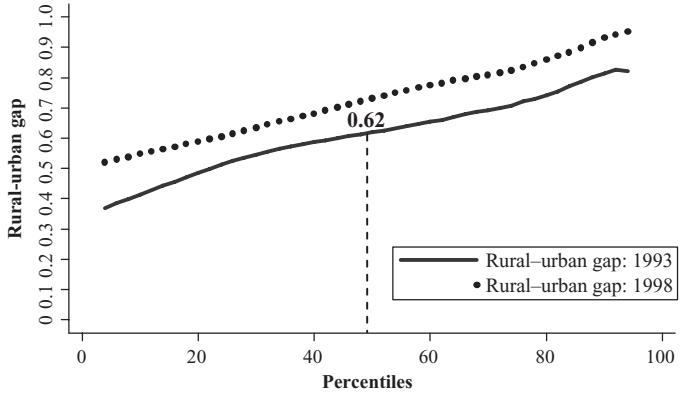
To compare the two areas not only at the average expenditure but also across the whole distribution of expenditure, we calculate the difference in the log per capita expenditure (LPCE) between the two areas for every percentile by household. Figure 1 plots this gap across percentiles in 1993 and 1998. There are two things to note. First, the fact that both lines increase monotonically shows that the urban–rural gap is larger at higher percentiles: the urban rich are better off than their rural counterparts to a greater extent than the urban poor are better off than the rural poor. Second, because the rural–urban gap shifts up from 1993 to 1998, the rural–urban gap has increased across all percentiles. In the next subsection, we measure the extent to which the characteristics gap and the returns gap contributed to this outcome.

III.2 Econometric decomposition

We use the Dinardo et al. (1996) semi-parametric decomposition method.[4] The decomposition is based on the estimation of the counterfactual density of

4. An older, more widely used decomposition method is the Oaxaca decomposition method. This method, however, is a decomposition at the mean value only, whereas the Dinardo et al. decomposition is across the whole distribution.

Figure 1 Rural–urban gap across household percentiles in 1993 and 1998



the urban LPCE that would have prevailed if urban households had the same characteristics as rural households (see Appendix II for estimation details).[5] Formally, the decomposition is:

$$y_{urban} - y_{rural} = \left[y_{urban} - y_{counterfactual}\right] + \left[y_{counterfactual} - y_{rural}\right].$$

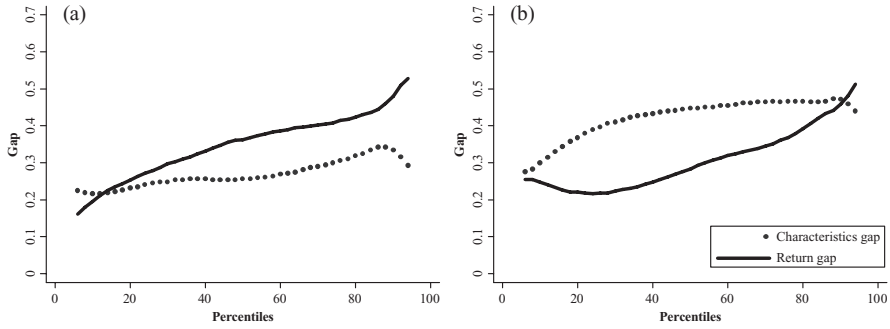
The left-hand side is the total rural–urban gap in Figure 1. The first bracket on the right-hand side represents the neoclassical view of the characteristics gap: urban households are endowed with more favorable characteristics than their counterparts in rural areas so they have higher LPCE. Appendix Table 1 contains descriptive statistics of the variables used to represent characteristics.[6] The second bracket represents the institutional view of the returns gap: after controlling for household characteristics, urban households are still better off than rural households. The result of this decomposition is presented in Figure 2.

We infer several important findings from this figure. First of all, both the characteristics gap and the returns gap played important roles in explaining the rural–urban gap in Vietnam. Although the returns gap was more important in 1993, the characteristics gap was more important in 1998. Second, in both 1993 and 1998,

5. There is an alternative counterfactual density: the density of rural LPCE that would have prevailed if rural households had the same characteristics as urban households. The result of this decomposition is available upon request. Our findings are robust to the choice of the counterfactual density.

6. Note that the list of relevant characteristics in any empirical study is never complete because there are always some characteristics that cannot be observed. We attempt to minimize any omitted variable bias by including variables in the analysis that are similar to those found in other studies of household expenditure in Vietnam. See, for example, Glewwe et al. (2002), van de Walle and Gunewardena (2001) and Dollar and Litvack (1998). Additionally, as a test of the sensitivity of the results, we computed the decomposition with and without household assets. Household assets are likely an important predictor of expenditure that differ significantly across rural and urban areas, as can be seen in Appendix Table 1. One may also suppose that including household assets could create an endogeneity problem. The results differ very little across the different specifications, indicating some degree of robustness in our analysis.

Figure 2 Characteristics and returns gap across household percentiles in (a) 1993 and (b) 1998



the returns gap line increases faster than the characteristics gap line. Therefore, the returns gap was the main factor behind the increase in the rural–urban gap at higher percentiles. Finally, the increase in the rural–urban gap from 1993 to 1998 mostly came from the increase in the characteristics gap because the characteristics gap line shifts up from 1993 to 1998, whereas the returns gap line does not.

IV. Government Policy Analysis

Having found evidence that both the characteristics gap and the returns gap are important contributors to the rural–urban gap in Vietnam, we now turn to the role of government policy. Lipton, in his book *Why Poor People Stay Poor* (1977), was perhaps the first prominent economist to seriously include government policies in rural–urban gap analysis. He argues that that a rural–urban gap is caused by 'urban-biased' policy in which the government, under strong political pressure from the urban population, directs resources from rural to urban areas and from agriculture to industry without any consideration of efficiency or equity: 'Resource allocations, within the city and the village as well as between them, reflect urban priorities rather than equity or efficiency' (Lipton, 1977). The government uses 'industrialization' or 'urbanization' as a mask to transfer resources to cities. As a result, growth of urban industry tends to be at the expense of rural agriculture.

In the remainder of this section, we look at the two main channels that governments use to transfer resources: government investment strategies that focus investment in urban areas, such as investing in industry versus agriculture and investing in heavy industry versus light industry,[7] and the manipulation of price

7. There is no widely accepted definition for light and heavy industry. Generally speaking, light industry refers to manufacturing activities that are labor intensive. Examples of light industries include the manufacture of clothes, shoes, furniture, consumer electronics and household items. Conversely, heavy industries are more capital intensive. Examples of heavy industries include the production of oil and gas, chemical fertilizer, steel and cement.

Table 2 Incremental capital output ratio (ICOR) and government investment: 1996–1998

Year	*Industry*		*Agriculture*	
	Investment (VND trillion)	*ICOR (VND trillion)*	*Investment (VND trillion)*	*ICOR (VND trillion)*
1996	7557	0.34	1620	0.07
1997	5866	0.31	1680	0.06
1998	4758	0.30	2450	0.07

Source: Authors' calculation based on data from the *Vietnam GSO Statistical Yearbook* (Vietnam General Statistical Office, 1998–2000).

incentives by means of the exchange rate, tariffs and quotas.[8] We will argue that these policies increased the rural–urban gap.

IV.1 Industrial versus agricultural investment

In this section, we take data on agricultural and industrial investment as a proxy for the distribution of rural and urban investment.[9] Table 2 shows government investment in industry and agriculture together with the incremental capital output ratio (ICOR), a measure of the average productivity of capital. The ICOR index is defined as the ratio of investment to growth in GDP. The higher the ICOR, the lower the productivity of capital. There are some possible biases in the index if certain assumptions are not satisfied. First, changes in other factors of production are not controlled for in the index. This creates a bias if these other factors are not chosen optimally with respect to the level of capital. In addition, the lag between investment and growth in GDP might introduce upward bias in certain cases if investment fluctuates greatly (Rangarajan, 2004).[10] Nevertheless, the ICOR index is a widely used indicator to assess capital efficiency in developing countries due to its ease of calculation and light data requirements.

According to Table 2, the ICOR index in industry in all years was more than four times higher than the index in agriculture. This suggests that, on average, one unit of capital could have produced approximately four times more output if it had been invested in agriculture rather than in industry. Meanwhile, government investment in industry was nearly double that in agriculture in 1998. Such high

8. As mentioned previously, constraints on internal migration are also an important and necessary condition.

9. Throughout the analysis we take data categorized as agricultural and industrial as a proxy for rural and urban data. Although agriculture–rural data and industry–urban data are likely strongly correlated, the correlation is probably not perfect. The cautious reader might wish, therefore, to interpret the analysis as descriptive of an industry–agriculture gap that is correlated with the rural–urban gap. We are thankful to a referee for this interpretation.

10. An additional requirement is that investment and capital be measured at constant prices. This assumption is satisfied in our data.

levels of investment in industry were usually justified by some dynamic efficiency hypothesis, which argues that although the short-run yield from such investment might be low, the investment will lay the basis for long-term growth. However, this hypothesis is quite dubious given the deadweight efficiency and equity cost. Others argue that the Vietnamese Government was more influenced by group interest rather than dynamic efficiency (Dollar and Litvack, 1998).

IV.2 Heavy industry versus light industry

Shifting government investment from industry to agriculture, at least initially, could have increased output in Vietnam. Such a policy, however, cannot be sustained: empirical evidence has shown that sooner or later agriculture growth will reach its limit. According to Lewis' dualistic theory, long-term growth can only be achieved if there is continuous movement of surplus labor from rural agriculture to urban industry. This labor movement has three benefits. First, as the amount of labor in rural areas decreases, each remaining worker will have more land and capital to work with, labor productivity will increase, and rural per capita income will increase. Second, the labor movement will prevent the urban wage rate from rising. According to Lewis, this point is critical for the sustainable capital-accumulation process and the resulting economic growth. Third, the continuous absorption of labor into industrial production will increase the return on capital.

During the years 1993–1998, despite rapid growth, industry failed to absorb surplus agricultural labor. Although growth of industrial output averaged 13 percent annually, industrial employment grew by only 4 percent, a ratio of employment growth to output growth of less than 30 percent. As a point of comparison, this ratio was as high as 80 percent for countries that pursued labor-intensive development in the 1970s and 1980s (e.g. South Korea, Taiwan and Singapore). One reason that Vietnam did not experience much rural to urban labor movement is that industrial growth was concentrated in capital-intensive products rather than labor-intensive products. Table 3 provides a sectoral

Table 3 Government's top industrial projects: 1996–2000

Sector	*Number of projects*	*Total investment (VND trillion)*
Oil and gas	2	15.07
Chemical and fertilizer	4	9.35
Steel	5	37.61
Cement	9	17.95
	$\Sigma = 20$	$\Sigma = 79.98$
Total investment in the industrial sector	194.50	

Source: Centre for International Economics report (1998).

breakdown of the top industrial projects implemented by the government in the years 1996–2000. All of the projects were in heavy industry and were very capital intensive, accounting for approximately 40 percent of total government investment in the industrial sector.

Urban workers were the main beneficiaries of the government's investment in heavy industry. They were equipped with more capital, resulting in high labor productivity and high wages. In contrast, rural farmers had to compete with one another for limited land and capital, had low labor productivity, and earned low wages. The inability of rural labor to shift from low-productivity work in agriculture to high-productivity work in industry translated to underproduction at the national level.

IV.3 Exchange rate

Our conjecture is that the Vietnamese Government overvalued the VND to make urban-consumed imports of machinery and manufactured goods cheaper at the expense of exported agricultural products. We provide some support for this claim by showing that there was a persistent overvaluation of the exchange rate and some evidence that exports were relatively more important than imports for rural areas and vice versa for urban areas.[11]

The real exchange rate impacts both rural and urban areas by impacting the value of imports and exports. A change in the real exchange rate has opposing effects on importers and exporters. If importers benefit from a real exchange rate overvaluation, then exporters will lose and vice versa for the case of undervaluation. Therefore, if import and export were not of equal importance for rural and urban areas, the valuation of the real exchange rate (overvalued or undervalued) will have opposing effects on the two areas. To understand the impact of the exchange rate on the rural–urban gap in Vietnam, two questions need to be answered. First, what is the importance of import and export activities for each area? Second, is the real exchange rate overvalued or undervalued?

Table 4 contains averaged data on the most important components of exports and imports over the 1990–1996 period by share. Unfortunately, as far as we know, data on imports and exports classified by rural and urban areas does not exist. Vietnam's categorization of imports and exports is also quite broad. However, Table 4 does provide some clues to the extent of each area in import–export activities. The import categories 'chemicals,' 'mineral fuels and lubricants' and 'manufactured goods' likely served mainly urban consumption and urban industry. It should also be noted that there is no import category of any size that can clearly be attributable to rural consumption. For export categories, the biggest category 'food and live animals chiefly or food' is clearly of rural origin, whereas

11. Left alone, the exchange rate naturally tends to its equilibrium value, although there might be some fluctuations in the short run. A persistent overvaluation can only be caused by government intervention (Hinkle and Monteil, 1999).

Table 4 Average composition of exports and imports, 1990–1996

	US$m	*Average share*
Exports		
Food and live animals chiefly for food	1121.2	30.3
Mineral fuels and lubricants	904.9	24.4
Manufactured goods	237.2	27.4
Imports		
Chemicals	800.3	15.0
Manufactured goods	1299.3	24.3
Machinery	1883.4	35.2

Source: Centre for International Economics report (1998).

the other two categories were likely of urban origin. Overall, the data suggests that exports were relatively more important than imports in rural areas, whereas urban areas contributed to both imports and exports but less to imports.

To determine whether an exchange rate is overvalued or undervalued, it is necessary to calculate the benchmark or equilibrium rate, which is usually defined as the rate consistent with a sustainable current account. A rigorous estimation of the benchmark rate requires a complicated econometric model with long-time series data, which is currently unavailable for Vietnam (see Krueger et al. 1991 for the methodology). Instead, we use the exchange rate in 1993 as the benchmark.[12] As Vietnam has many trade partners, we compute the real effective exchange rate (REER), an average of real exchange rates weighted by trade share.[13]

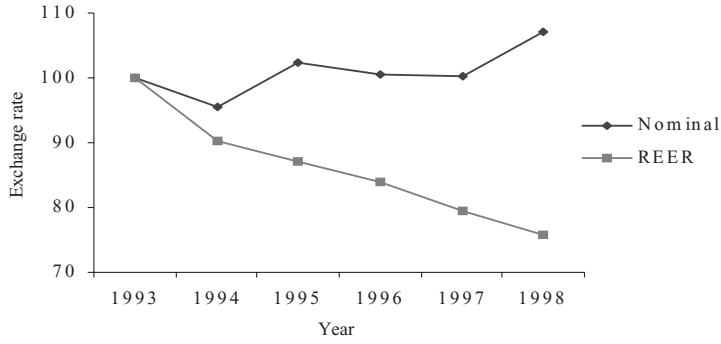
Figure 3 shows that although the nominal exchange rate remained rather stable over the period, the REER declined sharply, implying that the Vietnamese currency had been increasingly overvalued during this period. This overvalued exchange rate acted as an implicit tax on exports and an implicit subsidy on imports. Because rural areas seemingly participated more in export than import activities while urban areas seemingly participated more in import than export activities, the overvalued exchange rate acted to transfer income from rural to urban areas.[14]

12. The Vietnamese Government devalued the currency in 1993 due to a huge current account deficit. The new exchange rate reflected the value of the currency that was consistent with the market (Le and Tran, 1995). We thus take 1993 to be an appropriate base year. It should also be noted that the trend in Figure 3 does not depend on which base year is chosen.

13. The real effective exchange rate is defined as $REER = \Sigma W_i \cdot RER_i$, where W_i is the share of trade with country i and RER_i is the real exchange rate. The real exchange rate is defined by $RER_i = NER_i \cdot P_{fi}/P_d$, where NER_i is the nominal exchange rate, P_{fi} is the foreign price, and P_d is the domestic price.

14. More generally speaking, overvalued exchanged rates favor urban areas, as discussed in Bates (1981).

Figure 3 Nominal exchange rate and real effective exchange rate (REER), from 1993 to 1998



Source: Authors' calculation based on data from the *Vietnam GSO Statistical Yearbook*, 1996–2000.

Table 5 Effective rate of protection (ERP) for industry and agriculture, 1996

	Unweighted ERP (%)	*Import weighted ERP (%)*	*Product weighted ERP (%)*
Economy	47.6	47.1	48.1
Agriculture	10.1	9.0	10.4
Industry 1 (intermediate products)	26.5	26.2	31.5
Industry 2 (consumer products)	96.4	95.8	92.1

Source: Institute of Economics (2001).

IV.4 Tariff protection for industry and agriculture

We use the effective rate of protection (ERP) to measure tariff protection across economic activities.[15] The ERP can be interpreted as the implicit subsidy provided by government protection of a particular economic activity. Three different measures of ERP are shown in Table 5: unweighted, import-weighted and product-weighted. The most important thing to note is that the ERP in agriculture differs quite a bit from the ERP in industry.[16]

The ERP in agriculture of approximately 10 percent is much lower than the national average. The ERP in industries producing intermediate goods is approximately 30 percent, also below the national average. A very high ERP of around 95

15. The ERP is defined as the percentage change in an industry's value added under tariff protection, V', divided by the value added under free trade, V: $ERP = (V' - V)/V$.

16. Examples of products in the agriculture grouping are paddy rice, sugarcane and poultry. Products in Industry 1 (intermediate products) include cement, office equipment and printing products. Products in Industry 2 (consumer goods) include soft drinks, tobacco and medicine. The interested reader can refer to the source report for the complete list of products in each category.

Table 6 Implicit tax rate on rice export

Year	*Export price (VND/kg) (1)*	*Domestic Price (VND/kg) (2)*	*Implicit tax rate (3) (%)*
1993	2323	1100	52.7
1994	2166	1150	46.9
1995	2350	1350	42.5
1996	2929	1850	36.8
1997	3143	1620	48.5
1998	2694	1800	33.2

Source: (1) and (2) are from the Ministry of Agriculture and Rural Development Annual Report, 2002. (3) is the result of $(P_e - P_d)/P_e$, where P_e is the export price and P_d is the domestic price.

percent is observed for industries producing consumer goods.[17] Given the level of the industrial ERP, it is evident that the urban areas gained under this trade regime at the expense of the rural areas. Specifically, the tariff protection raised prices of industrial products relative to agricultural products.[18]

IV.5 Export quotas for agricultural products

Most major agricultural exports like rice, coffee and agro-forest must abide by export quotas. These quotas transfer resources from rural farmers to urban consumers and urban exporters. To understand how this transfer works, we focus on a single product, rice, which accounts for 50 percent of total agricultural income and is the biggest agricultural export.

Every year, the government announces an upper limit on the volume of rice that can be exported from Vietnam. By imposing an export quota, the government causes the price for rice to decrease, implicitly taxing rural producers of rice and providing a subsidy to urban consumers. Moreover, the difference between the export price and the domestic price is a source of monopoly rent for quota holders, which are mainly urban state-owned enterprises. The significant difference between the domestic and export price in Table 6 shows that this transfer is not small.

National food security is the basic rationale for the imposition of the rice export quota. However, it is achieved at a considerable cost to the national economy in general and to rural farmers in particular. Because nearly 70 percent of rural people depend on agriculture as their main source of income, and rice accounts

17. An ERP of about 30 percent is often regarded as the benchmark for the assessment of the level of protection.

18. Furthermore, sectors with high tariff protection also saw the bulk of private investment such as FDI. In 1997, over 65 percent of the total FDI in Vietnam occurred in sectors in which the effective rate of protection was above 60 percent. These sectors were almost exclusively in the Industry 1 (consumer goods) category (Centre for International Economics, 1998).

for 50 percent of total agricultural income, the deadweight loss created by the export quota is likely quite large.

V. Conclusion

Using an econometric decomposition we find that the rural–urban gap in Vietnam is explained by two factors: a returns gap and a characteristics gap. The former explains the increase in the gap at higher percentiles, whereas the latter explains the widening gap from 1993 to 1998. We have argued that government policy is an important factor behind the existence of these gaps. Obvious investment imbalances existed between industry and agriculture and between heavy and light industry. Furthermore, rural–urban price incentives such as an overvalued exchange rate, export quotas and high tariffs for industrial products were severely distorted in favor of urban areas. Finally, we demonstrate that these policies were urban-biased: they created some benefit to urban people at the expense of those living in rural areas.

In the present paper, we chose the 1993–1998 period as the focus of the study because it comes immediately after the *Doi Moi* reforms. Since that time, however, the Vietnamese Government has implemented a variety of other economic reforms, such as the 2000 *Enterprise Law* and the 2005 *Investment Law*, entered into the 2001 US–Vietnam Trade Agreement, and in 2007 joined the WTO. It would be interesting to know how these policies affected the rural–urban gap and whether the government's urban bias has changed. The empirical approach used in the present paper can be used to address these issues in future research.

Appendix I: Vietnam Living Standard Surveys

The Vietnam Living Standard Surveys (VLSS) are nationally representative with 4800 households surveyed in 1993 and 6000 households in 1998. The classification of urban areas in the VLSS is based primarily on the population size (>4000 persons) and non-farm employment share (>60 percent). The sampling frame in 1993 VLSS is based on the 1989 Census in which 80 percent of the population was living in rural areas and 20 percent in urban areas. 120 communities in rural areas and 30 wards in urban areas were randomly selected with the probability proportional to the number of households in those villages or wards. The sample selection for 1998 VLSS was based primarily on the original sample of the 1993 VLSS. However, 1200 households that were added to the sample were not proportional to the number of households or population. Therefore, the 'weight' variable must be used with the 1998 survey to ensure the unbiased characteristics of the results. In general, rural and urban areas were well represented in the sampling frames for both surveys.

Although both expenditure and income data can be used to measure the gap between rural and urban areas, expenditure data is usually preferred (Deaton,

1997). There are several reasons for this. First, people are often reluctant to reveal their true income. Questions on expenditure are often answered more honestly. Second, income only raises living standards if it is consumed, and past income (savings) or borrowing can be used for consumption purposes. Therefore, expenditure data is likely to reflect a household's welfare level more accurately than income data. Third, using consumption rather than income data is also supported by the argument that the former is a better indicator of life-cycle welfare than the latter because consumption is allocated more evenly ('smoothed') over time, whereas income may fluctuate over short periods of time.

Comparisons of urban and rural areas will be insufficient if we do not take into consideration the price differences in the two areas. Price levels in urban areas are generally higher than price levels in rural areas. In the present paper, we use the 'regional price index' calculated by the GSO to adjust expenditure. This price index divides the whole country into seven regions, and each region is subdivided into rural and urban areas.[19] It should be noted that some of the price differences might reflect quality differences of goods and services, and might, therefore, cause underestimation of the rural–urban gap.

Appendix II: Estimating the counterfactual density

This section closely follows Dinardo et al. (1996). To estimate the counterfactual density, it is useful to view each household in the sample as a draw from the density $f(y, X, d)$, where X is a vector of household characteristics and d is a location dummy variable (1 for urban and 0 for rural). The joint density of y and X at a particular location becomes $f(y, X/d)$. If we integrate out X, we have the marginal density of y:

$$f(y) = \int f(y, X/d)\, dF(X/d). \tag{1}$$

This marginal density can be calculated from the Kernel density estimation: $f(y) = \sum_{i=1}^{N_d} \frac{\theta_i}{h} K\left(\frac{y - y_i}{h}\right)$, where y is LPCE, θ_i is the observation weight (only necessary in the 1998 survey), h is the optimal bandwidth, $K()$ is the Kernel Gaussian function and N_d is the number of observations at a location.[20] In a similar fashion, we can define the counterfactual density of urban LPCE that would have prevailed if urban households had the same characteristics as rural households did: $f(y) = \int f(y, X/d_y = 1) dF(X/d_X = 0)$, where $d_y = 1$ means that y is from urban

19. There are $7 \times 2 - 1 = 13$ different price levels because there is no urban area in the Central Highland.

20. We do not include the lowest 4 percent and the highest 4 percent of LPCE in the estimation because Kernel estimation does not perform well at extreme values where the density is sparse.

areas and $d_X = 0$ means that X is from rural areas. This integral can be rewritten as:

$$f(y) = \int f\left(y, X/d_y = 1\right)\psi(z)\,dF(X/d_X = 1), \tag{2}$$

where $\psi(z) = \dfrac{dF(X/d_X = 0)}{dF(X/d_X = 1)}$.

This counterfactual density is identical to the actual density in Equation (1) except for the function $\psi(z)$. Once an estimate of $\psi(z)$ is obtained (see below), we can estimate the counterfactual density using the Kernel density estimation: $f_h(y) = \sum_{i=1}^{N_U} \dfrac{\theta_i}{h}\psi(z)K\left(\dfrac{y - y_i}{h}\right)$.

To estimate $\psi(z)$ we rewrite it using Bayes' rule: $\psi(z) = \dfrac{\Pr(d_X = 0/X)}{\Pr(d_X = 1/X)}\dfrac{\Pr(d_X = 1)}{\Pr(d_X = 0)}$. Note that $\Pr(d_X = 1)$ is equal to the weighted number of observations in urban areas divided by weighted number of observations in the whole sample. $\Pr(d_X = 1/X)$ is the probability that a household belongs to an urban area. We estimate this probability using a probit regression. The results are presented in Appendix Table 2 with two specifications for the household characteristics (X): one with household assets and the other without household assets. There is no significant difference between the two specifications. We also estimated logit regressions and found the results to be similar.

Appendix Table 1 Rural and urban characteristics in 1993 and 1998

	1993		*1998*	
	Rural (%)	*Urban (%)*	*Rural (%)*	*Urban (%)*
Education:				
No education	14.6	10.8	10.6	5.9
	(0.35)	(0.31)	(0.31)	(0.24)
Primary education	37.4	28.0	38.6	25.5
	(0.48)	(0.45)	(0.49)	(0.44)
Secondary	36.4	35.8	37.2	32.9
	(0.48)	(0.48)	(0.48)	(0.47)
High school	8.1	11.9	12.3	25.2
	(0.27)	(0.32)	(0.34)	(0.43)
College	3.4	13.4	1.4	10.4
	(0.18)	(0.34)	(0.11)	(0.31)
Occupation:				
Agricultural worker	83.7	52.1	76.2	38.0
	(0.37)	(0.50)	(0.43)	(0.49)
Merchant	6.9	15.9	11.3	31.6
	(0.25)	(0.37)	(0.32)	(0.47)
Blue-collar worker	2.5	6.5	8.0	16.0
	(0.15)	(0.25)	(0.27)	(0.37)
While-collar worker	6.9	25.5	4.4	14.5
	(0.25)	(0.44)	(0.21)	(0.35)
Remittance:				
Yes/No	19.7	36.5	21.2	37.8
	(0.40)	(0.48)	(0.41)	(0.48)
Amount	202.6	1930.7	548.8	2694.2
	(1417.8)	(11 746.3)	(3185.5)	(8821.6)
Household demographics:				
Age	44.8	47.3	47.4	49.7
	(14.8)	(14.1)	(13.8)	(13.41)
Gender	77.4	56.0	77.9	59.4
	(0.42)	(0.50)	(0.41)	(0.49)
Marital status	82.1	78.0	81.7	77.3
	(0.38)	(0.41)	(0.39)	(0.42)
Vietnamese	85.8	97.9	84.5	98.8
	(0.35)	(0.14)	(0.36)	(0.11)
Number of Children	2.2	1.8	2.1	1.4
	(1.59)	(1.39)	(1.53)	(1.23)
Number of Adults	2.7	3.2	2.8	3.1
	(1.23)	(1.75)	(1.23)	(1.49)
Household assets (Total)	481.6	3435.0	2895.8	17 726.9
	(8822.7)	(53 308.1)	(11 289.0)	(68 868.8)

Notes: Standard errors are in parentheses. Household assets are household savings plus lending minus borrowing. Continuous variables such as age, remittance amount and household assets are standardized by the mean and standard deviation.

Source: Authors' calculation based on 1993 and 1998 VLSS.

Appendix Table 2 Probit regression: The probability of a household living in an urban area

	Without household assets		*With household assets*	
	1993 (%)	*1998 (%)*	*1993 (%)*	*1998 (%)*
Education:				
Primary education	0.3	0.27	0.28	0.27
	(0.15)	(0.15)	(0.15)	(0.15)
Secondary	0.91	0.9	0.9	0.89
	(0.16)	(0.16)	(0.16)	(0.16)
High school	1.2	1.63	1.18	1.55
	(0.2)	(0.17)	(0.2)	(0.17)
College	1.8	2.55	1.77	2.36
	(0.21)	(0.23)	(0.21)	(0.23)
Occupation:				
Merchants	1.53	1.75	1.53	1.72
	(0.13)	(0.09)	(0.13)	(0.09)
Blue-collar worker	1.23	1.71	1.2	1.67
	(0.19)	(0.11)	(0.19)	(0.11)
While-collar worker	1.57	1.3	1.54	1.23
	(0.12)	(0.13)	(0.12)	(0.14)
Remittance:				
Yes/No	0.37	0.44	0.38	0.47
	(0.1)	(0.08)	(0.1)	(0.08)
Amount	0.58	0.23	0.53	0.17
	(0.12)	(0.05)	(0.12)	(0.05)
Household demographics:				
Age	0.2	0.28	0.2	0.27
	(0.06)	(0.05)	(0.06)	(0.05)
Gender	–1.35	–1.19	–1.35	–1.18
	(0.11)	(0.1)	(0.11)	(0.1)
Marital Status	0.39	0.28	0.39	0.26
	(0.13)	(0.11)	(0.13)	(0.11)
Vietnamese	1.4	1.82	1.39	1.75
	(0.24)	(0.25)	(0.24)	(0.25)
Number of Children	–0.15	–0.27	–0.15	–0.26
	(0.03)	(0.03)	(0.03)	(0.03)
Number of Adults	0.33	0.24	0.33	0.23
	(0.03)	(0.03)	(0.03)	(0.03)
Household assets			0.27	0.54
			(0.11)	(0.09)
Constant	–4.05	–4.07	–4.01	–3.92
	(0.28)	(0.28)	(0.28)	(0.28)

Note: Standard errors are in parentheses.
Source: Authors' calculation based on 1993 and 1998 VLSS.

References

Bates, R. H., 1981, *Market and States in Tropical Africa*. University of California Press, Berkeley, CA.

Centre for International Economics, 1998, *Vietnam's Trade Policies 1998*. Centre of International Economics, Canberra and Sydney.

Deaton, A., 1997, *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy*. Johns Hopkins University Press, Baltimore, MD.

Dinardo, J., N. M. Fortin and T. Lemieux, 1996, Labor market institutions and the distribution of wages, 1973–1992: A semiparametric approach. *Econometrica*, **64**, pp. 1001–1044.

Dollar, D. and J. Litvack, 1998, Macroeconomic reform and poverty reduction in Vietnam. In: *Household Welfare and Vietnam's Transition* (eds Dollar D., Glewwe P. and Litvack J.), pp. 1–28. World Bank, Washington, DC.

Farkas, G., P. England and M. Barton, 1988, Structural effects on wages: Sociological and economic views. In: *Industries, Firms, and Jobs: Sociological and Economic Approaches* (eds Farkas G. and England P.), pp. 93–112. New York, NY: Plenum Press.

Forde, A. and S. De Vylder, 1996, *From Plan to Market: The Economic Transition in Vietnam*. Westview Press, Boulder, CO.

Glewwe, P., M. Gragnolati and H. Zaman, 2002, Who gained from Vietnam's boom in the 1990s? *Economic Development and Cultural Change*, **50**, pp. 773–92.

Hinkle, L. E. and P. J. Monteil, 1999, *Exchange Rate Misalignment: Concepts and Measurement for Developing Countries*. World Bank, New York, NY.

Institute of Economics, 2001, *The Nominal and Effective Rates of Protection by Industry in Vietnam: A Tariff-Based Assessment*, Vol. 2. Institute of Economics, Hanoi.

Krueger, A. O., M. Schiff and A. Valdes, 1991, *The Political Economy of Agricultural Pricing Policy*. Johns Hopkins University Press, Baltimore, MD.

Kwoka, J. E., 1983, Monopoly, plant, and union effects on worker wages. *Industrial and Labor Relations Review*, **36**, pp. 251–7.

Le, D. and H. Tran, 1995, Devaluation: Issues and potential in Vietnam. *Tap chi NCKT*, 12.

Lipton, M., 1977, *Why Poor People Stay Poor: Urban Bias in World Development*. Harvard University Press, Cambridge, MA.

Mundle, S. and B. Van Arkadie, 1997, The rural–urban transition in Viet Nam: Some selected issues. Asian Development Bank Occasional Papers, pp. 1–26.

Nguyen, B. T., J. W. Albrecht, S. B. Vroman and M. D. Westbrook, 2007, A quantile regression decomposition of urban–rural inequality in Vietnam. *Journal of Development Economics*, **83**, pp. 466–90.

Rangarajan, C., 2004, *Selected Essays on Indian Economy*, Vol. 2. Oxford University Press, New Delhi.

Reder, M. W., 1971, Wage differentials: Theory and management. In: *Readings in Labor Market Analysis* (eds. Burton J. F., Benham L. K., Vaughn W. M. and Flanagan, R. J.), pp. 281–309. Holt, Rinehart and Winston, New York, NY.

van de Walle, D. P. and D. Gunewardena, 2001, Sources of ethnic inequality in Vietnam. *Journal of Development Economics*, **65**, pp. 177–207.

Vietnam General Statistical Office, Statistical Yearbook, 1996–2000. Government of Viet Nam, Hanoi.

World Bank, 1998, *Household welfare and Vietnam's transition* (eds. Dollar D., Glewwe P. and Litvack J.). World Bank, Washington, DC.

Yang, D. T., 1999, Urban-biased policies and rising income inequality in China. *American Economic Review*, **89**, pp. 306–10.