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Prema-chandra Athukorala, Pham Lan Huong and Vo Tri Thanh

Australian National University
prema-chandra.athukorala@anu.edu.au

Central Institute of Economic Management, Hanoi
plh@ciem.org.vn

Central Institute of Economic Management, Hanoi
votrithanh@ciem.org.vn

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Distortions to Agricultural Incentives in Vietnam

Prema-chandra Athukorala, Pham Lan Huong and Vo Tri Thanh

Since the late 1980s Vietnam has made remarkable progress in transition from a former closed command economy to a market economy and in terms of integration into the world economy. With a slow and hesitant start following the announcement of *doi moi* (renovation) policy in 1986, significant reforms were undertaken in the first half of the 1990s. The reform process lost momentum during 1996-98, perhaps reflecting complacency resulting from the success of the initial reforms, and also due to economic uncertainty created by the 1997–98 East Asian financial crisis. There has, however, been a renewed emphasis on completing the unfinished reform agenda since about 1999. The key reform measures so far include widespread reforms in the agricultural sector, involving a move away from the previous collective regime to a system in which farmers have greater freedom in making production decisions and marketing their produce; dismantling quantitative import restrictions on all products except sugar and petroleum products; significant tariff reforms leading to notable reduction in both the level and dispersion of effective rate of protection; initiatives to expose public sector enterprises to greater market discipline; relaxing restrictions on foreign direct investment, particularly in export-oriented projects; and lifting restrictions on private-sectors participation in foreign trade and the setting up of business ventures by private entities (both individuals and companies). These reform initiatives have been accompanied by sweeping macroeconomic policy reforms, including the unification and realignment of the exchange rate, liberalization of agricultural prices, relaxation of exchange controls, and a firm commitment to fiscal prudence.

The purpose of this chapter is to examine the implications of market-oriented policy reforms in Vietnam for incentives faced by farmers in the context of changes in the overall structure of incentives for private sector activities in the economy. The analysis is undertaken against the backdrop of an analytical narrative of agricultural policy evolution and key policy trends dating back to the command economy era. The empirical analysis of agricultural incentives covers six major products — paddy/rice, sugar, pigmeat, poultry, rubber and

coffee — using data for the period from 1986 (the earliest post-reform year for which the required data are available) to 2004. The six covered products account for more than two-thirds of total value of agricultural production in Vietnam during the period under study. The chapter aims to inform the contemporary policy debate on reforming the structure of incentives for domestic agriculture in Vietnam, as an integral part of the country's endeavour to accelerate its economic integration into the world economy.

The study has four main parts. The next section presents an overview of growth and structural changes during the post reform era (since the mid-1980s), with emphasis on the relative importance of the agricultural sector, and the trends and compositional shifts in agricultural output and trade. The following section provides an overview of the origins, key elements and the progress in meeting reform commitments, with emphasis on the political economy of policy making. Following this, the analytical core of the chapter examines the trends and patterns of incentives to domestic agriculture using a set of incentive indicators based on the methodology in Anderson et al. (2008). The final section summaries the key findings and their policy implications.

Agriculture in the Vietnamese economy

The extraordinary economic growth performance of this transforming economy is first documented, before turning to review the structural changes that accompanied that development.

Growth trends

During the era of central planning (from the mid-1950s in the North and following unification in 1975 in the South), the Vietnamese economy was not subject to the same level of 'forced industrialization' as the former centrally planned economies in the Soviet block and China. The prolonged military conflict with the South Vietnamese regime and the USA constrained engineering an industrial transformation beyond setting up industries in line with the priorities of the war economy. Thus, agriculture continued to remain the dominant sector of the economy up to the 1980s. During the period 1955–85, the share of agriculture (broadly

defined to include farming, fisheries and forestry) in GDP fluctuated in the range of 38 to 52 percent without showing any clear trend (GSO 2001). By the mid-1980s, over 72 percent of the total labor force was engaged in agricultural pursuits (Riedel 1993, Table 6).

The process of collectivization of agriculture in North Vietnam (the Democratic Republic of Vietnam, DRV) was completed by the early 1960s. The forced replacement of a semi-subsistent peasant commodity production system by 'the plan' ushered in an era of suppressed growth, if not stagnation, in agriculture. During most of the ensuing three decades, agricultural output in the North was only barely sufficient to meet domestic consumption requirements. Attempts to replicate the collectivised system following the administrative unification of the country in 1976 resulted in severe disruption in agricultural production in the South. Piecemeal reforms implemented during 1979–80, with a view to relaxing structures of central planning, had only limited impact in containing output contraction. By the mid-1980s, large areas of the country experienced near-famine conditions, and food shortages resulted in widespread suffering. National food security became a leading preoccupation at that time (Pritchett 2003; White 1985; Riedel and Comer 1997).

The response of agriculture to market-oriented policy reforms initiated in the late 1980s was remarkably swift. Between 1988 and 1992, GDP increased by 27 percent, with nearly 30 percent of this increase coming directly from agriculture. In addition, rapid agricultural growth also contributed to expansion in nonagricultural rural services and in input supplying and food processing industries. During the ensuing years, growth turned out to be broad based, with industry and services growing at much faster rates compared to agriculture. Nonetheless, the growth rate of agriculture continued to remain impressive (in the range of 3.0 to 5.2 percent per year), compared to both Vietnam's own pre-crisis experience and the average performance of other low-income and transition economies. Despite notable structural change over the past one-and-a-half decades, agriculture still has a significant weight in the Vietnamese economy, contributing 21 percent of GDP and absorbing 57 percent of the total labor force of the nation in 2005 (Figure 1). Just over two-thirds of households in the lowest income quintile were occupied in agriculture in 2004, and almost three-fifths of the incomes of household in that income bracket was generated by agricultural activities (compared to less than one-fourth for the highest income quintile).

Impressive agricultural growth, in particular the surge of paddy production, played a key role in winning political support for further reforms by ensuring national food security, a

source of much political anxiety in the 1980s. Agricultural growth was also at the heart of Vietnam's success in rapid reduction in rural poverty. Growth of rural income helped economic transition by ameliorating pressure for rural to urban migration, despite a widening gap between urban and rural incomes. Unlike China, in Vietnam internal migration has so far been as much from one rural area to another as from countryside to the city. This has limited the pressure for heavy expenditure on urban development (Van Arkadie and Mallon 2003, Minot and Golettei 2000).

Production of major commodities

Paddy/rice was the prime mover of agricultural growth in the immediate post-reform period. From the mid-1990s there has been notable diversification of agricultural production into other food crops (maize, peanuts, and soybean), cash crops (in particular rubber, coffee, and tea, cashews, pepper, and cinnamon), fruits and vegetables, marine and aquaculture products (shrimps, fish, cuttlefish and crab), and animal husbandry (pigmeat and poultry). In agricultural cash crops, such as coffee, cashews and pepper, Vietnam moved from negligible production to being a major player in world markets. The initial production expansion of some cash crops (particularly rubber) reflected a return from state farm investment in the 1980s, but growth of agricultural production during the post-reform era came predominantly from private smallholder production.

Rice, the staple food of the country, which accounts for three-quarters of the caloric intake of the population, is by far the most dominant product in Vietnamese agriculture. In 2004, paddy accounted 57 percent of total cultivated land and 36 percent of total agricultural output in the country (Tables 1 and 2; Figure 2). The Red River Delta and the Mekong River Delta together account for more than two-thirds of national paddy production (with the latter accounting for more than half of the total national production), but paddy is also the prime food crop grown widely in all other parts of the country. Paddy production increased persistently from 19,225 thousand tons in 1990 to 36,149 thousand tons in 2005, at an annual compound growth rate of 4.2 percent. This impressive growth largely came from an improvement in yield per acre while the acreage under cultivation remained virtually unchanged (Appendix Table A1). Paddy yield increased from 2.8 to 4.9 tons/ha between 1986 and 2005.

Coffee, rubber and sugar cane are the three most important cash crops in Vietnam. In 2004 coffee accounted for 3.8 percent of agricultural output, with sugar cane and rubber

respectively accounting for 3.4 percent and 2.3 percent. Coffee and rubber production is largely for export markets while the sugar industry predominantly produces to meet domestic demand. Coffee and sugar are predominantly small-holder crops. Rubber is mainly produced in farms owned by the General Rubber Corporation — a state owned enterprise (SOE) at the national level — or by SOEs at the provincial level. Cultivated area, production and yield of both rubber and coffee recorded impressive growth over the past one-and-a-half decades (Appendix Table A1). Sugar production recorded a sudden jump in 1995 following the introduction of the 'one-million-ton sugar pogram', and continued to increase up to 1999. There has, however, been a mild downward trend, with significant fluctuation of annual production thereafter. Sugay yield increased from 396 quiltal/ha in 1986 to 553 in 2005. The area under sugarcane cultivation declined in recent years as a result of a switch by farmers to other crops, mostly to subsidiary food crops. Despite its relatively poor performance (or because of it), sugarcane production remains the most assisted agricultural activity in Vietnam (see below). In 1995, the government launched its 'one-million-ton' sugar program with the aims of achieving self-sufficiency in sugar by 2000 and of creating employment in the rural economy (Nguyen et al. 2006).

The other cash crops that have recorded impressive growth during the post-reform era include cashew, groundnuts, tea and pepper. Vietnam is the world's biggest producer of pepper, the third biggest producer of cashew nuts, the fifth largest producer of tea and the tenth largest producer of groundnuts in the world. However the combined share of these products in total agricultural GDP of the country still remains small (less than 3 percent).

Livestock production has increased rapidly since the early 1990s, accounting for about 14 percent of agricultural value added by 2000 (IAPP 2001, as quoted in Nguyen and Grote 2004). Pigmeat is by far the most important livestock product (60 percent) followed by poultry (15 percent) and beef (8 percent). The share of pigmeat in agricultural value added increased from 6.4 percent during 1990–94 to 10 percent during 2000–04 (Table 1). Currently over 90 percent of pigmeat production is consumed domestically, but exports (predominantly to China) begun to increase rapidly in recent years.

Agricultural exports

Primary products accounted for nearly a half of non-oil merchandise exports from Vietnam in the mid-1980s. This share increased further in the early years of the post-reform period as the

first positive response to reforms came from agricultural products, mostly rice. In 1998 Vietnam became self sufficient in rice and then a net exporter. By 2005, rice exports peaked at 5.25 million tons, making Vietnam the third largest rice exporter in the world (after the US and Thailand). Over time the composition of agricultural exports has become increasingly diversified, with pepper, cashews, rubber, coffee and fish products recording impressive growth. From about the late 1990s, manufacturing exports have grown faster, resulting in a notable shift in the export composition away from primary products. However, agricultural products still accounted for over one-quarter of total non-oil merchandise exports by 2004 (Table 3).[1]

Until about the mid-1990s, both rapid volume expansion and favorable price trends contributed to growth in export earnings from agricultural products (Figure 3). From then on, prices continued to decline, with the rate of decline intensifying in more recent years. Rapid volume expansion continued to compensate for the decline in prices until about 1998, to generate mild but positive growth in export earnings. However, the rate of growth in export earnings from agricultural products has persistently slowed over the past five years or so, reflecting mostly declining prices.

The reform process: from plan to market

Under the collective system of agriculture instituted in the North in the early 1960s, cooperatives were the key link between agricultural households and the national economic plan. As the prime institution to replace 'the market' by 'the plan', the agricultural cooperative was responsible for organizing deployment of the agricultural labor force, producing in accordance with plans approved by the central authorities, selling the surplus production to the state at state controlled prices, and implementing obligatory procurement quotas introduced from time to time for sales to the state of a number of essential commodities (White 1981).

[1] It is important to note here that export shares estimated in 'gross terms' (that is, estimates done using the published trade data without adjusting for the import content) tend to understate the balance of payments implications of agricultural exports particularly because most of the newly emerging manufactured exports are highly import dependent for their inputs.

Following the defeat of the government of the Republic of Vietnam (South Vietnam) in 1975 and the formal administrative reunification of the economy in 1976, replacing 'the market' by 'the plan' in the South presented a formidable challenge. In the period immediately following reunification, the approach to bring Southern agriculture under the collective system was fairly cautious. However, the rapid growth of private trade, combined with concerns about political resistance to socialist transformation in the southern farmers and the business community (dominated by ethnic Chinese) led to attempts to accelerate the process. The Second Party Plenum in July 1977 set ambitious targets to speed collectivization of individual agricultural households. Farmers' resistance to the introduction of the collective system, coupled with a state of uncertainty about the future direction of reforms, resulted in declines in agricultural output. Consequently the process of collectivization in the South was slowed or even reversed, and agreements were reached on the need to decentralize decision making and to provide improved incentives for increased production though private (household) initiatives (Duiker 1989; Fford and de Vylder 1996; Naughton 1996).

The reforms introduced during 1979–80 included institution of 'production contracts', under which cooperatives subcontracted land to households and allowed households greater latitude in production decision making. Under this new system, which was similar to the 'household responsibility system' in China, households were allowed to keep, or to sell on the free market, any surplus above a stipulated amount to be delivered to cooperatives under the contract. In effect, the role of cooperatives was limited to a subsidiary role of allocating land, supplying inputs, and providing technical assistance (Woodside 1989).

These reforms had an immediate and dramatic effect: total agricultural production (at 1994 prices) went from 37 trillion VND in 1979 to 46 trillion VND in 1982 (GSO 2001). But rather than responding to improved production by deepening reforms, as China did, Vietnam back peddled from the reform process for most of the rest of the decade. The emergence in the early 1980s of severe macroeconomic imbalances, reflected in high and rising inflation, undermined the reform movement. Not only were the macroeconomic problems interpreted as a symptom of the failure of reforms, but also they created dissatisfaction in the ranks of civil servants because they resulted in a reduction in their real wages,. Thus, the influence of 'hardliners' in the Communist Party of Vietnam gained strength by the mid-1980s, intensifying the pressure to force collectivization of agriculture in the south (Riedel and Comer 1997).

By the mid-1980s, the economy was stagnating amidst hyperinflation and a chronic balance of payments situation. Furthermore, it was clear by 1988 that Soviet aid would soon decline. In the face of these problems, a more concerted push toward reform was announced at the Sixth Congress of the Communist Party of Vietnam in December 1986 (CPV 1994). The implementation of this program of reform, referred to as *doi moi*, did not, however, really gain momentum until the collapse of the Soviet Union which virtually put an end to Soviet aid. Massive contraction in agricultural output in 1988, which brought near-famine conditions in many parts of the country, also played a role in ameliorating resistance to reform. The focus of early reform was mainly on unshackling agriculture. The reform process largely ignored the private sector outside of agriculture initially, and the process of establishing the institutions needed to support private sector activity outside of agriculture began with unrest only from about early 1990s.

Unshackling agriculture

The transition to a more decentralised, market-oriented system of agricultural production began with the adoption of the Decree No.10 by the Communist Part of Vietnam in 1988. This recognized the peasant household, rather than the cooperative, as the basic unit in the agrarian structure. It gave households the right to conditional use of private land for a period of 10–15 years, the ability to own their own draft animals, farm tools and other equipment, barter output for inputs, and the ability to retain income earned from production after paying a modest tax. However, at that stage, cooperatives continued to have ultimate control of land and water resources, and sale of output (at state prices) remained restricted to the district. Further measures introduced in 1989 reduced the direct involvement of the state in input allocation. In July 1993, tenure over agricultural land was extended to 20 years and farmers were permitted to sell, lease, exchange, mortgage, and bequeath land. Cooperatives were still meant to provide a focus for various rural activities sponsored by the state but, in the majority of communes, the cooperatives were reduced to only a minor role: their functions were to act as local tax collectors, as the holders of residual property rights, and as an element of the formal state structure (Riedel 1993, Riedel and Comer 1997, Sachs and Woo 1994).

Land tenure reforms were accompanied by sweeping domestic market (price) reforms. In 1987 and 1988, the rationing system was abolished for many commodities, and official prices of non-essential goods were raised to a level close to free market prices.

Administrative prices of most consumer goods, and a large number of agricultural and industrial inputs, were abolished. In June 1990 procurement of farm products by the state (usually at prices below the free market) formally ended, allowing farmers to sell their produce at market price. By 1990, commodity prices were largely determined by domestic market conditions, and direct subsidies were eliminated. The former sellers' market was replaced with the shift towards market-clearing prices. The weakening of the state trading system at the local level permitted private traders to develop local markets, while many state trading enterprises became more responsive to market opportunities. International trade in agricultural products was also gradually liberalized from 1989, allowing private sector participation at successive stages.

Trade policy reforms

In conjunction with domestic market (price) reforms, foreign trade and investment regimes were considerably liberalized in successive stages. The Law on Import and Export Duties introduced on 1 January 1988 marked the beginning of the present trade tax system. The original import tariff schedule was replaced in 1992 by a detailed, consolidated schedule based on the Harmonised System (HS) of tariff nomenclature. During the ensuing years of the decade the tariff structure was fine-tuned, reflecting a trend towards an increasingly selective protection of consumer goods (cosmetics and some categories of food products), upstream activities related to textiles and garments (silk, cotton, and certain fibres) and some specifically protected intermediate goods (metal products, cements and glass). Following accession to the ASEAN Free Trade Area (AFTA) in 1995, and in preparation for the WTO accession, steps were taken to restructure and rationalise the tariff structure in the early- and mid-2000s (Thanh 2006).

After one-and-a-half decades of reforms, tariffs are now the major instruments used in regulating import trade. The average (import-weighted) import duty rate declined from 22 percent in 1999 to 13.6 percent in 2004 (Figure 2). The maximum tariff rate (at the six-digit level of the Harmonised System, HS) came down from 200 percent in 1997 to 120 percent in 2001 and then to 113 percent in 2004. As at October 2005, less that one percent of total tariff lines (accounting for around 4 percent of import value) have tariff rates above 50 percent. About one-third of the tariff lines have zero tariffs. Despite notable efforts to rationalise the

tariff structure, tariffs in Vietnam are still relatively high and non-uniform by regional standards (Athukorala 2006).[2]

Tariff rates are generally higher for manufacturing compared to agriculture and other primary product sectors. By mid-2003, the weighted average duty rate on manufacturing imports was 29 percent, compared to 11 percent and 3.6 percent on agricultural and mineral products. Within manufacturing, tariff rates are particularly high for food processing and for certain consumer goods, notably garments, footwear, ceramic products and leather goods (Athukorala 2006, Appendix Table 1).

By 2004 only two products, namely sugar and petroleum, remained under quantitative restrictions (import licensing). As part of the trade reform commitment for WTO accession the government offered to replace import licensing on sugar by a WTO-consistent tariff trade quota system. Imports of two products — poultry eggs (0407) and raw tobacco (2401) — are already subject to tariff-rate quotas. The current list of prohibited imports includes military equipment, toxic chemicals, antiquities, narcotics, firecrackers, poisonous toys, used consumer goods, and right-hand driving automobiles. In addition, a considerable number of import items (eg pharmaceuticals, some chemicals, some food items, fertilizer, and recording and broadcasting equipment) still require approval from relevant ministries. By 2000, around 10 percent of imports (in value terms) were subject to this form of regulation. As in many other countries, these regulations are generally maintained for heath and security reasons and they do not seem to greatly distort trade patterns.

At the initial stage of market-oriented reforms, the Vietnamese government introduced export duties on a number of export items. They were justified at the time on grounds of raising revenue, protecting the environment, natural resources conservation and reserve inputs for domestic production. Most of these duties were subsequently eliminated. By 1998 only a few products — iron ore, crude oil, scrap metal, raw cashews — were subject to export duties. Currently export prohibition applies only to environmentally sensitive products: agro-forestry products, round wood and saw wood from domestic natural forests, firewood and charcoal from domestic naturally-grown forestry wood, and rare wild animals.

When Vietnam began exporting rice in 1989, rice exporting was subject to licensing, with a view to ensuring adequate domestic supplies and reducing price volatility in the

[2] By mid-2003, the average (unweighted) tariff rate in Vietnam (16.7) is a little lower compared to China (17.5) and Thailand (18.5), but much higher compared to Indonesia (8.43), Malaysia (10.2) and the Philippines (7.6). The degree of dispersion of tariff rates (measured by the coefficient of variation) in Vietnam is much higher compared to China, the Philippine and Thailand, and lower compared to Indonesia and Malaysia.

domestic market. Export quotas were issued to only a limited number of state-owned enterprises (SOEs). the number varied between 15 and 40. Intense political lobbying among SOEs to receive export quotas during the early years of rice exporting suggested that export quotas were in fact binding and ensured the domestic price was below the relevant border price. However, from about 1998, quotas turned out to be virtually ineffective, in line with rapid expansion of rice production and marketable surplus. On 4 April 2001, the rice export quota allocation mechanism (together with the import quota system for fertilizer) was abolished by Prime-Ministerial Decision No. 46/2001/QD-TTg. According to the Decision, enterprises were permitted to export rice provided they held general business licences for trading in rice or other agricultural products. In connection with exporting rice to countries with which the government of Vietnam has signed bilateral trading agreements, the Ministry of Trade assigns export rights to selected enterprises in consultation with the Vietnam Food Association. However, such trade is too small to have any impact on the operation of domestic rice markets.

Accompanying reforms

Reforms in domestic agriculture and in foreign trade were accompanied by significant macroeconomic policy reforms (Dollar 1992, Dollar and Ljunggren 1997). To fight inflation, interest rates were raised to very high levels. The government also tried to curb deficit financing, which required a large fiscal adjustment, including the release of 500,000 soldiers from the military and sharp cuts in subsidies to SOEs. These policy measures, combined with some revenue windfalls from petroleum operations coming on line, brought the budget deficit from 11.4 percent of GDP in 1989 to below 4 percent in 1992, a level which has not been surpassed since. Fiscal adjustment and monetary restraint were successful in bringing the inflation rate from over 160 percent per annum in 1988 to less than 10 percent by the mid-1990s.

Exchange rates were unified and a new rate was sharply devalued in 1989. The resultant real exchange rate devaluation amounted to 72.5 percent, according to IMF calculations (Dollar 1992). Since then, the Vietnamese Dong has been on a managed floating exchange rate regime in which the State Bank of Vietnam (The Central Bank) determines the unified rate in line with foreign exchange trading on the market. During 1990–98, the gap between the official exchange rate and the exchange rate in the inter-bank market varied in

the range of 5 to 10 percent. Since then the State Bank's approach to managing the exchange rate has been more flexible, reducing the gap between the two rates to more than 0.1 percent on a given business day. The black market premium on the dollar, which remained over 50 percent during 1988–95, has come down sharply to less than 5 percent by 2004 (Appendix Table A4). Reflecting successful macroeconomic stabilization and exchange rate management, the real exchange rate has remained remarkably stable since about 1995 (Figure 5).

Trends and patterns of agricultural incentives

This section provides an analysis of the changing extent and patterns of direct and indirect distortions to incentives faced by domestic agriculture in Vietnam using the methodology developed by Anderson et al. (2008). The main focus of the present study's methodology is on government-imposed distortions that create a gap between domestic prices and what they would be under free markets. Since it is not possible to understand the characteristics of agricultural development with a sectoral view alone, the project's methodology not only estimates the effects of direct agricultural policy measures but it also includes estimates of distortions in non-agricultural tradable sectors for comparative evaluation. Specifically, Nominal Rates of Assistance (NRAs) for farmers are computed for six covered products, plus NRAs for nonagricultural tradables for use with that for agricultural tradables to calculate a Relative Rate of Assistance (RRA). Non-covered agricultural exportable products are assumed to have the same NRA as the average NRA for covered exportables, while the NRA for import-competing non-covered products is assumed to be one-tenth that for sugar (and it is assumed the NRA for nontradables is zero and their share of non-covered farm production is 68 percent while the exportables' share is 25 percent).

The NRA to nonagricultural tradables is estimated by assuming the implicit duty rate on nonagricultural importable products (total tariff revenue from nonagricultural imports divided by the value of nonagricultural imports) is the distortion to that component of nonagricultural tradable GDP, and that the rest of nonagricultural tradable GDP (exportables, assumed to be three-quarters as large as the import-competing part) is not subject to any

export taxes or subsidies. In estimating tradable GDP we follow the approach in Goldstein and Officer (1979), which is to treat construction, utilities and all services in national accounts (at the two digit level) as non-tradables.

Before examining the estimates, it is important to bear in mind two important caveats arising from the paucity of data. First, we have ignored potential differences between border (reference) prices and domestic prices arising from qualify differences. This would have possibly infused an underestimation bias into our calculations. Secondly, we have assumed complete passthrough of changes in producer (wholesale) prices into farm-gate prices, potentially resulting in an upward bias in estimates. These limitations are, however, important only in comparing the level of distortion on incentives among products or across countries at a given point in time. They are unlikely to distort inferences based on inter-temporal comparison (changes in incentives over time) because the magnitude of the bias is less likely to be time variant. It is also important to note that RRA estimates, by nature of the estimation method, do not fully capture indirect distortions to agricultural incentives arising from changes in tariffs on tradable inputs. Given the cascading nature of Vietnam's tariff structure, this is a potentially important source of downward bias in RRA estimates (Athukorala 2006). Nor are distortions from non-tariff import restrictions captured here.

The estimated distortion rates are summarised in the form of five-year averages in Tables 4 and 5, and plotted in Figure 6. (Detailed annual estimates are reported in Appendix Tables A5 and A6. The estimated NRA series for each of the covered products, together with the related domestic and border price series, are depicted in Appendix Figure A1.) Throughout the latter 1980s and the first half of the 1990s, the policy regime in Vietnam was characterised by a significant bias against agriculture. The RRA averaged -20 percent in 1990-94. Direct negative assistance to agriculture (as measured by NRA for agriculture) underpinned this high degree of distortion to agricultural incentives. The main factors that kept domestic prices artificially suppressed relative to border prices were the continued dominance of SOEs in the trading and processing of agricultural commodities, a stringent export licensing system relating to rice trade and other trade restrictions, administered prices which were usually maintained below border prices, and perhaps a lack of experience of newly merging private traders operating in a competitive trading environment.

Until the mid 1990s the four exportable agricultural products - rice, coffeee, pigmeat and poltry - faced significant negative assistance (Table 4). Rubber was unique among the

five exportable products: it enjoyed positive assistance over the past two decades reflecting production subsidies given to the state-owned planation companies which account for the bulk of rubber producion in the country. With the removal of direct price intervention, some export duties, and the liberalization of export trade, incentives for rice, pigmeat and poltry improved significantly from the mid-1990s.. Eeven though coffee production continued to remain disprotected, the overall NRA index for exportable agriculture increased persistently in the ensuing years: from around -25 percent in 1990–94 to around 20 percent in 2000–04.

Sugar, the only import-competing product covered in the study, occupies a unique position both in terms of the level and trend of assistance. Sugar cane producers enjoyed exceptionally high NRAs compared to those producing other products, and the measured degree of assistance increased persistently over time. During 2000–04, the NRA for sugar cane was 160 percent, compared to a weighted average of 20 percent for all covered products. This pattern points to the stringency of the existing licensing regime governing sugar imports. Sugar protection policy in Vietnam was systematically analysed in a number of recent studies (eg. CIE 2001; Nguyen et al. 2006). The consensus inferences arising from these studies are that the government's sugar industry development strategy — enshrined in the 'One Million Ton of Sugar Program' launched in 1995 — has turned out to be a dismal failure and that a competitive, economically viable sugar industry cannot be developed through isolation from world market conditions. Heavy protection provided to the sugar industry is a major constraint in the diversification of scarce land resources to more dynamic, export-oriented crops. Moreover, high domestic sugar prices not only tax domestic consumers but also hamper the competitiveness of domestic confectionary, food and beverage industries.

Improvement in NRA for exportable agriculture, coupled with continued high NRA enjoyed by sugar cane producers, have brought about a a notable improvement in the RRA for agriculture over the past ten years. Interestingly this improvenemnt in relative insentivel to agriculture has taken place against the backdrop of a persistent increase in the NRA to nonagriculture over time (Table 5, Figure 6). Clerly dismantling of various direct price intervention in domestic trade, removal of export duties on almost all agricultural products, liberalization of import trade and exchange rate reforms have been instrumental in redressing the anti-agricultural bial in the incentive structure of the Vietnamese economy.

A comparison of the weighted average NRA for the exportables (paddy/rice, rubber, coffee, pigmeat and rice) with that for sugar cane (an import-competing product) points to a persistent bias in agricultural incentives in favor of import-competing, as

against export-oriented production within agriculture (Table 4). However, this comparison needs to be qualified by the fact that the NRA for import-competing products is comprised of only sugar protection, which is an outlier relative to other import-competing agricultural products in Vietnam that are not covered in this study.

Concluding remarks

Over the past two decades, Vietnam has made significant progress in market-oriented reforms. The foreign trade regime has been increasingly liberalized, with a palpable transition from quantitative restraints to tariffs as the main instrument for regulating imports. Export taxes on all significant products have been eliminated. In domestic trade, SOE dominance in most areas has ended and all price controls and restrictions on production and movements of goods have been eliminated. The reform process is far from complete, however. The structure of trade protection still remains out of line with that of the major trading nations in the region, both in terms of the level and the dispersion of nominal and effective protection rates. High import duties on a number of agricultural products in which Vietnam has a clear comparative advantage — in particular rice, coffee and tea — and stringent quantitative import restrictions on sugar are major anomalies in the import trade regime. A number of intermediate goods, including crucial inputs to agriculture, which are locally produced by SOEs, have excessively high tariffs. Had information on them been available for inclusion in the above analysis, the NRA for agriculture would have been even lower. Export licensing for rice, although seemingly non-binding for some time now, remains an important source of uncertainty for private-sector traders.

Market oriented reforms in Vietnam began with attempts to unshackle domestic agriculture, and reforms in this areas have been wide-ranging compared to those in other areas. The predominance of agriculture in the pre-reform economy — its importance in determining the fortune of the economy and in maintaining the livelihood of the vast majority of people — made sweeping agricultural reforms politically palatable. Given the vast untapped potential of agriculture during the command-economy era, the response of agriculture to policy reforms was swift. The impressive reform outcome in agriculture played a pivotal role in sustaining the momentum of reforms, assuring the continuation of market-oriented programs.

The empirical analysis of the trends and patterns of incentives to agriculture yields a number points worth stressing. Throughout the first half of the 1990s, the policy regime in Vietnam was characterised by a significant bias against agriculture. With the gradual removal of privileges enjoyed by SOEs in procuring, processing and trading of agricultural products, the opening up of both domestic and foreign trade to the private sector, and the nascent private sector's emergence in a competitive trading environment, this policy bias dissipated over time. By 2000–04, the total nominal rate of assistance to agriculture and the degree of anti-agricultural bias embodied in the overall policies affecting tradables showed that the bias had in fact reversed. Interestingly, the improvement in relative incentives for agriculture was predominantly, if not solely, from direct agricultural reforms:. This is evidenced by the only mild increase in the nominal rate of assistance to nonagricultural tradables. In this context, the implementation of tariff reform commitments following accession to the WTO has the potential to play a vital role in consolidating Vietnam's reform effort to remove remaining sectoral policy biases.

According to the commodity-level estimates, excessive assistance provided to sugar producers (mainly though stringent quantitative restrictions on sugar imports) remains the major anomaly in the incentive structure. Over the past five years, nominal rate of assistance continued to be high, despite a persistent decline in border prices, reflecting the stringency of the existing quantitative restrictions. Heavy protection provided to this industry is a major constraint on the diversification of agriculture into dynamic export-oriented crops. High domestic sugar prices not only tax domestic consumers but also hamper the competitiveness of domestic confectionary, food and beverage industries. Redressing this anomaly in the incentive structure remains a formidable challenge because sugar cane has long been a 'choice crop' of the government's rural development and agricultural diversification programs. Unfortunately the Vietnamese authorities have missed the opportunity to make use of its WTO accession commitments to face up to the political resistance to reform. Instead, the government has chosen the soft option of replacing the existing sugar important licensing by WTO-consistent tariff rate quotas, with effect from 2008.

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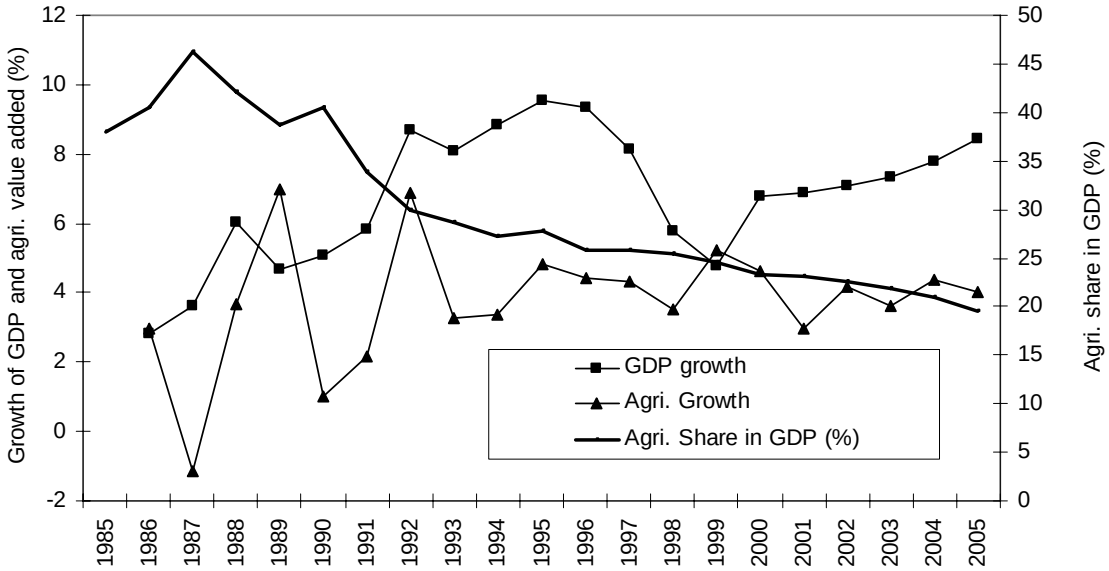
Figure 1: Growth of GDP and agricultural value added, and agricultural share in GDP, Vietnam, 1985 to 2005

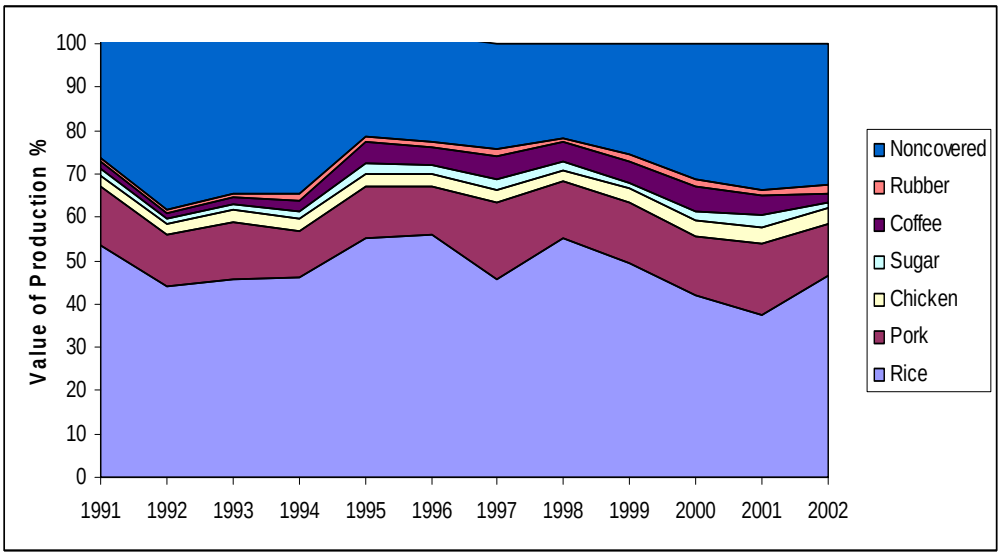
(percent)



Source: Based on data compiled from GSO (various issues a).

Figure 2: Agricultural production shares by farm products, at undistorted prices, Vietnam, 1991 to 2002

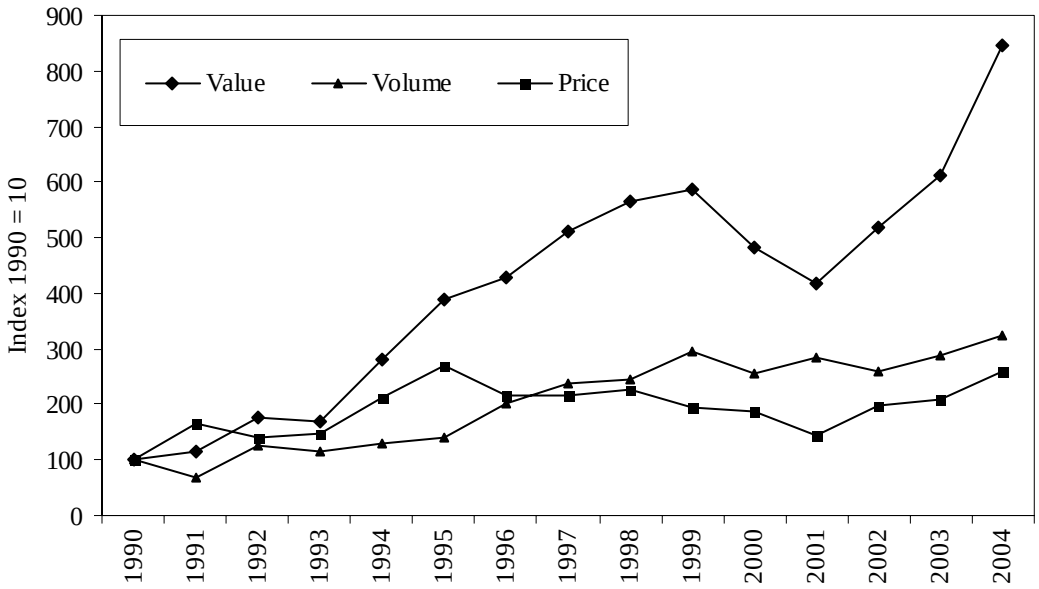
(percent)



Sources: Based on data compiled from GSO (various issues a) and Input-Output Table 2000.

Figure 3: Agricultural export volume, value and price indices, Vietnam, 1990 to 2004

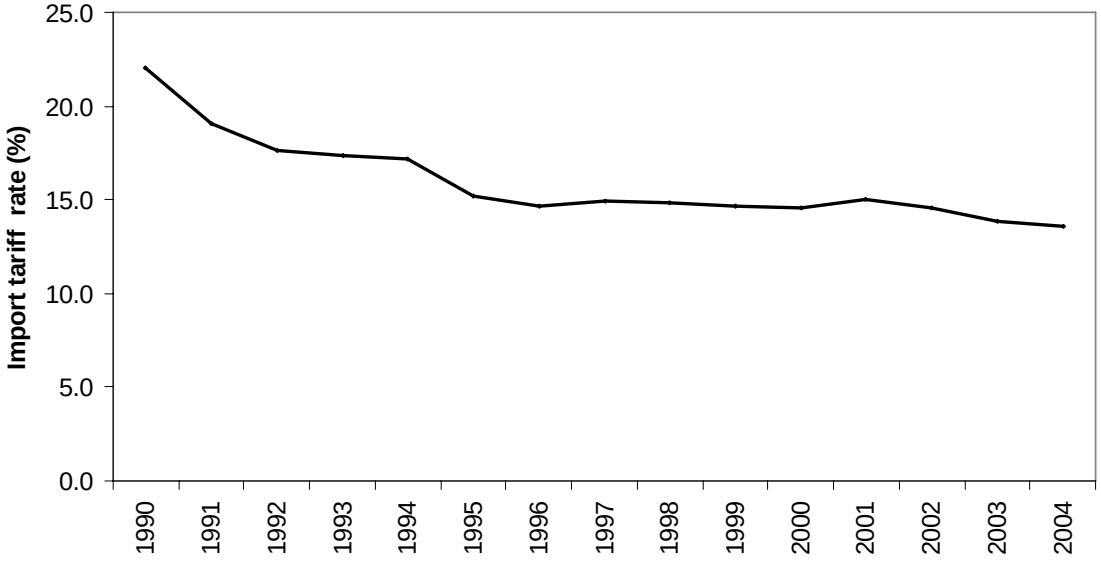
(1990 = 100)



Source: See Appendix Table A1.

Figure 4: Weighted-average import duty, Vietnam, 1990 to 2004

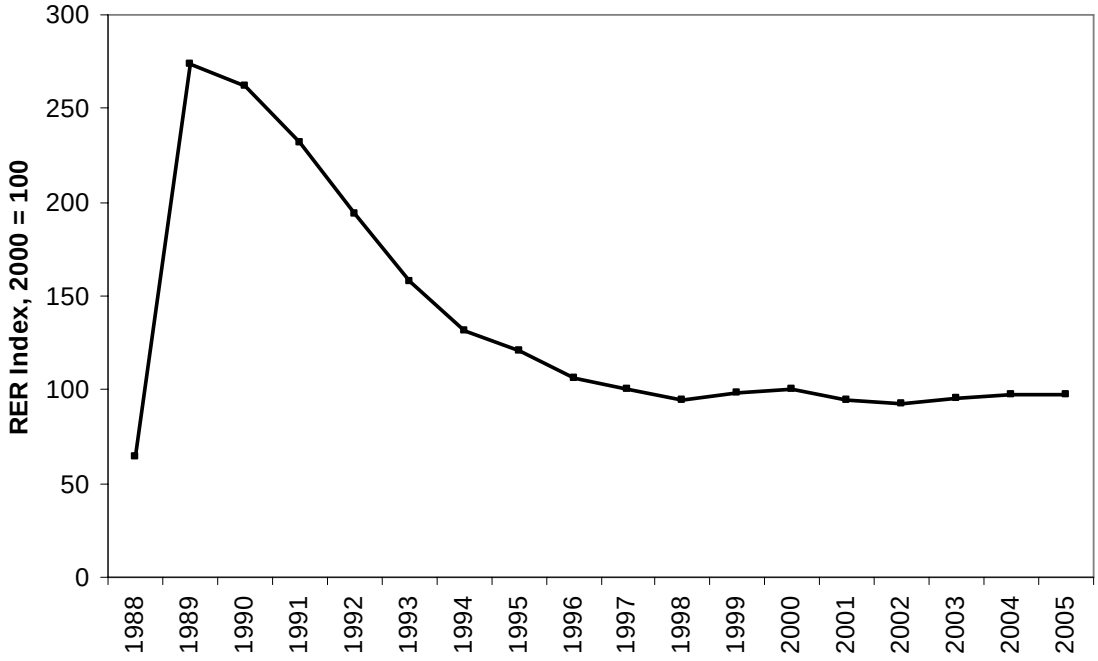
(percent)



Source: Nicita and Olarreaga (2006) and CIE (1998)

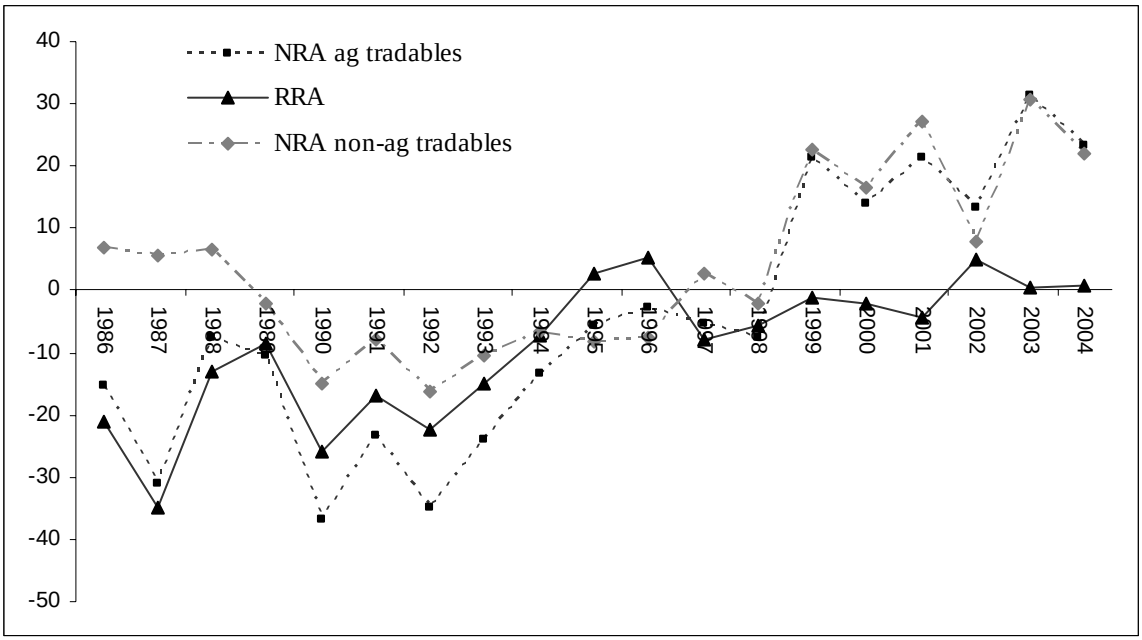
Figure 5: Real exchange rate index, Vietnam, 1988 to 2005

(2000 = 100)



Source: See Appendix Table A3

Figure 6: Nominal rates of assistance to all nonagricultural tradables, all agricultural tradable industries, and relative rates of assistance[a], Vietnam, 1986 to 2004
(percent)



a. The RRA is defined as 100*[(100+NRAag^t)/(100+NRAnonag^t)-1], where NRAag^t and NRAnonag^t are the percentage NRAs for the tradable parts of the agricultural and nonagricultural sectors, respectively.

Source: Authors' spreadsheet and Appendix Table A6

Table 1: Share of agriculture in GDP and composition of agricultural output,[a] Vietnam, 1986 to 2004

(percent)

	1986-89	1990-94	1995-99	2000-04
Share of agriculture in GDP	42	34	26	23
Composition of agricultural output:				
Rice	na	46.6	45.4	35.7
Rubber	na	1.6	2.0	2.3
Coffee	na	2.1	5.2	3.8
Sugar	na	3.5	4.4	3.4
Pigmeat	na	6.4	7.3	9.9
Other	na	39.7	35.8	45.0
TOTAL	100.0	100.0	100.0	100.0

[a] At current prices, estimated by applying value added shares based on 2000 Input-Output table to gross output data.

Source: Compiled from GSO (various issues a).

Table 2: Share of planted area by crops, Vietnam, 1990 to 2004

(percent)

	1990	1995	2000	2004
Paddy	66.8	64.5	60.6	56.6
Maize	4.8	5.3	5.8	7.5
Sugar	1.4	2.1	2.4	2.2
Groundnut	2.2	2.5	1.9	2.0
Soybean	1.2	1.2	1.0	1.4
Tea	0.7	0.6	0.7	0.9
Coffee	1.3	1.8	4.4	3.8
Rubber	2.5	2.7	3.3	3.4
Pepper	0.1	0.1	0.2	0.4
Coconut	2.3	1.6	1.3	1.0
Total	100.0	100.0	100.0	100.0
Total area (‘000 ha)	9040	10497	12644	13150

Source: Compiled from GSO (2000; and various issues b)

Table 3: Composition of value of agricultural exports, Vietnam, 1990 to 2004

(percent)

	1990	1995	2000	2004
Share of agricultural products in total non-oil exports	80	46	25	22
Composition of agricultural exports:				
Groundnut	na	3.7	2.3	0.9
Rubber	4.7	12.0	9.4	20.5
Coffee	7.3	37.4	28.4	22.0
Tea	0.6	0.8	4.0	3.3
Rice	80.2	40.7	37.8	32.7
Cashew	3.8	9.8	9.5	15.0
Black pepper	3.5	4,5	8.3	5.2
Cinnamon	na	na	0.3	0.3
TOTAL	100.0	100.0	100.0	100.0

Source: Compiled from GSO (various issues a).

Table 4: Nominal rates of assistance to covered products, Vietnam, 1986 to 2004 (percent)

	1986-89	1990-94	1995-99	2000-04
Exportables[a]	**-13.2**	**-27.2**	**-2.1**	**16.9**
Rice	-2.8	-26.6	-0.4	22.9
Rubber	n.a.	21.2	18.6	16.8
Coffee	-49.4	-21.1	-7.1	-12.0
Pigmeat	-41.8	-37.5	-6.1	8.9
Poultry	-3.1	-3.6	3.7	1.6
Import-competing products[a]	n.a.	**49.6**	**112.9**	**160.2**
Sugar	n.a.	49.6	112.9	160.2
Total of covered products[a]	**-13.2**	**-27.2**	**-0.2**	**20.6**
Dispersion of covered products[b]	28.8	46.1	157.7	221.3
% coverage (at undistorted prices)	70	67	76	63

[a] Weighted averages, with weights based on the unassisted value of production.

[b] Dispersion is a simple 5-year average of the annual standard deviation around the weighted mean of NRAs of covered products.

Source: Authors' spreadsheet

Table 5: Nominal rates of assistance to agricultural relative to nonagricultural industries, Vietnam, 1986 to 2004

(percent)

	1986-89	**1990-94**	**1995-99**	**2000-04**
Covered products[a]	-13.2	-27.2	-0.2	20.6
Non-covered products	-14.5	-25.0	0.3	22.3
All agricultural products[a]	-14.0	-26.5	-0.1	21.2
Non-product specific (NPS) assistance	0.0	0.0	0.0	0.0
Total agricultural NRA (incl. NPS)[b]	**-14.0**	**-26.5**	**-0.1**	**21.2**
Trade bias index[c]	-0.19	-0.17	-0.01	0.00
Assistance to just tradables:				
All agricultural tradables	-16.1	-26.4	0.0	20.7
All nonagricultural tradables	4.3	-11.2	1.5	20.8
Relative rate of assistance, RRA[d]	**-19.4**	**-17.4**	**-1.3**	**0.0**

[a] NRAs including product-specific input subsidies.

[b] NRAs including product-specific input subsidies and non-product-specific (NPS) assistance. Total of assistance to primary factors and intermediate inputs divided by total value of primary agriculture production at undistorted price, expressed as a percentage.

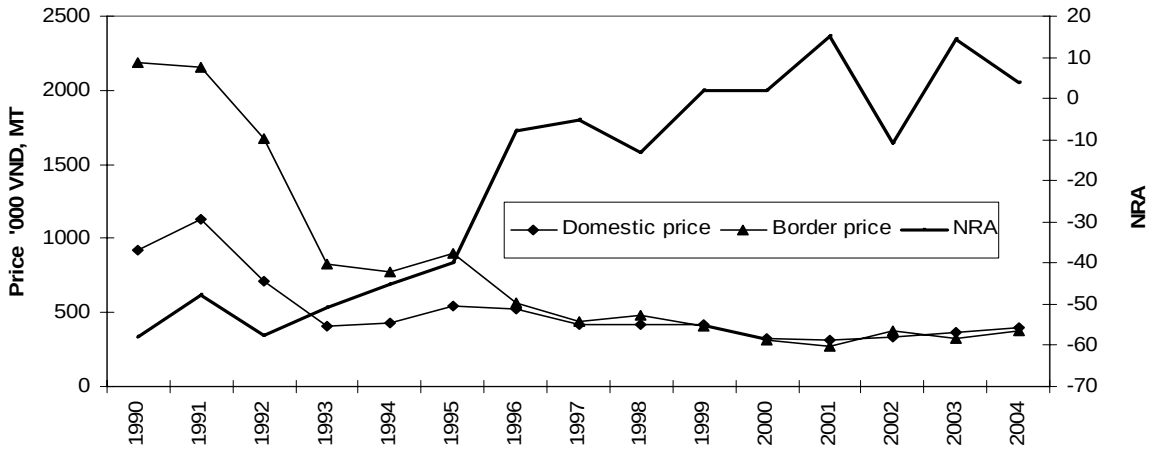
[c] Trade bias index is TBI = $(1+NRAag_x/100)/(1+NRAag_m/100) – 1$, where $NRAag_m$ and $NRAag_x$ are the average percentage NRAs for the import-competing and exportable parts of the agricultural sector.

[d] The RRA is defined as $100*[(100+NRAag^t)/(100+NRAnonag^t)-1]$, where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and nonagricultural sectors, respectively.

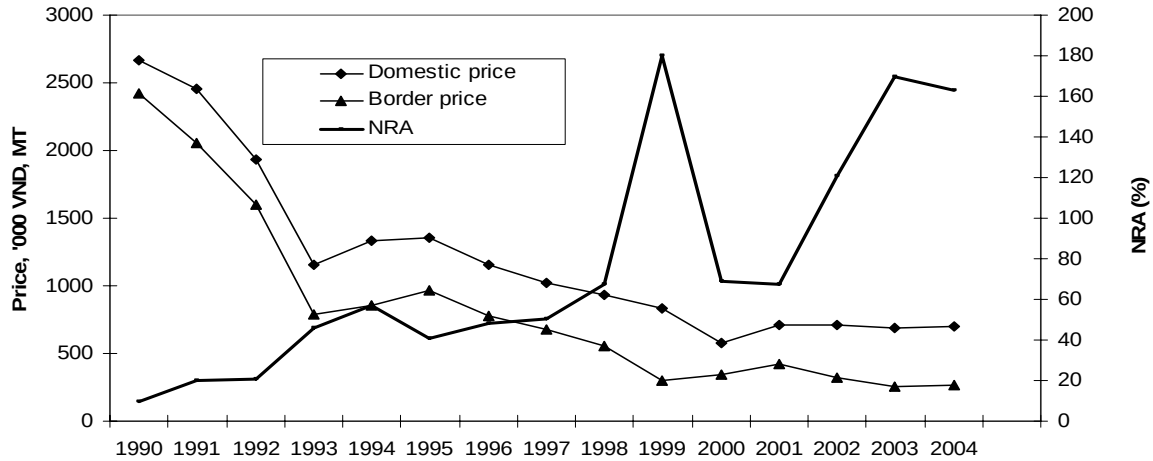
Source: Authors' spreadsheet

Appendix Figure A1: Domestic price, border price and nominal rate of assistance for various farm products,[1] Vietnam, 1990 to 2004

(a) Paddy/rice

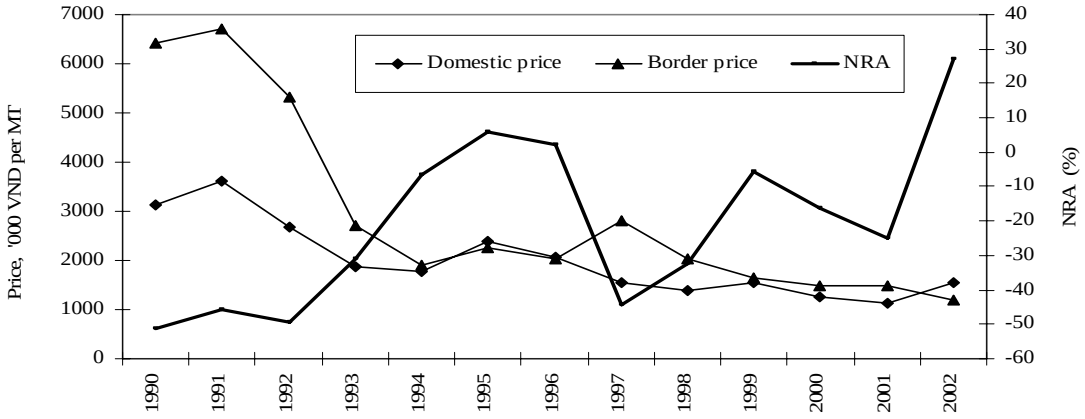


(b) Sugar

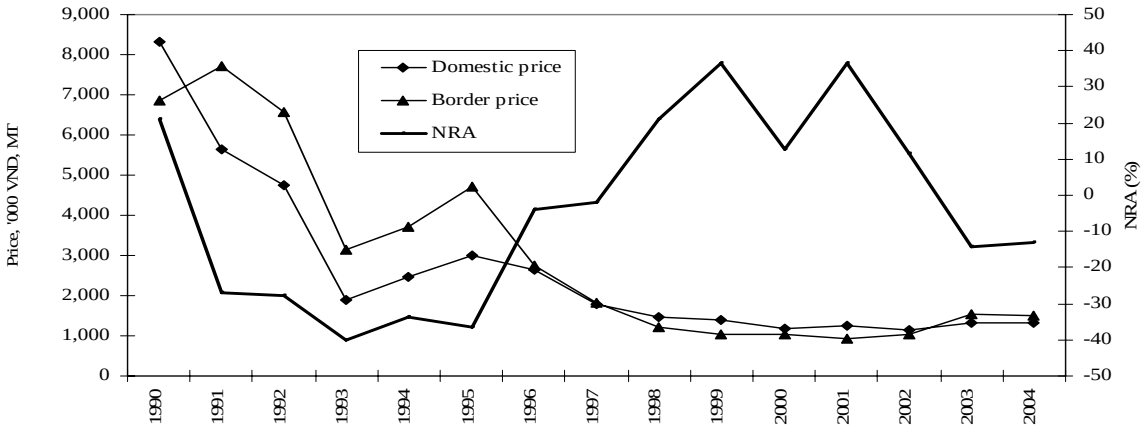


Appendix Figure A1 (continued): Domestic price, border price and nominal rate of assistance for various farm products,[1] Vietnam, 1990 to 2004

(c) Pigmeat

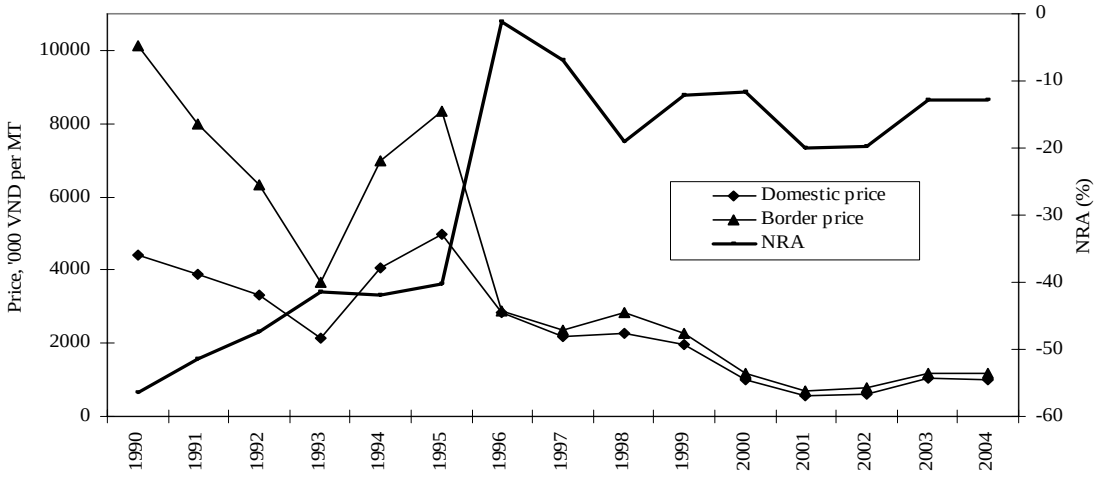


(d) Rubber



Appendix Figure A1 (continued): Domestic price, border price and nominal rate of assistance for various farm products,[1] Vietnam, 1990 to 2004

(e) Coffee



[a] Domestic and border prices have been deflated by the nonagricultural implicit GDP deflator (1994 =100)

Source: See Appendix Table A5.

Appendix Table A1: Planted area, production, and yield per hectare of selected agricultural products, Vietnam, 1990 to 2004

	Paddy	Maize	Sugar cane	Groundnut	Soybean	Tea	Coffee	Rubber	Pepper
(a) Planted area of crops ('000 Ha)									
1990	6043	432	131	201	110	60	119	222	9
1991	6303	448	145	211	101	60	115	221	9
1992	6475	478	146	217	97	63	104	212	6
1993	6559	497	143	217	120	63	101	243	7
1994	6599	535	167	248	132	67	124	258	7
1995	6766	557	225	260	121	67	186	278	7
1996	7004	615	237	263	110	75	254	254	8
1997	7100	663	257	254	106	79	340	348	10
1998	7363	650	283	269	129	77	371	382	13
1999	7654	692	344	248	129	85	478	395	18
2000	7666	730	302	245	124	88	562	412	28
2001	7493	730	291	245	140	98	565	416	36
2002	7504	816	320	247	159	109	522	429	48
2003	7452	913	313	244	166	116	510	441	51
2004	7446	991	286	264	184	121	497	454	51
Prel 2005	7326	1043	266	270	204	118	491	480	49
(b) Production ('000 tons)									
	Paddy	Maize	Sugar cane	Groundnut	Soybean	Tea	Coffee	Rubber	Pepper
1990	19225	671	5406	13	87	145	92	58	9
1991	19622	672	6162	236	80	149	100	65	9
1992	21590	748	6437	227	80	163	119	67	8
1993	22837	882	6083	259	106	170	136	97	8
1994	23528	1144	7550	294	124	189	180	129	9
1995	24964	1177	10711	335	126	181	218	125	9
1996	26397	1537	11430	358	114	211	317	143	11
1997	27524	1651	11921	351	113	235	421	187	13
1998	29146	1612	13844	386	147	255	427	194	16
1999	31394	1753	17760	318	147	317	553	249	31
2000	32530	2006	15044	355	149	315	803	291	39
2001	32108	2162	14657	363	174	340	841	313	44
2002	34447	2511	17120	400	206	424	700	298	47
2003	34569	3136	16855	406	220	449	794	364	69
2004	36149	3431	15649	469	246	514	836	419	73
Prel 2005	35791	3756	14730	486	292	534	768	469	77

Appendix Table A1 (cont): Planted area, production, and yield per hectare of selected agricultural products, Vietnam, 1990 to 2004

(c) Yield per hectare									
	Paddy	Maize	Sugar cane	Groundnut	Soybean	Tea	Coffee	Rubber	Pepper
1990	3.2	1.6	41.3	1.1	0.8	2.4	0.8	0.3	0.9
1991	3.1	1.5	42.6	1.1	0.8	2.5	0.9	0.3	1.0
1992	3.3	1.6	44.0	1.0	n.a.	2.6	1.1	0.3	1.2
1993	3.5	1.8	42.4	1.2	0.9	2.7	1.3	0.4	1.1
1994	3.6	2.1	45.3	1.2	0.9	2.8	1.5	0.5	1.4
1995	3.7	2.1	47.6	1.3	1.0	2.7	1.2	0.4	1.3
1996	3.8	2.5	48.0	1.4	1.0	2.8	1.2	0.6	1.4
1997	3.9	2.5	46.4	1.4	1.1	3.0	1.2	0.5	1.3
1998	4.0	2.5	48.9	1.4	1.1	3.3	1.2	0.5	1.2
1999	4.1	2.5	51.6	1.3	1.1	3.7	1.2	0.6	1.8
2000	4.2	2.8	49.8	1.5	1.2	3.6	1.4	0.7	1.4
2001	4.3	3.0	50.4	1.5	1.2	3.5	1.5	0.8	1.2
2002	4.6	3.1	53.5	1.6	1.3	3.9	1.3	0.7	1.0
2003	4.6	3.4	53.8	1.7	1.3	3.9	1.6	0.8	1.4
2004	4.9	3.5	54.7	1.8	1.3	4.1	1.7	0.9	1.4
Prel 2005	4.9	3.6	55.3	1.8	1.4				

Source: GSO (various issues)

Appendix Table A2: Quantity, value and price of exports of major agricultural commodities, Vietnam, 1990 to 2004

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Value ($ million)															
Groundnut	---	50	32	61	71	70	70	45	42	33	41	38	52	48	27
Rubber	16	50	54	74	133	159	150	191	127	147	166	166	271	378	597
Coffee	25	74	86	110	328	495	337	491	594	585	501	391	322	505	641
Tea	2	14	16	26	30	25	29	48	50	45	70	78	83	58	96
Rice	275	230	405	336	421	539	855	870	1,024	1,025	667	625	726	720	950
Cashew nut	13	26	41	44	59	130	76	133	117	110	167	152	210	277	436
Black pepper	12	18	15	14	26	39	47	67	65	137	146	91	110	105	152
Cinnamon	---	---	---	---	---	---	7	7	4	5	6	6	6	5	8
Index (1990=100)	100	117	176	170	281	388	429	513	565	588	483	418	519	611	848
Volume ('000 tons)															
Groundnut	71	79	63	106	101	115	127	86	87	56	76	78	106	82	45
Rubber	76	63	82	97	105	138	195	194	191	263	273	308	455	432	513
Coffee	28	94	96	123	177	248	284	392	382	482	734	931	722	749	975
Tea	2	10	13	21	17.3	19	21	33	33	36	56	68	77	59	99
Rice	455	1,033	1,946	1,722	1,950	1988	3003	3575	3730	4508	3477	3721	3236	3810	4060
Cashew nut	25	30	52	48	57	20	17	33	26	18	34	44	62	82	105
Black pepper	9	16	22	20	20	18	25	25	15	35	36	57	78	74	112
Cinnamon	---	---	---	---	---	6	3	3	1	3	4	4	5	5	8
Index (1990=100)	100	70	125	114	131	139	200	237	243	294	256	284	258	288	322
(3) Unit value ($ per ton)															
Groundnut	---	629	510	573	700	608	551	540	484	594	538	486	488	587	603
Rubber	211	795	659	765	1265	1151	1348	981	667	553	607	539	596	874	1163
Coffee	893	791	896	896	1853	1995	1409	1261	1555	1213	683	420	445	674	658
Tea	1000	1400	1231	1238	---	---	1397	1483	1521	1239	1251	1149	1078	996	961
Rice	170	223	208	195	216	271	285	245	273	227	192	168	224	189	234
Cashew nut	520	867	788	917	1035	1000	582	4000	4565	5969	4892	3474	3398	3364	4148
Black pepper	1333	1104	673	750	850	2171	1846	2722	4286	3947	3943	1600	1399	1415	1362
Cinnamon	---	---	---	---	---	---	2384	2204	1806	1531	1585	1590	1257	1080	977
Index (1990=100)	100	166	141	149	214	271	215	215	228	195	187	146	199	210	260

Note: * The index cover all products listed except ground nuts, cinnamon and tin (for which volume and/or value data are not available for all years)
Source: Vietnam, General Department of Customs and GSO (unpublished data)

Appendix Table A3: Prices[a] for primary products, Vietnam, 1960 to 2005[1]

	Rubber		Coffee		Sugar		Paddy/rice		Pigmeat	
	DP	BP	DP	BP	DP	BP	DP	BP	DP	BP
1990	8311	6857	4400	10110	2662	2425	916	2186	3114	6409
1991	8721	11947	6000	12376	3803	3172	1748	3340	5613	10366
1992	9982	13826	7000	13322	4072	3372	1501	3530	5661	11196
1993	7433	12429	8500	14520	4548	3118	1607	3275	7366	10660
1994	10993	16555	18000	31020	5953	3794	1892	3440	7937	8512
1995	14462	22723	24000	40215	6537	4636	2602	4320	11460	10811
1996	14462	15066	15500	15697	6303	4248	2836	3080	11320	11084
1997	11784	12019	14500	15556	6711	4463	2738	2887	10280	18434
1998	11248	9282	17500	21617	7120	4246	3221	3711	10564	15568
1999	11034	8090	15600	17732	6523	2329	3299	3233	12196	12952
2000	10176	9019	8958.3	10145	5032	2975	2818	2766	10935	13063
2001	11355	8321	5186.2	6484	6450	3858	2842	2473	10217	13636
2002	10680	9564	5770.3	7185	6631	3002	3096	3481	14243	11195
2003	12124	14156	9531.4	10931	6364	2360	3404	2973	na	na
2004	12853	14818	10050	11525	6854	2610	3891	3744	na	na
2005	na	na	na	13585	7380	3509	4016	4326	na	na

[a] DP = domestic price BP = border price

Source: Authors' spreadsheet using methodology from Anderson et al. (2008)

Appendix Table A4: Foreign exchange rates,[a] Vietnam, 1986 to 2005

	Official rate US$/Don '000	Black rate US$/Don '000	RER, 2000= 100
1986	0.02	0.05	n.a.
1987	0.08	0.61	n.a.
1988	0.61	3.44	64.0
1989	4.46	4.98	274.1
1990	6.48	9.80	261.7
1991	10.04	15.17	232.2
1992	11.20	16.93	194.0
1993	10.64	16.08	157.5
1994	10.97	16.57	131.9
1995	11.04	16.68	120.3
1996	11.03	11.14	106.0
1997	11.68	12.25	100.3
1998	13.27	13.91	94.5
1999	13.94	14.62	98.2
2000	14.17	14.85	100
2001	14.73	15.44	94.8
2002	15.28	16.02	93.0
2003	15.47	16.22	95.2
2004	15.70	16.46	97.2
2005	15.82	n.a.	97.6

[a] RER (Real exchange rate) = [NER*WPI]/DPI, where NER and WPI are respectively trade-weighted nominal exchange rate (domestic-currency price of foreign currency) and trade-weighted wholesale price indices for the ten major trading partner countries, and DPI is the Vietnamese GDP deflator. Trade weight used in compiling NER and WPI relate to the year 2000. By construct, an increase in RER reflects real depreciation.

Sources: Official rate: International Monetary Fund, *International Financial Statistics(IFS) database*; Black-market rate: *International Currency Yearbook* (various issues); RER: estimated using data extracted from IFS database.

Appendix Table A5: Annual nominal rates of assistance to covered agricultural products, Vietnam, 1986 to 2005

(percent)

	Coffee	Pigmeat	Poultry	Rice	Rubber	Sugar	**All covered**
1986	-58	-47	-3	1	na	na	**-11**
1987	-74	-73	-3	-7	na	na	**-28**
1988	-36	-27	-3	2	na	na	**-3**
1989	-30	-22	-3	-7	na	na	**-11**
1990	-34	-52	-3	-37	92	26	**-37**
1991	-27	-46	-4	-20	14	37	**-24**
1992	-21	-50	-4	-35	-5	38	**-36**
1993	-12	-32	-4	-25	5	67	**-25**
1994	-12	-8	-4	-16	0	80	**-14**
1995	-10	5	-4	-8	1	61	**-6**
1996	0	16	5	-7	2	79	**-3**
1997	-2	-37	5	0	8	80	**-6**
1998	-15	-22	6	-9	33	105	**-8**
1999	-8	8	6	22	50	239	**21**
2000	-7	-4	2	19	24	99	**14**
2001	-16	-14	2	35	50	97	**20**
2002	-16	45	2	4	23	160	**14**
2003	-9	na	2	34	-6	218	**31**
2004	na	na	2	22	-6	227	**24**
2005	na	na	2	9	na	162	**12**

Source: Authors' spreadsheet

Appendix Table A6: Nominal and relative rates of assistance to all[a] agricultural products, to exportable[b] and import-competing [b] agricultural industries, and relative[c] to non-agricultural industries, Vietnam, 1986 to 2005

(percent)

	Total ag NRA				Ag tradables NRA		
	Covered products		Non-covered products	All products (incl NPS)		Non-ag tradables NRA	**RRA**
	Inputs	Outputs					
1986	0	-11	-16	-13	-15	7	**-21**
1987	0	-28	-24	-27	-31	6	**-35**
1988	0	-3	-11	-6	-7	7	**-13**
1989	0	-11	-7	-10	-11	-2	**-9**
1990	0	-37	-35	-37	-37	-15	**-26**
1991	0	-24	-19	-23	-23	-8	**-17**
1992	0	-36	-33	-35	-35	-16	**-22**
1993	0	-25	-23	-24	-24	-11	**-15**
1994	0	-14	-15	-14	-13	-7	**-7**
1995	0	-6	-7	-6	-6	-8	**3**
1996	0	-3	-6	-3	-3	-8	**5**
1997	0	-6	0	-5	-5	3	**-8**
1998	0	-8	-8	-8	-7	-2	**-6**
1999	0	21	22	21	21	23	**-1**
2000	0	14	19	15	14	16	**-2**
2001	0	20	33	24	21	27	**-4**
2002	0	14	5	11	13	8	**5**
2003	0	31	33	32	31	31	**1**
2004	0	24	22	23	23	22	**1**
2005	0	12	9	11	11	11	**1**

[a] NRAs including assistance to nontradables and non-product specific assistance.
[b] NRAs including products specific input subsidies.
[c] The Relative Rate of Assistance (RRA) is defined as 100*[(100+$NRAag^t$)/(100+$NRAnonag^t$)-1], where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Source: Authors' spreadsheet

Appendix Table A7: Value shares of primary production of covered[a] and non-covered products, Vietnam, 1986 to 2005

(percent)

	Sugar	**Rice**	**Rubber**	**Coffee**	**Pork**	**Chicken**	**Covered**	**Non-covered**
1986	n.a.	51	n.a.	1	16	n.a.	**69**	31
1987	n.a.	48	n.a.	1	22	n.a.	**71**	29
1988	n.a.	57	n.a.	1	10	n.a.	**68**	32
1989	n.a.	56	n.a.	1	14	0	**71**	29
1990	2	57	1	1	14	2	**75**	25
1991	2	53	1	1	14	3	**72**	28
1992	1	44	1	1	12	3	**60**	40
1993	1	46	1	2	13	3	**64**	36
1994	2	46	1	2	11	3	**64**	36
1995	2	55	1	5	12	3	**76**	24
1996	2	56	1	4	11	3	**75**	25
1997	2	46	2	5	18	3	**76**	24
1998	2	55	1	4	13	3	**78**	22
1999	1	49	1	5	14	3	**74**	26
2000	2	42	2	6	14	4	**69**	31
2001	3	37	1	4	16	4	**66**	34
2002	1	47	2	2	12	4	**67**	33
2003	1	43	4	2	n.a.	5	**55**	45
2004	1	47	4	n.a.	n.a.	4	**56**	44
2005	1	49	n.a.	n.a.	n.a.	3	**53**	47

[a] At farmgate undistorted prices

Source: Authors' spreadsheet.