INDUSTRIAL DEVELOPMENT IN EAST JAVA: A SPECIAL CASE?

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Abstract

This paper examines the development of manufacturing in East Java in comparison with other major industrial provinces in Indonesia, with a focus on employment, output and investment in the pre-and-post crisis periods. East Java's 'winner' and 'loser' industries and the geographical distribution of manufacturing in the province are described. The paper attempts to account for manufacturing patterns in East Java in terms of infrastructure constraints, the investment climate, access to finance and the relationship between central, provincial and local governments, following the advent of regional autonomy. The paper finds that East Java manufacturing has been less export oriented and responsive to global demand, thus failing to match the performance of the other major manufacturing centres in Indonesia.

Key Words: East Java, Regional Development, Industry Policy in Indonesia

JEL Classification: O14, O18, O53

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Figure 1.
Map of East Java

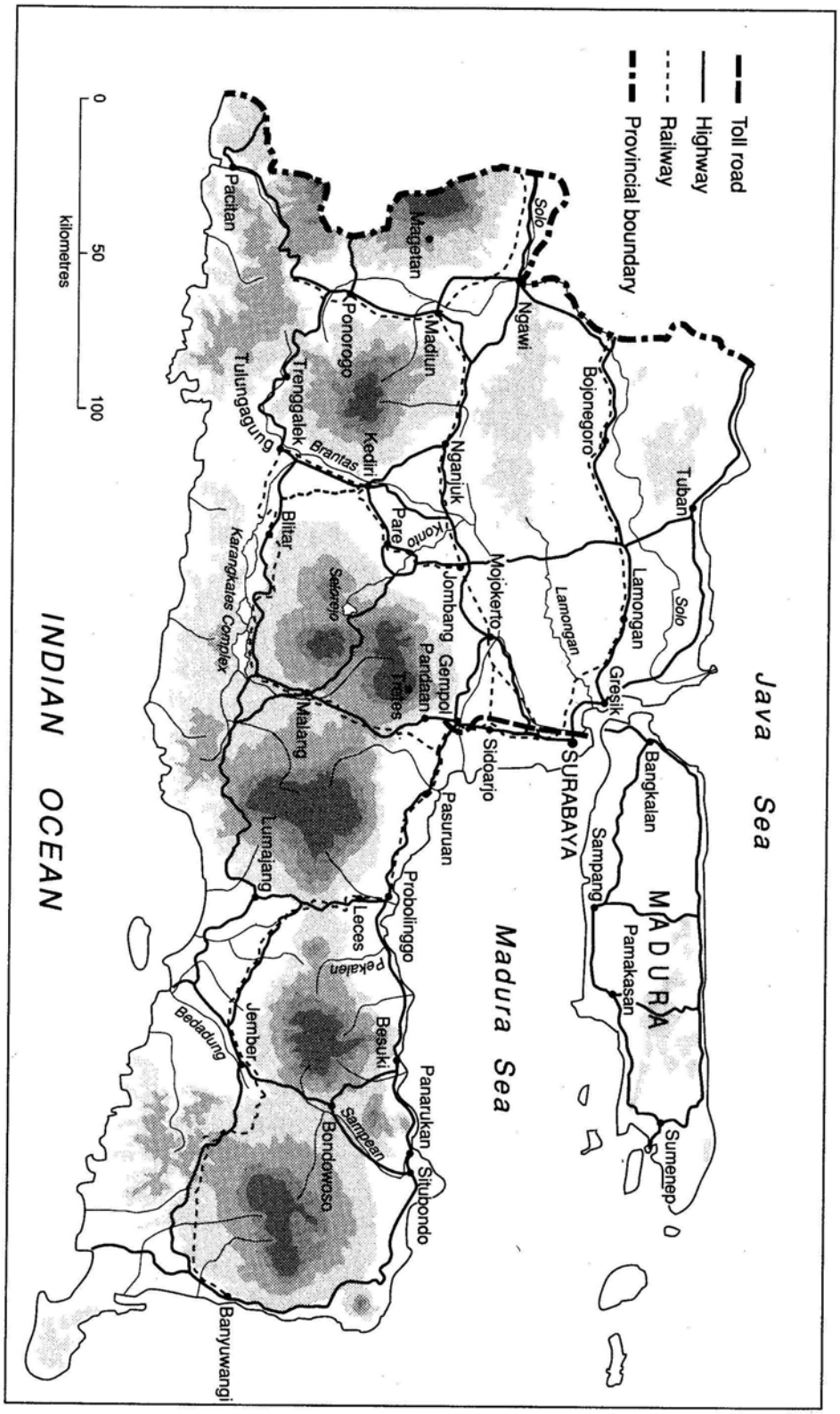
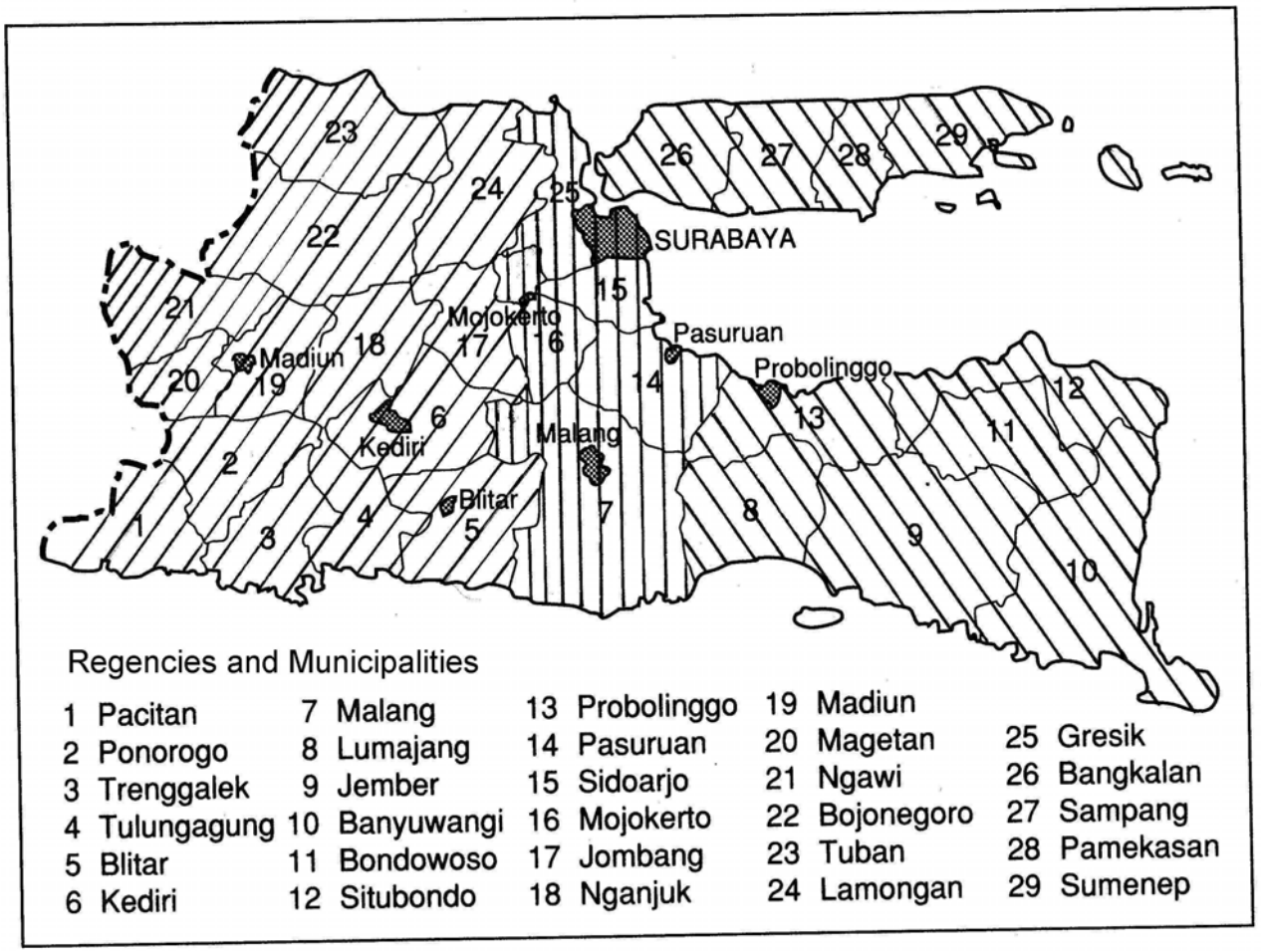


Figure 2.
East Java: Regencies and Municipalities by Geographic Zone



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Bambang-Heru Santosa and Heath McMichael*

I. INTRODUCTION

> From this time dates another characteristic of the Civil Service of East Java, namely its commitment to independent decision-making. In other provinces, and most notably in West Java, officials are appointed primarily for their loyalty to Jakarta and their willingness to implement central government policies. Their success is judged by their ability to placate regional interest rather than in serving them. While officials in East Java can certainly be zealous in implementing national policies, the presumption is nonetheless that national policies need to be tailored to local needs and conditions and do not preclude simultaneous local initiative (Dick 1993, in Dick et al, p.16).

> Several factors may explain why a heavy concentration (of manufacturing industry) took place in Java. The location of central government in Java from the colonial era had an important impact on the island's history. Licensing regulations and commercial and physical infrastructure were far superior in Java, and firms were encouraged to locate there (Kuncoro 2002, p.337).

> To some, East Java appears to be on the verge of a new phase in its development: the effects of deregulation since 1988 may well stimulate an even more rapid process of growth and industrialization in the 1990s than that of the 1970-1990 period (Preface by James Fox in Dick et al 1993).

The first quotation above by an economist who has written widely on problems of industrial development in developing countries, including Indonesia and East Java, offers a partial explanation of the pattern of industrial development we see in East Java today. The second quotation is by an economist teaching at the University of Indonesia who has a very sound appreciation of economic geography. It reveals the particular qualities that made Java a focus for manufacturing industry in Indonesia. The third quotation reflects the optimism felt by many observers a decade ago that industrialisation in East Java would continue to accelerate in the 21st Century.

Economic surveys of East Java, of which the most in-depth since the 1980s have been Mackie and Zain (1991), Dick (1993), and Hill (1987), have described the province as a high-growth success story since the 1960s, with growth spread across all major sectors in rural as well as urban settings. According to Mackie and Zain, growth in East Java has been a cumulative process in most parts of the province, not the result of investment into one or two leading sectors (Mackie and Zain 1991). Dick et al (1993) argue that beginning in the 1960s, East Java was able to capitalize on geographical diversity, a large population, the benefits of the 'green revolution' and a generally competent bureaucracy to sustain a 'balanced' pattern of growth and development. A broad industrial base, rising wages and substantial purchasing power also gave East Java an advantage over other Indonesian provinces. East Java was able to capitalise on a relatively large

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manufacturing sector, well-established transport and irrigation networks and a rice growing and cash crop sector responsive to rising demand.

Hill (1987) referred to East Java as the most industrialized province in Indonesia in light of its high proportion (27 per cent) of value-added in the nation's manufacturing sector. East Java's manufacturing capabilities appeared to rely much on high levels of productivity per worker, which offset the lower proportion of the national manufacturing workforce (at 21 per cent) occurring in the province.

Since the 1940s, East Java has been Indonesia's second major centre of industrial development after Jakarta/West-Java and Surabaya, the provincial capital, its second biggest modern city after Jakarta. Benefiting from a business-friendly, dynamic provincial government, East Java's manufacturing industry contributed to a provincial growth rate higher than for the Indonesian economy as a whole. The average annual growth rate in East Java in 1980–1990 was 7.01 per cent and in 1990–1996, 7.54 per cent. These figures were higher than the growth rates for Indonesia, which were 6.04 and 7.27 per cent respectively.

The question arises, why has manufacturing in East Java been left behind in the last decade and become less diversified than manufacturing industry in Jakarta/West Java? The development of East Java's manufacturing industry is not well understood, in comparison with other manufacturing regions in Indonesia (and is quite different from the more export-oriented JABOTABEK[1] region and the rest of West Java). One hypothesis is that East Java does not seem to have taken advantage of international linkages in the deregulation period of the 1990s and has not recovered quickly in the post-crisis period.

In on-going research by Hill and Athukorala[2], the authors contend that the second cities of Malaysia and Philippines, Penang and Cebu respectively, have taken advantage of their links with international capital to nurture sustained economic growth. Penang and Cebu have benefited from strategic positions in or near primary transport routes, modern shipping and airfreight infrastructure and proximity to productive agricultural hinterlands. The two cities more or less share these characteristics with Indonesia's second city, Surabaya. However what distinguishes Penang and Cebu from Surabaya is the high proportion of elaborately transformed manufacturing in the two cities, particularly of electronics goods, which is intended for export. The association of Penang and Cebu with global manufacturing in sophisticated electronics goods and information technology products has stimulated the economies of both centres, and contributed to national economic growth in Malaysia and Philippines. This connectivity with the global economy does not appear to be nearly as pronounced as in the case of Surabaya.

In the same way that Penang and Cebu flourished by virtue of their robust, international orientation, it might be argued that manufacturing industry in Surabaya should have continued to prosper despite the Asian financial crisis, *Krismon*. As Indonesia's second city – a dynamic industrial, commercial and trade hub for East Java and Eastern

[1] JABOTABEK stands for Jakarta, Tanggerang, Bogor, and Bekasi.

[2] Hal Hill and Prema-Chandra Athukorala (personal communication, March 2004)

Indonesia – Surabaya enjoys similar access to a resource-rich agricultural hinterland and above average air, sea and road transport connections. However these attributes have not combined to lift Surabaya's manufacturing performance to a level above that of the national average. We argue that Surabaya's failure to establish strong linkages with international capital and markets stymied industry diversification in East Java and retarded flows of foreign and domestic direct investment to East Java's manufacturing sector.

This paper comprises five sections. The first section introduces East Java's manufacturing landscape and poses the question why has manufacturing in East Java failed to attain its earlier promise as a powerhouse of economic growth for the province. The second section discusses the development of manufacturing in East Java in comparison with other major industrial provinces in Indonesia, in terms of GDP growth, the role of manufacturing industry, employment, manufacturing value added and investment in the pre-and-post crisis periods. The third section identifies East Java's 'winner' and 'loser' industries and describes manufacturing in the province in terms of its geographic location. The fourth section attempts to account for the pattern of manufacturing in East Java. Infrastructure constraints; the investment climate; East Java's financial and banking system and the relationship between central, provincial and local governments following the advent of regional autonomy (*Otonomi Daerah)*, are considered to be the most significant factors. The final section concludes that manufacturing provinces other than East Java possess an export orientation and responsiveness to global demand that gives these provinces an internationally competitive edge over East Java industry.

II. EAST JAVA MANUFACTURING DEVELOPMENT IN COMPARATIVE PERSPECTIVE

While much has been written about the development of national economies in developing countries, remarkably little has been written about their sub-national regions, whether organised as states or provinces. For this reason, this paper has as its focus sub-national regions in the form of provinces.

In the pre-crisis era, East Java's economic growth per annum was higher than that of Indonesia as a whole. However, as can be seen in Table 1, two trends indicate that the growth of manufacturing in East Java showed signs of slowing relative to other provinces from as early as 1980. Firstly, over the period 1980–2002, East Java's manufacturing growth rates were lower than those in Jakarta/West Java. Secondly, in the period after the crisis, the average annual growth of West Java's manufacturing industry was nearly double that of East Java.

Table 1. Comparison of annual GDP growth of Indonesia and selected provinces (percent)

	1980-1990	1990-1996	1998	1996-2002	1999-2002
Indonesia	6.04	7.27	-13.06	1.63	2.97
Jakarta	9.51	8.33	-17.49	1.08	2.70
West Java	7.96	7.67	-17.77	1.99	4.70
Yogyakarta/C-Java	8.05	7.19	-11.69	1.32	2.66
East Java	7.01	7.54	-16.12	1.20	2.79

Source: BPS, (Indonesia, Jakarta, West Java, Yogyakarta, Central Java, East Java) – Statistical Yearbook of Indonesia, Jakarta in Figures, and other provinces in figures, serial publication, calculated by authors.

Based on the structure of East Java's GRDP, it might be expected that from the start of the New Order era, manufacturing industry's share of the province's economy would be at least double that of the agriculture sector (BPS, East Java Statistics 2002). In fact, manufacturing in East Java remained heavily reliant on the 'single division' of goods (food, beverages, and tobacco). In recent years, the dominance of cigarette manufacturing in East Java in terms of its share of the national economy has declined as other provinces have diversified their manufacturing sectors. Viewed nationally, large and medium (L&M) industry contributed more than 90 percent in terms of value added with the remainder being small and cottage (S&C) industry (Table 2). Most of the present discussion is thus focused on L&M manufacturing rather than on S&C manufacturing or industry as a whole.

Table 2. Distribution of value-added of Indonesia's small and cottage manufacturing (2-digit ISIC), 2002

		Small (%)	Cottage (%)	Total (%)	Total (Rp.billion)
31	Food, beverages, and tobacco	*9.88*	*18.95*	*28.83*	7,859
32	Textile, garments, and leathers	*13.46*	*5.43*	*18.89*	5,150
33	Wood, bamboo, rattan, including furniture	*6.83*	*19.77*	*26.60*	7,250
36	Nonmetallic mineral products	*7.47*	*8.12*	*15.59*	4,250
39	Others	*4.24*	*5.85*	*10.09*	2,751
Small & cottage (*9.5 %)*		*41.88*	*58.12*	*100.00*	**27,261**
Medium & large (*90.5%)*					**259,589**
Total manufacturing industry (*100%)*					**286,850**

Source: BPS, Statistics Indonesia – Statistical Yearbook of Indonesia, 2002.

Four provinces have dominated the manufacturing sector of Indonesia's economy: DKI Jakarta; West Java; East Java; and North Sumatra[3]. The last province, although not

[3] The first two provinces may in fact be considered one entity. During the Suharto era, Bekasi was a district of Jakarta, but since the beginning of the Reformasi period, it has separated to form its own Regency. Tanggerang is no longer a district of Jakarta and now belongs to the new Province of Banten, which was created from the former West Java Province in 2001. The three provinces, Jakarta, West Java and Banten, utilise the same infrastructure for carrying our international trade. Exports and imports are handled through Jakarta's Tanjung Priok seaport and Soekarno-Hatta international airport. Most manufacturing industry has shifted from Pulo Gadung in Jakarta to Cikarang in West Java. In order to simplify the present discussion, Jakarta and West Java (including Banten) are considered to be one zone of

considered as important a generator of manufacturing as provinces in Java, has made a significant contribution to manufacturing output, principally in the field of resource-extraction, for instance CPO (crude palm oil), for export. Manufacturing output from these four provinces made up more than 60 percent of the Indonesian economy. Their economic primacy is reflected, not only in their share of GDP but also in their share of MVA (manufacturing value added) to GDP (Table 3). Jakarta/West Java alone contributed around 30 percent to Indonesia's GDP and constituted 35 per cent of manufacturing (L&M manufacturing) value added to GDP in 2001. The second biggest proportion of MVA to GDP was in East Java, which in 2001 had a 31 per cent share.

Table 3. Selected economic indicators for five manufacturing provinces

Provinces	Total Area (km2)	Pop. Density 2000 people/km2	Population 2000 (millions)	GDP 2002 (Rp. trillions)	Ec. growth 1999-2002 (% p.a.)	GDP/capita 2002 (Rp. millions)	Share of MVA to GDP 2001 (%)
North Sumatera	73,587	158	11.6	86.7	3.80	7.3	9.99
Jakarta/West Java	35,261	1,250	44.1	469.0	1.39	10.4	34.68
Yogyakarta/C-Java	35,735	960	34.3	174	2.34	4.9	9.89
East Java	47,922	725	34.8	227.0	2.80	6.4	30.55
Indonesia	1,890,754	109	205.8	1,610.6	3.21	7.6	18.73

Sources: BPS, Statistics Indonesia: Statistical Year Book of Indonesia, 2002 - Annual Medium and Large Manufacturing Survey (several years)
Pop. = Population; MVA = Manufacturing Value Added; GDP = Gross Domestic Product

Three other provinces in Java possess significant concentrations of manufacturing industry; namely Banten, Central Java and Yogyakarta. Central Java's manufacturing sector is much smaller than that of East Java. However, in terms of the absolute value of manufacturing produced, Central Java's manufacturing sector is bigger than that of North Sumatra, although the share to GDP is smaller.

The Role of Investment and Exports

Foreign direct investment (FDI) and domestic investment has had a dynamic effect on the development of manufacturing in Indonesia. In order to accelerate economic growth, the Indonesian Government has given priority to allocating investment to manufacturing as it was considered to produced greater value added. In the period 1985–1990, FDI levels were higher than domestic investment but after 1990, FDI shrunk to levels below that of domestic investment.

A striking feature of East Java's manufacturing sector is the minor role played by foreign investment, which by and large, has tended to flow to other regions in Indonesia (Dick et al 1993). Table 4 shows that FDI and domestic investment is concentrated in Jakarta and West Java. On average, over the period 1985–2001, 15 per cent of Indonesia's FDI was invested in the Jakarta region. If both Jakarta and West Java are considered together, FDI invested amounted to 45 percent of national FDI.

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manufacturing industry.

Table 4. Approved total investments (FDI and domestic) by selected provinces (per cent)

	N Sumatera	Jakarta	West Java	Yogyakarta	Central Java	East Java	Others	Indonesia
FDI								
1985-1990	2.8	16.5	36.7	0.0	9.2	8.7	26.1	100.0
1990-1996	2.0	14.6	29.1	0.2	4.8	17.6	31.7	100.0
1996-2001	4.0	14.7	24.1	0.1	9.9	8.6	38.6	100.0
	3.0	**15.3**	**30.0**	**0.1**	**8.0**	**11.6**	**32.0**	**100.0**
Domestic								
1985-1990	2.4	7.0	42.2	0.7	7.4	6.8	33.5	100.0
1990-1996	26	12.9	29.8	0.5	7.3	8.4	38.5	100.0
1996-2001	2.2	9.9	21.7	0.2	3.5	6.7	55.8	100.0
	2.4	**9.9**	**31.2**	**0.4**	**6.1**	**7.3**	**42.7**	**100.0**
Total								
1985-1990	2.5	9.3	40.8	0.5	7.8	7.3	31.8	100.0
1990-1996	2.3	13.6	29.5	0.4	6.2	12.3	35.7	100.0
1996-2001	3.2	12.5	23.1	0.1	7.0	7.8	46.3	100.0
	2.7	**11.8**	**31.1**	**0.3**	**7.0**	**9.1**	**38.0**	**100.0**

Source: The Bank of Indonesia, Indonesian Financial Statistics, serial publication.

Investment has not been evenly allocated within the province. Between 1968 and November 2002, 81 per cent (Rp 56 trillion) of domestic investment was allocated to six regions in East Java, namely Surabaya, Gresik, Sidoarjo, Mojokerto, Malang, and Pasuruan. Some 63 per cent of FDI (US$ 20.9 billion) was also channelled into those regions.

Although most industrial estates in the Surabaya region are geared to the domestic market, several produce goods for export. For example, at the Ngoro Industrial Park (NIP) located southwest of Surabaya, PT Indonesia Trisembilan produces cigar tobacco filler under the Villiger brand for export to its parent company, Philip Morris in Europe. The company is a US$ 15 million Dutch-Singaporean joint venture and is the biggest single investment at NIP. NIP has a diverse set of resident industries – ranging from Taiwanese aluminium and semi-processed metals manufacturers exporting to markets in European to a South Korean firm producing electric guitars for the US market. More Korean firms are expected to set up in NIP.

Japanese, Korean and Taiwanese firms located at NIP do not regard themselves as footloose industries. They claim to be committed to remaining in East Java because of what they perceive to be the provinces' relatively quiescent labour environment, particularly after enactment of the 2000 Trade Union Act. Like other manufacturing industries in East Java, however, foreign ventures in industrial estates in the Surabaya region are wary of changing regulations laid down by provincial and sub-provincial agencies and the impact of Labour Law 13 of 2003.

In 2002, East Java's exports were worth around US$ 5 billion and made up 60% of East Java's GRDP (BPS figures Oct 2002). Exports are concentrated on two primary markets: Japan (24%) and the United States (16%). As Table 5 suggests, the output of East Java's manufacturing industry is mainly directed to the domestic market with export-orientated production confined to the textile, clothing and footwear and furniture industries. As demand in global markets for these products has slowed in the face of increasing competition from other exporting nations in Asia, there has been a corresponding decline in the share manufactured exports make to East Java's GRDP.

Table 5. Composition of exports, East Java, 2002

Commodity Group	East Java		Jakarta-West Java	
	US$ Millions	%	US$ Millions	%
Primary	***700***	***13.10***	***1,559***	***7.03***
Coffee, rubber, tobacco, tea	108	2.02	89	0.40
Seafoods	411	7.69	118	0.53
Other Primary	182	3.40	1,352	6.10
Manufactures	***4,567***	***85.47***	***19,510***	***88.01***
Food, drink, tobacco	476	8.91	531	2.39
Textiles, clothing, footwear	447	8.37	6,826	30.79
Plywood	154	2.88	134	0.60
Paper & paperboard	745	13.94	721	3.25
Furniture	221	4.13	220	0.99
Chemicals, Pharmaceuticals, plastics	1,181	22.10	1,983	8.94
Metals & Machinery	163	3.05	1,824	8.23
Electronics Equipment	103	1.92	4,279	19.30
Other and unspecified	1,077	20.16	2,992	13.50
Total non-oil	***5,267***	***98.57***	***21,070***	***95.04***
Oil	76	1.43	1,100	4.96
Total	**5,343**	**100.00**	**22,169**	**100.00**

Source: BPS, Indonesia Foreign Trade Statistics 2002, calculated by authors

Why West and not East Java

Manufacturing industry in Central Java and Yogyakarta has grown steadily but remains behind manufacturing in Jakarta/West Java and East Java, especially in terms of its contribution to GDP and value added per worker. Manufacturing in Central Java shares

certain common characteristics with manufacturing in West and East Java: as in West Java, a strong textiles industry may be found and, as in East Java, a significant *kretek* cigarette industry is evident. The common features of manufacturing within the three provinces reflect the historical development of the textile and kretek industries. The production of traditional textiles using handloom technology was pioneered in West Java before moving to other parts of Java whereas the manufacture of kretek cigarettes, having originated in Central Java, in particular the Kudus region, later spread to other provinces. (Sumarno and Kuncoro, 2003)

Why did Jakarta/West Java rather than East Java grow to be the leading manufacturing region in Indonesia? It might be assumed that Jakarta, as the national capital city, possessed every necessary attribute to support a developing economy: skilled labour (many university graduates went to Jakarta together with other job-seekers), a capital market, transportation and communication networks, a seaport, airport, banking system, and central government. Most foreign and domestic investment was allocated to this region. Between 60 and 70 per cent of Indonesia's money supply circulated in the Jakarta megalopolis[4]. When industry in the Special Capital Region (DKI) needed more space for new factories, it relocated to West Java where sufficient amounts of greenfield sites remained available, for example in the Cikarang industrial estate. In terms of employment, Jakarta/West Java's share of the national labour force varied between 60 and 65 per cent over a long period of time. And because Jakarta/West Java possessed the physical infrastructure to access international trade routes, this 'growth pole' recorded faster growth than other regions.

The attributes described in the preceding paragraph gave Jakarta/West Java an important advantage in developing its manufacturing sector. In the pre-Reformasi era centralisation of government was the norm in Indonesia and as the seat of national government Jakarta had the final word in deciding development policies. The second quotation at the beginning of this paper provides an interesting insight on the possible causes for Jakarta/West Java's significantly stronger manufacturing industry profile in comparison with other regions of Indonesia.

West Java received substantial amounts of foreign and domestic investment. This helps to explain why the province's economy grew more rapidly than that of East Java. Manufacturing industry developed significantly and, based on Indonesian Central Bureau of Statistics figures[5], employment creation in manufacturing tripled within 16 years (1986 to 2002) from 670,000 to 2.1 million people. (see Appendix Table A1 and A2). West Java's performance may thus be considered highly creditable. Although afflicted by the crisis in 1998, recovery in West Java after the crisis was rapid; by 1999, the level of employment creation was already higher than in the pre-crisis period.

[4] This estimate is based on discussion at various seminars on the Indonesian economy attended by the authors. The Bank of Indonesia has not officially commented on the subject.

[5] Drawn from Worker/Employees Situation in Indonesia (SAKERNAS) published by the Central Bureau of Statistics (BPS)

East Java also lagged behind West Java in manufacturing for export (refer Table 5), a factor that probably accounts for West Java's more rapid growth in comparison with East Java. East Java manufacturing industry was concentrated in food, beverages, and tobacco, which, by and large, were consumed in the domestic market. Goods manufactured in Jakarta and West Java, principally textiles, chemicals and chemical by-products, motor vehicles and trailers, other transport equipment, and electronics, were mainly items for export. Although East Java diversified its production of manufactured goods, the province chiefly supplied industry inputs for the domestic market; for example, wood and wood products, paper and paper products and chemicals. Much heavy industry in East Java produces semi-processed manufactures for large-scale domestic industry. By way of illustration, paint producers throughout Indonesia use intermediate materials manufactured at the Gresik plant of East Java chemical company, PT PETRO WIDADA[6].

Despite its central role in national policy-making, Jakarta's rate of increase in manufacturing employment was not as high as West Java's. East Java's experience with manufacturing employment was different again. In percentage, as well as in absolute value terms, employment decreased in 1996, two years before the peak of the crisis. Even though manufacturing employment increased in East Java after 1999, the growth rate was not as steep as that in West Java.

Employment, Wages and Value-Added

Table 6 demonstrates a sixfold increase in the number of workers in Indonesia employed in manufacturing between 1975 and 2000. During that period, all provinces absorbed additional workers as a consequence of economic growth. In Jakarta/West Java, the number of workers employed, as a proportion of the total national workforce, increased steadily from 32.78 per cent in 1975 to 47.18 per cent in 2000. Over the same time frame, other provinces experienced a decline in the numbers of workers employed despite an overall increase in the total number of workers employed in Indonesia.

By deflating for estimated consumer price index (CPI), real MVA per worker in Jakarta/West Java tripled within 25 years, while in East Java real MVA per worker quadrupled. In other provinces MVA per worker doubled or even tripled in magnitude.

Before the financial crisis, manufacturing industry in Indonesia experienced strong growth but at the peak of the crisis in 1997-1998 it suffered a marked deterioration in comparison with other sectors of the economy. At that time, manufacturing activity appeared to pause as if to allow absorption of Indonesia's abundant labour force. Commencing in 1999/2000, manufacturing production began to pick up once more although it did not regain its earlier momentum.

Two important phenomena are worth noting here. Firstly, value added per worker in Jakarta is significantly higher than in other manufacturing provinces. Secondly, Table 7

[6] PT Petro Widada's Gresik factory exploded in February 2004 with disastrous consequences, including loss of life.

illustrates the comparative average monthly wages of production workers in selected Indonesian provinces. The monthly wages of workers in the Jakarta-Bogor-Tanggerang-Bekasi (JABOTABEK) region are evidently higher than in other regions.

Table 6. Comparison of the numbers of workers and value added/worker (per cent). Large &Medium manufacturing industry in selected provinces

Province	1975	1980	1985	1990	1995	2000
Number of workers						
North Sumatera	3.21	3.86	5.28	6.29	4.48	3.82
Jakarta/West Java	32.78	36.98	37.07	42.96	45.85	47.18
Yogyakarta	2.15	1.61	1.04	0.88	0.82	0.97
Central Java	23.46	19.00	16.04	13.69	12.73	13.41
East Java	30.67	28.21	24.48	20.44	22.81	19.97
Others	7.73	10.34	16.09	15.74	13.31	14.65
Indonesia (%)	100.00	100.00	100.00	100.00	100.00	100.00
Indonesia (people)	698,244	979,919	1,684,726	2,662,804	4,174,141	4,366,816
Value-added/worker at constant prices (1975) (Rp. thousands)						
North Sumatera	842	1,627	1,809	1,899	2,589	2,393
Jakarta/West Java	1,051	1,802	2,166	2,418	2,965	3,620
Yogyakarta	327	843	700	1,006	1,394	1,274
Central Java	616	1,049	1,428	2,236	1,336	1,213
East Java	785	1,607	1,649	2,099	2,711	3,513
Indonesia	843	1,571	1,883	2,263	2,632	3,205

Source: BPS, Statistics Indonesia – Medium and Large Manufacturing Survey – calculated by author. Constant prices were calculated by estimated the increase in annual inflation (1975 – 1997 = 10%; 1998 = 80%; and 1999 – 2000 = 10%).

Table 7. Average nominal wages of manufacturing production workers (Rp.000)

Regions	2001[1)]	2002[2)]
W Java, Jakarta, Banten	708.85	849.57
Jabotabek	737.55	922.13
C Java & Yogyakarta	330.85	410.57
East Java & Bali	469.95	543.83
Sugresid	559.95	627.87

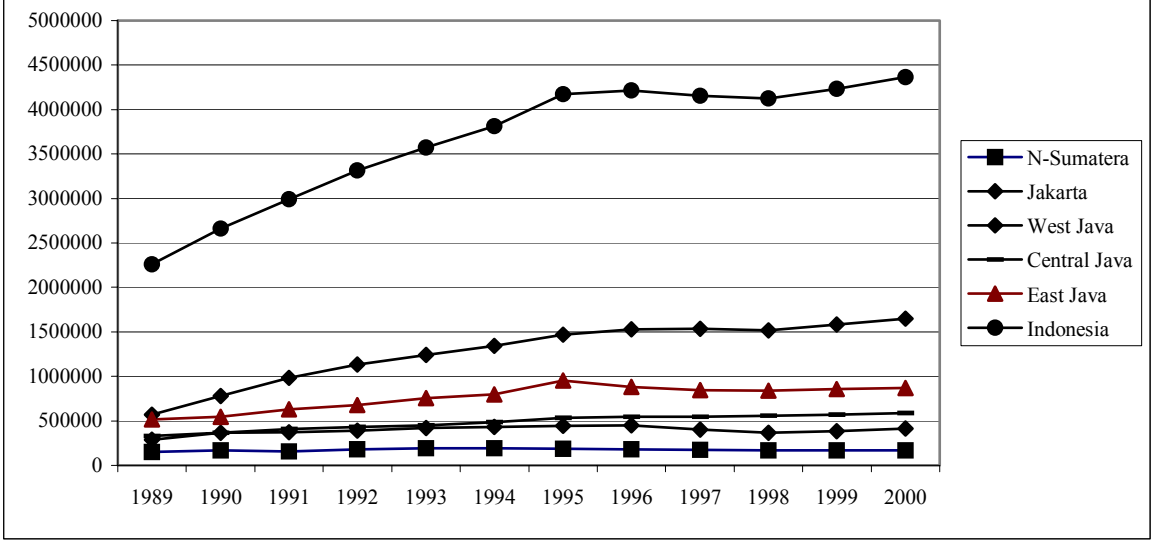
Source: BPS, Statistics Indonesia: Statistical year-book of Indonesia 2002:
[1)] Average of quarter III and IV [2)] Average of quarter I up to III

The preceding paragraphs highlight Indonesia's employment problems during the crisis. In the period 1996-1998, the number of workers employed in manufacturing decreased as a whole in Indonesia[7]. In three provinces (Jakarta, East Java, and North Sumatra) employment in manufacturing decreased significantly (Chart 1). However, immediately following the crisis in 1998-2000, the number of workers in manufacturing employment

[7] Without conducting a full survey, it may be assumed that employment in Indonesia underwent a shift from the formal to informal sector. This assumption is supported by the dearth of social security benefits available to workers in Indonesia. The shift from formal to informal employment may be an interesting topic for further research.

increased in West Java, Central Java and Yogyakarta. Only in North Sumatra was there a decrease in manufacturing employment.

Chart 1. Manufacturing Employment 1990-2000



In terms of employment in manufacturing, West Java performed better than other provinces. In the pre-crisis period, a significant amount of new employment was created in West Java. Manufacturing employment growth in this province in fact increased during the crisis (1997-1998). In the economic recovery period (1998-2000), West Java's manufacturing employment continued to increase. This pattern of employment growth did not occur in East Java. Jakarta and East Java experienced a rapid decrease in employment during the crisis and did not recover quickly. Overall, the combined record of employment in manufacturing in Jakarta/West Java was a fairly good one.

Variation in constant-price MVA per worker between provinces appears to be caused by differences in the structure of manufacturing industry within each province (APPENDIX Table A3). Most employment in manufacturing in North Sumatra and East Java is concentrated in the production of ISIC 31 category goods (food, beverages, and tobacco), where output is commodity-based. This is true particularly in East Java where the most labour-intensive industry is *kretek* cigarette manufacturing. By way of contrast, textile and garment products are significant in West Java. Historically, investment was attracted to the Majalaya district near Bandung where textiles were produced using *ATBM* (*Alat Tenun Bukan Mesin* – manual weaving) techniques. Heavy industry, such as ISIC 34 (fabricated metal products, machinery and equipment), was concentrated in Jakarta/West Java.

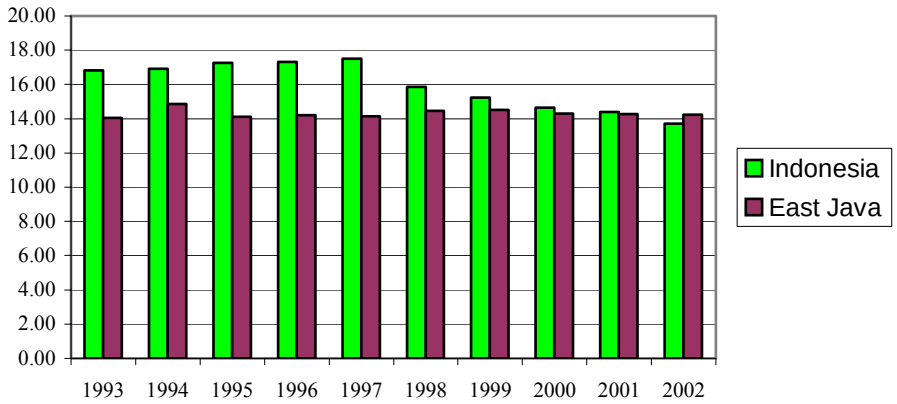
As discussed earlier, possession of different types of manufacturing industry advantaged Jakarta. The availability of supplies of skilled labour and investment allowed Jakarta to develop a motor vehicle and transport equipment industry, rather than relying entirely on

foodstuff or tobacco manufacture. In West Java, on the other hand, inputs of skilled labour gradually transformed the province's existing traditional textile industry into one using more sophisticated manufacturing techniques. While both Jakarta and West Java produced transport equipment, West Java specialised in bus chassis manufacture.

III. MANUFACTURING INDUSTRY 'WINNERS AND LOSERS'

As noted above, East Java as a whole has not performed well in manufacturing in recent years. In the pre-crisis period, 1993-1997, the proportion of manufacturing in East Java compared to that of Indonesia as a whole increased from 16.8 to 17.5 per cent. However, with the onset of the crisis in 1997-1998, the proportion of manufacturing in East Java began to shrink until it attained only 13.7 percent in 2000 (Chart 2).

Chart 2. Percentage of manufacturing industry to GDP in East Java compared with Indonesia - 1993-2000 (Constant prices 1993)



Although the proportion of GDP in East Java remained unchanged over the period, at around 14 percent, the crisis may be regarded as a turning point in East Java's industrial development. What are the reasons for this? Firstly, East Java remained reliant on only one category of manufactures; namely, food, beverages, and tobacco (ISIC 31). Secondly, manufacturing industry in other provinces was more diversified. The final reason, which seems no less important than the other two, is that development of physical infrastructure in East Java did not spread evenly throughout all the province's regencies and municipalities. Particular regions, such as the region known as SUGRESID (ie Surabaya, Gresik and Sidoarjo) experienced faster rates of growth than other regions that continued to suffer from weak infrastructure.

The present make-up of manufacturing in East Java reflects a growing divergence between those industries that are performing well (the 'winners') and those that appear to have declined in importance in recent years (the 'losers'). Amongst the winners one finds food-processing ventures that continue to record strong export growth. One example is PT Pangan Lestari, part of Sekar Group, which is one of East Java's leading

food processing ventures. Thirty to forty per cent of PT Pangan Lestari's principal food lines are exported, mainly to Korea, Japan, Europe and New Zealand. The main products exported are breaded shrimp (15 containers a month) and prawn crackers (5-10 containers). Ninety per cent of breaded shrimp product goes to Japan. Another 'winner' growth industry in East Java is electronics. The removal of 'luxury' tax from electronics goods in January 2003 is likely to benefit East Java electronics manufacturers, for example, PT Maspion. But the electronics industry is footloose and could easily move to another country if investors are unhappy about business conditions.

Among less successful industries that have not maintained earlier promise (the 'losers') are the leather processing and footwear industries that are centred in Sidoarjo and Mojokerto. Footwear manufacturers are concentrated in Mojokerto while leather bags are concentrated in Sidoarjo. According to the Indonesian Footwear Association, by the end of 2002, up to 10 manufacturers had left East Java to re-establish overseas on the grounds that rising costs made their products uncompetitive (*Kompas-East Java Edition*, 1 November 2002).

The leather footwear industry in East Java claims that producers in China and Vietnam have undermined their competitive position and that exports to Hong Kong and Singapore have fallen dramatically. The footwear industry has also had to face the impact of Law 13 of 2003, which governs employee dismissal provisions, worker severance payments, and labour strikes. The industry claims the new law has negatively affected its productivity. PT Panen Raya, a leather footwear manufacturer based in Sidoarjo, typifies the problems. The company closed six of its seven factories in the Surabaya region in 2002, including its largest manufacturing unit in Sidorjo, and by early 2003 operated only one factory. PT Panen Raya is unwilling to work with other established footwear manufacturers in East Java, for example PT Victory Long Age Indonesia, citing an inability to trust other East Java producers.

Furniture manufacturing has suffered a similar decline. Bojonegoro and Pasuruan are the main centres for teak furniture production. In recent years, the industry in Pasuruan has suffered because of rising raw material prices – sixty per cent more than the Perhutani forestry company basic price. Rising timber prices have both reduced the number of craftsmen fashioning furniture in Pasuruan, in comparison with the number of furniture traders, and led to a decline in the quality of finished furniture.[8]

The burgeoning oil and gas sector in East Java offers potential opportunities for local manufacturers. Two natural gas projects that will create foreign investment, infrastructure development and employment opportunities in East Java are the Tuban deposit and the Oyong field located in the Sampang Production Sharing Contract zone. East Java manufacturers producing and supplying mining equipment and consumable items stand to gain from future development of the province's natural resources.

[8] Regional Economic Development Institute (2002)

The Locational Dimension of Manufacturing in East Java

Dick et al (1993) and Dick (2002) contend that while Surabaya was the original manufacturing city in East Java, rapid industrial growth created a Surabaya–Malang corridor. Dick labelled this corridor, the *Pita Pembangunan* (the ribbon of development). Like Dick, Kuncoro's (2001) analysis of the East Java business sector located the main concentration of manufacturing in East Java in what he called *Extended Surabaya*. Actually, the area defined by Dick and Kuncoro is very similar: it comprises Surabaya as its core, and includes those regencies possessing superior physical infrastructure; namely, the area surrounding Surabaya (Gresik, Sidoarjo, Malang, Pasuruan, and Mojokerto). Surabaya's quality transport infrastructure assets consist of: the road tollway connecting Tanjung Perak seaport to Gresik and Pandaan (Pasuruan); Juanda International Airport near Sidoarjo; a major highway connecting Sidoarjo to Mojokerto and Kertosono (under construction); and a highway to Pasuruan.

Manufacturing is found not only concentrated in the Surabaya–Malang corridor (*Pita Pembangunan),* but also spreading to Gresik, Pasuruan, Sidoarjo, and Mojokerto. In this respect, the *Pita Pembangunan* has widened over time. Following the development of infrastructure and the physical requirements of individual factory sites, manufacturing in East Java spread to Pasuruan, Mojokerto, and even to Kertosono (Nganjuk).

East Java's regional economic structure suggests there are benefits in examining its manufacturing profile based on geographic zones. This would seem to be a more simple approach than, for example, describing manufacturing in each of the province's 37 regencies and municipalities (Table 8).

Table 8. East Java Zones and their regencies/municipalities

Western Zone	Central Zone	Eastern Zone
01. Pacitan (R)	01. Surabaya (M)	01. Probolinggo (R)
02. Ponorogo (R)	02. Malang (R)	02. Probolinggo (M)
03. Trenggalek (R)	03. Malang (M)	03. Lumajang (R)
04. Tulungagung (R)	04. Gresik (R)	04. Bondowoso (R)
05. Blitar (R)	05. Sidoarjo (R)	05. Situbondo (R)
06. Kediri (R)	06. Mojokerto (R)	06. Jember (R)
07. Jombang (R)	07. Mojokerto (M)	07. Banyuwangi (R)
08. Nganjuk (R)	08. Pasuruan (R)	08. Bangkalan (R)
09. Madiun (R)	09. Pasuruan (M)	09. Sampang (R)
10. Magetan (R)		10. Pamekasan (R)
11. Ngawi (R)		11. Sumenep (R)
12. Bojonegoro (R)		
13. Tuban (R)		
14. Lamongan (R)		R = regencies
15. Kediri (M)		M = municipalities
16. Blitar (M)		
17. Madiun (M)		

In 1996, at the conclusion of the pre-crisis period of rapid growth, East Java's Central Zone occupied the most significant place in the provincial economy. Fifty-three per cent of the province's economic output - based on GRDP (Gross Regional Domestic Product) – and thirty-six per cent of East Java's manufacturing industry originated in this region.

The Western Zone also played an important role in the provincial economy, viz. thirty per cent of manufacturing value added (MVA). Despite the disparity in area and population between the Eastern and Central Zones (the former being greater in both respects than the latter), the economic significance of the Eastern Zone was much smaller.

As Indonesia's "second biggest" province, East Java boasts a significant variety of manufacturing, especially in small-medium enterprises. For example, in Banyuwangi, originally a predominantly agriculture-based regency, medium industry has developed quickly in recent years, especially in the production of articles supporting tourism in Bali. Pacitan, one of the most isolated areas of the province, is developing a souvenir manufacturing industry, for example in precious stone working, as a means of stimulating tourism. Tulungagung has developed its own areas of specialisation; as an exporter of garments to Africa, and manufacturer of marble. Most Javanese people know that high-quality, affordable leather goods are made in Tanggulangin, Sidoarjo, mostly for export. And people who travel from Surabaya to Bali by bus will be aware of how many different types of snacks and prawn crackers vendors sell along the way. By and large, small-medium manufacturing enterprise in East Java possesses specific and innovative skills supporting business development. Small-medium manufacturers producing for both the domestic and international markets enjoy strong competitive advantages. As a result, in line with an increase in Indonesia's overall labour force, the proportion of workers employed in small-medium manufacturing in Indonesia is increasing.

The foregoing provides useful background for a discussion of the locational dimension of manufacturing in East Java. Although the Western and Central Zones make a major contribution to manufacturing in the province, this does not appear to be the case if looked at from a manufacturing structure perspective. The Western Zone has performed well in manufacturing, but this has been achieved through a heavy reliance on a single product (cigarettes), whereas the Central Zone produces a more diversified range of manufactured goods (see Table 9).

Table 9. Distribution of East Java's economy by zones and sectors – 2001

Sectors	Zones				East Java
	Western	Central		Eastern	
		SUGRESID	Others		
Agriculture	6.91	1.23	2.79	8.44	19.37
Mfg. Industry	9.29	15.81	3.84	1.43	30.37
Cigarettes	8.64	3.88	1.70	0.07	14.28
Mfg. Industry other than Cigarettes	0.65	11.93	2.14	1.36	16.08
Others	11.73	22.89	7.65	8.00	50.27
Total	27.93	39.93	14.27	17.87	100.00

The argument presented here benefits from a more detailed analysis of manufacturing industry divided between the three principal locational zones, with particular emphasis on numbers of workers employed and manufacturing value added.

East Java's thirty-seven regencies and municipalities differ enormously in size (as measured by population, worker skill levels, area, the structure of manufacturing industry and infrastructure). All these factors contribute to the diversity found among the province's regencies and municipalities. For example, Banyuwangi in the Eastern Zone is the largest regency in terms of area (5,783 km2) with a population of 1.6 million people (4.5 per cent of the East Java total). Located near Bali, Banyuwangi achieved a GRDP of only Rp 5.16 trillion in 2001, of which a mere 5.15 per cent was derived from manufacturing. Neighbouring Jember, with a marginally bigger economy than Banyuwangi, produced just 7.59 per cent of East Java's manufacturing output in the same year. In terms of area and population, Sidoarjo in the Central Zone is much smaller than Banyuwangi. However, Sidoarjo achieved a GRDP of Rp 12.46 trillion in 2001, with manufacturing contributing 52.36 per cent of the total. At the other end of the scale, Pacitan (on the edge of the Western Zone and close to Central Java) has a small GRDP of less than Rp 1 trillion of which only 3.6 per cent comes from manufacturing, particularly the handicraft production of precious stones.

As noted above, the Central Zone, with only 13 per cent of the area and 30 per cent of the population of the province is the dominant zone in East Java. The manufacturing sector in the Central Zone employs 70 per cent of the province's labour force, creates around 70 per cent value-added and produces more than 75 per cent of its economic output. Compared with the East Java economy as a whole, the Central Zone produced 56 per cent of the province's GRDP.

Based on two variables (value added and employment), manufacturing industry in 2000 was concentrated in the Western and Central Zones, especially in the SUGRESID region (Table 10). Manufacturing accounted for more than 76 per cent of the Central Zone's output (Rp 86 trillion) and 19.1 per cent of output in the Western Zone. Manufacturing accounted for only a small proportion of the Eastern Zone's output (less than 5 per cent). Manufacturing value-added seems somewhat differently distributed within the province but is clearly concentration heavily in the two Central and Western Zones. The Central Zone accounts for more than 70 per cent of the province's value-added and the Western Zone account for almost 34 per cent. However, if employment is considered, a more 'even' distribution is evident. The percentage of workers employed in the three zones was 16.8; 70,1; and 12.6 per cent respectively.

At the two peripheries of the province (ie the Western and Eastern Zones), around 70 per cent of workers were employed in ISIC 31 (food, beverages, and tobacco) industry. However in the Central Zone, the same ISIC industry category accounted for only 25 per cent of all manufacturing employment. Around 16 per cent of employment in the Central Zone was taken up by ISIC 35 (chemical, petroleum, coal, rubber, and plastic products) industry. The reasons for this pattern appear clear-cut. Food, beverages, and tobacco appear concentrated in the Western Zone, whereas the Central Zone houses a concentration of heavy industries, such as chemical and plastics and related by-products.

Table 10. Comparison of employment and manufacturing value-added

ISIC Code	Employment (thousands)					Employment (%)				
	W. Zone	C. Zone		E. Zone	Total	W. Zone	C. Zone		E. Zone	Total
		SUGRESID	Others				SUGRESID	Others		
31	105	77	78	74	335	71.6	18.6	39.1	67.1	38.4
32	11	78	35	7	132	7.3	18.8	17.7	6.8	15.1
33	14	52	29	8	103	9.4	12.5	14.5	7.1	11.8
34	3	33	9	5	50	2.1	8.0	4.4	4.7	5.8
35	5	75	25	11	117	3.4	18.2	12.5	10.2	13.4
36	5	24	4	3	36	3.3	5.7	2.1	2.7	4.1
37	0	10	2	0	12	0.0	2.4	1.0	0.0	1.4
38	3	59	13	1	76	1.8	14.3	6.6	0.9	8.7
39	1	6	4	1	13	1.0	1.5	2.2	0.5	1.4
Total	146	415	201	110	872	100.0	100.0	100.0	100.0	100.0
(%)	16.8	47.6	23.0	12.6	100.0					
	MVA (Rp Trillion)					MVA (%)				
31	12.8	10.2	3.6	0.9	27.5	91.0	35.9	46.4	56.1	53.1
32	0.1	1.8	0.9	0.3	3.0	0.7	6.4	11.0	17.4	5.9
33	0.1	1.1	0.5	0.1	1.8	0.7	3.9	5.9	6.3	3.4
34	0.2	5.6	0.7	0.1	6.6	1.3	19.8	8.7	9.0	12.7
35	0.1	3.2	1.3	0.1	4.7	0.4	11.4	16.0	9.6	9.0
36	0.7	0.9	0.2	0.0	1.7	4.8	3.1	2.1	0.8	3.3
37	0.0	2.9	0.2	0.0	3.2	0.0	10.3	2.9	0.0	6.1
38	0.1	2.2	0.5	0.0	2.9	1.0	7.9	6.0	0.4	5.5
39	0.0	0.4	0.1	0.0	0.5	0.2	1.3	1.0	0.3	0.9
Total	14.1	28.3	7.9	1.5	51.8	100.0	100.0	100.0	100.0	100.0
(%)	27.2	54.7	15.2	3.0	100.0					

2-digit ISIC (International Standard for Industrial Classification) codes

31 Food, beverages, and tobacco
32 Textiles, garments, and leathers
33 Wood, bamboo, rattan, willow and the like, including furniture
34 Paper and paper products, printing and publishing
35 Chemical, petroleum, coal, rubber, and plastic products
36 Nonmetallic mineral products, except products of petroleum and coal
37 Basic metal industries
38 Fabricated metal products, machinery and equipments
39 Other manufacturing industries

The Dominance of *Kretek* Manufacturing

In terms of the distribution of 3-digit ISIC groups, each zone shows a slight variation, as is evident in Table 11. Measured against employment and value-added, ISIC 314 (processed tobacco and cigarette flavours) industry is dominant in the Western and Central Zones. In the Western Zone, value-added ISIC 314 increased sharply from 56 per cent in 1975 to more than 85 per cent in 1980, although in 1980-2000, ISIC 314 value-added remained stable. ISIC 314 remained the dominant ISIC ranking in the Central Zone but its share of employment and value-added decreased gradually. This decrease was matched, however, by an increasing in the importance of other major ISIC groups in the Central Zone, for example textile manufacturing. This transition differentiated the Central and Western Zones. The Western Zone retained a high proportion of resource-based industry, for example cigarette production.

Tobacco and cigarette processing is important in Kediri, located in East Java's Western Zone. Very small in area, Kediri recorded a GRDP of Rp16.4 trillion in 2001, of which 78.27 per cent derived from manufacturing. The main industry in Kediri is *kretek* cigarette production and the dominant producer is PT Gudang Garam. Since the 1990s, the company is believed to be the largest cigarette producer in Indonesia (Sumarno and Kuncoro, 2003) and Indonesia's highest corporate taxpayer (McMichael, 1997). In the absence of production from Gudang Garam's 'giant' cigarette factory, Kediri's GRDP was estimated to have amounted to only Rp3.9 trillion in 2001.

In comparison with the Western Zone, the Central Zone possesses a much higher concentration of modern heavy industry. However, kretek manufacturing also features in the Central Zone where there is also a sizable *kretek* factory owned by PT HM Sampoerna. Other than the big two *kretek* producers, there are hundreds of medium-sized *kretek* factories, for instance the *Reco Pentung* factory in Tulungagung. *Kretek* cigarette factories are located throughout the Western and Central Zones increasing their share of East Java's labour force employed and value-added.

Table 11. The dominant 3-digit ISIC groups in the Western and Central Zones, 1980 and 2000 (%)

3-digit	1980				2000			
ISIC	Western Zone		Central Zone		Western Zone		Central Zone	
	Employment	MVA	Employment	MVA	Employment	MVA	Employment	MVA
314	56.8	85.3	19.7	33.5	48.5	85.0	13.2	21.4
311	28.3	12.4	14.5	11.7	18.9	5.4	7.3	9.1
312	1.6	0.2	4.7	1.9	4.0	0.5	4.2	7.1
321	4.9	0.6	14.3	6.4	1.8	0.1	4.8	3.0
341	0.8	0.1	1.8	0.9	1.9	1.3	5.1	16.6
352	0.4	0.2	7.0	5.7	0.8	0.1	3.2	3.9
Others	7.2	1.3	38.0	39.9	24.2	7.5	62.3	39.0

314 Processed tobacco and cigarette flavours; 311/312: Food and beverages
321 Textiles; 341: Paper, paper products, and the like; 352: Other Chemicals

Light and Heavy Industry

Light manufacturing comprises mainly production of basic consumer goods while and heavy industry consists of the production of industrial supplies, intermediate manufactured goods and sophisticated consumer goods (Kirkpatrick, Lee, and Nixon 1984:17). In East Java, a large number of firms, ranging from small-medium to large manufacturing enterprises, occupy the major 3-digit ISIC industry groups. ISIC 311 (food and beverages) is next in importance after processed tobacco and cigarettes in the Western Zone, and considered significant (in terms of its share of employment and value-added) in the Central and Eastern Zones.

As the East Java economy has grown, the demand on heavy industries to produce intermediate and capital goods for industry has increased. The structure of East Java industry between 1980 and 2000, based on broad categories of 'light' and 'heavy' industry, can be seen in Appendix Table A4. The data shows that in the pre-crisis period, manufacturing in East Java relied heavily on light industry with heavy industry occupying only a small place in the province's industry make-up.

Beside light industry products such as cigarettes and food, the production of paper and paper goods (ISIC 341) representing 'heavy' industry, has increased dramatically. Historically, this sort of manufacturing was located in Probolinggo at the state-owned *Kertas Letjes* factory. As manufacturing industry has developed in East Java, new productive plants in this major ISIC group have appeared, mostly in the Central Zone. PT Tjiwi Kimia in Sidoarjo is one example. Privately owned factories producing paper products were also set up in Surabaya, Gresik and Sidoarjo.

Despite a long-term decline in its share of manufacturing during the twentieth century, light industry remained the leading industry category in 2000. At the same time, in comparison with other zones, the Central Zone retained a high proportion of heavy industry, as can be seen in Table 12.

As discussed above, the division of East Java into three principal zones is based on the spatial distribution of manufacturing among 37 regencies and municipalities. By regressing[9] independent variables for the years from 1975 to 2001 and calculating the dependent variables of employment, value-added, and output as a percentage for the whole province, the coefficient of regression in terms of employment β was 0.873 and R^2 was 0.933; for value-added, β was 0.851 and R^2 was 0.720; and for output β was 1.051 and R^2 was 0.947. The results all approximate 1, and are highly significant with a high R^2. This indicates a long-term concentration of manufacturing in the Central Zone from before the Asian financial crisis through to the post-crisis period.

[9] The three similar regressions are $Y = \alpha + \beta X \div \varepsilon$ where β is a coefficient of regression with X = year 1975, α = year 2001 and Y = percentage of employment absorbed in the Central Zone; in the second and third, Y is applied to value added and output respectively.

Table 12. The structure of East Java's manufacturing value added (MVA) by zones, 1980,1985, 1990, 1995, 2000, at current prices

Zones	1980	1985	1990	1995	2000
Light Industry					
Western	38.8	34.8	35.9	32.8	25.2
Central	33.2	30.6	32.9	33.6	38.7
Eastern	5.3	6.7	4.7	2.8	2.5
	77.3	**72.1**	**73.5**	**69.2**	**66.4**
Heavy Industry					
Western	0.3	0.6	0.8	1.5	2.0
Central	20.8	24.7	23.9	28.8	31.1
Eastern	1.5	2.6	1.9	0.5	0.5
	22.7	**27.9**	**26.5**	**30.8**	**33.6**
East Java	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(Rp trillion)	0.7	1.8	4.8	17.4	51.8

A multiple discriminant analysis (MDA)[10] was used to test for a three-way breakdown of industry zones in East Java , featuring the employment coefficient of specialization, LQ_a, (the agriculture location quotient), and LQ_m (manufacturing industry location quotient). The analysis suggested that 64.8 per cent of the original grouped industry examples were correctly classified. The result of the discriminant analysis was only fair. Two factors accounted for this result. Firstly, the Central Zone had access to relatively superior physical infrastructure, such as a major seaport, international airport, internodal highways, a sophisticated communication network and banking system. The Western Zone had various endowments supplying raw materials, such as tobacco. Secondly, the Western and Eastern Zones are broadly similar in terms of the structure of their agriculture sector, and the Central Zone physically separates these two zones.

[10] The MDA formula is $Z = W_1X_1 + W_2X_2 + W_3X_3$, where X_1 = employment coefficient of specialization of 37 regencies/municipalities; X_2 = LQ agriculture sector of 37 regencies/municipalities; X_3 = LQ industrial sectors of 37 regencies/municipalities. Coefficient of specialization (CS) is the simplest measure for determining the degree of diversification a set of industries within a certain region (regencies/municipalities). It is measured from a set of industries in a certain regency/municipality to a larger benchmark (the East Java province). CS is calculated by subtracting for each industry (3-digit ISIC), the percentage share of an industry in the East Java from the percentage share of the same industry in the certain regency/municipality. Then, either the positive or the negative differences are summed and divided by 100. CS varies from 0 (perfect diversification) to 1 (perfect specialization). As usually, the real value of CS is in between them.

The formula of LQ is: $LQ_i = \frac{(X_i^N / X^N)}{(X_i^R / X^R)}$

X_i^R = output of sector i in province R; X^R = total output in province R; X_i^N = output sector i of sub-province; X^N = total output of sub-province. The data were calculated from sectoral GRDPs (Gross Domestic Regional Product) of all 37 regencies/municipalities, but the stressed was only for two main sectors: agriculture and manufacture. These two were the biggest sector in the East Java.

IV. EXPLANATIONS FOR THE PERFORMANCE OF EAST JAVA'S MANUFACTURING INDUSTRY

A number of possible explanations may be adduced to account for the failure of East Java's manufacturing industry to keep abreast of manufacturing in other Indonesian provinces, and become more diversified. While not constituting an exhaustive list, several factors appear to have contributed to East Java's laggard manufacturing sector: physical infrastructure constraints, a weak banking and investment climate, a narrow export base and government policy. We discuss each in turn.

Infrastructure

Constraints on the capacity of East Java's seaports, airports, road networks and power generation all appear to have affected the growth of manufacturing in the province. East Java's transport infrastructure is overwhelmingly concentrated in Surabaya - a consequence of the city's long history and its role as a trading hub for the whole of eastern Indonesia. However, Surabaya's transport infrastructure suffers through lack of attention to upgrading and modernization. East Java's allocation of funds for provincial development is small in comparison to routine budget expenditure.

A series of focus group discussions held in October 2003 by the World Bank with the private sector throughout East Java highlighted infrastructure as a significant business constraint. Large enterprises identified poor road maintenance, difficult access to industrial estates, insufficient power supply and an expensive yet insufficient water supply as key infrastructure problems, while small businesses identified the negative impacts of traffic congestion on distribution and the need to supply their own captive power to compensate for the unreliable electricity supply. (Jakarta Post - Opinion and Editorial, 1 September 2004).

Seaports

East Java's principal maritime gateway is the port of Surabaya at Tanjung Perak. Siltation in the Madura Straits, which requires regular dredging, poses a major physical constraint to the port's operational effectiveness. The owners of the port, the Indonesian Port Corporation III, are overseeing a project, known as the Kali Lamong project, which involves deepening the Strait's approach channel to 9 metres. The Surabaya Container Port (TPS) however is not affected by siltation problems as it is located nearer the entrance to the approach channel.

According to Ray and Blankfeld (2002), Tanjung Perak is located too close to its main competitor, the port of Jakarta at Tanjung Priok, to serve as an effective second trans-shipment port in Indonesia. Surabaya's port is not efficient in comparison with Jakarta and faces difficulties in generating significant operating profit to allow the port to grow. Although Surabaya levies a competitive US$93 per vessel Terminal Handling Charge (THC), compared to US$150 THC in Jakarta, Surabaya port authorities believe they may need to impose supplementary levies on cargo throughput to generate sufficient revenue

to cover operating costs and make a profit. The port of Lembar in Lombok has already introduced additional levies to increase income.

TPS is about two-thirds the size of the Jakarta International Container Terminal (not counting the Koja extension). In 2002, ninety ships a month called at TPS and the port handled one million TEU, demonstrating 8 per cent annual growth. This was a good result, although the pre-crisis figure was 15 per cent annual growth. The average ship capacity berthing at the Terminal is 1000 TEU. The rail connection at TPS is not considered efficient with only 3 boxes being handled a day at the railhead. Trucking is the only efficient means of delivery with road transport handling about 2,000 boxes a day.

TPS has had only one tariff increase in the last five years. TPS operator, P&O Australia, claims that TPS is competitive as its one-day berthing window is cheaper than Hong Kong and Japan while being comparable to Singapore. Ray and Blankfeld argue that P&O paid a high price to obtain the concession to operate TPS and the company is required under the terms of its contract to make substantial annual payments to the port owners (the Indonesian Government). P&O's contractual obligations mean that the company has few incentives to pass on cost savings to users of the facility.

Roads and Bridges

Road traffic congestion is a growing impediment to the smooth flow of people and goods throughout East Java. The East Java Development Planning Agency (BAPPEPROP) has proposed a five-point strategy for boosting the provincial economy that relies mainly on upgrading road and bridges. The strategy calls for completion of the Surabaya-Madura Bridge; upgrading the southern arterial roadway; and construction of a Surabaya-Mojokerto tollway.

An October 2001 World Bank-funded study, the Java Arterial Road Network Study (JARNS), drew attention to growing traffic congestion in the region around Surabaya The study proposed upgrading the Probolinggo-Banyuwangi section of the Java Main Trunk Network to a minimum 7 metre width standard, although a four-lane road was considered not warranted. JARNS found that private sector-funded toll roads would alleviate road traffic congestion. Financially feasible tollways could be constructed between Gempol and Malang, Gempol and Pasaruan and Surabaya and Mojokerto, by 2010 or 2015. A further Surabaya Western Bypass toll road may be feasible by 2010. The JARNS study identified substantial private sector interest in possible toll roads, including an intra-city private sector-funded toll road in the City of Surabaya.

After a prolonged delay, work has commenced on the SURAMADU Bridge connecting Surabaya with Madura. The bridge is intended to reduce pressure on the existing ferry service and link new industrial sites on Madura to the mainland. Construction, which is expected to be completed in 2006, commenced simultaneously on the Surabaya and Bangkalan sides of the Madura Strait. Funding for the project comes from the central

government in the form of Special Purpose Grants (*Dana Alokasi Khusus*), Kuwaiti loans and from local investors.

In contrast to existing and planned road arteries in the northern part of the province, road infrastructure along the south coast of East Java remains undeveloped. In the first year of decentralization in 2001, 8 regencies (Pacitan, Trenggalek, Tulungagung, Blitar, Malang, Lumajang, Jember, and Banyuwangi) signed a memorandum of understanding on the development the southern part of the East Java. However the MOU has not resulted in any concrete projects to overcome the transport deficiencies in the area. To develop the southern-part of East Java, improved transport infrastructure is required to facilitate distribution of raw material and manufacturing products within the southern regencies. For example, a modern canned tuna facility in Pasuruan (Central Zone) could source commodity inputs from the Southern Ocean.

Airports

Air transport infrastructure facilities have been slowly up-graded in recent years but remain below the standard that might be expected of Indonesia's second city. Passenger throughput at Surabaya's Juanda Airport has fluctuated considerably since the Asian financial crisis. Until 1997, Juanda airport (domestic and international) was handling in the vicinity of 70,000 aircraft a year (arrivals and departures). In the wake of the crisis, the number of aircraft handled dropped to 41,057 in 1998. Since 2000, there has been a rebound in traffic with 66,275 aircraft arrivals and departures in 2002. This compares with the 46,100 aircraft movements at Denpasar's Ngurah Rai airport in 2002. That Surabaya remains Indonesia's second busiest airport reflects Juanda airport's important role as an air hub for Eastern Indonesia. After a prolonged period of planning and review, work has commenced at Juanda on a second runway and terminal facility that is being built with Japanese private and government funds.

Electricity

The limited capacity of East Java's electricity generation and supply network has for some time imposed an important infrastructure constraint on manufacturing in the province.[11] East Java's electricity charges are reportedly high in comparison with Jakarta/West Java and hence impact on manufacturing costs. Demand for electricity in East Java is growing at a rate of 5 per cent per year and a gap has been created between peak electricity load and capacity to supply. It was also reported that the imbalance between electricity demand and supply is likely to affect the province's industrial output in 2004 (Jawa Pos, 2 January 2003).

Finance and banking

East Java's banking sector is skewed towards retail banking rather than providing credit for small and medium enterprise development. Surabaya holds a dominant position in East Java's banking infrastructure, housing the majority of the province's 1,150 domestic,

[11] Yamashita (September 2002).

foreign and joint venture banks. Domestic commercial banks in Surabaya control 62 per cent of total bank deposits held in the province. Bank Mandiri, Bank Negara Indonesia (BNI) and Maspion Bank are the top three banks.

Foreign banks, representing about 9 per cent of banks in East Java, are not considered to play a strong role in lending for industrial development. Eleven foreign banks currently operate in Indonesia and maintain representative offices in Surabaya, including ABN-Amro Bank, Standard Chartered Bank, HSBC, Citibank and Australia's Commonwealth Bank. The foreign banking sector offers a range of products designed to appeal to established large corporate customers, eg credit cards, trade finance, export credit, project finance and investment products. The newest foreign bank in East Java is the Commonwealth Bank which opened a retail branch Surabaya in April 2003. It derives most of its income from private banking, especially in home and car loans.

Investment climate

The perceived hidden cost of investing in East Java may be a factor that has stymied growth in manufacturing. According to Regional Autonomy Watch's 2003 Survey of Regional Investment Attractiveness, three *Kabupaten/Kotamadya* in East Java (Kediri, Malang and Sidoarjo) rank among Indonesia's 20 most attractive sub-provincial locations for investment (8th, 15th and 17th respectively). However, the survey found that illegal levies were an integral feature of investing in all the regions examined. In Sidoarjo for example, up to 36 per cent of manufacturing enterprises were aware of some form of levy imposed by local police while 27 per cent of businesses claimed to have been targeted by 'social organisations' soliciting donations.

As a result of these 'informal' constraints on investment, sub-provincial governments have had to be inventive in offering incentives to potential investors to their regions. Both the Sidoarjo and Kediri Kabupaten administrations have set up industrial estates to attract industry to locate in their regions.

East Java planners have strongly encouraged domestic and foreign investment in industrial estates. In East Java, the output of industrial estates is predominantly intended for the domestic market. East Java boasts four established sites: SIER (Surabaya Industrial Estate Rungkut), Ngoro Industri Persada (NIP) in Mojokerto, PIER (Pasuruan Industrial Estate Rembang) in Pasuruan, and most recently, KIM (Kawasan Industri Maspion) an industrial estate developed by Maspion Group which is located between Surabaya and Gresik.[12] All of these industrial estates support elaborately transformed manufacturing.

The Impact of Government Policy

Government policy has had a major impact on the development of manufacturing industry in East Java. As Dick et al (1993) noted, East Java's success in social and

[12] PT Maspion is located in Sidoarjo and employs over 30,000 people in consumer and aluminium goods manufacturing.

economic policies was at least in part attributable to a professional bureaucracy and the perceived legitimacy of the provincial administration.

In 1984, the East Java Provincial Agency for Manufacturing *(Dinas Perindustrian Daerah Propinsi Daerah Tingkat I Jawa Timur*) introduced a Master Plan for the development of manufacturing industry in the province in Law Number 5. Article 20, paragraph 1 of this Law stated that: "The government may determine growth poles and manufacturing locations which conform with the goal of the National Archipelagic Concept (*Wawasan Nusantara*)". Through the Law, the East Java Government sought to establish growth poles for manufacturing, "…not considering industry-specific resources only, but also other development inputs, for example human resource factors, geographic location factors, infrastructure, and other supporting factors".

However the advent of regional autonomy (*Otonomi Daerah*) in 2001 has altered the inter-relationship between the different levels of government in East Java and weakened the role of policy-makers at provincial level, including with respect to the formulation of industry policy. Before decentralisation, East Java's BAPPEPROP, the provincial development planning board established by the provincial government, had a dual role of policy maker and development planning coordinator. [13] Decentralization has changed BAPPEPROP's role in the planning process, from an essential element linking the provincial government with sub-provincial administrators to that of an advisor to the various *Kabupaten* and *Kotamadya* within the province.

Under regional autonomy, *Kabupaten* and *Kotamadya* administrations in Indonesia have a key planning role and more authority than provincial governments. As has occurred in other parts of Indonesia, sub-provincial administrations in East Java have used their authority to formulate policy independently of the provincial government, particularly in the field of taxation and regulation. At the same time, the provincial government has attempted to maintain its influence on industry by introducing regulations and local levies (*Pendapatan Asli Daerah* - PAD), many of which duplicate regulations that have been issued by *Kabupaten* and *Kotamadya* governments. As a result, many economic activities are doubly burdened with identical or similar levies.

It may be argued that increasing recourse to PAD levies on the part of the East Java provincial and sub-provincial administrations is likely to hinder manufacturing growth. According to a recent survey, 58 per cent of businesses in Sidoarjo complained that increased taxes and levies under decentralisation posed a burden on their operations.[14] Food manufacturer, Nestle, for example, paid up to Rp 80 million to fulfil a local government requirement to renew a 'disturbance permit'. There is a danger that PAD levies will become an impost on the most profitable industries, such as cigarette manufacturers. PT Gudang Garam, for example, contributes Rp 5 billion to Kabupaten Kediri's coffers each year in local taxes.[15]

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[13] Pratono (2004)

[14] (Agus Pramusinto 2004) Paper presented at Asian Studies Association of Australia National Conference, Canberra, 1 July 2004.

[15] Author's fieldnotes (McMichael, 2003). As the country's highest corporate taxpayer, PT Gudang Garam

While it is still too early to speculate with confidence, it seems reasonable to assume that regional autonomy in East Java will encourage sub-provincial administrations to become more competitive in offering investment incentives. This could result in an increased variety of manufacturing industry policy within the Province. Whether the emergence of a plethora of new investment and manufacturing policies would be attractive to new investors remains to be seen.

One area where government policy in East Java has failed to create an enabling environment for the nurturing of manufacturing is in the field of industry research and development. A lack of adequate government guidance and financial support has contributed to minimal local R and D inputs in the manufacturing sector and a dearth of innovative product development. Industry in East Java relies heavily on foreign technology inputs and modern management precepts such as Total Quality Control and just-in-time inventories. Surabaya hosts the PT PAL shipyard, which during the Soeharto era, was Indonesia's leading marine design innovator. However, there has been little transfer of technology from this national institution to local manufacturing entities.

V. CONCLUSION

The foregoing analysis suggests industrial development in East Java does exhibit special characteristics by virtue of its historical growth and largely domestic orientation. The story of manufacturing industry in East Java is basically one of failure to take advantage of considerable resource endowments and diversify into international markets. Particularly since the Asian financial crisis, East Java's manufacturing sector has not performed as well as other similarly well-endowed regions in Southeast Asia and has fallen behind some other provinces of Indonesia in comparative terms. The province's considerable physical infrastructure endowments; the educational level of attainment of its population[16]; and its public sector tradition of sound economic and financial management stand out as factors that should have propelled East Java manufacturing to a position of regional if not international significance. That this has not occurred may be explained in terms of both internal and external factors.

Within East Java, allocation of foreign and domestic investment in transport and power generation infrastructure, two key elements in the growth of an efficient manufacturing industry, has been largely centred on the SUGRESID region surrounding Surabaya. Little government revenue has been made available to develop infrastructure in other less dynamic regions of the province. This pattern of concentrating infrastructure spending in the greater Surabaya economic region has had the effect of tying up the province's manufacturing activity in its economic heartland. However, concentrating manufacturing in the Surabaya region has exacerbated an existing transport bottleneck and disrupted the timely distribution of East Java's industrial goods to domestic and international markets.

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returns around Rp 1 trillion in excise to the Indonesian government.

[16] Jones (1993) suggests the level of attainment in primary and secondary schooling was below the rest of Indonesia until the 1970s but increased through the 1980s to match that for Indonesia as a whole.

It will be difficult for East Java to improve its international competitiveness to any substantive degree if the province's manufacturing output remains dependent on a few ISIC categories into the foreseeable future, principally food, beverages, and tobacco. East Java's principal manufactured exports are precisely those subject to increasing competition from low-cost industrial production in other Asian countries. A lack of a diversified industrial base, a narrow range of exports and the failure to establish strong linkages with international capital and markets is likely to continue to retard foreign and domestic investment flows into the manufacturing sector.

At the same time, Surabaya will continue to be an important supplier of household items, consumables and equipment to markets throughout eastern Indonesia and for major resource exploitation projects in Sulawesi, NTT Province and Papua. In East Java, strong brand loyalty amongst consumers means that local companies are able to sustain solid profits through being identified as East Java entities. For example, in recent years Jawa Pos Group, originally relying on its flagship Surabaya daily newspaper, has diversified its business interests into publishing, tourism, and property. The firm's commercial success owes much to its popular identification as an East Java company.

It would be reasonable to expect that levies on industry, both legal (eg PAD) and illegal (eg wild harvest – '*pungutan liar*') have had a negative impact on manufacturing in East Java. It is difficult to determine, however, to what extent these imposts have constrained growth in manufacturing compared with other provinces where such levies also abound.[17]

Political economy considerations have had a distinct bearing on East Java's manufacturing landscape. It is widely believed that two of the most important power brokers in East Java, the conservative socio-religious Muslim organisation, Nahdlatul Ulama (NU) and the military (TNI), both provide finance and political protection for certain industries in the province. For example in Trawas south of Surabaya, the NU has an investment in a salak fruit and banana processing enterprise. As the influence of political parties in national and provincial politics grows, it is likely that more political pressure will be exerted on sub-provincial legislatures to formulate policy to the advantage of certain manufacturing ventures associated with particular party interests (for instance with respect to spending on infrastructure).

National government policies have favoured Jakarta/West Java as a location for manufacturing investment because of the region's well-developed infrastructure, large pool of skilled labour, easier access to capital and dominant hold on international trade and investment flows. The promotion of industry growth in regions nearest Jakarta may help to account for the relatively poor performance of East Java's manufacturing sector in comparison with Jakarta/West Java.

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[17] Leading East Java processed food manufacturer, PT Pangan Lestari, is unconcerned by levies imposed on it by Kabupaten Sidoarjo. The company considers its PAD payments are not excessive and that the introduction of regional autonomy has not increased its fiscal obligations to local government. (Interview with Business Development Manager, PT Pangan Lestari, Sidoardjo, 24 April 2003). For a more in-depth discussion of the effect of illegal fees and charges on manufacturing, see Bambang Brodjonegoro (2004).

The ‘balanced development’ paradigm put forward by Dick and other researchers in the 1990s still rings true for East Java. The province survived the Asian financial crisis in relatively good shape by national standards because of several factors: a lesser dependence, in comparison with Jakarta, on international financial markets and highly exposed national banks; a more flexible, smaller-scale and domestic-oriented industry base; and an absence of the corrupt business practices of the crony capitalists associated with the Soeharto regime during the economic boom years of the mid-1990s. But the development of a broad industrial base in East Java has not led to a diversification of the province’s manufacturing sector and forging of links with international markets. Although other manufacturing-intensive provinces of Indonesia were more affected by the crisis, their export orientation and responsiveness to changes in global demand have given them an internationally competitive edge over East Java industry.

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APPENDICES

Table A1

Number of *employees* in selected provinces

	1986	1990	1992	1994	1996	1998	1999	2002
Manufacturing								
North Sumatera	97,310	144,702	182,597	213,256	261,180	228,267	230,237	230,038
Jakarta	426,512	557,646	477,753	617,118	539,760	530,025	616,272	588,416
West Java	669,838	1,203,510	1,505,127	1,962,642	1,986,711	1,741,014	2,173,871	2,069,014
Yogyakarta	48,128	71,609	66,514	73,367	76,310	74,472	81,779	116,631
Central Java	658,274	876,471	944,475	1,361,891	1,284,201	1,193,412	1,409,793	1,591,906
East Java	796,845	941,993	1,148,507	1,485,926	1,206,675	1,306,728	1,405,030	1,643,691
Other	408,581	499,733	545,451	782,177	861,540	881,617	779,852	1,701,605
Indonesia	*3,105,488*	*4,295,664*	*4,870,424*	*6,496,377*	*6,216,377*	*5,955,535*	*6,696,834*	*7,941,301*
Other								
North Sumatera	772,403	928,843	877,394	1,169,830	1,321,575	1,438,471	1,341,091	1,468,982
Jakarta	1,093,451	1,408,718	1,374,075	1,501,780	1,737,612	1,741,775	1,750,962	1,699,468
West Java	3,018,600	3,531,065	4,077,523	4,135,424	4,564,647	4,626,305	4,347,302	4,245,126
Yogyakarta	301,549	321,978	371,130	388,240	435,146	442,104	461,957	515,844
Central Java	2,874,481	3,180,722	3,235,166	3,612,242	3,816,219	3,472,054	3,594,880	4,083,924
East Java	3,167,198	3,576,868	3,746,399	4,322,140	4,677,636	4,533,876	4,429,321	5,055,036
Other	3,247,354	3,832,595	4,470,334	5,437,291	8,799,848	6,595,301	6,761,201	8,113,639
Indonesia	*14,475,036*	*16,780,789*	*18,152,021*	*20,566,947*	*22,735,364*	*22,849,886*	*22,686,714*	*25,182,019*
Total								
North Sumatera	869,713	1,073,545	1,059,991	1,383,086	1,582,755	1,666,738	1,571,328	1,699,020
Jakarta	1,519,963	1,966,364	1,851,828	2,118,898	2,277,372	2,271,800	2,367,234	2,287,884
West Java	3,688,438	4,734,575	5,582,650	6,098,066	6,551,358	6,367,319	6,521,173	6,314,140
Yogyakarta	349,677	393,587	437,644	461,607	511,456	516,576	543,736	632,475
Central Java	3,532,755	4,057,193	4,179,641	4,974,133	5,100,420	4,665,466	5,004,673	5,675,830
East Java	3,964,043	4,518,861	4,894,906	5,808,066	5,884,311	5,840,604	5,834,351	6,698,727
Indonesia	*17,580,524*	*21,076,453*	*23,022,445*	*27,063,324*	*28,951,741*	*28,805,421*	*29,383,548*	*33,123,320*

Source: National Labour Force Survey (SAKERNAS), :Laborers /Employees Situation in Indonesia, various years.

Table A2
Percentage of *employees* in selected provinces

	1986	1990	1992	1994	1996	1998	1999	2002
Manufacturing								
North Sumatera	3.1	3.4	3.7	3.3	4.2	3.8	3.4	2.9
Jakarta	13.7	13.0	9.8	9.5	8.7	8.9	9.2	7.4
West Java	21.6	28.0	30.9	30.2	32.0	29.2	32.5	26.1
Yogyakarta	1.5	1.7	1.4	1.1	1.2	1.3	1.2	1.5
Central Java	21.2	20.4	19.4	21.0	20.7	20.0	21.1	20.0
East Java	25.7	21.9	23.6	22.9	19.4	21.9	21.0	20.7
Other	13.2	11.6	11.2	12.0	13.9	14.8	11.6	21.4
Indonesia	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Other								
North Sumatera	5.3	5.5	4.8	5.7	5.8	6.3	5.9	5.8
Jakarta	7.6	8.4	7.6	7.3	7.6	7.6	7.7	6.7
West Java	20.9	21.0	22.5	20.1	20.1	20.2	19.2	16.9
Yogyakarta	2.1	1.9	2.0	1.9	1.9	1.9	2.0	2.0
Central Java	19.9	19.0	17.8	17.6	16.8	15.2	15.8	16.2
East Java	21.9	21.3	20.6	21.0	20.6	19.8	19.5	20.1
Other	22.4	22.8	24.6	26.4	27.2	28.9	29.8	32.2
Indonesia	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Total								
North Sumatera	4.9	5.1	4.6	5.1	5.5	5.8	5.3	5.1
Jakarta	8.6	9.3	8.0	7.8	7.9	7.9	8.1	6.9
West Java	21.0	22.5	24.2	22.5	22.6	22.1	22.2	19.1
Yogyakarta	2.0	1.9	1.9	1.7	1.8	1.8	1.9	1.9
Central Java	20.1	19.2	18.2	18.4	17.6	16.2	17.0	17.1
East Java	22.5	21.4	21.3	21.5	20.3	20.3	19.9	20.2
Other	20.8	20.6	21.8	23.0	24.3	26.0	25.7	29.6
Indonesia	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: National Labour Force Survey (SAKERNAS), :Laborers /Employees Situation in Indonesia, various years.

Table A3

Distribution of medium and large manufacturing value added industry (percent) 2002

	Jakarta	West Java	East Java	Indonesia
15 food products and beverages	5.33	5.63	13.60	12.78
16 tobacco	0.00	1.46	32.44	7.96
17 textiles	3.19	18.75	1.23	6.74
18 wearing apparel	8.99	5.04	1.20	2.32
19 tanning and dressing of leather	0.70	4.49	2.50	2.96
20 wood and product of wood except furniture and plaiting materials	0.28	1.08	4.09	7.19
21 paper and paper products	1.14	4.88	5.47	5.89
22 publishing, printing and reproduction of recorded media	1.58	0.19	0.44	0.37
23 coal, refined petroleum products and nuclear fuel	0.01	0.30	0.06	0.02
24 chemicals and chemical products	13.05	12.99	7.04	10.49
25 rubber and plastic products	1.77	6.56	4.13	4.13
26 other non-metallic mineral products	5.09	2.57	5.89	6.46
27 basic metal	4.92	2.90	6.18	6.16
28 fabricated metal products, except machinery and equipment	3.77	4.83	2.66	1.55
29 machinery and equipment n.e.c.	1.75	1.40	1.34	5.15
30 office, accounting, and computing machinery	0.00	0.01	0.00	0.01
31 electrical machinery and apparatus n.e.c.	5.46	2.68	5.01	2.16
32 radio, television and communication equipment and apparatus	1.23	5.58	0.04	3.10
33 medical, precision and optical instruments, watches and clocks	0.79	0.41	0.07	0.22
34 motor vehicles, trailers and semi-trailers	26.49	5.32	0.74	7.57
35 other transport equipment	12.40	11.07	1.85	2.64
36 furniture and manufacturing n.e.c.	2.04	1.86	3.16	3.95
37 recycling	0.02	0.01	0.86	0.17
	100.00	100.00	100.00	100.00

Source: BPS.

Table A4

Structure of East Java's manufacturing value added (MVA) at current prices: 1975, 1980, 1985, 1990, 1995, 2000

ISIC		1980	1985	1990	1995	2000
	Light Industries					
311	Food and beverages	14.39	15.40	9.85	6.39	9.03
312	Food and beverages	1.50	3.69	4.40	2.89	5.39
313	Beverages	2.20	1.09	1.09	1.23	0.45
314	**Processed tobacco and cigarette flavors**	**52.27**	**42.04**	**46.45**	**45.58**	**38.22**
321	Textile	4.14	3.80	2.96	1.93	2.11
322	Clothes except footwear	0.10	0.38	0.36	0.67	1.00
323	Tanneries and leather finishing, product of leather, except footwear	0.24	0.47	0.17	0.10	0.24
324	Footwear	0.04	0.14	1.41	3.92	2.52
331	Wood, bamboo, rattan, willow and the like	1.81	2.70	2.38	2.09	2.08
332	Furniture and fixtures; kitchen utensils of wood, bamboo, and rattan	0.06	0.13	1.02	1.15	1.33
342	Printing, publishing and allied industries	0.27	0.41	0.58	0.70	0.54
355	Rubber and rubber products	0.13	0.55	0.60	0.35	0.38
356	Plastic products	0.15	1.23	2.07	1.92	2.21
390	Other manufacturing industries	0.02	0.04	0.13	0.27	0.93
		77.31	**72.07**	**73.46**	**69.21**	**66.44**
	Heavy Industries					
341	Paper, paper products, and the like	1.62	3.94	7.90	5.15	12.20
351	Industrial chemical	7.34	6.89	4.57	2.78	3.54
352	Other chemical industries	3.44	5.69	2.73	3.47	2.81
353	Petroleum refineries and natural gas					0.00
354	Products of petroleum refineries and coal	0.00	0.00	0.01	0.02	0.10
361	Porcelain	0.10	0.10	0.45	0.53	0.27
362	Glass and glass products	0.56	0.44	0.88	1.11	0.80
363	Cement, lime and products of cement and lime	3.19	1.81	0.54	1.18	1.99
364	Clay products	0.10	0.15	0.07	0.05	0.03
369	Other non-metallic mineral products	0.14	0.13	0.34	0.20	0.22
371	Iron and steel basic industries	0.28	0.57	2.57	8.73	4.24
372	Non ferrous metal basic industries	0.00	0.00	0.83	0.17	1.85
381	Fabricated metal product, except machinery and equipments	1.96	2.96	1.90	2.51	2.76
382	Machineries except electrical	1.64	2.72	0.94	0.90	0.20
383	Electrical machineries, apparatus, appliances and supplies	1.09	1.31	0.73	0.98	1.27
384	Transport equipments	1.20	1.20	2.03	2.93	1.23
385	Professionals, scientific, measuring and controlling equipments	0.04	0.04	0.04	0.09	0.06
		22.69	**27.93**	**26.54**	**30.79**	**33.56**

Source: BPS.