

Diehl, Markus

**Working Paper — Digitized Version**

## Real adjustment in the economic transformation process: The industrial sector of Vietnam 1986-1992

Kiel Working Paper, No. 597

**Provided in Cooperation with:**

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

*Suggested Citation:* Diehl, Markus (1994) : Real adjustment in the economic transformation process: The industrial sector of Vietnam 1986-1992, Kiel Working Paper, No. 597, Kiel Institute of World Economics (IfW), Kiel

This Version is available at:

<https://hdl.handle.net/10419/46715>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Kieler Arbeitspapiere

# Kiel Working Papers

**Kiel Working Paper No. 597**

Real Adjustment in The Economic Transformation Process:  
The Industrial Sector of Vietnam 1986-1992

by  
Markus Diehl

May 1994



Institut für Weltwirtschaft an der Universität Kiel  
The Kiel Institute of World Economics

Kiel Institute of World Economics  
Düsternbrooker Weg 120, D-24105 Kiel  
Department IV

**Kiel Working Paper No. 597**

**Real Adjustment in The Economic Transformation Process:  
The Industrial Sector of Vietnam 1986-1992**

by

Markus Diehl

May 1994

541328

The authors themselves, not the Kiel Institute of World Economics, are responsible for the contents and distribution of Kiel Working Papers.

Since the series involves manuscripts in a preliminary form, interested readers are requested to direct criticisms and suggestions directly to the authors and to clear any quotations with them.

## ***Real Adjustment in The Economic Transformation Process: The Industrial Sector of Vietnam 1986-1992\****

### **1. Introduction**

The recent experience of the previously Centrally Planned Economies (CPE) in Eastern Europe seems to suggest that a large fall of domestic production and rising unemployment are unavoidable features of the structural adjustment in the transformation process towards a market economy. Frequently, the combination of a rapid disinflation program and external trade liberalization is made responsible for such an outcome and, therefore, a more gradual approach is recommended. This view is challenged by the recent experience of the Socialist Republic of Vietnam which introduced external and internal liberalization measures and at the same time realized a shock-type stabilization program. Nevertheless, Vietnam did not pass through an adjustment recession with income losses. The question arises whether this was due to favourable starting conditions or due to a consistent Vietnamese economic policy. In this context, differences in the economic regulation of public and private enterprises are of special interest.

This paper attempts to explore how a significant output fall has been avoided in Vietnam, and whether a structural adjustment took place or is still to come. The expected impact of the Vietnamese reform program and of external shocks is reviewed in the next section. In the third section the economic performance since 1986 in terms of GDP growth and changes of employment and external trade is analysed. Moreover, structural changes of GDP and employment are referred to changes of relative prices. The underlying hypothesis of this section is that an adjustment recession has been avoided due to a rapid adjustment of the structure of production. In the fourth section, the manufacturing industry is analysed by branches and by different forms of ownership. It will be shown how structural changes were influenced by various industrial policy measures; moreover, an explanation for the relative success of state owned industrial enterprises is provided.

---

\* This paper is part of a research project on macroeconomic aspects of the transformation process in Vietnam; financial support of the Volkswagen-Stiftung is gratefully acknowledged.

## 2. Economic reforms and external shocks since 1986

One reason for the relative success of the transformation process in Vietnam could be that the Vietnamese economy simply has not experienced such large negative shocks as the Eastern European countries. If this was true, no puzzle would remain to be solved. If this explanation can be refuted, however, a quick response to the changed external and internal conditions must have taken place. Therefore, the impact of the main reform measures, of the restrictive monetary policy and of external shocks is described in the following.

In 1976, after the second Vietnam war, the former South Vietnam was merged with the northern part into the Socialist Republic of Vietnam and underwent a forced collectivization. A first attempt to reintroduce market mechanisms into the Centrally Planned Economy led to a partial liberalization of the agricultural sector since 1979. Only since 1986 - under the Doi Moi ("renovation") slogan of the VI. Congress of the Communist Party - Vietnam carried out a comprehensive economic reform program (Ronnás and Sjöberg, 1990; Diehl, 1993a). The central planning system has already been replaced to some extent by market economy institutions, prices were liberalised almost completely and the external trade regime was opened gradually. One of the most significant achievements of the reform period was the successful stabilization of the price level since 1989 without a significant output decline.

### 2.1. Liberalization of domestic markets

State owned enterprises (SOE) accounted for only one third of GDP and about 50 per cent of total industrial output in 1989<sup>1</sup> (Table 1, A1), which is relatively little compared to former CPEs in Eastern Europe. This was due to tacit permission of the private sector in Vietnam, even in the heyday of central planning, and due to the large agricultural sector which is mainly organised in collective ownership. At the start of Doi Moi policy, coopera-

---

<sup>1</sup> A decomposition of GDP is not available for other periods; according to the socialist "national income" statistics these shares can be assumed to be relatively stable throughout the 1980s.

Table 1 – Value added<sup>a</sup> by sectors and ownership, 1989 (in per cent)

Sector	Share in GDP	thereof: <sup>b</sup>			
		SOE (central)	SOE (local)	Cooperatives	Private Sector
Agriculture	40.5	0.6	0.8	28.4	10.7
Industry	23.3	7.8	3.4	3.1	9.0
Public Services <sup>c</sup>	10.0	6.6	3.4	–	–
Other Services	26.2	5.7	4.5	1.3	14.7
Total	100.0	20.7	12.1	32.8	34.4

<sup>a</sup> In current prices. – <sup>b</sup> In per cent of total GDP. – <sup>c</sup> Public administration, health, education, defence.

Source: General Statistical Office (1992a); own calculations.

tives were not regulated as comprehensive as the SOE although they enjoyed similar benefits relative to the private sector; hence, the cooperatives should not be considered as part of the state sector.

Direct government controls over most of the SOE have been removed in 1987. Decisions on inputs, investment and production now fall in the scope of the SOE management. Since 1988, directors of SOE have greater autonomy over their work-force, but the transfer of labour from SOE into the non-state industrial sector has not been actively promoted by the government. Nevertheless, employees of public enterprises have been laid off and many local state enterprises have de facto been closed down or sold out to former employees. The privatization of large public enterprises, however, remains one of the large problems which are still to be tackled.

The codification of business laws (property laws, contract laws, tax laws etc.) since 1988 was meant to provide equal opportunities for the hitherto discriminated private enterprise sector. Although the legal framework is now almost complete - the bankruptcy law has passed the national assembly in late 1993 - it is not clear whether the discrimination of the private sector has already ended.

The full liberalization of almost all domestic prices followed in 1989. Only a few "sensitive" prices (e.g. energy, transport tariffs) remained administered. The abolishment of all producer subsidies was announced

by the government in 1988. But since the budget deficit remained high in the years 1989-90 (Table 4), this measure obviously has been postponed until 1991; that is, subsidisation of loss making SOE probably continued in an indirect way.

## 2.2. Liberalization of external trade

In 1988 the new law on foreign investment became effective which admitted the establishment of joint ventures with foreign majority and offered tax holidays. Since the same year the external trade regime has been gradually liberalised. The state monopoly in external trade has been opened, but strict licensing procedures for private trading companies prevent free competition with foreign suppliers (Chu Van Hop, 1992). The state administration of export and import prices was replaced by a system of ad-valorem tariffs, supplemented by a small number of import quotas. The selective import tariffs were meant to protect the Vietnamese light industry. Nevertheless, import competition has been stimulated by large smuggling activities, especially for consumer goods.

Table 2 – Changes<sup>a</sup> of the real exchange rate, 1989-1992 (in per cent)

Period	Nominal ex-change rate (Dong/US\$) change <sup>b</sup>	CPI Inflation USA	CPI Inflation Vietnam	Real ex-change rate change <sup>b,c</sup>
1989	+34.4	+4.8	+34.7	+4.6
1990	+60.9	+5.4	+67.4	+1.4
1991	+74.0	+4.3	+67.6	+8.0
1992	-11.5	+3.0	+17.6	-30.0
1993	+3 <sup>d</sup>	+3 <sup>d</sup>	+5 <sup>d</sup>	+1 <sup>d</sup>

<sup>a</sup> Difference of end of period index values. – <sup>b</sup> +: depreciation; -: appreciation. – <sup>c</sup> Nominal exchange rate change plus US inflation rate minus Vietnamese inflation rate. – <sup>d</sup> Partially estimated.

Source: General Statistical Office (1993); Diehl (1993a); own calculations.

Since late 1988 the multiple official exchange rates have been sharply devaluated close to the black market exchange rate, and the thereafter unified rate was rather flexible since March 1989, although under supervision of the Central Bank. This measure made Vietnamese exports more competitive, at least those of standardized products (raw materials,

foodstuff), and at the same time enhanced the confidence into the Vietnamese currency. Whereas the devaluation of the Vietnamese Dong was broadly in line with the domestic inflation rate in 1990 and 1991, the nominal appreciation of the Dong in 1992 led to a substantial appreciation of the real exchange rate (Table 2) which has only partly been compensated in 1993. The reason for that unexpected development probably is the combination of increased inflows of foreign transfers and stricter limitations of import demand. Moreover, the tight credit policy apparently has led enterprises to sell their foreign exchange holdings to the Central Bank against domestic currency (Dollar, 1994).

### 2.3. Shock-type stabilization program

Since 1985, inflation was running at several hundred per cent a year. In 1989, the Central Bank increased the credit interest rates above the actual inflation rate and introduced interest bearing foreign exchange denominated deposits. A first look at the structure of domestic credit leads to the presumption, that both SOE and non-state enterprises suffered from a restrictive credit policy since 1988, since their ratio of bank credit to national income declined (Table 3). The marked decline of bank credits to SOE, however, was caused by the increased financial autonomy of SOE since 1988, by which their obligatory contributions to the public budget and hence their demand for external finance were reduced (UNIDO, 1991). Moreover, the sudden expansion of domestic bank

Table 3 – Domestic credit by sectors, 1987-1992 (per cent of GDP)

Sector	1987	1988	1989	1990	1991	1992
Government	3.2	5.0	12.9	10.4	5.9	1.9
SOE	15.2	12.9	14.8	13.9	13.0	12.2
Non-state sector	3.1	1.9	2.1	1.6	1.5	2.7
Total bank credit	21.5	19.8	29.9	26.0	20.4	16.8
Memo:						
Bank deposits	19.1	19.3	30.5	29.7	29.0	26.7

Source: Table A2.



Table 4 – Government budget, 1987-1992 (per cent of GDP)

	1987	1988	1989	1990	1991	1992 <sup>a</sup>
Expenditures	20.9	21.4	25.1	22.5	16.1	21.7
Revenues	15.4	13.1	16.0	16.1	14.8	18.6
Budget deficit	5.5	8.3	9.1	6.4	1.3	3.1
thereof:						
State Bank credit	(3.6)	(3.4)	(8.1)	(3.1)	(0.6)	(-)
<sup>a</sup> Preliminary.						

Source: IMF, cited in Lipworth/Spitäller (1992).

savings relative to national income in 1989, which was a result of the interest rate reform, was used for higher credits to the public budget from which it was probably disbursed to SOE.

From 1988 onwards a number of measures were aimed at a more market-oriented budget, e.g. the introduction of a turnover tax, a personal income tax and a profit tax. The abolishment of all subsidies, which has been announced for 1989 (Brabant, 1990), apparently has not led to a significant fall of public expenditures. The budget deficit remained high until 1991 when expenditures were cut, and increased revenues were realized, especially from domestic crude oil production (Table 4).

Nevertheless, the cumulative effect of the reforms on the inflation rate was dramatically successful. Since the borrowing to the state enterprise sector actually did not decline, the credibility of the internal and external liberalization measures caused the inflation expectations - and hence the inflation - to decline (Diehl, 1993b).

#### 2.4. Dissolution of CMEA

In 1990, the trade protocols with CMEA states have been cancelled, which reduced the demand for exports of Vietnamese light industrial goods. The immediate consequence of the reduced import demand from CMEA was the reduction of manufactures exports, that is, the Vietnamese light industry experienced a negative demand shock. At the same time, credits from the Soviet Union to finance the current account deficit, which has been in the order of 10 per cent of GDP through the 1980s, were no longer provided (Table 5). Without changes in the production structure

this would have led to an equally large reduction of imports with severe consequences for investment in the manufacturing sector.

Table 5 – Current account, investment and savings, 1987-1992 (per cent of GDP)

	1987	1988	1989	1990	1991	1992 <sup>a</sup>
Current account deficit (CAD)	9.2	16.9	10.4	3.6	1.3	-2.3 <sup>b</sup>
= Gross investment (I)	10.9	14.4	11.6	11.5	11.6	12.0
- Gross domestic savings (S)	+2.1	+0.2	-0.2	-2.1	-4.8	-6.9
- Net transfers from abroad <sup>c</sup>	-3.8	+2.3	-1.4	-5.8	-5.5	-7.4

<sup>a</sup> Preliminary. – <sup>b</sup> Surplus. – <sup>c</sup> Estimated as residual (i.e. I-S-CAD).

Source: ADB (1993).

Due to the rapid development of export markets in Asia, especially for marine products and crude oil, Vietnam managed to finance the same volume of imports without raising new credits from other sources. In addition, foreign direct investment, mainly from Hongkong and other Asian countries, and transfers from oversea Vietnamese began to flow to Vietnam in 1990, whereas multilateral credit agencies will resume lending to Vietnam in 1994. Hence, even with little foreign assistance the negative expenditure shock of 1990 has been managed well.

### 3. General performance of the Vietnamese economy

The previous section has shown that the Vietnamese economy has experienced significant internal and external shocks. Due to the liberalization of domestic markets relative prices can now be expected to reflect true scarcities which would give an impact for the reallocation of resources into an efficient production structure. The discrimination of the private sector was diminished to some extent but subsidisation of SOEs has probably continued until recently. Moreover, competition has been increased by the liberalization of foreign trade although the industrial sector still enjoys protection from selective tariffs and other import restrictions. On the other hand, the shock-type stabilization and the sudden cessation of CMEA trade credits put hard pressure on the Vietnamese economy. In the following it will be analysed whether and how the different sectors adjusted to these shocks.

### 3.1. Macroeconomic developments

The economic reform program culminated in 1989 when domestic prices and the official exchange rate were liberalised together with the successful stabilization program. Nevertheless, Vietnam did not experience a severe adjustment recession like the East European CPEs. On the contrary, average per capita incomes continued to grow by 3-4 per cent p.a. during the whole period due to the high growth rates of the service sector (Table 6). Only the manufacturing sector recorded a moderate decline of value added (-8 and -2 per cent in 1989/90) while agriculture realized a moderate growth on average. It would be interesting to know whether this relative success was based on rapid growth of the private economy, but a differentiation of sectoral growth rates between state and non-state (i.e. collective and private) sector is not available. The respective statistics are only published for the industrial sector, which will be analysed in more detail in the fourth section.

Table 6 – Changes of consumer prices and output, 1987-1992 (in per cent)

	1987	1988	1989	1990	1991	1992
Annual inflation rate (CPI)	+223	+394	+35	+67	+68	+18
Real GDP growth <sup>a</sup>	+4.0	+5.1	+8.0	+5.1	+6.0	+8.3
thereof:						
Agriculture	-0.6	+4.0	+6.9	+1.5	+2.2	+6.3
Industry <sup>b</sup>	+9.8	+2.4	-2.7	+2.8	+8.8	+10.9
(Manufacturing <sup>c</sup> )	(+11.1)	(+3.2)	(-7.8)	(-2.2)	(+5.8)	(+8.0)
Services	+5.5	+8.9	+17.7	+10.3	+8.3	+8.6
Memo:						
Population growth	+2.5	+2.4	+2.4	+2.3	+2.2	+2.2

<sup>a</sup> SNA concept; in constant prices of 1989. – <sup>b</sup> Manufacturing, mining and construction. – <sup>c</sup> Partially estimated.

Source: General Statistical Office (1992a; 1993); own calculations.

With respect to sectoral changes of the labour force only little information is available. Employment statistics are only published for the industrial sector, where employment was reduced by more than 700,000 or roughly 25 per cent between 1988 and 1991 (Table 7). The largest part of the reduction (570,000) occurred in the non-state industrial sector, while the state industrial sector realized a moderate reduction of about 140,000 (or

17 per cent). The only published information on economywide labour is the statistics on "social labour force", which probably includes temporary employed and unemployed according to their latest employment. This explains why the mass lay-offs of industrial labour in 1989 and 1990 are not reflected in the social labour force statistics. Hence, the social labour force statistics understate the structural change actually occurring.<sup>2</sup>

Table 7 – Industrial employment and social labour force 1987-1992 (mill.)

	1987	1988	1989	1990	1991	1992
Industrial labour	2.84	2.95	2.53	2.25	2.23	n.a.
thereof:						
State sector	0.86	0.84	0.78	0.74	0.70	0.68
Non-state sector <sup>a</sup>	2.01	2.10	1.75	1.51	1.53	n.a.
Social labour force	27.97	28.48	28.94	30.29	30.87	31.83
(per cent of total population)	(45.3)	(45.0)	(44.7)	(45.7)	(45.8)	(46.0)
thereof:						
State sector	4.09	4.05	3.80	3.42	3.14	2.98
Non-state sector <sup>a</sup>	23.88	24.43	25.14	26.87	27.73	28.85
thereof:						
Agriculture, forestry	20.42	20.65	20.89	21.89	22.48	23.26
Industrial sector	3.05	3.15	3.24	3.39	3.39	3.45
Construction	0.82	0.86	0.80	0.82	0.82	0.83
Public services	1.44	1.49	1.39	1.44	1.45	1.45
Private services	2.24	2.33	2.62	2.75	2.73	2.84

<sup>a</sup> Collective and private enterprises.

Source: General Statistical Office (1992c; 1993).

Since employment statistics are not available for agriculture and services, it is not clear whether industrial labour has been absorbed by other sectors. Another question to be left unanswered is whether the private sector was able to absorb excess labour from the state sector. The labour force statistics reports that the state sector labour force has been reduced by 1.1 million (or 27 per cent) while the private sector labour force grew by almost 5 million (or 21 per cent). But since employment, at least in the industrial sector, is overstated by the labour force statistics it seems

<sup>2</sup> Since there is no information on the methodology of the Vietnamese statistics, it can only be speculated about the difference between "social labour force" and "employment". Another possible explanation is the underestimation of private sector employment in the industrial labour statistics, but this probably cannot explain a large part of the discrepancy.

reasonable to assume, that the rate of unemployment has grown since 1989.<sup>3</sup>

### 3.2. *Explaining the pattern of structural change*

In general, an adjustment recession is the deeper the larger the external and internal shocks and the less mobile the factors of production, which causes a delay of the necessary adjustments to changed conditions. The previous section has shown that the Vietnamese economy did not suffer from an adjustment recession (except for a moderate decline of manufactures output) although it has experienced significant shocks. Hence, one would expect that resources have moved towards sectors whose income chances had improved, and away from other sectors.

Since official information on wages and employment is virtually not existent, sectoral changes will be analysed indirectly in the following way: First, shifts in the nominal GDP shares are taken as indicator for the reallocation of resources. Accordingly, a relative increase of nominal value added in one sector represents an increase of distributable income which translates into a higher employment share if the wage structure remains fairly constant. Second, shifts in the real GDP shares indicate the change in the structure of production. Together with the first step this leads to a hypothesis about the relative growth of labour productivity. Third, these productivity growth differentials are referred to changes of relative prices.<sup>4</sup> At this point, the plausibility of the method can be tested. According to a simple model of structural change (Baumol, 1967), relative price changes are inversely related to productivity growth differentials, that is, the relative price of the sector with the highest productivity growth decreases. It has to be kept in mind, however, that in the transformation period these productivity trends are superimposed by efficiency gains due to liberalisation measures.

The sectoral structure of the Vietnamese economy followed a clear trend since the beginning of economic transformation (Table 8):

<sup>3</sup> Unemployment is not reported in the Statistical Yearbook of Vietnam. A recent estimate puts the number of unemployed and underemployed at six million, or 17 per cent of the "social labour force" (Vietnam Investment Review, 20-26 December 1993).

<sup>4</sup> Since the quantity change is taken to be the real change of sectoral value added, imputed value added prices (and not output prices) are to be analyzed.

Table 8 – Sectoral composition of GDP, 1986-1992 (in per cent)

Sector	Nominal GDP share <sup>a</sup>			Real GDP share <sup>b</sup>		
	1986	1989	1992	1986	1989	1992
Agriculture and forestry	36.1	40.5	34.5	43.2	40.5	38.2
Industry	30.1	23.3	27.5	25.1	23.3	24.6
(Manufacturing)	(n.a.)	(17.3)	(n.a.)	(19.3)	(17.3)	(15.7)
Public Services <sup>c</sup>	9.9	10.0	10.1	9.0	10.0	11.0
Other services	23.9	26.2	27.9	22.7	26.2	26.2

<sup>a</sup> SNA concept; in current prices. – <sup>b</sup> SNA concept; in constant prices of 1989. – <sup>c</sup> Public administration, health, education, defence.

Source: General Statistical Office (1992a; 1993).

The nominal GDP share of agriculture showed large fluctuations around a value of about 35 per cent, whereas the share of the service sector increased steadily from 34 per cent to 38 per cent. This leads to the presumption that the employment share of agriculture remained constant while the service sector gained employment by absorbing the dismissed industrial workers. A disaggregation of the service sector shows that employment in public services (public administration, health and education services, and the armed forces) has not been changed significantly.<sup>5</sup> Hence, almost all of the expansion of the service sector is due to the growth of the private sector (Table 7).

The real GDP share of agriculture declined by 5 percentage points and the share of services increased by 5.5 percentage points. The growth of the services sector is simply the reaction to the increased demand after the deregulation measures. Since the entrepreneurial spirit from the pre-socialist era was still existing, the supply reaction was relatively rapid. By contrast, the manufacturing industry shrank by about 3.5 percentage points between 1986 and 1992. This points to a typical transformation shock which is assumed to hit the manufacturing industry hardest; at least, this is the common experience of other CPEs. In all East European countries, value added in manufacturing decreased by more than 25 per cent in the first two years of the transformation period. The rise of the

<sup>5</sup> The Vietnamese army dismissed about 500,000 soldiers after the demobilization of armed forces from Cambodia in 1989. Hence, the employment in other public services probably increased in the 1990s.

industrial share in the 1990s is only due to crude oil production, which recorded steep growth rates since it came onstream in 1989.

A comparison of nominal shifts and real shifts leads to the hypothesis that labour productivity growth was lowest in agriculture and highest in the industrial sector, whereas productivity growth in the service sector was about the national average. A final judgement with respect to the manufacturing industries, however, is not possible since the respective nominal value added shares have not been published yet.

Value added prices ( $P_{VA}$ ) have been calculated from data on sectoral value added at constant ( $VA^r$ ) and current prices ( $VA^{nom}$ ) as  $P_{va} = \frac{VA^{nom}}{VA^r}$ ; this can be transformed to a weighted difference of gross output price ( $P_{GO}$ ) and average material inputs price ( $P_{MI}$ ):  $P_{VA} = \frac{1}{1-\alpha} \cdot P_{GO} - \frac{\alpha}{1-\alpha} \cdot P_{MI}$ , where  $\alpha$  denotes the material inputs coefficient  $\left(\frac{MI^r}{GO^r}\right)$ . Accordingly, the relative value added price rises c.p. if input prices decrease more or output prices increase faster.

The representation from the income side shows that these imputed price indices can also be interpreted as average gross factor rewards in the respective sector:  $P_{va} = \frac{w}{MFP_L} + \frac{r}{MFP_K} + \frac{T_{ind} - SUBs}{VA^r}$ , where  $w$  and  $r$  denote money wage and interest rate, and  $MFP_x$  is the marginal factor productivity of labour ( $x=L$ ) and capital ( $x=K$ ) respectively. The third term represents the influence of indirect taxes and subsidies which is due to the fact that the published value added data are at market prices. According to this formula, the relative value added price rises c.p. if factor rewards are increased above average or if the productivity growth is below average.

According to the productivity trends estimated above, both the agricultural and the service prices are expected to increase relative to the industrial prices, and the agricultural prices the most. The analysis of value added prices reveals the following trend (Table 9):

The value added prices in agriculture experienced large fluctuations relatively to the industrial sector. In some years climatic influences were responsible for large unexpected changes of aggregate supply. Since external trade was not allowed to mitigate these fluctuations this led to large movements of gross output prices and pushed peasant incomes above average in the year 1987 (many taifuns) and below average in

1989 and 1992 (record harvests). Over the whole period, agricultural prices showed a rising trend which is consistent with the imputed low or possibly even negative productivity growth. Moreover, the large increases in 1986-88 can only be explained by the permission of private land use in the large which allowed a catching-up of agricultural factor incomes. In general, the cut in input subsidies for fertilizer and gasoline worked in the opposite direction. But since this effect hit the industrial sector even harder it can be assumed that this would rather cause relative agricultural prices to increase.

Table 9 – Change of relative prices,<sup>a</sup> 1986-1992 (in per cent)

	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Agriculture	+24.3	+31.9	-12.6	-6.1	+13.4	-24.1
Services	+2.3	+5.8	+3.5	+2.1	-4.7	-6.4

<sup>a</sup> Imputed price index of sectoral value added, relative to the industrial sector.

Source: Table A3.

The relative value added price of services showed a significant upward trend relative to the industrial sector which is consistent with the estimated productivity growth differential. In 1991 and 1992, however, the relative price of services decreased. This can be explained by a high productivity increase in the service sector, caused by the deregulation of the private service sector (especially tourism, restaurants and retail trade), whereas the cut in subsidies obviously had only a minor direct effect on services sector incomes, except for some branches (e.g. transportation). Alternatively, industrial wages may have been increased overproportionately, leading to higher industrial prices.

Until 1990, the value added prices in the industrial sector decreased both relative to agricultural and to service prices, which is consistent with the relatively fast productivity growth. Moreover, relatively large input price shocks from the cut in subsidies for energy and other material inputs, which could not be fully translated into higher industrial output prices, have reinforced this effect. The only puzzle with respect to the industrial sector is the relative price increase in 1991/92 that hints to excessive wage increases or low productivity growth. This development could be an indication for re-softened budget constraints for industrial SOE, but this



question obviously needs further analysis of the industrial sector on a disaggregated level. Another reason for disaggregated analysis is the presumption that capital intensive industries suffered from increased import competition whereas labour intensive industries gained from export liberalization.

Summing up, the Vietnamese economy has experienced significant structural change which can be explained by large productivity differentials. However, the high productivity growth of the industrial sector needs further examination. A priori there are two possible explanations: fierce competition from domestic and foreign suppliers may have lead to a quick adjustment of the Vietnamese industry; alternatively, the payment of subsidies may have continued due to the lobbying of SOE at the expense of the private non-industrial sectors. At the first glance, the second explanation fits the relatively few layoffs in the state industrial sector (Table 5) better, but an analysis by industries lends some support for the first explanation.

#### **4. The manufacturing sector in detail**

Gross industrial output recorded an average annual growth of more than 10 per cent in the years 1982-88, reflecting the industrialisation priority of the government and the large economic assistance from the USSR (Vo Nhan Tri, 1990). About 50 per cent of the manufacturing sector output has been produced by non-state enterprises (handicraft cooperatives and private enterprises) which are mostly small-scale firms with less than 50 workers employed. Although the government issued five year plans and short-term directives, economic activities beyond the official plan have been admitted to a certain extent since the early eighties (Diehl, 1993a). Hence, the starting point is rather different from most of the former centrally planned economies in Eastern Europe.

Following the 1988/89 shock program the output of the manufacturing industry fell by 8 and 2 per cent in 1989 and 1990 which was a relatively moderate adjustment recession, and recovered in 1991/92. In contrast to Eastern Europe, however, the number of industrial workers has been reduced early in the recession by 11 and 6 per cent in 1989 and 1990 (Table A5). Since the fall in employment was not accompanied by equally large output falls, the lay-offs obviously revealed only the hidden unemployment of "indirect" workers (i.e. those not directly involved in the

production process; cf. UNIDO, 1991). A detailed analysis of the adjustment recession reveals large differences across industries, types of ownership and regions. In the following, it will be attempted to explain this pattern as the result of liberalised market forces and policy incentives.

#### *4.1. Development by industries*

As a consequence of the liberalisation of domestic markets and of the external trade regime pursued since 1987 one would expect significant changes of relative product prices and a gradual adjustment of the production structure. According to the pattern of comparative advantage, some industries can be expected to win and others to lose. Before the liberalisation program was initiated, the government pursued the goal of national self-sufficiency in all sectors and, therefore, artificially repressed the user cost of capital. Since Vietnam is a labour abundant economy one would now expect labour intensive industries to gain relatively to capital intensive industries. However, this requires domestic enterprises to compete with domestic and foreign suppliers, and mobile factors of production to move into new allocations.

Food processing, textiles and clothing, engineering (machines, electrical equipment and other metal products) and construction materials are the largest industries of Vietnam's manufacturing industry,<sup>6</sup> accounting for 44, 12, 10 and 9 per cent of gross manufacturing output in 1991 (Table A6). The analysis of sectoral output growth rates 1989-92 shows significant differences across manufacturing industries (Table A6). Some branches suffered from a deep output decline in 1989/90 from which they did not yet recover (machinery, metal products, wood products). Other branches recovered in 1991/92 in spite of a deep decline in the earlier years (glass and ceramics, pulp and paper, textiles, leather products). The larger part of manufacturing industries, however, showed relatively high growth rates after passing a moderate output decline (foodstuff, clothing, metallurgy, electrical equipment, chemical products and construction materials).

The structural change in the manufacturing sector only to some extent fits into the expected pattern of relatively declining capital-intensive sectors.

---

<sup>6</sup> Except when stated otherwise, electricity generation and crude oil production, which are to 94 per cent state owned, are excluded from the following analysis.

What is puzzling at a first sight is the rapid increase of metallurgy, chemicals and construction materials (which can be assumed to be capital intensive), and the decline of machinery, wood products, textiles and leather products (which can be assumed to be labour intensive). Hence, additional explanation is needed for these sectors. If sectoral price data were available, the performance of an industry could have been analysed in terms of supply or demand shocks as it has been done for the case of East European countries (e.g. Borensztein and Ostry, 1992). Since time series of sectoral prices are not yet available for Vietnam<sup>7</sup>, the analysis is limited to anecdotal evidence on the degree of foreign competition, the impact of domestic price liberalisation and the sectoral distribution of FDI.

Table 10 – Exports by commodities, 1987-91 (in per cent)

	1987	1988	1989	1990	1991
Exports to CMEA (mill. rouble)	488	591	807	1111	265
Exports to other countries (mill. US\$)	366	448	1139	1293	1822
Exports growth (per cent p.a.)	8.2	21.7	87.3	23.5	-13.2
thereof:					
Agricultural products <sup>a</sup>	8.4	7.1	99.6	12.8	-5.3
Minerals, heavy ind. goods <sup>a</sup>	-31.0	24.5	482.0	73.8	13.0
Light industrial goods <sup>a</sup>	16.2	44.3	22.5	11.4	-52.8

<sup>a</sup> Transfer rouble converted to US\$ at parity.

Source: Table A4.

First, both from the external trade liberalisation and the expenditure shock of the CMEA dissolution one would expect a structural change of external trade and production in Vietnam. According to the comparative advantages now revealed, a sector producing tradeable goods would gain if the price of the good has increased relative to other domestically

<sup>7</sup> At present, the analysis of relative price changes within the Vietnamese manufacturing sector can only be based on the cumulated price changes in the period 1982-1989 (Table A10). In this period the government attempted several times (1982, 1985) to "correct" the structure of relative prices by administrative decisions, but the final liberalisation of almost all output prices 1989 is probably the most significant change of relative prices.

produced tradeable goods. At present, however, information on external trade by commodities is limited to only three categories: agriculture, mining and heavy industry, and light industry (Table 10); information on prices of single tradeable goods is not available. Since 1988, when the first measures to liberalise external trade have been introduced, the volume and structure of Vietnamese exports underwent significant changes.<sup>8</sup> Exports to CMEA countries doubled and exports to other countries tripled from 1988 to 1990. The rapid increase was almost equally caused by the exploitation of crude oil and the productivity increase in agriculture, whereas the export of manufactures decreased even in absolute numbers.

Since the larger part of consumer goods (e.g. clothing) exports went to CMEA countries, the share decreased significantly after the demise of CMEA in 1990. Moreover, some products with relatively low quality standards, which were a result of the previous protection from foreign competition and the barter trade with CMEA states, had to face strong competition from foreign suppliers. This applies especially to machinery, wood products, glass and ceramics, leather products and textiles. At the same time, foreign competition increased significantly for light industries since the import of consumer goods is relatively easy. With the exception of wood products, these industries (textiles, leather, glass and ceramics) apparently went through a process of restructuring with a relatively large output decline. Since then, however, Vietnam probably succeeded in increasing the quality of its consumer goods so that a trend reversal has already taken place. By contrast, those industries which only survived with subsidised imports in the past (machinery and other metal products) could only recover with continued high import protection (Table 11).

Second, some sectors profited from the elimination of the previous rationing system at low administratively fixed prices and hence increased production as its relative prices went up (metallurgy, construction materials). It is open to debate whether this was possible only with import protection or whether domestic suppliers in these capital and energy intensive sectors were really competitive. The latter cannot be ruled out a

---

<sup>8</sup> The structure of Vietnam's imports did not change significantly since 1988 (Table A4).

priori since electricity is still relatively cheap in Vietnam, notwithstanding a significant price increase.

Table 11— Selected tariff rates on imported manufactures 1992 (in per cent)

Sector	Basic rate <sup>a</sup>	Highest Rate
Metallurgy	0	Hot-rolled steel bars: 10
Machines and vehicles	0	Car engines: 50; other parts: 80; cars: 100
Electrical products	10-20	Consumer electronics: 30-40
Other metal products	20	Bicycles: 60
Chemicals	0-5	Plastic products: 20-30; tyres: 40-50
Construction materials	0-10	Bricks: 20 ; cement: 30
Wood products	5	Wood products: 30-40
Pulp and paper	0-10	Paper products: 20
Glass and ceramics	0-5	Household articles: 20-40
Food	0-10	Fish: 20; vegetable products: 40
Other agricultural products	20-30	Beverages: 70-100; cigarettes: 120
Textiles and clothing	0-5	Yarn: 20; fabrics: 30; clothing: 40
Leather products	0-5	Shoe parts: 20; leather products: 30-50

<sup>a</sup> Tariff on raw materials.

Source: Vietnam Ministry for Trade and Tourism (1992).

Third, some sectors (electrical equipment, chemical products and clothing) already profited from capital import (SSCI, 1993). Although actual inflows of FDI are still low in absolute numbers, they financed a large part of domestic investment (Table 12). The attractiveness of these branches for FDI, however, is not only due to the cheap Vietnamese labour but also due to significant import protection (Table 11).

Table 12— FDI approvals and actual inflows 1988-93

	1988	1989	1990	1991	1992	1993	1988-93
FDI approvals (mill. US\$)	366	539	596	1,288	1,938	2,777	7,504
(No. of approvals)	(37)	(69)	(108)	(150)	(192)	(301)	(857)
Av. investment (mill. US\$)	9.9	7.8	5.5	8.6	10.1	9.2	8.7
Actual inflows (bill. US\$)	n.a.	n.a.	n.a.	n.a.	1.1 <sup>a</sup>	1.0	2.1

<sup>a</sup> Accumulated inflows 1988-92.

Source: Vietnam Investment Review, 4.1.1993, 10.1.1994.

In summary, the manufacturing sector experienced a relatively rapid structural change within four years following the liberalisation of domestic markets and the gradual opening of the external trade regime. Most of the changes were in accordance with what one would have expected for a labour abundant country like Vietnam. Foodstuff, clothing, footwear and assembling of electrical products expanded, whereas machinery and other metal products declined significantly. All manufacturing branches enjoy significant import protection which is designed to promote higher processing levels by tariff escalation. Moreover, the expansion of some industries has been directly influenced by state priority investment in joint ventures with foreign firms (metallurgy) which can be justified with abundant natural resources, or by preferential interest rates (chemical products).

Hence, there is no clear-cut answer to the question whether competitive forces have begun to work within the Vietnamese manufacturing industry, or whether the influence of government policies have hindered structural change by protecting the existing enterprises.

#### *4.2. Development by ownership*

The reforms of the last five years have continued to set up the conditions for a competitive market economy. Legal reforms since 1988 gave SOE a larger financial autonomy and placed private enterprises on an equal footing with SOE. Moreover, the 1990 banking sector reform, which tightened the supervision of state banks' lending activities and admitted private credit agencies, was aimed at efficiency oriented capital allocation. Hence, one would have expected strong competition between SOE and private enterprises and a declining output share of SOE.

In 1988 SOE accounted for about 50 per cent of gross industrial production<sup>9</sup> and 27 per cent of total industrial labour (Table A11). On average, the output fall 1989-90 in the manufacturing sector was of about the same size for SOE (-6.5 per cent) and non-state enterprises (-5.0 per cent), and in 1991/92 SOE recovered much faster (+23.4 per cent) than non-state enterprises (+13.3 per cent). The layoffs in the non-state sector were significantly larger than in the state sector (28 per cent of the 1988

---

<sup>9</sup> Data 1988 are only available in 1982 prices; in 1989 prices the share was about 60 per cent.

level against 13 per cent; Table A5). Moreover, the performance of SOE was in general better the higher their market share in that industry. For example, the output of metallurgy and chemical products increased by more than 60 per cent from 1988 to 1992. This seems to be in contrast to the expected result of stronger competition from the private sector. A detailed analysis, however, provides an explanation.

First, a disaggregation of sectors by ownership reveals that the output growth of SOE in 1988-92 was below that of the non-state sector in almost all sectors, except for the production of chemical products, construction materials and textiles (Table A6). Hence, SOE lost market shares in all but these three industries which accounted for about one fourth of manufacturing output in 1991.

Second, structural change took place within the state sector and the non-state sector. Locally managed SOE have been hit hardest by the adjustment recession, whereas centrally managed SOE still recorded positive output growth in 1989-90. This leads to the presumption that the discrimination of the private sector has not ended, whereas the weak fiscal situation of the local authorities did not allow the continued payment of subsidies to locally managed SOE. By contrast, the weak performance of the non-state sector was mainly the result of the collapse of the cooperatives. More than 80 per cent of the industrial cooperatives, employing about 46 per cent of non-state workers in 1988, has been dissolved until 1992 (Table A11). The formation of new private enterprises, which accounted for 34 per cent of manufacturing output in 1992 after 23 per cent in 1988, could not compensate for all the jobs lost. Although the (formal) privatisation of SOE has been delayed, a number of SOE obviously has been dissolved or merged into larger units. Due to dissipation, mergers or "spontaneous" privatisation, the number of centrally and locally managed SOE decreased by more than 700 (or 25 per cent) from 1988 to 1992, mostly locally managed SOE.

Third, not the SOE share as such, but historically determined productivity advantages matter. The share of SOE in 1991 gross manufacturing output was about 60 per cent on average but varied widely from 95 per cent in metallurgy over 61 per cent in foodstuff to 22 per cent in other metal products. Only in industries where small scale firms dominated (wood products, metal products, glass and ceramics and leather products), non-state enterprises produced more than SOE (Table A6). The pattern of

sectoral growth rates, however, can be explained by the productivity gaps between SOE and non-state enterprises which is largely determined by the historical investment pattern. A comparison of output growth rates and productivity gaps (Table A7) reveals that the non-state sector in general performed better than the SOE in sectors with small productivity gaps. The only exceptions are the food industry and pulp and paper production.

The average gross output per worker<sup>10</sup> was significantly higher in SOE than in cooperatives or private enterprises in 1991. Only in two industries (machinery and leather products) non-state enterprises had the highest labour productivity of all firms (Table A7). This reflects the large productivity lead of centrally managed SOE in the capital-intensive industries (e.g. chemicals, cement, woodpulp and textiles), which is due to the state investment priorities in the early eighties. In addition, the average firm size varies significantly among the different types of ownership, from 600 workers in centrally managed SOE and 160 workers in locally managed SOE over 40 workers in cooperatives and private enterprises to 3 in the household firms (Table A11). Hence, potential economies of scale may help to explain the productivity gaps.

Gross output productivity changes in the period 1989-1991 are probably only reflecting the increased capacity utilisation and the massive lay-offs in 1989 and 1990, since the highest increases are recorded in those industries with the largest reduction of workers, e.g. chemicals, metal products, construction material or glass and ceramics. The limited information on the average wage in various industries<sup>11</sup> supports the view that the payment of wages has become productivity oriented for all types of ownership. In some cases, e.g. in the case of the private electrical machinery or textiles and clothing enterprises, it can be assumed that recent investments in new equipment, especially from FDI (SSCI, 1993), has contributed to the productivity increase.

---

<sup>10</sup> Disaggregated value added data for manufacturing are only available for 1989 (Table A7), but not differentiated by ownership.

<sup>11</sup> From a recent survey covering about 1000 enterprises it has been concluded that there is a strong correlation between average value added per worker and average wage rates for all types of ownership, and that the lowest wage levels and the most unequal distribution of incomes are found in the cooperatives (Ronnås, 1992).



Fourth, since SOE can hardly be expected to operate on commercial criteria in an environment of an incomplete commercial law system, government decrees on reorganisation and dissolution of SOE were issued in late 1991. The aim of these decrees was the "evaluation" (i.e. a complete audit) of all SOE and the formal liquidation of those regarded as unprofitable (Business Vietnam, Vol. 4, 1992, No. 7). Until November 1993 only four SOE have begun selling shares, a large part of which was given to the employees (Vietnam Investment Review, 29.11.1993). By contrast, it has been reported that many SOE have already been privatised "spontaneously", i.e. initiated by the workers without approval of the local authorities (Truong and Gates, 1992). This adds to the impression that the credible threat of formal liquidation is a strong incentive for managers of SOE to adjust.

Notwithstanding the interpretation given so far, there is some information on the discrimination of the non-state sector which has not ended completely. For instance, subsidies to the centrally managed state industrial sector apparently continued to be substantial into the 1990s. This was particularly true with regard to access to bank credits and the supply of certain subsidised inputs (McCarty, 1993) which has been phased out in 1993. A first look at the structure of domestic credit leads to the presumption that both SOE and non-state enterprises suffered from a restrictive credit policy since 1988, since their ratio of bank credit to national income declined (Table A2). However, the marked decline of bank credits for SOE was caused by the increased financial autonomy of SOE since 1988, by which their obligatory contributions to the public budget and hence their demand for external finance were reduced (UNIDO, 1991).

Moreover, the sudden expansion of domestic credit - relative to national income - in 1989, which was made possible by the improved saving accounts as a result of the stabilization program, apparently was not used to improve the access of the non-state sector to bank credits. On the contrary, the additional credit was given to the public budget from which it was probably redisbursed to SOE, i.e. the discrimination of the non-state sector obviously increased even further since 1988. In addition, many of the cooperative banks in rural areas are in a liquidity crisis since they do not have full access to the Central Bank refinancing facilities (Radke, 1992). From a recent survey it was concluded that the majority of transactions of non-state enterprises are made on a 'cash on delivery'

basis. The small reliance on external capital reflects an absolute lack of access to external capital rather than a high price of capital. Private enterprises often have to rely on earned profits or informal finance agencies to finance their investment (Ronnås, 1992). This situation, however, is not too different from non-socialist countries in Asia at a comparable stage of economic development (Riedel, 1993).

Until December 1992, FDI projects were approved mostly in the form of joint ventures with SOE. Only since 1993, joint ventures with private enterprises are admitted (World Bank, 1993). In addition, SOE still have advantages over private firms with respect to land use rights and external trade licenses. On the other hand, the profit tax is collected only incomplete from private firms. Hence, it is not clear to what extent these effects net out or whether SOE still receive preferential treatment.

In summary, the development of different types of ownership has shown a clear polarisation: locally managed SOE and cooperatives have shrunk significantly, whereas the large centrally managed SOE and the emerging private sector will share the market. The relative success of centrally managed SOE can probably be explained by high investment due to preferential access to credits and foreign exchange and by joint ventures with foreign investors. It can be expected, however, that the private sector becomes a strong competitor, even if investment credits from the state owned official banking system are not extended, if only the discrimination in external trade and foreign investment relations is ended.

#### *4.3. Development by regions*

An empirical analysis of the Vietnamese manufacturing industry by regions has to consider that the hitherto published statistics on regional industrial output include electricity generation and mining. Whereas the exploitation of natural resources in the North (coal, iron ore, phosphate) has not been increased significantly in the last years, crude oil production - which is located offshore in the South - recorded steep growth rates since 1989. Therefore, the industrial output of Vung Tau province - which is virtually identical with the total crude oil production in Vietnam - is excluded in the following analysis to prevent misinterpretations of the regional statistics.

More than half of Vietnam's industrial output is produced in the South. With 4 million inhabitants Ho Chi Minh City alone accounted for about 31

per cent of total industrial output in 1990, which is slightly more than in the northern provinces with 25 million people, including the million cities Hanoi and Haiphong (Table A12). By contrast, industrial employment in the northern regions was almost four times that of Ho Chi Minh City in 1990. That is, average gross output per worker in Ho Chi Minh City is more than three times that in Hanoi, and almost four times that in northern provinces. Since the interregional productivity gap is even larger for the non-state sector, where intersectoral productivity differences are relatively low (Table A7), the sectoral composition of the regional industry output is unlikely to explain a large part of the observed average interregional productivity differential. Hence, it can be assumed that industry workers in the South are on average more productive than their counterparts in the North. At the beginning of the reform period this was at least partly due to the legacy of the past: machinery and equipment in the North had been provided by China and the Soviet Union, whereas the South (until 1973) had received capital goods from the USA and West Europe. In combination with a higher quality of the physical capital stock, workers in the South may also profit from better formal education and learning on the job, and from more appropriate management.

At first glance, different regional growth rates can be explained by the industrial structure that prevailed in the pre-reform era and the adjustment pattern of the respective industries. In the pre-reform period, the regional structure of manufacturing industry in Vietnam has been shaped according to political priorities rather than by locational factors (natural resources, infrastructure etc.). In broad lines, heavy industry (incl. textiles) is concentrated in the North and light industry (incl. chemical products) in the South (World Bank, 1993). The state of infrastructure may help to explain regional differences although the North-South pattern is less clear. The road network is in a worse state in the North, and the North-South junction is already used to capacity. Electricity, however, is in ample supply in the North whereas enterprises in the South have to face regular power cuts.

In addition to these locational factors, government policies may have an indirect regional impact during the transformation process. First, a large centrally managed state sector is probably more successful than a smaller one in gaining financial support from public budgets. Accordingly, provinces with a high share of SOE are favoured by relatively large public investment. In 1990, the weight of central SOE was still much larger in the

North (63 per cent of industrial output and 27 per cent of industrial employment) compared to the South (34 and 16 per cent). Second, regional governments may have created different incentives, e.g. to promote the private sector and to attract foreign investment.

The adjustment recession 1989/90 has been deeper in the North, especially in the main cities (-13 per cent in Hanoi and -27 per cent in Haiphong, compared to -4 per cent in Ho Chi Minh City). Moreover, the non-state sector<sup>12</sup> in the South performed significantly better than in the North (+53 per cent in 1988-92 against +21 per cent). To some extent this pattern can be attributed to the different sectoral structure: the high output fall in the North is probably due to the prevalence of engineering and other metal manufactures, whereas the South has profited from the stable growth of food processing, based on the prospering agricultural sector in the Mekong delta, and from the growth of the clothing industry. However, the performance of some other branches is at odds with this simple North-South pattern. For example, the cement production and the chemical industry, which are also concentrated in the North, recorded extraordinary growth rates on the national level, whereas some light industrial branches (leather products, glass and ceramics) passed through a significant recession.

This leads to the conclusion, that not only the sectoral composition of the regional industry mattered for the regional economic performance but also regionally different adjustment patterns within industries. One reason for this difference could be that a higher percentage of GDP is saved in the South due to higher average incomes. Since the national capital markets in Vietnam are regionally fragmented due to the underdeveloped banking system, this higher savings rate allows for a higher investment rate in the South.

By contrast, the ownership structure does not explain these regional differences since the ranking of regions not only holds for the industry average but also for all types of ownership. Locally managed SOE have been hit hardest in all regions, followed by non-state enterprises, whereas centrally managed SOE recovered already in 1990. This supports the

---

<sup>12</sup> Output data of centrally managed SOE for 1991 and 1992 are not yet available by regions (cf. Note (d) to Table A12); however, the ranking of regions probably remained stable in 1991/92.

view, that governmental regulations with respect to the state sector have not been too different in the regions: locally managed SOE were not successful in gaining support due to the strained public budgets on the provincial level, whereas the centrally managed SOE were still assisted by the respective federal ministries at the expense of the non-state sector.

The major exception was Hanoi, where the output of non-state enterprises decreased by one sixth in 1988-92 whereas the output of locally managed SOE grew by 6 per cent. By contrast, in Ho Chi Minh City the non-state sector did not go through any recession, and almost kept pace with the centrally managed SOE. Since the performance of the non-state sector is the result of dissolving cooperatives and an emerging private sector, it can be concluded that the private sector was more dynamic in the South, whereas cooperatives played a large role in the North and especially in Hanoi. Governmental regulations of the private sector have probably been stricter in the North whereas private entrepreneurship in the South has been encouraged in the early eighties already. This could also explain the large gap between state and non-state sectoral growth rates in the North.

Foreign investors apparently were attracted by the more liberal attitude of local governments in the South, whereas the lower wages in the North obviously were not relevant for investors. This finding points to differences in the qualification of workers. Moreover, the first export processing zones were established in the South, and the first manufacturing enterprises started operations in late 1993. 80 per cent of all FDI approvals in the period 1988-91 went to the South, which was partly due to the large investment in crude oil production (almost 25 per cent of all FDI approved). In 1992-93, however, when this resource-related type was less important, the share of the South was still as high as 66 per cent (Vietnam Investment Review, 10.-16.1.1994). Compared to the regional output shares FDI is now almost equally distributed which leads to the conclusion that regulations in the North are now similar to those in the South. The average FDI inflow per worker, however, is still significantly larger in the South. This supports the view, that the productivity lead is due to higher capital stock per worker.

In summary, the differences in regional growth patterns can clearly be attributed to differences in the sectoral composition at the starting point, and to different productivity levels, whereas the "ownership mix" in itself cannot explain very much. It remains an open question, however, whether

the productivity growth has been seriously hindered by stricter government regulations in the North or whether the productivity differential simply reflects the legacy of the past in the South, i.e. larger investment and higher entrepreneurial capacities.

Summing up the whole chapter, it has been shown that market forces have played a large role for the structural change within the manufacturing sector. Obviously, relative prices were allowed to change significantly, and factors were relatively mobile, so that some industries have expanded while others declined. The sectoral change can be explained by increased competition from foreign suppliers and delays due to scarce investment funds, although the overall pattern did not show the expected relative decline of capital intensive industries. With the exception of those industries where SOE possessed large productivity leads, the share of SOE in the manufacturing sector has declined since 1988. Many cooperatives and locally managed SOE were dissolved or privatised, whereas the privatisation of large centrally managed SOE makes only little progress. The remaining discrimination of private enterprises apparently has been reduced since 1990, so that the private sector can be expected to accelerate growth in the next years. Finally, the regional growth differences could be traced back to the regional industry mix and to the observed large productivity differential between North and South for the same industries.

## **5. Conclusions**

The empirical analysis has shown why the Vietnamese economy did not experience significant income losses in the transition period in spite of the relatively fast stabilisation-cum-liberalisation program. This result can be attributed basically to the flexibility of the Vietnamese economy (i.e. flexible relative prices and mobile factors of production), in contrast to the less successful East European CPE. The growth of agricultural production since the early eighties and above all the expansion of the service sector since 1988 cushioned the consequences of the temporary decline of the industry sector in 1989/90. Mass lay-offs in the industrial sector have been compensated through the rapid growth of the service sector. Significant structural change occurred within manufacturing, both by industries and by ownership, but the resulting overall pattern did not show the expected relative expansion of labour intensive sectors. This can be attributed to remaining trade protection for some sectors and to a quality

improvement necessary for those sectors which until recently were structured according to the needs of the division of labour among CMEA countries. With increasing inflows of FDI, however, the expected pattern will probably emerge in the years to come.

Industrial cooperatives have been largely transformed into private enterprises, and many small SOE have already been dissolved or "spontaneously privatised". The industrial sector has increasingly been polarised between large centrally managed SOE (which proved to be very successful) and the emerging private sector which was the main reason why aggregate industrial output recovered within two years after the shock-type stabilisation-cum-liberalisation program. The success of the state industrial sector can be attributed to better starting conditions due to higher investment in the past, and to the channeling of FDI towards the state sector. However, the discrimination of private enterprises on the markets for credits and essential inputs seems to have lasted until recently. In addition, private enterprises are especially hindered by excessive regulations and by institutional deficits, e.g. with respect to land use.

Nevertheless, it seems plausible that the main reason for the avoidance of a severe adjustment recession in the industrial sector has not been the sustained subsidisation of SOE but the consistency of the whole reform program. Essential elements of the program have been: the rapid disinflation, the floating of the exchange rate together with moderate import protection and export promotion, and the credible threat of dissolution for SOE. The credibility of the reform program (and especially of the SOE reorganisation) is due to the introduction of a new government structure and the popular anti-corruption campaign that did not spare leading politicians. The future development will show, whether the Vietnamese success story is sustainable. An essential precondition for the successful restructuring of the industrial sector is the settlement of the accumulated SOE debts, the further improvement of the banking system, and the change of managerial incentives, especially in those SOE whose productivity is not significantly higher than in non-state enterprises

## References

- ASIAN DEVELOPMENT BANK (ADB), Asian Development Outlook; Manila.
- BAUMOL, William (1967), "Macroeconomics of unbalanced growth"; American Economic Review, Vol. 57, pp. 415-426.
- BORENSZTEIN, Eduardo R. and Jonathan D. OSTRY (1992); Structural and macroeconomic determinants of the output decline in Poland: 1990-91; IMF Working Paper 92/86; International Monetary Fund, Washington.
- BRABANT, Jozef M. van (1990), "Reforming a socialist Developing Country - the case of Vietnam"; Economics of Planning, Vol. 23, pp. 209-229.
- CHU VAN HOP (1991), Guide to doing business in Vietnam; Chicago.
- DIEHL, Markus (1993a), "Die Systemtransformation in Vietnam"; Die Weltwirtschaft, Heft 2, pp. 207-248.
- (1993b), Stabilization without crisis: The case of Vietnam; Kiel Working Paper, No. 557; Institute of World Economics, Kiel.
- DOLLAR, David (1994), "Macroeconomic management and the transition to the market in Vietnam"; Journal of Comparative Economics (forthcoming).
- GENERAL STATISTICAL OFFICE (1992a), System of national accounts of Vietnam 1986-1990; Statistical Publishing House, Hanoi.
- (1992b), Vietnam's industrial statistics 1986-1991; Statistical Publishing House, Hanoi.
- (1992c), Statistical Data of the Socialist Republic of Vietnam 1986-1991; Statistical Publishing House, Hanoi.
- (1992d), Economy and Trade of Vietnam 1986-91; Ministry of Trade and Tourism and Statistical Publishing House, Hanoi.
- (1993), Statistical Yearbook of Vietnam 1992; Statistical Publishing House, Hanoi.
- LE VAN TOAN(ed.) (1992), The Vietnamese economy 1986-1990 according to the System of National Accounts; Statistical Publishing House, Hanoi.



- LIPWORTH, Gabrielle and Erich SPITTÄLLER (1993), Vietnam: Reform and stabilization 1986-1992; IMF Working Paper 93/46; IMF, Washinton.
- McCARTY, Adam (1993), "Industrial renovation in Vietnam, 1986-91"; pp. 97-143 in: Mya THAN and Joseph L. TAN (eds.), Vietnam's dilemmas and options: The challenge of economic transition in the 1990's; ISEAS, Singapore.
- RADKE, Detlef (1992), Finanzsektorstudie Vietnam: Empfehlungen zum Aufbau eines zweistufigen Finanzsystems. Deutsches Institut für Entwicklungspolitik, Berlin.
- RIEDEL, James (1993), "Vietnam: On the trail of the tigers"; The World Economy, Vol. 16, pp. 401-422.
- RONNÅS, Per (1992), Employment generation through private entrepreneurship in Vietnam; International Labour Organization, Geneva.
- and Örjan SJÖBERG (eds.) (1990), Dô'i Mói: Economic reforms and development policies in Vietnam (Papers and Proceedings from an International Symposium in Hanoi, December 1989); SIDA, Stockholm.
- TRUONG, David H.D. and Carolyn L. GATES (1992), Effects of government policies on the incentive to invest, enterprise behaviour and employment: the case study of Vietnam; WEP Research Working Paper No. 57, International Labour Office, Geneva.
- UNIDO (1991), Viet Nam: Industrial policy reform and international co-operation; Industrial Development Review Series, PPD.184; UNIDO, Vienna.
- VO NHAN TRI (1990), Vietnam's economic policy since 1975: A critical analysis; ISEAS, Singapore.
- WORLD BANK(1993), "Viet Nam: Transition to the market"; (Report of a team led by David Dollar; September 1993) East Asia and Pacific Department of the World Bank, Washington.

Table A1 — Gross domestic product by ownership 1986-1992 (bill. Dong at 1989 prices)

	1986	1987	1988	1989	1990	1991	1992	Change 1986-1992 (in per cent)
State sector (MPS) (in per cent of national income)	3609 (22.3)	3949 (23.7)	3819 (22.0)	4577 (25.5)	5318 (26.8)	6135 (29.5)	7106 (31.7)	96.9
+ Gap transport and post <sup>a</sup>	313	339	340	340	355	380	401	
+ Finance <sup>b</sup>	330	345	360	386	469	571	713	116.1
+ Public services <sup>b</sup>	1850	2000	2200	2537	2862	3095	3394	83.5
= State sector (SNA) (in per cent of GDP)	6102 (29.7)	6633 (31.0)	6719 (29.9)	7840 (32.3)	9004 (33.3)	10181 (35.6)	11614 (37.5)	90.3
(excl. fuels; in per cent of GDP)	(29.0)	(30.4)	(29.2)	(30.8)	(31.0)	(32.6)	(33.7)	
Non-state sector (MPS) (in per cent of national income)	12580 (77.7)	12680 (76.3)	13513 (78.0)	13404 (74.5)	14555 (73.2)	14693 (70.5)	15292 (68.3)	21.6
+ Gap agriculture <sup>a</sup>	343	429	340	453	501	465	577	
+ Gap industry <sup>a</sup>	456	512	513	400	366	382	340	
+ Gap trade <sup>a</sup>	-97	-97	-85	-83	-31	3	33	
+ Housing and Tourism <sup>b</sup>	1048	1108	1178	1571	2619	2899	3132	162.1
+ Repair services <sup>b,c</sup>	147	130	319	723	0	0	0	
= Non-state sector (SNA) (in per cent of GDP)	14477 (70.3)	14762 (69.0)	15778 (70.1)	16468 (67.7)	18010 (66.7)	18442 (64.4)	19374 (62.5)	33.8
Info: National income in per cent of GDP	(78.7)	(77.7)	(77.0)	(74.0)	(73.6)	(72.8)	(72.3)	

<sup>a</sup> The gap between MPS and SNA has been attributed either to the state or to the non-state sector according to branch characteristics. - <sup>b</sup> Not included in national income (MPS); disaggregation in 1986-88 partially estimated. - <sup>c</sup> In 1990-92 included in housing and tourism.

Source: General Statistical Office (1993); Le Van Toan (1992); own estimations.

Table A2 — Outstanding credits by type of ownership and bank deposits 1986-93 (bill. Dong)

	1986	1987	1988	1989	1990	1991	1992	1993 <sup>a</sup>
Domestic credit	153	532	2633	7261	9906	14276	17122	23000
- Government	19	80	669	3144	3977	4121	1913	n.a.
- Public enterprises	117	376	1709	3606	5309	9129	12439	n.a.
- Cooperatives and private sector	17	76	255	511	620	1026	2770	6400
Currency and Dong deposits	109	442	2327	5324	7678	11947	18931	n.a.
Foreign exchange deposits	1	29	242	2096	3680	8354	8213	n.a.
GDP (at current prices)	513	2469	13266	24308	38166	69959	101870	125000
In per cent of national income:								
Domestic credit	29.8	21.5	19.8	29.9	26.0	20.4	16.8	18.4
- Government	3.7	3.2	5.0	12.9	10.4	5.9	1.9	n.a.
- Public enterprises	22.8	15.2	12.9	14.8	13.9	13.0	12.2	n.a.
- Cooperatives and private sector	3.3	3.1	1.9	2.1	1.6	1.5	2.7	5.1
Currency and Dong deposits	21.2	17.9	17.5	21.9	20.1	17.1	18.6	n.a.
Foreign exchange deposits	0.2	1.2	1.8	8.6	9.6	11.9	8.1	n.a.

<sup>a</sup> Provisional figures (Vietnam Investment Review, 20.-26.12.1993).

Source: State Bank of Vietnam, cited in World Bank(1993); General Statistical Office (1993).

Table A3 — Changes of prices in agriculture, industry and services 1986-92<sup>a</sup>

Sector	Change against previous year (in per cent)						Average change (in per cent p.a.)	
	1987	1988	1989	1990	1991	1992	1986-89	1989-92
Agriculture, forestry, fishing								
- Price index of gross output (MPS)	411.0	488.8	60.0	36.6	94.5	14.6	263.8	44.9
- Price index of material inputs (MPS)	380.7	539.3	68.4	39.1	105.6	12.8	272.7	47.8
- Price index of value added (MPS)	428.2	464.8	55.7	35.2	88.0	15.5	259.5	43.2
- Price index of value added (SNA)	425.1	490.0	55.3	34.9	89.9	16.0	263.7	43.8
Industry, mining, construction								
- Price index of gross output (MPS)	326.1	352.6	88.6	36.0	67.8	49.0	231.3	50.4
- Price index of material inputs (MPS)	323.0	361.8	96.4	37.1	68.8	48.1	237.3	50.8
- Price index of value added (MPS)	329.7	341.2	76.1	34.0	65.6	50.8	222.0	49.6
- Price index of value added (SNA)	322.4	347.3	77.7	43.7	67.5	52.8	222.6	54.4
Services								
- Price index of gross output (MPS)	306.8	364.1	101.9	65.5	65.4	35.1	236.5	54.6
- Price index of material inputs (MPS)	320.4	409.0	98.3	90.9	58.2	34.8	248.8	59.7
- Price index of value added (MPS)	302.5	348.0	103.4	55.5	68.5	35.2	232.2	52.4
- Price index of value added (SNA)	332.2	373.4	84.0	46.7	59.7	43.0	235.2	49.6
Total								
- National income deflator (b)	370.4	403.2	68.9	38.4	77.3	29.3	241.9	46.9
- GDP deflator	363.8	411.0	69.6	41.3	73.0	34.5	242.6	48.7

<sup>a</sup> Calculated from data in current prices and in 1989 prices. - <sup>b</sup> "National Income" in the MPS is equivalent to value added in the SNA.

Source: Le Van Toan(1992); General Statistical Office (1993); own calculations.

Table A4 — External trade by commodities 1986-93

	1986	1987	1988	1989	1990	1991	1992	1993 <sup>b</sup>
Exports to non-CMEA countries (mill. US\$)	350	366	448	1139	1293	1822	2475	3000
Exports to CMEA countries (mill. transfer rouble)	439	488	591	807	1111	265	n.a. <sup>c</sup>	n.a. <sup>c</sup>
thereof: Agricultural products <sup>a</sup>	440	477	511	1020	1151	1090		
Minerals and heavy industrial goods <sup>a</sup>	71	49	61	355	617	697		
Light industrial goods <sup>a</sup>	278	323	466	571	636	300		
In per cent of total exports: <sup>a</sup>								
Exports to CMEA countries <sup>a</sup>	55.6	57.1	56.9	41.5	46.2	12.7		
Agricultural products <sup>a</sup>	55.8	55.9	49.2	52.4	47.9	52.2		
Minerals and heavy industrial goods <sup>a</sup>	9.0	5.7	5.9	18.2	25.7	33.4		
Light industrial goods <sup>a</sup>	35.2	37.8	44.9	29.3	26.5	14.4		
Imports to non-CMEA countries (mill. US\$)	496	502	724	842	1307	1904	2506	3300
Imports to CMEA countries (mill. transfer rouble)	1659	1953	2033	1724	1446	434	n.a. <sup>c</sup>	n.a. <sup>c</sup>
thereof: Fuel and raw materials <sup>a</sup>	1117	1205	1377	1377	1590	1504		
Machinery and parts <sup>a</sup>	749	899	959	861	752	509		
Food, consumer goods <sup>a</sup>	289	351	421	328	410	325		
in per cent of total imports: <sup>a</sup>								
Imports from CMEA countries <sup>a</sup>	77.0	79.6	73.7	67.2	52.5	18.6		
Fuel and raw materials <sup>a</sup>	51.8	49.1	49.9	53.7	57.8	64.3		
Machinery and parts <sup>a</sup>	34.8	36.6	34.8	33.6	27.3	21.8		
Food, consumer goods <sup>a</sup>	13.4	14.3	15.3	12.8	14.9	13.9		

<sup>a</sup> Transfer Rouble converted into US-\$ at parity. - <sup>b</sup> Provisional. - <sup>c</sup> Since 1991, trade with the former CMEA is partly settled in US-\$. This convertible currency trade amounted to roughly US-\$ 150 million of exports and US-\$ 120 million of imports in 1991.

Source: General Statistical Office(1992d; 1993)

Table A5 — Employment in manufacturing by industries and type of ownership 1989-91

Industry	Share in total manufacturing	Share of state sector	State sector Change against previous year (in per cent)				Cooperatives and private sector Change against previous year (in per cent)			
	1991 (in per cent)	1991	1989	1990	1991	1989-91	1989	1990	1991	1989-91
Metallurgy	2.1	55.7	-4.0	5.7	-12.9	-11.6	-37.3	204.8	51.6	189.7
Electrical products	1.4	51.6	-10.0	-4.7	-12.8	-25.2	-2.8	17.9	17.6	34.8
Machines and vehicles	5.7	51.2	-9.6	-14.0	-22.1	-39.4	-14.1	-0.2	1.5	-13.0
Other metal products	4.6	16.9	-9.6	-22.0	-13.0	-38.7	-24.2	-16.7	6.7	-32.6
Chemical products	4.0	63.5	-12.6	-3.9	-9.1	-23.7	-23.2	-17.5	-3.1	-38.6
Construction materials	11.6	28.8	-10.6	-14.8	-13.6	-34.2	-28.1	-16.3	6.1	-36.2
Wood products	10.8	10.2	-11.1	-12.1	-12.3	-31.5	-22.2	-2.7	-4.5	-27.8
Pulp and paper	1.0	58.0	-7.7	-9.7	-7.1	-22.6	-24.8	0.0	3.3	-22.3
Pottery and glass	1.8	34.5	-9.5	-30.0	-7.1	-41.1	-19.1	7.4	0.4	-12.8
Foodstuff	33.2	16.3	-7.2	-0.8	-4.3	-11.9	-2.2	-10.3	10.2	-3.3
Textiles	11.6	39.6	-10.1	0.4	-5.6	-14.8	-27.1	-24.0	-25.8	-58.9
Clothing	7.1	42.0	2.7	11.6	16.4	33.4	-8.3	-34.7	8.2	-35.2
Leather products	0.9	52.8	43.2	36.8	-29.0	39.1	-19.4	-17.6	3.4	-31.3
Other manufactures	4.2	29.8	-5.1	-9.5	-7.4	-20.5	-19.9	-25.7	-4.7	-43.3
Total manufacturing	100.0	28.5	-8.0	-5.6	-8.5	-20.5	-16.7	-13.9	1.4	-27.3

Source: General Statistical Office (1992b; 1992c; 1993); own calculations.

Table A6 — Gross production<sup>a</sup> in manufacturing by industries and type of ownership 1988-92

Industry	Share in total manufacturing 1991 (in per cent)	Share of state enterprises 1991 (in per cent)	State enterprises					Cooperatives and private sector				
			Change against previous year (in per cent) <sup>a</sup>					Change against previous year (in per cent) <sup>a</sup>				
			1989	1990	1991	1992	1989-92	1989	1990	1991	1992	1989-92
Metallurgy	2.6	84.8	-0.5	13.4	37.9	28.0	99.2	-0.3	10.3	118.9	12.1	169.9
Electrical products	2.3	70.1	-1.0	32.9	-6.4	17.4	44.6	-12.6	35.0	29.1	5.2	60.2
Machines and vehicles	4.8	52.9	-23.0	-7.8	-3.4	7.7	-26.1	-11.4	0.4	0.4	8.6	-3.0
Other metal products	2.6	21.7	-23.3	-21.8	-13.5	0.1	-48.0	-2.2	-2.5	1.0	-0.5	-4.2
Chemical products	9.1	74.3	-4.8	13.5	25.8	23.5	67.8	-8.8	7.2	9.1	17.1	24.9
Construction materials	9.5	63.6	-8.1	16.5	21.6	19.1	55.1	0.2	9.0	8.5	3.4	22.6
Wood products	4.9	24.7	-31.6	-8.9	1.3	-8.5	-42.3	-11.0	5.6	4.9	-5.0	-6.3
Pulp and paper	2.4	73.3	-26.0	19.4	-17.2	20.4	-11.8	-16.1	2.2	46.5	0.4	26.2
Pottery and glass	1.5	46.0	-27.3	-4.0	33.1	10.4	2.6	-11.0	2.1	14.0	6.4	10.3
Foodstuff	44.0	61.1	0.6	-7.7	6.4	16.3	14.9	9.0	-4.3	7.2	8.0	20.9
Textiles	10.4	66.4	-2.3	1.8	-0.4	9.8	8.8	-17.4	-8.1	5.1	11.1	-11.3
Clothing	1.8	57.3	-4.4	-12.1	1.1	22.7	4.3	-3.4	2.7	19.4	-6.2	11.1
Leather products	0.5	32.7	20.8	-9.8	-67.8	87.5	-34.3	-19.8	-14.9	3.6	26.6	-10.4
Other manufactures	3.7	51.2	-13.4	0.5	4.0	15.4	4.5	-13.2	-7.4	-4.5	-3.1	-25.7
Total manufacturing	100.0	60.2	-7.6	1.2	7.0	16.4	16.5	-4.3	-0.8	7.3	6.0	8.0

<sup>a</sup> Based on gross output values in constant prices of 1982 (1988-90) and of 1989 (1990-92).

Source: General Statistical Office (1992b; 1992c; 1993); own calculations.

Table A7 — Labour productivity<sup>a</sup> in manufacturing by industries and type of ownership 1989-91

Industry	Value added per worker <sup>b</sup> (mill. Dong) 1989	Productivity 1991 (mill. Dong per worker)			Productivity change 1989-1991 (in per cent)	
		State enterprises		Other enterprises	State enterprises	Other enterprises
		Central	Local			
Metallurgy	2.01	11.4	8.7	2.8	76.0	-16.9
Electrical products	3.45	15.2	6.7	5.9	64.7	13.0
Machines and vehicles	1.92	5.0	5.0	5.1	13.2	2.7
Other metal products	1.61	5.2	3.4	3.0	-15.5	42.9
Chemical products	2.36	17.5	12.3	10.8	78.1	73.7
Construction materials	1.44	22.7	3.5	2.5	97.9	85.7
Wood products	1.34	4.5	7.1	2.1	-7.9	36.6
Pulp and paper	2.19	19.0	12.2	8.3	-5.4	61.8
Pottery and glass	0.78	7.9	4.2	4.1	57.8	27.7
Foodstuff	2.15	36.0	24.2	3.8	12.1	15.8
Textiles	n.a.	10.3	5.7	3.2	16.3	94.2
Clothing	1.00 <sup>c</sup>	2.2	1.9	1.0	-36.3	83.8
Leather products	n.a.	2.8	1.5	5.2	-74.8	3.0
Other manufactures	1.04	7.9	9.0	3.4	13.9	35.2
Total manufacturing	1.66	14.5	9.9	3.4	25.9	40.1

<sup>a</sup> Gross output (in prices of 1989) per worker. - <sup>b</sup> Value added data from input-output table. - <sup>c</sup> Textiles, clothing and leather.

Source: General Statistical Office (1992c, b).



Table A8 — Value added and external trade by sectors<sup>a</sup> 1989 (bill. Dong)

Sector	Gross output	Value added	thereof:				Exports	Imports
			Ind. taxes <sup>b</sup>	Wages	Depreciation	Net surplus		
Agriculture (37-39)	14629.6	9812.6	825.6	7081.0	236.1	1669.9	2168.5	208.2
Mining (2-4)	710.8	299.4	5.4	208.3	54.8	30.9	518.0	46.6
Manufacturing (5-34,36,47)	11183.9	4190.0	780.1	2370.8	433.1	606.0	2911.2	9290.6 <sup>d</sup>
thereof: Metallurgy	224.2	61.7	7.0	33.0	6.8	14.7	705.2	1067.4
Machinery	1387.4	580.5	84.3	315.6	58.6	122.2	69.7	2883.6
Construction material	1123.7	425.7	82.6	206.3	64.4	72.4	17.6	104.9
Chemical industry	848.0	238.0	45.0	104.0	37.2	51.8	61.6	3387.6 <sup>d</sup>
Wood, paper, pottery	1065.4	424.6	43.9	291.6	32.8	56.3	190.5	59.2
Textiles, leather	1597.0	565.1	62.2	380.0	58.3	64.6	702.1	1127.6
Food products	4338.3	1554.3	435.8	765.4	156.8	196.3	660.0	579.1
Other	599.9	340.1	19.3	274.9	18.2	27.7	504.5	81.2
Electricity, water (1,35)	739.8	322.9	23.0	21.7	125.4	152.8	0.0	0.0
Construction (40)	2291.4	882.8	17.1	720.0	49.5	96.2	66.5	0.0
Transport, comm. (41-43)	1219.3	602.4	101.4	291.8	125.8	83.4	159.8	7.5
Trade, restaurants (44-46)	4049.1	3003.2	563.9 <sup>c</sup>	1121.4	151.8	1166.1	674.3	0.0
Finance, insurance (48)	467.4	386.2	227.7	63.4	34.8	60.3	12.9	14.2
Dwellings, hotels (52)	1756.5	1574.9	40.8	247.8	43.0	1243.3	184.3	0.0
Repair services (53)	1290.2	724.6	89.0	520.3	49.4	65.9	0.0	0.0
Public services (49-51,54)	4057.5	2508.6	85.5	1789.4	353.6	280.1	4.3	0.0
Total	42395.5	24307.6	2759.5	14435.9	1657.3	5454.9	6699.8	9567.1

<sup>a</sup> Based on the 54 sectors input-output table prepared by a team from UN Statistical Office and General Statistical Office of Vietnam. - <sup>b</sup> Net of subsidies. - <sup>c</sup> Incl. import duties (240.6 bill. Dong). - <sup>d</sup> Incl. fuel imports (1254 bill. Dong).

Source: General Statistical Office(1992a); own calculations.

Table A9 — State investment in manufacturing 1987-91 (mill. Dong)<sup>a</sup>

Industry	1987	1988	1989	1990	1991	Share	Share	Change
						1987	1991	
Metallurgy	71.6	83.9	8.1	205.7	216.1	2.4	4.4	201.8
Electrical products )	285.6	320.4	387.0	184.0	202.2	9.7	4.2	-29.2
Machines and vehicles }								
Other metal products )								
Chemical products	512.1	892.7	618.2	692.5	413.0	17.5	8.5	-19.4
Construction materials )	734.0	808.7	821.1	578.1	1430.3	25.0	29.5	94.9
Wood products }								
Pulp and paper )								
Pottery and glass )	735.0	503.6	353.5	734.4	1075.4	25.1	22.1	46.3
Foodstuff								
Textiles )								
Clothing )	289.0	488.3	283.6	249.0	420.3	9.9	8.6	45.4
Leather products )	304.4	389.2	324.9	502.7	1103.0	10.4	22.7	262.4
Other manufactures								
Total manufacturing	2931.7	3486.8	2796.5	3146.6	4860.3	100.0	100.0	65.8

<sup>a</sup> In constant prices of 1982.

Source: General Statistical Office, cited in World Bank(1993).

Table A10 — Output price changes by industries 1982-1989

Industry	Gross output 1990 (bill. Dong)		Implicit price change 1982-89 (in per cent) <sup>a</sup>
	prices of 1982	prices of 1989	
Electricity	7.4	1046.1	51.8
Fuels	7.7	1551.3	116.7
Ferrous metals	1.4	119.6	-6.2
Non-ferrous metals	0.9	99.1	12.5
Electrical products	4.2	272.3	-31.0
Machines and vehicles	10.5	597.7	-39.1
Other metal products	6.1	324.8	-42.9
Chemical products	13.6	920.5	-27.5
Construction materials	9.5	1000.2	13.0
Wood products	7.7	572.7	-20.2
Pulp and paper	3.9	311.5	-15.2
Pottery and glass	1.7	146.1	-9.3
Grains	5.7	469.1	-12.5
Other foodstuff	30.3	4571.1	62.0
Textiles	15.6	1258.6	-13.4
Clothing	3.8	202.5	-42.3
Leather products	2.0	93.7	-49.7
Total manufacturing <sup>b</sup>	122.4	11413.7	0.0

<sup>a</sup> Relative to manufactures. - <sup>b</sup> All industries excl. electricity and fuels.

Source: General Statistical Office (1992c; 1993); own calculations.

Table A11 — Gross production and employment in manufacturing 1988-1992 by type of ownership

	Gross production (bill. Dong)				Employment (1000)			Number of enterprises		
	(in constant prices of 1982)		(in constant prices of 1989)		1988	1990	1992 <sup>b</sup>	1988 <sup>b</sup>	1990	1992 <sup>b</sup>
	1988	1990	1990	1992						
State sector	70.09	65.53	6880.5	8571.0	766.4	665.1	630.0	2987	2647	2220
- Central management	36.79	39.42	3879.4	4951.8	358.3	325.4	343.0	606	518	520
- Local management	33.30	26.11	3001.1	3619.2	408.1	339.7	287.0	2381	2129	1700
Non-state sector	59.92	56.90	4533.0	5157.8	2100.1	1505.7	1380.0	350730	390601	374810
- Cooperatives	32.93	19.30	1278.0	514.8	1177.1	457.5	206.0	32012	13064	5700
- Private enterprises <sup>a</sup>	0.74	1.00	85.0	526.3	13.0	19.5	47.0	318	770	1110
- Households <sup>a</sup>	26.25	36.60	3170.0	4116.7	910.0	1028.7	1127.0	318400	376767	368000
Total industry	130.01	122.43	11413.5	13728.8	2866.5	2170.8	2010.0	353717	393248	377030
	Share in total industry	Change	Change	Share in total industry	Share in total industry	Change	Change	Average number of workers	Change	Change
	1988	1988-90	1990-92	1992	1988	1988-90	1990-92	1988	1988-90	1990-92
	(in per cent)									
State sector	53.9	-6.5	24.6	62.4	26.7	-13.2	-5.3	257	-11.4	-16.1
- Central management	28.3	7.1	27.6	36.1	12.5	-9.2	5.4	591	-14.5	0.4
- Local management	25.6	-21.6	20.6	26.4	14.2	-16.8	-15.5	171	-10.6	-20.2
Non-state sector	46.1	-5.0	13.8	37.6	73.3	-28.3	-8.3	6	11.4	-4.0
- Cooperatives	25.3	-41.4	-59.7	3.7	41.1	-61.1	-55.0	37	-59.2	-56.4
- Private enterprises	0.6	35.1	519.2	3.8	0.5	50.0	141.0	41	142.1	44.2
- Households	20.2	39.4	29.9	30.0	31.7	13.0	9.6	3	18.3	-2.3

<sup>a</sup> Division between private enterprises and households partially estimated. - <sup>b</sup> Own estimations from statistics including electricity and mining.

Source: General Statistical Office(1992b; 1993); own estimations.

Table A12 — Gross industrial production<sup>a</sup> by regions and type of ownership 1988-1992

Region	Intraregional shares (in per cent)		Gross output per worker <sup>b</sup>	Change of gross industrial production against previous year (in per cent)					Total change (per cent)
	Production	Employment		1990	1988	1989	1990	1991	
North (20 provinces)	29.8 <sup>c</sup>	44.4 <sup>c</sup>	67	9.8	-10.1	4.7	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Central state	63	27	157	10.6	-6.8	5.8	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Local state	14	15	63	4.2	-18.8	-1.1	-5.5	19.3	-5.7
- Non state	23	58	27	12.7	-9.8	6.9	-0.6	12.0	21.0
therein: Hanoi	8.2 <sup>c</sup>	9.7 <sup>c</sup>	85	12.0	-13.6	0.9	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Central state	64	40	135	12.5	-10.9	5.1	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Local state	21	20	89	8.6	-11.3	2.1	-9.0	18.6	6.1
- Non state	15	40	32	14.7	-21.4	-9.9	-13.5	19.6	-16.0
Central (17 provinces)	15.5	27.0 <sup>c</sup>	57	9.6	-10.8	0.7	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Central state	23	4	330	21.6	-1.4	10.1	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Local state	32	16	115	5.8	-20.4	1.3	8.9	11.8	3.9
- Non state	45	8	32	8.2	-8.8	-2.9	4.3	2.4	2.3
South <sup>e</sup> (15 provinces)	54.7 <sup>c</sup>	28.6 <sup>c</sup>	172	18.2	-1.3	-0.8	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Central state	34	16	365	10.3	6.2	15.5	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Local state	27	16	290	35.4	-8.8	-14.8	4.8	13.6	25.3
- Non state	39	68	99	14.5	-1.0	-2.5	11.6	9.4	34.9
therein:									
Ho Chi Minh City	31.1 <sup>c</sup>	11.9 <sup>c</sup>	261	21.3	-1.9	-2.4	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Central state	44	30	383	6.4	0.6	15.1	n.a. <sup>d</sup>	n.a. <sup>d</sup>	n.a.
- Local state	26	22	309	64.2	-10.2	-22.0	-8.4	8.7	14.5
- Non state	30	48	163	14.4	1.5	-1.2	16.4	14.5	52.9
Total industry <sup>e</sup>	100.0	100.0	100	14.0	-5.6	1.1	8.9	13.7	34.7
- Central state	39	18	217	11.3	-1.3	10.3	13.2	16.9	60.3
- Local state	25	15	167	19.9	-13.5	-8.9	3.8	14.1	11.9
- Non state	36	67	54	12.9	-4.4	-0.7	7.8	9.7	26.7

<sup>a</sup> Manufacturing plus electricity and fuels; gross output in constant prices of 1982 (1988-90) and of 1989 (1990-92). - <sup>b</sup> Index (total industry = 100). - <sup>c</sup> Share of the region in total industry. - <sup>d</sup> Output of centrally managed SOE (and hence total output) not yet allocated onto regions. - <sup>e</sup> Excl. Vung Tau province (= offshore oil production).

Source: General Statistical Office(1992b; 1993); own calculations.