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Tarp, Finn; Roland-Holst, David and Rand, John
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DISCUSSION PAPERS IN ECONOMIC POLICY ANALYSIS

**Economic Structure and Development in an Emergent Asian
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Finn Tarp

University of Copenhagen and CIEM

David Roland-Holst

Mills College

John Rand

University of Copenhagen

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Finn Tarp*

University of Copenhagen and CIEM

David Roland-Holst

Mills College

John Rand

University of Copenhagen

ABSTRACT

Vietnam started a process of economic reform in 1986 and is presently opening up its economy to regional and global economic forces. As a result, Vietnam faces significant challenges in the area of economic policy analysis. This paper reviews insights emerging from a detailed social accounting matrix (SAM), compiled for the year 2000. The SAM reflects Vietnam's heavy reliance on primary sector activities, but we also find that agricultural potential could be expanded significantly. In other sectors, the critical importance of sustained commitments to human capital development is apparent. In this context, the international donor community can support the ongoing transformation process through concerted training and capacity building initiatives that have proven successful elsewhere in the region.

* Finn Tarp is Associate Professor of Economics at the University of Copenhagen and Senior NIAS Researcher at CIEM in Hanoi. David Roland-Holst is Professor of Economics at Mills College, and John Rand is Ph.D. student at the University of Copenhagen. Opinions expressed here are those of the authors and should not be attributed to their affiliated institutions.

1 Introduction

Vietnam has come a long way since the *doi moi* reform process was initiated in 1986. The past 15 years have witnessed one of the best performances in the world in terms of both economic growth and poverty reduction. People's living standards have improved significantly, and the country's socio-economic achievements are impressive from a human development perspective. Wide-ranging institutional reform has been introduced, including a greater reliance on market forces in the allocation of resources and the determination of prices. A shift from an economy dominated by the state and co-operative sectors to greater prominence of private sector and foreign investment activity in GDP can also be noted. Important strides have been made over a relatively short time span to further the transition from a centrally planned to a socialist market economy. Nevertheless, Vietnam remains a poor country. How the country can rapidly and sustainably transform itself and its economy to a more modern society remains a critical policy challenge.

In parallel with domestic reforms, Vietnam has started a process of opening up its economy to regional and global economic forces that will shape the environment in which the future growth process of Vietnam will have to take place. Vietnam joined the Association of South East Asian Nations (ASEAN) in 1995, and is also a member of the Asia-Pacific Economic Co-operation (APEC). The central economic and trade programme of co-operation for ASEAN is the ASEAN Free Trade Area (AFTA), and AFTA's key instrument is a Common Effective Preferential Tariff (CEPT). By joining ASEAN, Vietnam has therefore already undertaken international commitments in the area of trade policy that are bound to have a profound impact on opportunities for economic development. This is particularly so in light of the intense competition that characterises today's global markets, and the attendant rapid evolution and diffusion of science and technology. To understand the impact of these choices and come up with appropriate responses are critical tasks for Vietnamese policymakers. The same goes for commitments to other trade initiatives like the World Trade Organisation (WTO) and the recent bilateral trade agreement (BTA) with the US.

While the progress achieved over the past 15 years is indeed remarkable in the modern history of Vietnam, it is clear that Vietnam faces tremendous challenges in the area of economic policy analysis. Appropriate policy advice cannot be formulated without adequate and timely data and information on the structure of the economy. For this reason, a detailed social accounting matrix (SAM) for the Vietnamese economy was recently compiled for the year 2000.¹ The SAM is a disaggregated

¹ The complete SAM is documented in Tarp, Roland-Holst, Rand and Jensen (2002).

tableau that provides closed form, economy-wide accounting of linkages between activities, commodities, factors, households, domestic institutions, and foreign institutions in a tabular format that is both transparent and amenable to multiplier analysis similar to that introduced by Leontief.²

In this paper, we demonstrate what can be learned from direct inspection of the Vietnam SAM. The purpose is both pedagogical and practical. Far from being a static picture or “time slice” of an economy in transition, the structure of 2000 SAM reveals much about the economic past, present, and future potential of Vietnam. The paper is organised as follows. After this introduction, Section 2 outlines the analytical framework, and identifies macroeconomic features of the Vietnamese economy. Section 3 reviews the structure of supply and demand as well as value added the distribution of factor income. Section 4 discusses import and export, and Section 5 concludes.

2 Analytical Framework

Traditional physical input-output (I/O) analysis was characteristic of central planning in the past. However, in modern economy-wide studies, Social Accounting Matrices (SAMs) and Computable General Equilibrium (CGE) models that take account of supply and demand behaviour and the mediating role of market institutions have become the analytical tools of choice in supporting economy-wide policy design and implementation. An interesting SAM for Vietnam was published by the United Nations already in the mid-1990s.³ While much of the theoretical analysis and overview in that document remains valid, it is very aggregated and relies on a now outdated 1989 10-sector I/O table. Various other contributions to this area of work exist, but the 2000 Vietnam SAM breaks new ground. It reflects the economic structure of Vietnam in the aftermath of the Asian financial crisis and brings together the following contemporaneous and unified information in a very extensive manner: (i) National income and product accounts; (ii) Detailed sector accounts and I/O information; (iii) Employment and earnings data; (iv) Multilateral partner trade data; and (v) Directly sampled and nationally representative household survey data.

For the purposes of discussing detailed economic structure, we chose in this paper to aggregate the 97 activity and commodity categories in the 2000 SAM into 30

² Background references on SAM methodology are Pyatt and Round (1985) and Reinert and Roland-Holst (1997)

³ The major purpose of estimating that SAM was to develop a coherent data framework underlying a set of macroeconomic policy-simulations and short-term forecasting exercises. For example, the SAM was used to implement a model designed to evaluate the impact of alternative modes of financing possible increases in the government wage bill. Hence, the focus of the UN SAM was very aggregate in nature.

each, and the 88 trading partners are aggregated into 13 regions.⁴ The sectoral aggregation was chosen to reflect the diversity of the economy at a reasonably detailed level, while the geographic aggregation captures the major trading partners and regions facing Vietnam.

Before examining more disaggregated accounts, we provide as background two tables which demonstrate how macro-data can be organised in a SAM format and one table which identifies the macro-features of the 2000 Vietnamese SAM. Tables 1-3 are essentially double entry representations of the usual macroeconomic accounting identities. Table 1 depicts an open-economy MacroSAM with a government sector in terms of the macro accounting identities. Note that in this case intermediate goods are netted out.⁵ With these macro accounts in mind, Table 2 includes a tableau of generic SAM accounts for Vietnam. These include intermediate goods explicitly, and further decompose production into activity and commodity accounts. While there is a little more detail in this table as compared to Table 1, it still represents a double entry accounting version of classical macro accounts. Table 3 is a version of Table 2, calibrated to 2000 Vietnam data. Thus, Table 3 provides an internally consistent macroeconomic data set for the Vietnamese economy. The way to read this table is to use the labels from Table 2 alongside the data depicted in Table 3. For example, GDP at market prices can be found by deducting Imports (cell 8,2) from the sum of Private Consumption (cell 2,4), State Consumption (cell 2,6), Investment (cell 2,7) and Exports (cell 2,8). Note that this is equivalent to the sum of Value Added (cell 3,1) plus taxes in cells (6,1) and (6,2). Finally, column totals equal row totals by construction.

3 Supply, Demand, Value Added and Factor Income

Table 4 presents a variety of disaggregated economic statistics extracted from the SAM.⁶ In column 1, for example, shares of economy-wide gross output are given for all 30 sectors and aggregates representing primary, industry, and service activities. As one would expect for an economy at Vietnam's stage of development, most of output is concentrated in primary and secondary activities. Even these statistics understate

⁴ The aggregated 30 sector SAM is available from the authors on request.

⁵ See Reinert and Roland-Holst (1997) for a more extensive introduction to MacroSAMs and SAM estimation.

⁶ The sectoral classification used in the following tables is based on a distinction among primary, secondary and tertiary sectors that is different from the classification used by the GSO. For example, GSO classifies Mining as a secondary sector of production together with Industry. Abbreviations used in Table 4 are the following: X = output, Sd = supply for domestic market, E = exports, C = consumption, I = investment, Dd = demand for domestically produced products, M = import, VA = value added, LVA = labour value added, KVA = capital value added, TVA = land value added.

Table 1: An Open-Economy MacroSAM with a Government Sector

<u>Receipts</u>	<u>Expenditures</u>					Total
	1	2	3	4	5	
1. Suppliers	-	C	G	I	E	Demand
2. Households	Y	-	-	-	-	Income
3. Government	-	<i>T</i>	-	-	-	Receipts
4. Capital Acctt.	-	S _h	S _g	-	S _f	Savings
5. Rest of World	M	-	-	-	-	Imports
Total	Supply	Expenditure	Expenditure	Investment	ROW	

Additional Variables:

- $t_{42} = S_h =$ private savings
- $t_{32} = T =$ tax payments
- $t_{43} = S_g =$ government savings
- $t_{15} = E =$ exports
- $t_{45} = S_f =$ foreign savings
- $t_{51} = M =$ imports
- $t_{13} = G =$ government spending

Accounting Identities:

- 1. $Y + M = C + G + I + E$ (GNP)
- 2. $C + T + S_h = Y$ (Income)
- 3. $G + S_g = T$ (Govt. Budget)
- 4. $I = S_h + S_g + S_f$ (Saving-Investment)
- 5. $E + S_f = M$ (Trade Balance)

Table 2: A Macroeconomic SAM for Vietnam - Generic Macro Accounts

Receipts	Expenditures								
	<i>1. Activities (97)</i>	<i>2. Commodities (97)</i>	<i>3. Factors (14)</i>	<i>4. Private Households (16)</i>	<i>5. Enterprises (3)</i>	<i>6. Recurrent State (1)</i>	<i>7. Investment Savings (1)</i>	<i>8. Rest of World (88+1)</i>	<i>9. Total</i>
<i>1. Activities (97)</i>		Marketed Production							Total Sales
<i>2. Commodities (97)</i>	Intermediate Consumption			Private Consumption		State Consumption	Investment	Exports	Total Commodity Demand
<i>3. Factors (14)</i>	Value Added								Value Added
<i>4. Private Households (16)</i>			Wages, Salaries and Other Benefits		Distributed Profits	Social Security and Other Current Transfers to Households		Net Foreign Transfers to Households	Private Household Income
<i>5. Enterprises (3)</i>			Gross Profits			Enterprise subsidies		Net Foreign Transfers to Enterprises	Enterprise Income
<i>6. Recurrent State (1)</i>	Value Added Taxes	Trade Taxes	Production Taxes	Income Taxes	Enterprise Income Taxes			Net Foreign Transfers to State	State Revenue
<i>7. Investment Savings (1)</i>				Household Savings	Retained Earnings	State Savings			Total Savings
<i>8. Rest of World (88+1)</i>		Imports			Enterprise Remittances	Government Remittances			Imports
<i>9. Total</i>	Total Payments	Total Commodity Supply	Total Factor Payments	Allocation of Private Household Income	Total Enterprise Expenditure	Allocation of State Revenue	Total Investment	Total Foreign Exchange	

Table 3: Macroeconomic SAM for Vietnam 2000

Receipts (Bill. VND)	Expenditures (Bill. VND)								
	1. <i>Activities</i> (97)	2. <i>Commodities</i> (97)	3. <i>Factors</i> (14)	4. <i>Private Households</i> (16)	5. <i>Enterprises</i> (3)	6. <i>Recurrent State</i> (1)	7. <i>Investment Savings</i> (1)	8. <i>Rest of World</i> (88+1)	9. <i>Total</i>
1. <i>Activities</i> (97)		852,755							852,755
2. <i>Commodities</i> (97)	427,323			295,993		28,265	130,827	241,401	1,112,809
3. <i>Factors</i> (14)	376,376								376,376
4. <i>Private Households</i> (16)			270,487		5,553	42,204		19,842	338,086
5. <i>Enterprises</i> (3)			105,636			6,245		1,088	112,969
6. <i>Recurrent State</i> (1)	49,056	19,307	253	1,840	25,033			2,072	97,561
7. <i>Investment Savings</i> (1)				40,253	77,896	12,678			130,827
8. <i>Rest of World</i> (88+1)		251,747			4,487	8,169			264,403
9. <i>Total</i>	852,755	1,112,809	376,376	338,086	112,969	97,561	130,827	264,403	

the importance of the rural and food sector, which provides employment to over two-thirds of the population, because of the large subsistence or non-market component of agricultural output.

There are many indications that Vietnam's agricultural potential could be expanded significantly and sustainably, but ideally this would be done in ways that respond to more attractive output prices and greater value-added capture. In terms of the former, this would mean shifting the composition of crops toward higher value varieties. More domestic food processing capacity could also be developed, independently or in foreign partnership, and preferably located in rural regions where the income gains would be most significant.

More detailed inspection reveals that over half of gross output is in primary and light industry sectors, with the highly capital intensive-type industry accounting for less than 8% of total output. Primarily because of capital insufficiency, Vietnamese industry is only beginning the path to modernisation and manufacturing diversification commensurate with its population size and resource base. For this reason, processed food, construction materials, and labour-intensive light industries dominate its secondary sector.

Excluding the construction sector, only about one third of Vietnam's gross output takes the form of marketable services. Service output, employment, and value added are the hallmarks of developed countries, the average in the OECD exceeding 65%, and Vietnam is only beginning to develop this component of economic activity. As incomes and rural-urban migration rise over time, however, the share of services in overall output will grow substantially.

The second column of Table 4 gives sectoral shares of domestic supply, i.e. domestic output delivered to the domestic market. Generally, the differences between these and the gross output shares are better understood by reference to Column 3, which gives the corresponding export shares, a measure of supply-side trade dependence for each sector. Despite its heavy reliance on primary sector activities, Vietnamese exports are already more concentrated in sectors classified as industrial (43.35% against 30.42%). The main reason for this is the Textile and Apparel sector, which accounts for 16.36% of total exports in 2000.

More detailed examination of these shares reveals many opportunities for Vietnamese development, however. For example, food and non-food crops, such as rice and coffee, have significant export shares already but are generally thought to be producing well below their long-term output and revenue potential. Likewise, the Oil and Gas sector has a significant share of 2000 exports, but is only beginning to develop its long term potential by overcoming capital constraints.

In manufacturing, even a cursory review of column 3 indicates that Vietnam has not yet captured the export potential of dynamic growth sectors elsewhere in ASEAN, including technology, consumer durables, and even vehicles. These sectors not only leverage external demand for domestic employment and capacity development, but also accelerate modernisation and confer many growth externalities on the domestic economy. In other economies of the region, the primary catalysts for development of these sectors were foreign capital and sustained state commitments to human capital development via education and labour market liberalisation.

A more focused comparison between production for domestic and external markets can be made with the ratios given in the fourth column of Table 4. Here the export orientation of certain sectors, such as cash crops and energy, comes into very high relief. Several agricultural sectors, including rice and fishery, are still directing the vast majority of their output to domestic markets, while their export potential at the margin is only beginning to be realised. Given that rice is an inferior good, its export potential at the margin of a growing economy is considerable. Conversely, fishery supply may increasingly be diverted to the domestic market as Vietnamese per capita incomes rise. In the latter case, export shares will depend heavily on capacity expansion in aquaculture, since marine fisheries in the region are being exploited near or even beyond sustainable capacity. Significantly, export ratios for food processing are also very low, indicating that the export potential of the Vietnamese agricultural sector, apart from classical cash crops like coffee and rubber, is far from being realised. Unless progress can be made in this area, rural incomes are unlikely to keep pace with growth of the overall economy.

The challenge facing Vietnam in an era of globalisation can be clearly seen in the average export ratio for industry, which indicates an economy with very low levels of external supply orientation in the growth inducing sectors that have accelerated development and living standards elsewhere in Asia. Without more external market linkage in a variety of essential industrial activities, Vietnam is likely to be a chronic underachiever in the Asian modernisation process that began with Japan and has continued to spread around the region. Again the main reasons are capital insufficiency and lack of access to technology, but institutional conditions can do much to overcome this, facilitating commercial and multilateral trade partnerships to leverage Vietnam's rich human and natural resource base.

Service sector export ratios are also very low. While it would be nice to see higher levels in externally oriented sectors like transportation and hotels/restaurants, low service exports are typical of all but the most advanced economies.

Table 4: Structure of Supply Demand, and Value Added for Vietnam, 2000

(all figures in percentages except as indicated)

		1	2	3	4*	5	6	7	8	9*	10	11	12	13	14*
		<i>X</i>	<i>Sd</i>	<i>E</i>	<i>E/Sd</i>	<i>C</i>	<i>I</i>	<i>Dd</i>	<i>M</i>	<i>M/Dd</i>	<i>VA</i>	<i>LVA</i>	<i>KVA</i>	<i>TVA</i>	<i>LVA/KVA</i>
1	Rice	6.98	6.60	.71	.03	1.93	.84	4.65	.06	.01	9.35	9.65	1.31	53.50	17.67
2	Raw Rubber	.24	.03	.88	8.44	.00	.00	.15	.08	.31	.33	.12	.52	2.21	.54
3	Coffee Beans	.71	.03	2.59	21.62	.00	.00	.47	.02	.02	.96	.66	.77	6.56	2.05
4	Other Crops	4.15	3.35	5.08	.41	5.82	.09	1.49	2.36	.93	6.85	7.55	1.06	31.68	17.01
5	Livestock	3.24	2.83	1.18	.11	7.15	.69	3.08	.05	.01	3.40	4.49	.85	3.07	12.60
6	Other Agriculture	.46	.45	.00	.00	.00	.00	.51	.00	.00	.42	.48	.36	.00	3.21
7	Forestry	.95	.98	.09	.03	.54	.02	.39	.28	.43	1.55	1.98	.35	2.57	13.63
8	Fishery	2.80	2.14	2.33	.30	3.12	.02	1.92	.12	.04	3.76	4.91	1.57	.42	7.49
9	Coal	1.02	.41	2.14	1.41	.19	.33	.74	.01	.01	1.34	1.73	.63	.00	6.56
10	Oil and Gas	3.69	.05	15.19	84.61	.00	.22	.83	1.91	1.35	6.28	3.66	13.62	.00	.64
11	Mining	1.73	1.71	.22	.04	.00	.02	2.43	.31	.08	1.06	1.39	.46	.00	7.29
	All Primary	25.98	18.58	30.42	12.86	18.74	2.23	16.66	5.20	.18	35.32	36.61	21.51	100.00	8.06
12	Meat and Dairy	.60	.74	.22	.08	1.36	.15	.84	.72	.51	.35	.39	.33	.00	2.78
13	Beverage and Tobacco	2.23	2.68	.94	.10	7.02	.37	1.95	2.21	.67	2.50	1.94	4.25	.00	1.09
14	Seafood	1.82	.43	4.95	3.15	.34	.01	2.21	.03	.01	1.45	1.77	.93	.00	4.57
15	Other Proc Food	9.22	6.85	10.23	.41	17.91	.91	15.45	2.46	.09	2.96	2.90	3.60	.00	1.94
16	Mfg Materials	5.83	5.79	4.82	.23	1.77	.91	8.05	4.34	.32	3.59	2.71	6.28	.00	1.03
17	Chemicals	2.32	6.84	2.42	.10	3.02	1.49	3.42	17.82	3.07	1.21	1.24	1.33	.00	2.23
18	Technical Mfg	1.03	4.82	.49	.03	6.95	7.66	1.52	13.15	5.10	.54	.55	.60	.00	2.19
19	Vehicles	1.02	2.28	1.01	.12	3.05	1.20	1.64	5.18	1.87	.39	.48	.24	.00	4.73
20	Other Machinery	1.13	6.53	.19	.01	.57	14.57	1.37	18.18	7.79	.89	.91	.98	.00	2.23
21	Textile and Apparel	4.81	4.25	16.36	1.05	4.66	1.49	6.88	12.32	1.05	2.75	3.05	2.46	.00	2.98
22	Other Industry	2.35	3.32	1.72	.14	3.10	.77	2.92	5.03	1.01	1.78	1.82	1.97	.00	2.21
	All Industry	32.36	44.52	43.35	.52	49.76	29.52	46.26	81.45	1.04	18.39	17.75	22.96	.00	2.54
23	Elec. Gas. Water	2.25	2.20	.00	.00	1.06	.00	1.68	.09	.03	2.82	1.31	6.90	.00	.46
24	Construction	10.18	9.84	.00	.00	.00	63.67	14.66	.00	.00	5.70	6.30	5.20	.00	2.90
25	Trade	8.47	5.94	8.22	.38	4.13	4.13	4.15	.00	.00	12.76	13.46	13.21	.00	2.44
26	Transportation	3.17	2.85	5.25	.50	2.12	.45	2.71	4.27	.93	3.63	2.49	6.94	.00	.86
27	Hotel and Restaurant	3.00	2.14	5.72	.73	4.80	.00	2.86	2.80	.58	3.11	3.05	3.78	.00	1.93
28	Personal Services	1.75	1.73	1.38	.22	3.13	.00	.95	1.45	.90	2.49	3.12	1.42	.00	5.27
29	Commercial Services	6.10	5.78	4.32	.20	6.72	.00	4.58	3.75	.48	7.64	4.72	15.92	.00	.71
30	Public Services	6.75	6.44	1.34	.06	9.54	.00	5.50	.98	.11	8.13	11.19	2.16	.00	12.44
	All Service	41.67	36.90	26.23	.22	31.51	68.25	37.09	13.35	.21	46.29	45.64	55.53	.00	3.38
	All Economy	100.00	100.00	100.00	13.60	100.00	100.00	100.00	100.00	1.43	100.00	100.00	100.00	100.00	4.66

* Figures in these columns are simple ratios, with group weighted averages.

Demand patterns for Vietnam are captured in columns 5-9, and they reflect characteristics typical of economies at this stage of development. Average incomes are quite low, and private consumption is concentrated on raw and processed food products, constituting about half of demand in this country. The remaining half is divided about equally between manufactures and services, although the figure of 9.54% may include non-discretionary contributions for obligatory public services. Urban households have recently increased demand for durables, but on a national basis, Vietnamese households have very limited means for discretionary consumption. This is particularly true of the more than three quarters of the population residing in the rural sector. For this reason, the internal market cannot be expected to animate or sustain rapid investment in growth-oriented sectors such as consumer durables or household/business/personal technology. These forces will only come into play after significant gains in domestic per capita income. Again these facts support the case for greater external orientation in investment and industrial policy.

Vietnamese investment patterns in 2000 also reflected those of an agrarian developing country. About two thirds of capital outlays concentrated in the construction sector. The second largest type of investment demand, the aggregate Other Machinery sector, gives an indication of where capital goods spending can be expected to shift in the coming decades. In order to develop more diversified production capacity consistent with a modernising economy, however, one would expect to see investment demand increasing sharply in most of the non-food industrial activities, particularly those that are technology and infrastructure related.

Columns 7-9 describe demand patterns by origin of goods and services consumed. Here we see significant disparities between domestic and imported expenditure shares, largely a result of the degree of specialisation in today's Vietnam economy. Most food demand is met by domestic sources, while fully 81.45% of imports are manufactured goods for which there is little or no domestic substitute.⁷ The largest component of domestic Service demand is for a non-tradable, Construction. Column 9 gives ratios of relative import dependence that are analogous to the export ratios in column 4. These tell a similar story to the observations of the paragraph above, but more strikingly. The average import ratio for Primary products is only 0.18, while that for Industry is 1.04. This reinforces the impression of Vietnam as an emergent agrarian economy, still heavily reliant on imported technology and vulnerable to shocks in the global terms of trade. In the past, developing countries attempted to reduce these risks with inward oriented import substitution strategies.

⁷ At very detailed customs lines, one observes very little intra-industry trade in Vietnam for the same reason. This is symptomatic of low levels of domestic product diversification.

Today, it is generally acknowledged that imports are better displaced by domestic capacity developed from greater participation in external product and capital markets.

The sectoral information in columns 10-14 of Table 4 lead us into discussion of Vietnamese income determination, detailing value added shares for labour, capital and land across 30 activities. Here again we see characteristics typical of an agrarian economy on the verge of transformation. Over 80% of total value added arises in primary and tertiary activities, with industry accounting for only 18.39% (and 11.13% when food processing is excluded). Land value added is naturally concentrated in the primary sector.

Among primary sectors, rice production predominates in value added, followed closely by other subsistence sectors. Oil and Gas has a large share of primary value added, but most of this goes to capital (column 12). Leaders in industry are processed foods, materials (this via downstream links to Construction), and Textile/Apparel. Among Services, the largest source of value added is Commercial Services and Trade. This is mainly made up of small-scale operators capturing trade and transport margins in retail distribution channels.

It was observed earlier that OECD countries also generate the largest share of value added in Service activities, but of course this happens only after their transition through an industrial phase, where manufacturing becomes the dominant source of employment and factor income. Vietnamese services are characterised by relatively simple distribution activities and have neither the technological sophistication nor the skill-intensity of advanced economy professional services. Thus we can expect that Vietnam awaits a three state transition, accompanied by significant rural-urban demographic change: 1) the present stage, where agriculture and petty commerce dominate value added; 2) industrialisation and significant new urbanisation, driven by exports, and technology transfer; 3) modernisation, with higher domestic incomes and a large, diversified internal market with a dominant, modern service sector.

Looking at value added by factor type, we see that over one quarter of Vietnam's labour income arises from rice production (Rice) and petty commerce (Trade). As can be expected in a country with relatively low levels of mechanisation, labour value added is high in most agricultural sectors and about 82% of Vietnam's labour value added accrues to primary and service sector employment.

To get a clearer impression of the relative rewards to different factors engaged in different activities, consider the labour to capital value added ratios in column 14. Here the labour intensity of certain activities is very obvious, like Rice, Other Crops, Livestock, and Forestry. By contrast, Raw Rubber, Oil and Gas, Beverage/Tobacco, and Manufactured Materials are much more capital intensive. Large disparities in factor intensity are also evident in Services, where Public Services are about 17 times

more labour intensive than Commercial Services. All these differences imply that the employment and distributional implications of industry policy need careful forethought. Sectors that are targeted for expansion, whether to serve domestic or external markets can have very different effects on domestic factor use and relative incomes, and these effects will ultimately have political as well as economic consequences.

Consider a simple example from the Primary sector. Public funds could be allocated to promote one of two activities, upgrading rice yields and varietal quality or expanding capacity in the energy sector. The first program, particularly if it is focused on microeconomic incentives for crop development and not on mechanisation, would have a significant bias in favour of labour income, and thus alleviate poverty among the nation's poorest constituency. Expanding capacity in energy would increase capital value added at nearly the double rate (1/.64) than that of growth of labour value added in that sector. At least as significantly, this sector would be a prime candidate for external financing, including technology transfers that can accelerate productivity and reduce environmental damage. Clearly, diversion of public investment funds to the latter sector would be regressive.⁸

Patterns of Factor ownership and relative returns to those factors are of course the primary determinants of both absolute and relative incomes. This is true in a market or command economy, or indeed any economy that attempts to combine the two types of organisation. While Vietnam is in a transition to a mixed economy, the labour intensity of most of its production activities means that labour compensation is the principal determinant of private domestic incomes. Because of its disaggregated treatment of both the sources of employment and occupational categories, the Vietnam SAM provides very detailed information on the functional distribution of income.

Table 5 displays the composition of direct income (value added) accruing to each of twelve labour categories and capital, represented here as percent shares of one Dong of value added in each of the 30 sectors (see Annex A for a key to the factor labels).⁹ These figures thus sum to one hundred percent across each row, and value

⁸ Because of its perceived strategic importance, energy has often been maintained as a state enclave in developing countries. This has generally had very adverse consequences, the most extreme case probably being in Mexico. There, the state petroleum monopoly chronically misallocated public funds, resisted innovation, and contributed to wage-driven inflation, corruption, and nearly catastrophic environmental damage. The environmental damage was direct, via pollution intensive extraction and refining methods, and indirect, via resistance to lead restrictions and vehicle emission standards.

⁹ The sectoral classification used in the following tables is based on a distinction among primary, secondary and tertiary sectors that is different from the classification used by the GSO (1999). For example, GSO classifies Mining as a secondary sector of production together with Industry. Abbreviations used in Table 5 follow the labels regarding factor disaggregation used in Annex A.

added weighted averages are given for each of the three generic activity categories: Primary, Industry, and Services.

In primary sectors, the majority of value added accrues to unskilled labour, totalling 56.26% when Rural (columns 1,4) and Urban (columns 7,10) workers are combined. Excluding energy and mining sectors, returns to Primary unskilled labour are over two-thirds of total Primary value added. Returns to capital in Primary activities vary tremendously, from a low of 3.93% in Rice to 60.86% in Oil and Gas. Land is only accounted as a factor in seven primary activities, and its share of value added varies considerably, but in accordance with intuition.

Patterns of ownership in agriculture also differ sharply between subsistence and cash crops, where relative returns to capital in Rubber, Coffee, and Other Agriculture are over three times those in Rice, Other (food) Crops, and Livestock. This dichotomy reflects two main tendencies. Firstly, low levels of mechanisation exist in basic food production because of capital insufficiency and absence of scale economies. Second, state owned enterprises in the agricultural export sectors have succeeded, but not substantially transformed, the plantation system in terms of consolidated property ownership, technology, and factor use. One might argue that public ownership of the non-labour factors in this sector resolves the distributional problem. Historically, however, the management model for state owned enterprises (SOEs) have not been associated with high levels of retained earnings, thus reducing final income to the owners of capital, be they public or private.

Fishery, by contrast, has developed and expanded its export potential with over 85% of value added still accruing to labour. Perhaps more appropriate technology choice and extension programs could increase cash crop labour value added and external market access for small holders. Smallholder promotion is an essential component of modern agricultural reform and sustainable rural development strategy.

Value added composition is more homogeneous across industrial sectors in Vietnam, with average shares for skill categories a little more uniform and higher shares for capital (averaging 31.13%). Unskilled labour as a group receives little under half of value added on average. Both Rural and Urban female workers receive larger shares in Industrial than in Primary employment.

Important differences are still readily apparent, particularly in value added accruing to capital. Nearly half of all value added accrues to capital in the Beverage/Tobacco and Manufactured Materials sectors, and this is consistent with high levels of mechanisation.

A lower level of capital share in value added is a double-edged sword for economic modernisation in Vietnam. While it is desirable that labour receives

significant compensation, returns to capital are indicators of both the incentive and the progress toward higher levels of technology and, ultimately, labour productivity. Most OECD countries passed through periods of high capital value added shares en route to their current high productivity, high wage status. If Vietnam succeeds in attracting the capital needed to transform its manufacturing base, it is reasonable to expect that capital value added shares will rise steadily for a decade or two before falling again. Of course, these relative gains for capital will be accompanied by absolute increases in labour value added as economic growth accelerates.

A final point worth noting about the Industry results is the very low share of value added accruing to Highly Skilled Labour, less than 5% for the combined averages of columns 3, 6, 9, and 12. In part this reflects the scarcity of this kind of labour in Vietnam, but of course it also reflects the stage of industrialisation and capitalisation arguments of the preceding paragraph. To realise its economic potential, Vietnam must more fully realise its human potential. A reformed market economy can facilitate this process by pairing technology with labour in ways that accelerate the growth of the skill base, steadily increasing labour productivity and, ultimately, wages. For a poor country with limited means of financing universal higher education, this is an essential consideration for economic growth policy.

Value added composition within Service sectors is quite diverse, and the averages in this group are not particularly illuminating. This is because services are produced and delivered with very diverse technologies. Electricity, Gas and Water and Commercial Services both have high capital shares, but for different reasons. The former is a classical, big machine capital-intensive activity, while the latter is small machine, technology intensive. Personal and Public Services, by contrast, both give over 80% of value added to labour, skill composition varies somewhat between these sectors, but both are very labour intensive.

4 Vietnam's Trade Patterns

Because the 2000 SAM contains very detailed data on Vietnamese imports and exports, it can be used to elucidate existing trade patterns and identify trade opportunities facing the country. Tables 6-9 give share calculations, but activity and trading partner, for the 30 sector SAM and 14 aggregate individual and aggregate trading partners. Because of limitations in the indirect sampling approach we were forced to use, these trade patterns are approximate, but they provide a wide spectrum of very serviceable indicators on the directions and significance of Vietnamese trade.

Table 5: Factor Income Distribution by Sector

(all figures in percentages except as indicated)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		L01RMU	L02RMM	L03RMH	L04RFU	L05RFM	L06RFH	L07UMU	L08UMM	L09UMH	L10UFU	L11UFM	L12UFH	Capital	Land	Total
1	Rice	32.83	3.67	0.27	1.92	0.25	0.04	26.76	2.35	0.05	1.18	0.10	0.01	3.93	26.64	100.00
2	Raw Rubber	12.82	2.08	0.00	0.00	0.00	0.00	8.97	0.00	0.32	0.00	0.00	0.00	44.61	31.20	100.00
3	Coffee Beans	23.68	4.47	0.27	0.05	0.00	0.00	15.02	2.36	0.02	0.04	0.07	0.00	22.39	31.63	100.00
4	Other Crops	26.53	4.85	0.46	8.74	0.31	0.40	21.71	2.97	0.09	7.65	0.39	0.02	4.36	21.53	100.00
5	Livestock	30.41	4.52	0.28	1.41	0.66	0.26	41.60	5.28	0.18	3.44	0.52	0.20	7.05	4.20	100.00
6	Other Agriculture	49.49	6.92	0.06	2.47	0.53	0.01	15.28	1.24	0.02	0.21	0.03	0.00	23.73	0.00	100.00
7	Forestry	29.02	7.61	1.59	35.50	7.91	1.54	0.77	0.40	0.17	0.95	0.38	0.15	6.31	7.70	100.00
8	Fishery	29.62	7.77	1.62	36.23	8.07	1.57	0.79	0.41	0.17	0.97	0.39	0.16	11.72	0.52	100.00
9	Coal	33.49	8.79	1.84	12.77	2.85	0.55	11.37	5.89	2.43	4.35	1.76	0.71	13.22	0.00	100.00
10	Oil and Gas	15.11	3.96	0.83	5.76	1.28	0.25	5.13	2.66	1.10	1.96	0.79	0.32	60.86	0.00	100.00
11	Mining	33.93	8.90	1.86	12.94	2.89	0.56	11.52	5.97	2.46	4.41	1.78	0.72	12.06	0.00	100.00
	Average Primary	28.81	5.78	0.83	10.71	2.25	0.47	14.45	2.68	0.64	2.29	0.56	0.21	19.11	11.22	100.00
12	Meat and Dairy	15.24	4.01	0.84	19.46	4.35	0.85	7.70	3.99	1.65	9.86	3.99	1.60	26.47	0.00	100.00
13	Beverage and Tobacco	10.84	2.85	0.60	13.84	3.09	0.60	5.47	2.83	1.17	7.01	2.83	1.14	47.74	0.00	100.00
14	Seafood	17.01	4.47	0.93	21.73	4.84	0.94	8.59	4.45	1.84	11.01	4.45	1.78	17.96	0.00	100.00
15	Other Proc Food	13.67	3.59	0.75	17.46	3.89	0.76	6.90	3.58	1.48	8.85	3.58	1.43	34.07	0.00	100.00
16	Mfg Materials	15.49	4.07	0.85	9.58	2.14	0.42	6.77	3.51	1.45	4.20	1.70	0.68	49.16	0.00	100.00
17	Chemicals	21.03	5.53	1.16	13.01	2.91	0.57	9.19	4.76	1.97	5.71	2.31	0.93	30.93	0.00	100.00
18	Technical Mfg	7.41	1.95	0.41	4.18	0.93	0.18	20.48	10.61	4.38	11.58	4.68	1.88	31.32	0.00	100.00
19	Vehicles	8.91	2.34	0.49	5.02	1.12	0.22	24.62	12.75	5.27	13.91	5.63	2.26	17.47	0.00	100.00
20	Other Machinery	18.20	4.78	1.00	11.17	2.49	0.49	11.55	5.98	2.47	6.93	2.80	1.13	31.00	0.00	100.00
21	Textile and Apparel	5.86	1.54	0.32	21.16	4.72	0.92	5.44	2.82	1.17	19.73	7.97	3.20	25.14	0.00	100.00
22	Other Industry	20.98	5.51	1.15	12.97	2.90	0.56	9.17	4.75	1.96	5.69	2.30	0.92	31.12	0.00	100.00
	Average Industry	14.06	3.69	0.77	13.60	3.03	0.59	10.53	5.46	2.25	9.50	3.84	1.54	31.13	0.00	100.00
23	Elec. Gas. Water	10.76	2.83	0.59	1.60	0.36	0.07	7.68	3.98	1.64	1.15	0.46	0.19	68.70	0.00	100.00
24	Construction	34.80	9.13	1.91	3.46	0.77	0.15	12.80	6.63	2.73	1.28	0.52	0.21	25.63	0.00	100.00
25	Trade	9.10	2.39	0.50	19.81	4.42	0.86	6.57	3.40	1.40	14.36	5.80	2.33	29.06	0.00	100.00
26	Transportation	12.08	3.17	0.66	1.84	0.41	0.08	14.13	7.32	3.02	2.25	0.91	0.36	53.77	0.00	100.00
27	Hotel and Restaurant	4.92	1.29	0.27	12.98	2.89	0.56	7.31	3.79	1.56	19.35	7.82	3.13	34.12	0.00	100.00
28	Personal Services	16.41	4.31	0.90	11.77	2.63	0.51	16.70	8.65	3.57	11.88	4.80	1.93	15.95	0.00	100.00
29	Commercial Services	7.73	2.03	0.42	3.96	0.88	0.17	10.39	5.38	2.22	5.34	2.16	0.87	58.44	0.00	100.00
30	Public Services	22.18	5.82	1.22	22.78	5.08	0.99	10.31	5.34	2.20	10.63	4.30	1.72	7.44	0.00	100.00
	Average Service	14.75	3.87	0.81	9.78	2.18	0.42	10.73	5.56	2.29	8.28	3.35	1.34	36.64	0.00	100.00
	Average Economy	19.21	4.45	0.80	11.36	2.49	0.50	11.91	4.57	1.73	6.69	2.58	1.03	28.96	3.74	100.00

Export flows are covered in Tables 6 and 7, with the former depicting percent shares of Vietnamese exports across destinations for each activity (i.e. rows sum to 100). Consider Rice, for example. In 2000, more than two thirds (68%) of Vietnamese Rice exports were directed to ASEAN members. This figure is startling because it reveals how limited is the market scope of one of the world's most competitive Rice producers. Two considerations in particular should be taken into account with these results in mind. First, if Vietnam can improve its Rice product quality and marketing, most of the rest of the world market remains to be exploited. Second, in particular, Vietnam has not really begun to take advantage of export opportunities that will arise with its northern neighbour China, the world's largest rice consumer. Together with Other Asia, they represent more than half of world rice consumption and their supply capacity is severely taxed, yet this export market for Vietnam is negligible or non-existent.

A similar argument holds for Coffee and the United States (US). As of 2000, the European Union (EU) bought over half Vietnam's crop but the world's largest consumer buys only about a third as much. Many other coffee importing countries have negligible export shares. This pattern is repeated in a variety of Primary sectors, including food, forestry, fishery, and energy. In all cases, Vietnam's global market access appears quit restricted. In all likelihood, this results from a combination insufficient marketing and incomplete trade negotiations. When the majority of exports are going to only two or three trading partners, however, the result is limited competition and, in all likelihood, relatively unfavourable terms of trade. Vietnam clearly needs to expand both its export marketing and trade negotiating capacity.

A similar situation prevails in Industry, but not quite as much segmentation is apparent. It is natural that Vietnam should be fixed into the supply chain of its foreign venture partners, like Japan, Taiwan, Hong Kong, and ASEAN. At the same time, however, large shares for sectoral exports to the EU implies that market opportunities for final goods (and hence higher value added) exist in OECD countries. Here is where accelerated liberalisation with respect to the North American Free Trade Agreement (NAFTA) and ANZ could be very beneficial to Vietnam. Better to become a final goods export platform to these economies than a supplier of intermediate components to other ASEAN exporters. Industrial exports to China also deserve further consideration, given Vietnam's transportation advantages with respect to the Chinese interior and its wages relative to the prosperous Chinese export zones.

The entries in Table 7 give a different perspective on Vietnam's exports, listing shares of each type of good or service in total exports to each trading partner. For example, 15% of all Vietnamese exports to Hong Kong took the form of Livestock (row 5, column 5). A quick glance at the last column reveals total export

composition across activities, with 33% Primary products, 42% Industrial goods, and 25% Services (mainly commercial intermediation).

Beyond this, it is apparent that many trading partners demand Vietnam's main exports, including Textile/Apparel and Energy. Textile/Apparel goods are very prominent among exports to Taiwan, Korea, and Hong Kong, probably as intermediate deliveries to their large apparel sectors, while Canada is more likely a final consumer. Perhaps if it can attract greater overseas financial partnership, Vietnam can move up the value added ladder, divert intermediate textile exports to a domestic apparel sector, and export more finished goods to OECD countries. This process could be accomplished by negotiated capacity shifting from the intermediate export destinations like Taiwan, Korea, and Hong Kong.

Perhaps the most arresting feature of these export shares is the lack of diversity they reveal. This trade table is rather sparse (many zeroes), and about half the possible trade linkages between Vietnam and the rest of the world, partitioned into only 14 groups and 30 products, are negligible or non-existent. Among the small number of remaining products and partners, trade is highly concentrated. This means that many external market opportunities are eluding this resource rich economy, and that its production structure lacks the diversification necessary to participate more fully in the process of globalisation.

Data in Tables 8 and 9 tell the story of Vietnam trade patterns from the import side. Looking at imports by activity, in percentage shares by country of origin, we see geographic patterns that differ significantly from exports. Several rows are not of great importance in the 2000 data, since imports in these categories were negligible. These include most Primary products, which together constitute only 5,2% of Vietnam's 2000 imports (see Table 4). Among those Primary goods that are imported, however, it is interesting to see China emerge as a prominent country of origin. Partners with significant agricultural subsidy programs, like the EU, ANZ, Canada, and the US are also significant sources of food crops, indicating that Vietnam is already being drawn into international food markets as an importer.

Table 6: Export Composition by Trading Partner

(all figures in percentages)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		ASEAN	Japan	Taiwan	China	HongKong	Korea	OthAsia	EU	EEurope	ANZ	USA	Canada	LatinAm	ROW
1	Rice	68	1	0	0	0	0	0	0	7	0	0	0	3	19
2	Raw Rubber	25	2	11	16	5	5	0	22	4	1	2	2	2	1
3	Coffee Beans	6	4	0	0	0	3	0	54	8	4	18	1	0	1
4	Other Crops	23	4	13	4	4	6	2	18	4	6	10	1	2	3
5	Livestock	3	15	0	0	42	0	0	4	20	0	12	3	0	0
6	Other Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Forestry	1	47	29	11	5	5	0	1	0	0	0	0	0	0
8	Fishery	6	45	1	0	7	4	0	16	1	2	14	1	0	0
9	Coal	12	42	4	1	0	3	0	28	0	0	1	0	5	4
10	Oil and Gas	29	17	0	11	0	1	0	0	0	36	6	0	0	0
11	Mining	16	18	27	5	0	6	0	2	20	5	0	0	0	0
	All Primary	17	18	8	5	6	3	0	13	6	5	6	1	1	3
12	Meat and Dairy	13	17	0	1	42	0	3	11	3	0	9	1	0	0
13	Beverage and Tobacco	32	26	4	0	16	0	0	8	2	2	10	1	0	0
14	Seafood	6	46	1	0	1	4	0	7	1	1	30	2	0	0
15	Other Proc Food	2	12	28	3	7	2	0	5	36	2	3	1	0	0
16	Mfg Materials	4	10	37	1	1	3	0	30	7	1	1	0	1	2
17	Chemicals	19	15	11	10	6	2	0	22	5	3	1	1	3	3
18	Technical Mfg	40	25	1	2	3	3	0	19	2	0	0	1	4	0
19	Vehicles	12	5	1	0	11	2	0	18	41	8	0	0	0	0
20	Other Machinery	17	21	22	2	3	1	0	25	1	2	5	1	0	1
21	Textile and Apparel	5	24	7	1	3	4	0	45	3	2	2	3	1	1
22	Other Industry	3	9	4	0	1	1	0	65	4	2	6	2	2	2
	All Industry	14	19	11	2	9	2	0	23	9	2	6	1	1	1
	All Services	15	16	5	3	2	2	0	33	3	8	6	1	2	2
	All Economy	15	18	8	3	6	2	0	23	6	5	6	1	1	2

Table 7: Export Composition by Commodity

(all figures in percentages)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Ave
	ASEAN	Japan	Taiwan	China	HongKong	Korea	OthAsia	EU	EEurope	ANZ	USA	Canada	LatinAm	ROW	
<i>Rice</i>	4	0	0	0	0	0	0	0	1	0	0	0	2	9	1
<i>Raw Rubber</i>	2	0	1	4	1	2	2	1	1	0	0	2	2	1	1
<i>Coffee Beans</i>	1	1	0	0	0	3	1	6	3	1	7	3	0	2	2
<i>Other Crops</i>	9	1	8	6	6	11	62	4	3	3	8	5	9	9	10
<i>Livestock</i>	0	1	0	0	15	0	0	0	4	0	2	3	0	0	2
<i>Other Agriculture</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Forestry</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Fishery</i>	1	6	0	0	5	4	0	2	0	1	5	2	0	1	2
<i>Coal</i>	2	5	1	0	0	3	0	2	0	0	0	0	9	6	2
<i>Oil and Gas</i>	32	14	0	45	0	6	0	0	0	63	14	0	0	0	12
<i>Mining</i>	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0
<i>All Primary</i>	50	28	12	56	27	29	65	15	12	68	38	16	22	29	33
<i>Meat and Dairy</i>	0	0	0	0	3	0	3	0	0	0	0	0	0	0	1
<i>Beverage and Tobacco</i>	2	1	0	0	5	0	0	0	0	0	1	1	0	0	1
<i>Seafood</i>	2	13	0	1	1	7	0	2	1	1	23	8	0	1	4
<i>Other Proc Food</i>	1	7	34	9	22	7	7	2	54	2	4	5	3	1	11
<i>Mfg Materials</i>	1	3	21	2	2	6	4	6	5	1	1	2	3	6	4
<i>Chemicals</i>	3	2	3	6	4	2	3	2	2	1	0	1	7	6	3
<i>Technical Mfg</i>	1	1	0	0	0	1	0	0	0	0	0	0	2	0	0
<i>Vehicles</i>	1	0	0	0	3	1	0	1	6	1	0	0	0	0	1
<i>Other Machinery</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Textile and Apparel</i>	7	21	13	4	13	25	3	31	7	3	4	35	21	15	14
<i>Other Industry</i>	0	1	1	0	1	1	0	5	1	0	2	3	3	2	1
<i>All Industry</i>	20	49	73	22	54	49	19	49	75	9	37	56	40	30	42
<i>All Services</i>	29	23	15	22	19	22	16	37	13	23	25	29	38	41	25
<i>All Economy</i>	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 8: Import Composition by Trading Partner

(all figures in percentages)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
		ASEAN	Japan	Taiwan	China HongKong	Korea	OthAsia	EU	EEurope	ANZ	USA	Canada	LatinAm	ROW		
1	Rice	4	0	0	96	0	0	0	0	0	0	0	0	0	0	100
2	Raw Rubber	88	1	0	7	0	1	0	0	0	2	0	0	0	2	100
3	Coffee Beans	13	0	0	84	0	0	0	2	1	0	0	0	0	0	100
4	Other Crops	13	7	1	26	0	1	0	17	1	24	5	3	2	1	100
5	Livestock	28	1	2	7	0	0	2	20	0	22	12	5	2	0	100
6	Other Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Forestry	64	1	5	1	0	0	0	12	1	7	5	0	3	0	100
8	Fishery	33	0	1	1	7	6	11	7	3	5	8	10	6	3	100
9	Coal	2	3	5	82	0	0	6	1	1	0	0	0	0	0	100
10	Oil and Gas	71	0	15	0	0	0	0	0	14	0	0	0	0	0	100
11	Mining	27	1	16	24	0	2	0	7	18	1	2	1	0	2	100
	<i>Average Primary</i>	31	1	4	30	1	1	2	6	3	5	3	2	1	1	
12	Meat and Dairy	12	0	0	4	0	0	0	12	9	53	9	0	0	0	100
13	Beverage and Tobacco	67	0	0	5	22	0	0	4	0	0	0	0	1	0	100
14	Seafood	56	11	2	11	0	1	0	3	0	0	15	0	0	0	100
15	Other Proc Food	58	1	4	6	0	4	0	9	5	6	3	1	3	0	100
16	Mfg Materials	35	7	16	6	1	14	0	8	3	2	3	1	3	0	100
17	Chemicals	31	7	11	11	0	12	2	11	6	1	4	1	1	1	100
18	Technical Mfg	32	23	8	4	0	8	1	15	4	1	2	0	0	0	100
19	Vehicles	39	10	4	3	1	7	1	13	14	3	3	0	0	1	100
20	Other Machinery	25	16	16	10	0	12	1	11	3	4	2	0	0	0	100
21	Textile and Apparel	8	8	31	27	0	19	0	4	0	1	1	0	0	0	100
22	Other Industry	27	4	22	6	1	14	3	8	2	0	6	0	5	1	100
	<i>Average Industry</i>	36	8	10	8	2	8	1	9	4	7	5	0	1	0	
	<i>Average Services</i>	28	12	16	9	1	12	1	10	4	2	2	0	1	0	100
	<i>All Economy</i>	32	7	10	16	1	7	1	8	4	5	3	1	1	1	100

Table 9: Import Composition by Commodity

(all figures in percentages)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Ave
	ASEAN	Japan	Taiwan	China	HongKong	Korea	OthAsia	EU	OthEur	ANZ	USA	Canada	LatinAm	ROW	
1 Rice	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2 Raw Rubber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Coffee Beans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Other Crops	1	1	0	6	0	0	0	4	0	21	5	14	6	2	4
5 Livestock	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
6 Other Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 Forestry	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0
8 Fishery	0	0	0	0	1	0	1	0	0	0	0	2	1	1	0
9 Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Oil and Gas	5	0	2	0	0	0	0	0	6	0	0	0	0	0	1
11 Mining	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0
<i>All Primary</i>	7	2	3	7	1	0	1	5	8	22	6	18	8	5	7
12 Meat and Dairy	0	0	0	0	0	0	0	1	1	14	2	0	0	0	1
13 Beverage and Tobacco	5	0	0	1	55	0	0	1	0	0	0	0	2	1	5
14 Seafood	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Other Proc Food	5	0	1	1	1	1	0	2	3	5	3	3	9	0	2
16 Mfg Materials	5	3	5	3	3	5	1	3	3	3	5	9	14	3	5
17 Chemicals	19	12	13	19	7	19	40	19	24	3	29	44	11	41	22
18 Technical Mfg	14	28	8	5	5	10	11	19	14	7	10	4	1	6	10
19 Vehicles	7	5	2	1	7	3	3	7	17	6	6	3	1	14	6
20 Other Machinery	16	26	20	16	2	20	11	20	15	23	12	4	6	9	14
21 Textile and Apparel	3	9	26	31	2	21	4	4	1	5	4	3	3	3	9
22 Other Industry	5	2	8	3	4	6	16	4	3	1	11	2	32	6	7
<i>All Industry</i>	80	84	82	81	85	85	86	82	80	68	82	72	80	84	81
<i>All Services</i>	13	15	15	12	14	14	13	14	12	10	12	10	12	11	13
<i>All Economy</i>	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Of more interest are Industrial goods, where most of Vietnam's import demand is concentrated. Here ASEAN is a consistently important trading partner, but we also see China again in a more prominent role than it held as an export destination. Otherwise, Vietnamese dependence on more technologically advanced countries, like Taiwan and the EU, is exactly what one would expect for its stage of development. Service imports to Vietnam are made up primarily trade and transport margins (see again Table 4), and thus are distributed according to origin of other imports.

Import shares by activity, for each trading partner, are given in Table 9. These bear out the manufacturing import dependence alluded to earlier. Consistently, the largest shares of imports are in Chemicals, Technical Manufactures, and Other Machinery, all areas where an agrarian economy could be expected to be import dependent. On the other hand, these are precisely the leading sectors in the now established pattern of modern Asian industrialisation. Service imports are a relatively constant share of imports by country of origin, fluctuating around the average of 10%.

This concludes the review of the 2000 Vietnam SAM database. In this overview of the table, many digressions were made to illustrate the scope for policy interpretation that arises from direct inspection of the database. Our hope is that these few examples will provoke deeper analysis by policy makers and research professionals, realising the potential of this information structure to light the way to economic progress and sustainable prosperity for Vietnam.

5 Conclusions

SAMs are most intensively used in complex multiplier and policy simulation models. As demonstrated in this paper, however, much can be learned from direct inspection of the SAM. This overview of a 30-sector aggregation of the 2000 Vietnam SAM demonstrates a number of key characteristics of the economy and identifies development challenges for Vietnamese policymakers, illustrating the strength of the SAM as an analytical tool. Among the many structural characteristics noted above, some are worthy of special emphasis:

- The economy of Vietnam relies heavily on primary sector activities. However, there are many indications that Vietnam's agricultural potential could be expanded significantly. Ideally, this would be done in ways that capture greater value-added, shifting the composition of crops toward higher value varieties in accordance with existing policy guidelines.
- Vietnamese exports are concentrated in sectors classified as industrial, with particular reliance on textiles and apparel, while several agricultural sectors, such

as rice and fishery, are still directing the vast majority of their output to the domestic market. It would appear that the export potential of the latter is only beginning to be realised, and this also seems to be the case for food processing (excepting coffee and rubber) and the oil and gas sector. The export potential of rice appears significant, especially if quality improves, while fishery supply could continue to be diverted towards the domestic market as demand increases with rising incomes. When it comes to trading partners, more than two thirds of the Vietnamese rice exports are currently directed to ASEAN members, revealing the rather limited scope of Vietnam's global market penetration.

- In manufacturing, Vietnam is far from realizing the potential of dynamic growth sectors such as technology and consumer durables. For this to happen, the importance of foreign capital and sustained commitments to human capital development via education and labour market reform need to be more substantively recognized. Increasing access to a more diversified set of foreign export markets also appears to be of fundamental importance.
- Average incomes remain quite low in Vietnam. The capacity of internal market demand to generate adequate and sustained savings for investment in growth oriented sectors such as consumer durables and technology is therefore likely to remain limited for quite some time. Particular attention should therefore be paid to ensuring international competitiveness and promoting external partnership for these sectors, as stated in a variety of government policy guidelines.
- At present, investment is heavily concentrated in construction. In a medium-term growth scenario, one would expect to see investment demand increase more rapidly in sectors that are technology and infrastructure related. This highlights once more the importance of both financial and human capital, which in turn is likely to have implications for external financial policy and domestic policy towards education and labour markets.
- Vietnam is an agrarian economy in a process of transformation. As such, it is heavily reliant on imported technology and vulnerable to adverse changes in the international terms of trade. The issue of how to invest for production that meets both domestic and external demand seems important, highlighting the need to build efficient domestic capacity with the ability to compete in international markets.
- Significant differences exist in the labour to capital value added across sectors. This implies that the employment and distributional implications of development

policy deserve careful consideration. Sectors targeted for expansion can have different effects on domestic factor use and relative factor incomes. In light of the important role of agriculture, smallholder promotion would appear to be an essential element of sustainable and equitable rural development.

Finally, it is obvious from our analysis that Vietnam's great economic promise cannot be fulfilled without a universal and sustained commitment to realizing the enormous human potential of its relatively young and healthy population. For a country with limited means of financing universal higher education, it would be beneficial to identify more diverse approaches to the promotion and improvement of skills. For example, more extensive reforms of product, financial, and labour markets are likely to make significant contributions here, facilitating the confluence of labour and technology in ways that might accelerate productivity growth and, ultimately, real wages and living standards. The international donor community can also help through concerted training and capacity building initiatives that have proven successful elsewhere in the region.

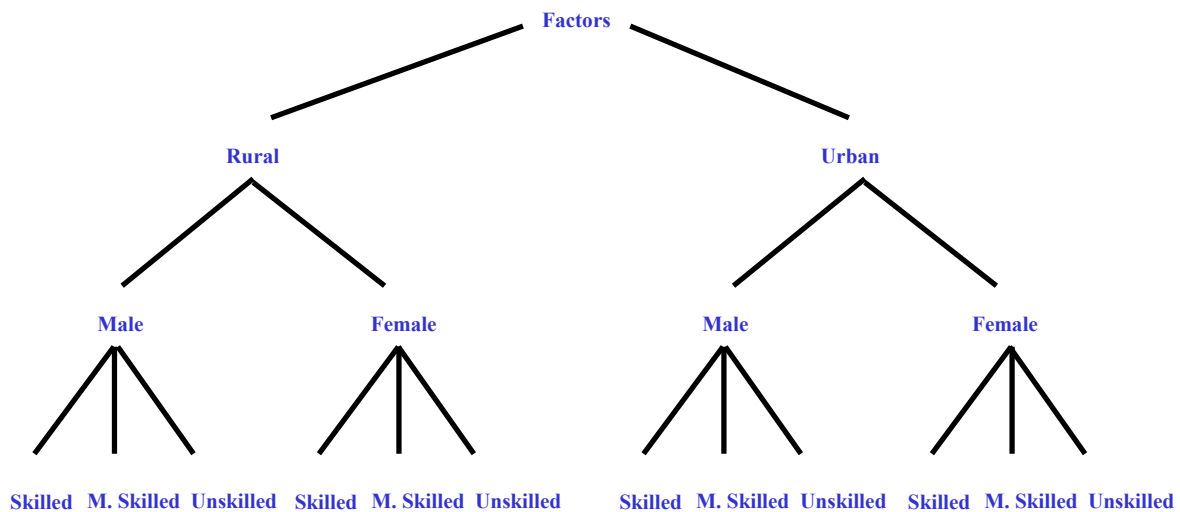
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Annex A: Factor Disaggregation

Labour was disaggregated into 12 categories using the following criteria: location (rural/urban), gender (male/female), and skill level (unskilled/medium-skilled/high-skilled). This disaggregation is illustrated in the figure below. The steps involved in this disaggregation involve in particular (i) the estimation of wage differentials,¹⁰ (ii) estimates of the share of workers in each category of labour, and (iii) estimation of how a particular factor is allocated across activities.

Figure illustrating the labour factor disaggregation



Labels used in SAM:

L01RMU: Rural Male Unskilled

L02RMM: Rural Male Medium-skilled

L03RMH: Rural Male Highly-skilled

L04UMU: Urban Male Unskilled

L05UMM: Urban Male Medium-skilled

L06UMH: Urban Male Highly-skilled

L07RFU: Rural Female Unskilled

L08RFM: Rural Female Medium-skilled

L09RFH: Rural Female Highly-skilled

L10UFU: Urban Female Unskilled

L11UFM: Urban Female Medium-skilled

L12UFH: Urban Female Highly-skilled

¹⁰ While some nominal wages are available they are, strictly speaking, not required as information on total returns to labour by activity can be combined with labour shares by labour category and the wage differentials to get the desired returns to labour by category and activity.