

MANUFACTURING AND JOB CREATIONS BETWEEN REGIONS IN MALAYSIA

Hasnah Ali

Manufacturing industry has over the years, been a major source of rapid productivity growth. The sector has also offered higher than average wages in full-time employment both in developed and developing countries. Malaysia is no exception. Industrialization is indeed important for the growth of Malaysia and especially the manufacturing sector which has shown to be one of the most important backbones of the Malaysian economy. During the Ninth Plan period (2005-2010), the manufacturing sector continues to contribute substantially to output growth, exports and employment creation despite the global economic slowdown and an increasingly competitive international environment. The objectives of the study are: firstly to determine the relationship between employment in the manufacturing industries and gross domestic product, and for this regression model was applied. Secondly, since the manufacturing component is crucial, this paper attempts to analyze the manufacturing sectors contribution in relations to job creations between the rich states and the poor states using the shift share analysis. Shift share highlights the uniqueness of a regional economy in terms of job growth rather than total jobs in an industry. Industries with high regional competitiveness effects highlight the region's competitive advantages or disadvantages. It shows the sectors in which the region is out-competing or under-competing the nation. The results show that the national share, industrial mix and the regional share of the rich states are performing better than those in the poor states and some industries are even better compared to the nation.

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1. Introduction

Manufacturing industry has over the years, been a major source of rapid productivity growth. The sector has also offered higher than average wages in full-time employment. Although manufacturing now seems to be declining in

Assoc. Prof Hasnah Ali, Faculty of Economics and Business, Universiti Kebangsaan Malaysia.
Email:hasnah@ukm.my

terms of national output (GDP) and smaller share of total employment, many economists argue that the economic health of manufacturing has important implications for other industries. Manufacturing is not an island. If industrial production falls and thousands of jobs are shed, this has significant ripple effects through related service industries.

Nevertheless, industrialization is important for the growth of an economy especially for a developing country like Malaysia and especially the manufacturing sector which has shown to be one of the most important backbones of the Malaysian economy. The transformation of the manufacturing sector, and sustaining its competitiveness, remains among the major factors in determining the pace of economic activity in the country. During the Ninth Plan period, the manufacturing sector continued to contribute substantially to output growth, exports and employment creation despite the global economic slowdown and an increasingly competitive international environment. Continuous policy improvements and initiatives are put in place to strengthen the sector in the light of greater competitiveness and integration of the world economy. This paper analyses the importance of manufacturing in the growth of the country. Since the manufacturing component is important, this paper also analyses the manufacturing sectors contribution in relation to job creations between the rich states and the poor states using the shift share analysis.

Shift share is similar to location quotient in that it highlights the uniqueness of a regional economy, but it does so in terms of job growth rather than total jobs in an industry. Industries with high regional competitiveness effects highlight the region's competitive advantages or disadvantages. It shows the sectors in which the region is out-competing or under-competing the nation. Shift share is thus useful in identifying investment targets so that local stakeholders can help high-performing regional industries either continues to outperform national trends or else "catch up" with national trends so that the regional economy is not left behind in those sectors.

This paper is divided into five parts. The first part touches the introduction which includes the importance of the manufacturing sector and objectives of the study. Part 2 is the literature review followed by methodology in Part 3. Results and analysis will be discussed in Part 4. Finally, policy implications and conclusions are dealt in Part 5.

2. Literature Review

Many studies showed that manufacturing industry has been a major source of rapid productivity growth (see for example Low et al, 1993, Low 1998, Porter, 1983, 1990). Sakurai and Moriizumi (2000) studied trade-employment linkages within the Asia-Pacific region between 1985 and 1990. Malaysian employment has become quite sensitive to imports from other countries. Based on their estimations, 15 per cent of manufacturing employment were engaged in exports

generated by imports from the other Asia-Pacific countries (Japan, USA, China, Korea, Taiwan, Singapore, Thailand, Indonesia and Philippines). They also argued that the growing inter-dependence of employment is triggered by the international procurement of intermediate products for export production. Rasiah (2002) agrees that foreign direct investment inflows from the North-East Asian economies that relocated their labour-intensive stages of assembly and processing for production to global markets increased employment particularly in export oriented industries during the second phase of export-oriented industrialization from the mid-1980s.

Joel Popkin and Company (2003), showed the benefits what the manufacturing sector provides to the whole of US economy — from businesses and households to federal and state governments. It has also described the manufacturing-centered innovation process — often just below the statistical radar screen — that is the source of these benefits. He also identified troublesome signs which can also be seen during the current global crises for example there has been an exceptionally rapid decline in manufacturing jobs and with their loss, the potential loss of the skills, education and training of the workforce that could promote productivity growth.

Thompson and Schweitzer (2001), focusing on manufacturing employment at Kentucky during the recession, found that the decline in Kentucky manufacturing during the recession, while it was large, was less than the national decline. There were three additional findings of note: 1) the relative performance of Kentucky manufacturing was not as strong as it was during the recession of the early 1990s; 2) Kentucky did not substantially outperform northern states, which have been an important source of relocating manufacturing plants for Kentucky; and 3) the job losses in the non-durable goods manufacturing industry were more severe in Kentucky than nationally.

Hamri Tuah and Shazali Abu Mansor (2004), suggest that manufacturing output growth is prominent in influencing the total output growth as compared to other sectors in the process of growth and development in Indonesia, Malaysia, Philippines, Singapore and Thailand. Besides, it is found that the growth of the manufacturing sector will lead to the transference of labour from other sectors in the economy which raises productivity in these sectors. However, the agricultural and service sectors do not offer the same scope for the division of labour and specialization within the sectors themselves. Various factors have been postulated as factors contributing to manufacturing output growth. It is suggested in their study that the governments of South East Asia should encourage the transfer of resources from agriculture to industry in order to move into higher stage of growth and development.

Dey et al (2006), estimated the effects of manufacturers' use of employment services—comprised primarily of temporary help and professional employer organizations—on measured employment and labour productivity in

manufacturing between 1989 and 2004. Gross (2001), presents an overview of the issues in economic research on the relationship between financial intermediation, growth and employment with a focus on the macroeconomic aspects.

While U.S. manufacturing has been hit hard by a decade of rapid import growth and job loss, the manufacturing sector remains a vital part of the U.S. economy. The manufacturing sector supported 14 million jobs in 2007, or about 10.1% of total employment. Manufacturing industries are also responsible for a significant share of U.S. economic production, generating \$1.6 trillion in GDP in 2006 (12.2% of total U.S. GDP). Because manufacturing firms also use trillions of dollars worth of commodities and services as inputs, the sector is responsible for an even bigger share of total output. U.S. manufacturing had gross output of \$4.5 trillion in 2005, and it is by far the most important sector of the U.S. economy in terms of total output (Bureau of Economic Analysis 2008). Manufacturing plays a large part in the economy in individual states, too, generating 28% of GDP in Indiana in 2006 (\$70 billion), and more than 20% in Iowa (21%, \$26 billion), Louisiana (21%, \$41 billion), and Wisconsin (20.8%, \$47 billion) (see Figure). California (9.8%, \$169 billion) and Texas (13.1%, \$140 billion) each generated more than \$100 billion in manufacturing GDP in 2006 (Scott 2008)

Many service sector jobs depend on manufacturing – there are close linkages between the sectors. Jobs lost in manufacturing cannot always be absorbed by increasing employment in the service industries. Manufacturing is also not a yesterdays economy. More cars, ships, clothes, computers and televisions will be in continuous demand in years to come. Manufacturing is also important with regards to balance of payments where a high percentage of total manufacturing output is exported overseas and also manufacturing and the regional economy.

3. Methodology

Studies mentioned above showed that manufacturing play important part in the development of a country and this is true for a developing country like Malaysia. To support this statement, regression model was used for the analysis. All data are time series for the period 1980-2008, and will be applied to Econometric View's software or known easily as E-Views. Formulation model for each category will be clarified analytically to facilitate test to determine the relationship among independent and dependent variables. The model is,

$$\ln(GDP) = \beta_0 + \beta_1 \ln(L) + \beta_2(FDI) + \beta_3 \ln(PD) + \mu$$

With;

GDP = Gross Domestic Product

D	=	Domestic Investment
FDI	=	Foreign Direct Investment
L	=	Employment in Manufacturing
μ	=	error

The second objective is based on shift share analysis. The basic use of shift share is to prevent a hasty and inaccurate interpretation of raw job growth numbers.

- An industry may be booming in a region, but shift share reveals that the industry is actually growing even faster at the national level, showing that regional factors probably have little influence on the regional boom. Or, shift share may reveal a national decline in that industry, showing a unique regional advantage in that industry that ought to be identified and fostered.
- An industry may be declining in a region, but shift share reveals that it is declining even faster at the national level—and thus the regional industry is actually outperforming the nation by stemming job loss. Or, the industry may be growing nationally, indicating that the region faces some disadvantage that is causing localized job loss in a nationally growing industry. If it is significant, this disadvantage should be investigated further.

In addition:

- One way to account for a region's competitiveness
- Provides a picture of how well a region's mix of industries is performing
- Also, shows how well individual industries are doing
- Can be used to analyze individual industries or the whole economy

Breaks down regional employment growth into three components:

- National share (NS)
- Industry mix (IM)
- Regional shift (RS)

A typical application of shift-share analysis for forecasting involves computing the competitive effect for the local economy and then carrying the competitive effect forward one period in combination with national and sectoral growth forecasts from other models. This usually requires making the assumption that the competitive effect is stable over time (Gerking and Barrington 1981; and Andrikoplous et al. 1990). Shift-share's use in strategic planning involves using the magnitudes of three components of shift-share analysis, to assess the strengths and weaknesses of local businesses. It is within this context that shift-share can be useful as a tool to analyze the important factors driving growth in regional economics (Doeringer et al. 1987; Harris et al. 1987; Luke et al. 1988; Sen 1988). Shift-share has been extensively used in regional analysis and the evaluation of the effectiveness of regional policy (Fothergill and Gudgin, 1982; Moore, Rhodes and Tyler, 1986; Thirlwall, 1967; Tyler, 1980). Wolf (2002) uses a

generalization of an econometric analogue of the common shift-share method, suggested here as a new “workhorse” for regional analyses.

This current study compares two regions in the Malaysian economy during the period of 2003-2008 with total employment divided into 19 of manufacturing sectors. The rule of thumb is to use two time periods 5 or fewer years apart. Analysis can be quite different for different time periods.

The rich states included Kuala Lumpur, Selangor, Perak, Pulau Pinang, Melaka, Negeri Sembilan and Johor while the poor states are Kedah, Kelantan, Pahang, Perlis, Terengganu, Kelantan, Sabah and Sarawak.

4. The Findings

All independent variables have been tested to see whether that variable will influence the other variable such as GDP or otherwise. Based on E -Views output, estimation result regression for equations can be rewrite as follows:

$$GDP = 3.6652 + 4.995L + 3.859FDI - 0.027PD + \varepsilon$$

Table 1: Estimation Results For Regression

Variable	Standard Error	t-statistic	Probability
Konstan	3.0028	2.2908	0.2580
L	0.0303	-0.1463	0.8990
FDI	0.0274	0.2561	0.8225
PD	0.0132	-0.0144	0.1042

$$R^2 : (0.9177) \quad \bar{R}^2 : (0.9380) \quad DW : (1.503)$$

Results for each variable is shown in Table 1. Regression linear shows the determinant coefficient value regression (R^2) for this model is equal to 0.91. This indicates that as many as 91 percent from changes in the GDP is explained by these variables. The remainder, namely 1 percent is influenced by other factors.

The interpretation relationship among dependent variables with independent variable can be made based on estimation results from the regression equation. For example, variable for foreign direct investment (FDI) and employment in manufacturing sector (L) is related positively with GDP. This means an increase of 1 percent in L will increase 4.9 percent GDP. For FDI an increase 1 percent will increase GDP by 3.8 percent. This model also suggest that there are two significant variables in influencing GDP such as employment in manufacturing sector (0.8990) and FDI (0.8225) at the level of significance 5 and 10 percent. Clearly we can see both the variables play a vital role to enhance

the performance of GDP in Malaysia. Based on F-statistic value, this model is significant and acceptable. Equation for F-statistic's value is 111.523 and this model is significant because the value is more than the schedule of 4.12 at significance level 5 percent. This indicates that the whole model is good.

The manufacturing sector accounted for about one third of total employment and 27.6 per cent of total jobs created during the Eighth Plan period. Total employment in the sector grew at an average annual rate of 4.1 per cent increasing from 2.6 million in 2000 to 3.1 million in 2005. The on-going transformation of the manufacturing sector to high value added and knowledge-intensive industries raised the demand for human resource tertiary qualification as well as vocational and technical training.

The results of the shift share analysis are discussed in the following presentations.

**Table 1: National total employment: manufacturing industry sector
2003-2008**

Malaysia	('000)	('000)	Change in jobs	Percent change %
	2003	2008		
Total Employment	77958	101051	23991	31
Food Manufacturing	8000	6029	-1971	-24.6
Beverages & Tobacco	162	164	2	1.2
Textiles & Textile Product	1846	3090	1244	67.4
Leather & Leather Product	80	-	-80	-100
Wood & Wood Product	5913	5052	-861	-14.6
Furniture & Fixtures	6684	4605	-2079	31.1
Paper, Printing & Publishing	1358	2237	879	64.7
Chemicals & Chemical Product	1808	2864	1056	58.4
Petroleum Product	223	487	264	118
Rubber Product	1101	5790	4689	426
Plastic Product	5374	5687	313	5.8
Non-Metallic Mineral Product	1170	1150	-20	1.7
Basic Metal Product	3231	8289	5058	156
Fabricated Metal Product	8823	5397	-3426	-38.8
Machinery Manufacturing	3369	5377	2008	60
Electronics & Electrical Product	17488	34196	16708	96
Transport Equipment	7922	7732	-190	-2.4
Scientific & Measuring Equipment	2368	1934	-434	-18.3
Others	1038	971	-67	-6.5

Table 1 shows the national total employment in the manufacturing industry. It shows that electronic & electrical product are the dominant industry generating jobs equivalent with an increase to 34196 in 2008 compared to 17488 in 2003. In addition, there was also an increase in rubber product, textiles & textile

product, chemical product, basic metal product and paper, printing & publishing. However there was also decrease in employment in the fabricated metal product, food manufacturing and scientific & measuring equipment.

Table 2: Regions total employment (Rich States) : manufacturing industry sector,2003-2008

Rich States	('000) 2003	('000) 2008	Change in jobs	Percent change %
Total Employment	63552	84123	20571	32.3
Food Manufacturing	7049	5546	-1503	-21.3
Beverages & Tobacco	150	155	5	3.3
Textiles & Textile Product	1567	2633	1066	68
Leather & Leather Product	50	-	-50	-100
Wood & Wood Product	3998	3721	-277	-6.9
Furniture & Fixtures	5097	4218	-879	-17.2
Paper, Printing & Publishing	1045	3048	2003	191
Chemicals & Chemical Product	1408	1992	584	41.5
Petroleum Product	178	313	135	75.8
Rubber Product	616	3009	2393	388
Plastic Product	4567	5118	551	12
Non-Metallic Mineral Product	1091	1023	-68	-6.2
Basic Metal Product	2234	6564	4330	194
Fabricated Metal Product	6785	4997	-1788	-26.3
Machinery Manufacturing	2996	5125	2129	71
Electronics & Electrical Product	15537	30934	15397	99
Transport Equipment	6547	6632	85	1.3
Scientific & Measuring Equipment	1653	1982	329	20
Others	978	1111	133	13.6

Table 2 illustrates the increasing and decreasing in employment in the rich states. Electronic & electrical product are still the dominant industry too in generating jobs equivalent with an increase to 30934 in 2008 compared to just 15337 in the year 2003. In addition, there was also an increase in employment in the rubber product, textiles & textile product, chemicals product, basic metal product and paper, printing & publishing, machinery equipment and many more. Job loses were high especially in leather & leather product, fabricated metal product, beverages & tobacco and furniture & fixtures.

Table 3: Calculating The NS component (Rich States)

	2003		
Industry	Region employment ('000)	Malaysia Growth Rate%	National Share
Food Manufacturing	7049	31	2191
Beverages & Tobacco	150	31	46
Textiles & Textile Product	1567	31	487
Leather & Leather Product	50	31	15
Wood & Wood Product	3998	31	1242
Furniture & Fixtures	5097	31	1584
Paper, Printing & Publishing	1045	31	3361
Chemicals & Chemical Product	1408	31	438
Petroleum Product	178	31	55
Rubber Product	616	31	191
Plastic Product	4567	31	1420
Non-Metallic Mineral Product	1091	31	339
Basic Metal Product	2234	31	694
Fabricated Metal Product	6785	31	2109
Machinery Manufacturing	2996	31	931
Electronics & Electrical Product	15537	31	4829
Transport Equipment	6547	31	2035
Scientific & Measuring Equipment	1653	31	513
Others	978	31	303
National Growth Share (Rich States))			22783

$$Ex = 7049 \times (\{ 101173/77182 \} - 1) = 2191$$

If the states' industries grew at the overall national rate of growth, the new job growth would have been 22783 between 2003 and 2008. Compared to the NS component of the poor states (Table 7), clearly Table 3 shows that their NS of the manufacturing industries are high. The industries in the rich states are able to provide more job opportunities than their counterparts. Obviously this shows that many job opportunities are available at the rich states compared to the poor states. This opportunities will encourage young people from poor states to migrate and work at the rich states. On the other hand, they also can get better pay and will enhanced their quality of life.

Table 4: Calculating The IM Component (Rich States)

	2003	Industry	Malaysia	
Industry	Region employment ('000)	National Growth Rate%	Growth Rate%	Industry Mix
Food Manufacturing	7049	-24.6	31	-3357
Beverages & Tobacco	150	1.2	31	-25
Textiles & Textile Product	1567	67.4	31	-259
Leather & Leather Product	50	-100	31	-8
Wood & Wood Product	3998	-14.6	31	-661
Furniture & Fixtures	5097	31.1	31	-843
Paper, Printing & Publishing	1045	64.7	31	-173
Chemicals & Chemical Product	1408	58.4	31	-233
Petroleum Product	178	118	31	-29
Rubber Product	616	426	31	-102
Plastic Product	4567	5.8	31	-755
Non-Metallic Mineral Product	1091	1.7	31	-180
Basic Metal Product	2234	156	31	-370
Fabricated Metal Product	6785	-38.8	31	-1123
Machinery Manufacturing	2996	60	31	-495
Electronics & Electrical Product	15537	96	31	-2570
Transport Equipment	6547	-2.4	31	-1083
Scientific & Measuring Equipment	1653	-18.3	31	-273
Others	978	-6.5	31	-162
Industry Mix Share (Rich States)				-12701

$$Ex = 7049 \times (\{ 6029/7224 \} - 1) - (\{ 101173/77182 \}) - 1 = -3357$$

Table 4 shows the IM component. The IM component of -12701 means that the states has nearly 12700 fewer jobs than it would have had if its structure were identical to the nation. It means that if we consider the real industry growth rate at the national level, then there would have been fewer jobs to be filled in and this number is 12701.

Table 5: Calculating the RS component (Rich States)

	2003	County	Industry	
Industry	Region Employment (‘000)	Industry Growth Rate%	National Growth Rate%	Regional Shift
Food Manufacturing	7049	-21.3	-24.6	-1503
Beverages & Tobacco	150	3.3	1.2	5
Textiles & Textile Product	1567	68	67.4	1066
Leather & Leather Product	50	-100	-100	0
Wood & Wood Product	3998	-6.9	-14.6	-277
Furniture & Fixtures	5097	-17.2	31.1	-879
Paper, Printing & Publishing	1045	191	64.7	2003
Chemicals & Chemical Product	1408	41.5	58.4	584
Petroleum Product	178	75.8	118	135
Rubber Product	616	388	426	2393
Plastic Product	4567	12	5.8	551
Non-Metallic Mineral Product	1091	-6.2	1.7	-68
Basic Metal Product	2234	194	156	4330
Fabricated Metal Product	6785	-26.3	-38.8	-1788
Machinery Manufacturing	2996	71	60	2129
Electronics & Electrical Product	15537	99	96	15397
Transport Equipment	6547	1.3	-2.4	85
Scientific & Measuring Equipment	1653	20	-18.3	329
Others	978	13.6	-6.5	-117
Local Share (County)				24375

$$Ex = 7049 \times (\{ 5546/7049 \} - 1) - (\{ 6029/7224 \} - 1) = -1503$$

The regional shift component shows that 24375 new jobs in the rich states are attributable to its relative competitive position. This is primarily due to its high-growth of service employment especially from the bigger market of electrical & electronics product.

**Table 6: Regions total employment: manufacturing industry sector
2003-2008**

Poor States	('000)	('000)	Change in jobs	Percent change%
	2003	2008		
Total Employment	14406	16928	2522	17.5
Food Manufacturing	141	209	68	48.2
Beverages & Tobacco	97	107	10	10.3
Textiles & Textile Product	334	454	120	35.9
Leather & Leather Product	25	43	18	72
Wood & Wood Product	200	371	171	86
Furniture & Fixtures	1290	1397	107	8.3
Paper, Printing & Publishing	333	400	67	20
Chemicals & Chemical Product	765	959	194	25.4
Petroleum Product	99	121	22	22.2
Rubber Product	143	335	192	134
Plastic Product	1329	1376	47	3.5
Non-Metallic Mineral Product	276	457	181	65.6
Basic Metal Product	996	1198	202	20.3
Fabricated Metal Product	831	923	92	11
Machinery Manufacturing	727	1012	285	39.2
Electronics & Electrical Product	3345	3599	254	7.6
Transport Equipment	2954	3124	170	5.8
Scientific & Measuring Equipment	436	717	281	64.4
Others	85	126	41	48.2

Table 6 illustrates the increasing and decreasing in employment in the poor states. Compared to the rich states (Table 2) where the percentage change in total employment is 33 percent, the percentage change in total employment here is 18 percent. Table 6 shows that industries such as non-metallic mineral product, scientific & measuring equipment, food manufacturing had the most number of job creation, where else electric and electrical product are the dominant industry in the rich states. However there is no increase in job opportunities in non metallic product in the rich states. The poor states has to take aggressive steps in order to attract people to stay and work rather than to migrate to the rich states looking for jobs.

Graph 1 shows the average income between the rich states and the poor states. It shows that the rich states offer higher income compared to the income in the poor states. This explains why people migrate to the richer states to take advantage of the job opportunities and higher income.

Graph 1: Average Income between the rich and the poor states, 1975-2006

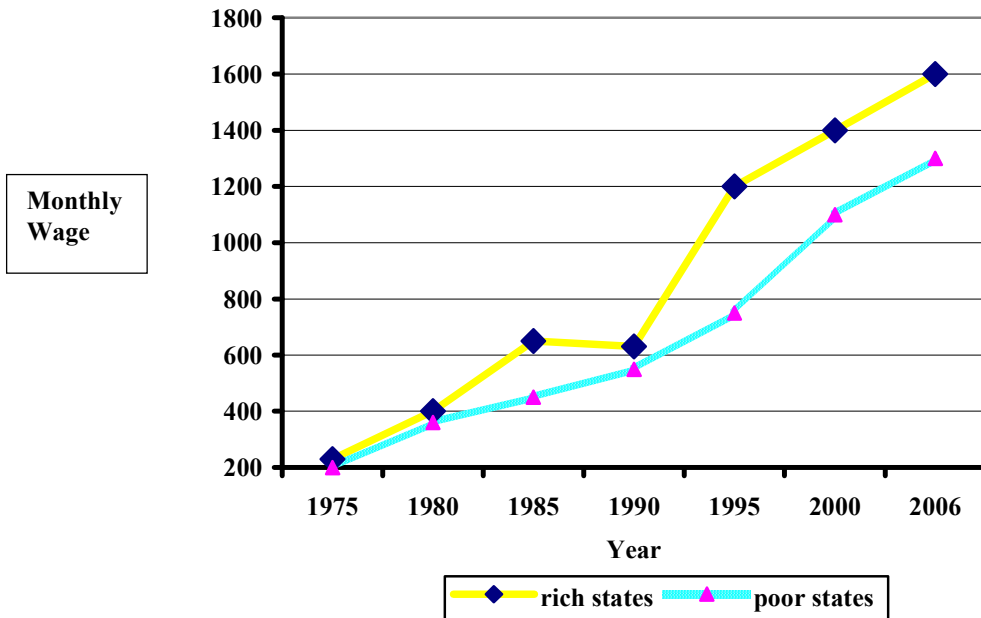


Table 7: Calculating the NS component (Poor States)

Industry	2003		
	Region employment ('000)	Malaysia Growth Rate%	National Share
Food Manufacturing	141	31	43
Beverages & Tobacco	97	31	30
Textiles & Textile Product	334	31	104
Leather & Leather Product	25	31	7
Wood & Wood Product	200	31	62
Furniture & Fixtures	1290	31	400
Paper, Printing & Publishing	333	31	104
Chemicals & Chemical Product	765	31	238
Petroleum Product	99	31	30
Rubber Product	143	31	44
Plastic Product	1329	31	413
Non-Metallic Mineral Product	276	31	86
Basic Metal Product	996	31	310
Fabricated Metal Product	831	31	258
Machinery Manufacturing	727	31	226
Electronics & Electrical Product	3345	31	1040
Transport Equipment	2954	31	918
Scientific & Measuring Equipment	436	31	136
Others	85	31	26
National Growth Share			4475

$$Ex = 141 \times (\{ 101173/77182 \} - 1) = 43$$

If the states' industries grew at the overall national rate of growth new job growth would have been 4475 between 2003 and 2008. as mentioned earlier, the rich states provide more job opportunities as shown by the new job growth of 22783 (Table 3) compared to 4475 (Table 7) in the poor states. The NS of all the industries in the rich states seemed to be high as compared to the NS in the poor states.

Table 8: Calculating the IM component (Poor States)

Industry	2003 Region employment ('000)	Industry National Growth Rate%	Malaysia Growth Rate%	Industry mix
Food Manufacturing	141	-24.6	31	-23
Beverages & Tobacco	97	1.2	31	-16
Textiles & Textile Product	334	67.4	31	-55
Leather & Leather Product	25	-100	31	-4
Wood & Wood Product	200	-14.6	31	-33
Furniture & Fixtures	1290	31.1	31	-213
Paper, Printing & Publishing	333	64.7	31	-218
Chemicals & Chemical Product	765	58.4	31	-126
Petroleum Product	99	118	31	-16
Rubber Product	143	426	31	-23
Plastic Product	1329	5.8	31	-220
Non-Metallic Mineral Product	276	1.7	31	-45
Basic Metal Product	996	156	31	-165
Fabricated Metal Product	831	-38.8	31	-137
Machinery Manufacturing	727	60	31	-120
Electronics & Electrical Product	3345	96	31	-553
Transport Equipment	2954	-2.4	31	-488
Scientific & Measuring Equipment	436	-18.3	31	-72
Others	85	-6.5	31	-14
Industry Mix Share (Poor States)				-2541

$$Ex = 141 \times (\{ 6029/7224 \} - 1) - (\{ 101173/77182 \}) - 1 = -23$$

The industrial mix component of -2541 means that the states have nearly 2540 fewer jobs than it would have had if its structure were identical to the nation. It means that if we consider the real industry growth rate, there have been fewer jobs to be filled in around 2540 (Table 8) compared to 12700 in the rich states.

Table 9: Calculating the RS component (Poor States)

	2003	County	Industry	
Industry	Region Employment ('000)	Industry Growth Rate%	National Growth Rate%	Regional Shift
Food Manufacturing	141	17.5	-24.6	68
Beverages & Tobacco	97	48.2	1.2	10
Textiles & Textile Product	334	10.3	67.4	120
Leather & Leather Product	25	90	-100	18
Wood & Wood Product	200	72	-14.6	171
Furniture & Fixtures	1290	86	31.1	107
Paper, Printing & Publishing	333	8.3	64.7	67
Chemicals & Chemical Product	765	20	58.4	194
Petroleum Product	99	25.4	118	22
Rubber Product	143	22.2	426	192
Plastic Product	1329	134	5.8	47
Non-Metallic Mineral Product	276	3.5	1.7	181
Basic Metal Product	996	65.6	156	202
Fabricated Metal Product	831	20.3	-38.8	92
Machinery Manufacturing	727	11	60	285
Electronics & Electrical Product	3345	39.2	96	254
Transport Equipment	2954	7.6	-2.4	170
Scientific & Measuring Equipment	436	5.8	-18.3	281
Others	85	64.4	-6.5	41
Local Share				2522

$$Ex = 141 \times (\{ 209/141 \} - 1) - (\{ 6029/7224 \}) - 1 = 68$$

The regional shift component shows that 2522 new jobs in the poor states (Table 9) compared to 24375 new jobs in the rich states (Table 5) are attributable to their relative competitive positions. Compared to the poor states, it was found that the rich states has better and more competitive firms in order to keep up with the level of the national economy. Some actions and steps to reopen new location to promote the poor states to become more competitive in the future should be taken.

5. Policy Implication and Conclusion

The NS, IM and the RS of the manufacturing industries are different between the rich states and the poor states. More job opportunities are found in the rich states not only from the electric and electrical products but also others. The rich states also has better and more competitive firms and of course are doing better compared to the poor states and some have even been doing better compared to the national level.

During the Ninth Plan Period, the prime focus will be to ensure robust and sustainable growth as well as competitiveness of the manufacturing sector. The sector is targeted to grow at an average rate of 6.7 percent per annum. However with the current global economic crisis the worst affected sector is the exports of manufacturing goods and apparently there has been a drop in the demand for these goods. This is a very important issue that has to be viewed very seriously.

The impacts for overall growth and investment in, is expected to emanate largely from technology and innovative-driven industries, which will in turn contribute to greater exports, income and employment generating opportunities. Apart from attracting foreign investment, there is also a need to accelerate growth in domestic private investment. Private and Government Link Companies (GLC) in particular will be encouraged to take up new investment as well as develop niche products and services that will generate new demand and expand markets.

In meeting a more challenging and competitive global environment, a crucial goal will be to upscale the manufacturing sector towards higher value added activities and upgrade capacity in the provision of related services. The focus will be on transforming industrial businesses and complementary services, especially small medium enterprises into strong knowledge-intensive and value-creating entities. The promotion of technology and innovation-driven strategies will be given increased priority. Greater emphasis will be placed on promoting investment in new areas of growth as well as reinforcing innovation capability and capacity to augment productivity and competitiveness.

The key point is that there are strong inter-relationships between manufacturing and the rest of the economy. A deep recession in manufacturing could seriously damage overall prospects for economic growth - because of the negative multiplier effects and the wider impact on consumer confidence and business investment. Malaysia should embrace technical innovations, encourage major enterprises to set up their own research and development centres, and promote cooperation between research and industry departments. With policy and financial support from the government, Malaysia may build itself into a world-class manufacturing centre in 10 to 15 years.

End note

National Share (NS) Component

- Share of regional job growth attributable to growth of the national economy
- “If the regional industry grew at the industry’s national growth rate, what would be the result?”

$$NS_{ir}^t = E_{ir}^{t-1} \times \left(\frac{E_{US}^t}{E_{US}^{t-1}} - 1 \right)$$

Where:

t = current time period t-1 = one year ago
 i = specific industry r = specific region

Industry Mix (IM) Component

- How much growth can be attributed to the region’s mix of industries?
- Also estimates how many jobs were created/not created in each industry due to differences in industry and total national growth rates

$$IM_{ir}^t = E_{ir}^{t-1} \times \left[\left(\frac{E_{iUS}^t}{E_{iUS}^{t-1}} \right) - \left(\frac{E_{US}^t}{E_{US}^{t-1}} \right) \right]$$

Where:

t = current time period t-1 = one year ago
 i = specific industry r = specific region

Regional Shift (RS) Component

- How many jobs are created/not created as a result of the region’s competitiveness?
- Perhaps the most important component
- Identifies the region’s leading and lagging industries

$$RS_{ir}^t = E_{ir}^{t-1} \times \left[\left(\frac{E_{ir}^t}{E_{ir}^{t-1}} \right) - \left(\frac{E_{iUS}^t}{E_{iUS}^{t-1}} \right) \right]$$

Where:

t = current time period t-1 = one year ago
 i = specific industry r = specific region

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