The Technical Efficiency Analyses of Manufacturing Sector in Malaysia: Evidence from the First Industrial Master Plan (1986-1995)

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Abstract

This paper attempts to estimates the technical efficiency for all manufacturing industries in Malaysia for the periods of 1986 up to 1995. By utilizing the stochastic frontier model (SFM), it is shows that the technical efficiency for all sectors constantly increases at 0.01 percentage points each year. The Malaysian manufacturing industry during the stipulated periods was classified as input-driven, largely dominated by labour and capital. It was found that the technical efficiency over time across industries is rising over time at a decreasing rate and the resource based industries (RBI) found to be technically efficient compared to non-RBI groups.

Keywords: Manufacturing industries, Industrial Master Plan, Technical Efficiency, RBIs, Non-RBIs

1. Introduction

The contribution of manufacturing sector in the Malaysian economy had become a significantly important in mid 1980s. Malaysia has transformed from a commodity-based producing nation to being a manufacturer of industrial products, geared towards exports. With a good track record of economic growth exceeding 8% per annum, the country is well poised to fulfill its vision of becoming fully industrialized nation by the year 2020.

Following a period of rapid expansion in the last eight years, the Malaysian economy is estimated to expand at a more sustainable pace as the year progresses, where the main impetus to growth continues to come from the manufacturing sector which is envisioned to record a double-digit growth. The move from resource-based to non-resource based industries in Malaysia since mid-1980s evidently shows the serious efforts made by the government to achieve the status of industrialized country. This was clearly shown by the falling shares of value added in resource-based compositions as demonstrated in the Malaysian manufacturing sector profile. [See Table 1]

In the external trade scene, export of manufactured goods continue to remain the largest contributor to Malaysia's total exports; where product enhancement, competitive pricing and improved marketing strategies have enabled Malaysian manufactured goods to penetrate non-traditional markets like Africa and Oceania. In terms of composition, electrical and electronic products continued to compose the largest share of the export structure, where it grew from 37.7% in 1991 to 52.95% in 1996. Manufacturing sector had long been given the mandate to spearhead the industrial development in Malaysia as early as before the First Industrial Master Plan (IMP1) launched in 1986.

The objective of this paper is to investigate the technical efficiency differences of manufacturing industries in Malaysia from the perspectives of IMP1 (1986-1995), specifically comparing the performance in both resource-based and non-resource based industries.

This paper divided into several sections. Section 2 will discuss the evolutions of industrial development since 1970s, followed by section 3 the methodology. Section 4 will discuss the data measurement. Section 5 will highlight the empirical results and concluded with section 6.

2. The Development of Malaysian Manufacturing industries

The evolutions of the industrialization in Malaysia were distinguished into four main phases since it was initiated in early 1970s. They are:

i.   Export-oriented industrialization (EOI) based on export-processing zones (EPZs) in the early 1970s

ii.   Import-substitutions industrialization (ISI) based on heavy industries in the early 1980s

iii.   Liberalization and a second round of export push in the late 1980s and a sustained shift towards more market-oriented policies in the 1990s.

iv.   Moving towards higher level of global competitiveness emphasizing on transforming and innovating the manufacturing sector in the millennial. Emphasize will be focused on service sector and establishing linkages among cluster.

Phase (iii) and (iv) had been marked as the evolutions of industrial development in Malaysia since three IMPs had been formulated to spearhead the movement and progresses of the economic growth thus far.   The former approach had served the country well in the early stages (first two stages) of Malaysia's drive to achieve industrialize. However as the process of industrialization process become more difficult, the government decided that an industrial master plan or plan-oriented approach should be prepared to strengthen the process. The First Industrial Master Plan (IMP1) was formulated to guide the development of the manufacturing sector in Malaysia between 1986 and 1995. The IMP1 provided a framework for ensuring a more diversified and integrated manufacturing sector and establishing the foundation for its sustained growth. One of the principal objectives of manufacturing development, as set out in IMP, was to lay the foundation for leapfrogging towards an advanced industrial economy by increasing indigenous technological capability and competitiveness (Ali, 1992).Towards the end of the plan, various industrial development policies, strategies and programmes were designed and successfully implemented.

The IMP1 adopted a plan-rationale approach to industrial development, a strategy followed by Japan and the Republic of Korea in their successful economic reconstruction after the Second World War and the Korean War, respectively. The premise was that while the competitive market mechanism was indispensable, planning was fundamentally important in achieving industrial development objectives. In the plan-rationale approach, development objectives are first propounded and then the necessary resources and policies, including government incentives, are directed towards achieving those objectives. Market forces play their part by ensuring allocative efficiency within the framework of the plan. The main function of IMP1 was to indicate to private investors the targets and goals of the government, in terms of industrial development, and to coordinate the functions of various government departments, agencies and ministries in their support of private sector-led growth in achieving industrial development.

The IMP1 has undoubtedly achieved its major goals, that is, to ensure continuous growth in the manufacturing sector and its diversification in order to include new manufacturing industries, both in the resource-based and non-resource-based sectors. Key Malaysian resource-based industries include rubber and palm oil products, food processing, wood-based products, chemicals, non-ferrous metals and non-metallic mineral products. The non-resource-based sector includes the electronics and electrical industry, the road transport industry, shipbuilding and ship repair, the machinery and engineering industry, the iron and steel producers, and the textiles and apparel industry.

In general, the macroeconomic and sectoral targets of IMP1 have been achieved, and in many cases, the actual performance has overtaken the targets in terms of growth of output, value-added, exports, and employment. The framework provided by IMP1 for the growth of the manufacturing sector from 1986 to 1995 succeeded in developing a more integrated and diverse industrial sector, although some weaknesses remain and others have emerged. As reported by UNIDO (1985), in order to attain the status of industrialize country in the future, Malaysia should devote substantial efforts to achieve a high degree of efficiency in manufacturing activities.

The economy grew from 8.3% between 1970 and 1980 and slowdown during 1980s, but recorded unprecedented sustained high growth around 9% just before the hit of Asian Financial Crisis in 1997. According to Lall (1997), the growth and structural transformation of the economy over the last decade was due to extensive functional and selective industrial policies such as incentives within a liberal trade and investment regime framework. However, Mahadevan (2001) argue that, the manufacturing operations in Malaysia were not very different between late 1980s and early 1980s. This was due to partly low synergy of technological transfer brought by FDI since mid-1980s. As proposed by Athukorala and Menon (1997) and Menon (1998), most of the FDI in Malaysia were engaged in low-skilled, assembly, inspection, and testing activities, which in turn put some constraint on the growth of Malaysian industries.

The policy reform such as amendment of labour market legislation in the late 1980s and early 1990s was targeted to facilitated industrial upgrading and at the same time to foster greater labour market flexibility. Those reform and incentives had made Malaysia as an investment center from Asian NIEs such as Japan, South Korea, Taiwan and Hong Kong. Around 70% of foreign direct investment in the 1990s was recorded as a results of such amendment. Foreign

direct investment inflow to selected manufacturing sector from these economies has recorded a double digits growth during that period. By 1990, strong growth from manufactured product contributes around 27% of GDP and around 20% of total employment. Moreover, export growth during that time contributes up to 60%, the highest number ever recorded in after the recession in mid-1980s.

Despite high growth in manufacturing output and strong demand for exports, level of technology is no doubt minimal. This was due to the fact that most of the investment inflows made by the Asian NIEs during 1990s were particularly targeted to export and employment expansion with less emphasize on technology development. The low technology development in Malaysia was due to the high import content of capital formation and industrial output that resulted in very low synergy to the domestic linkages. Rasiah (1995) maintains that it is important to continue to attract FDI but this should be done at high levels of skill and technical sophistication, and it is necessary to raise domestic contributions to production and technological activity so as to provide the supplier and service structure that MNCs need for value-added production.

3. Methodology

As originally initiated by Farrell (1957), the methodology of production frontier had been used extensively in both theoretical and empirical in various industries. The approach of stochastic frontier emphasizes on the concept of maximality of idea with the existence of 'best practice' technology over time. Because of their consistency with theory, versatility and relative ease of estimation (Battese and Coelli, 1992; Coelli and Battese, 1996), the stochastic frontier approach has widely accepted within the agricultural economics literature and industrial settings.

A frontier production function defines the maximum output achievable under the current technology with available factors of production. Let y_{it}^* the maximum output of the ith industry at time, t. it is achievable if and only if all available factors of production are used efficiently. The maximum output frontier production function is express as $y_{it} = f(x_{it}; t, \beta) \exp(v_{it} - u_{it})$.   (1)

The efficient level of output, y_{it}^*, defines as the predicted frontier output from a frontier production function, expressed as $y_{it}^* = f(x_{it}; t, \beta) \exp(v_{it})$ where, x_{it} denotes a vector of factor inputs for the ith industry with β being the parameters to be estimated, and v_{it} is a random disturbance term independently distributed as $N(0, \sigma_v^2)$. It is stochastic in the sense that it captures random effects on frontier output beyond the industry control. The difference between the efficient and the maximum output level is represented by the exponential factor, $\exp(u_{it})$ defined as the stochastic technical inefficiency referring to mismanagement. Therefore the production function to be estimated is express as $y_{it} = f(x_{it}; t, \beta) \exp(\varepsilon_{it})$, where ε_{it} is the error term composed of v_{it} and u_{it} i.e., $(\varepsilon_{it} = v_{it} - u_{it})$, which are independent from each other.

The density function of ε_{it} is given by:

$$f(\varepsilon_{it}) = \frac{1}{\sigma(2\pi)^{1/2}} \left[1 - F(\varepsilon_{it}/\sigma_v^2) \right] \exp\left(-1/2 \left[(\varepsilon_{it}^2/\sigma_u)^2 - (\varepsilon_{it}/\sigma_v^2)^2 \right] \right)$$ (2)

where $\sigma^2 = \sigma_u^2 + \sigma_v^2$. The $F(\bullet)$ function is representing the cumulative distribution of standard normal random variable. By substituting ε_{it} with $(Y_{it} - X_{it}\beta)$, the equation (2) is now called the log-likelihood function taking form of $L^*(\theta; Y_{it})$, in which the required stochastic parameters $\theta = (\beta, \sigma^2, \gamma)$ and $\gamma = \sigma_u^2/\sigma^2$ will be solved using the maximum likelihood estimations (MLE) procedure. It is worth to mention that, if the industry-specific variations which denoted by ratio between variations of industry-specific efficiency to total variations (γ), found to be significant, the

explanatory power of the said model improved. That is the variations of output sector are significantly explained by the inclusion of each specific industries. Permitting technical efficiency to vary over time, Battese and Coelli (1992) introduce specific parameter called eta (η_t) the unknown scalar parameter, which determines whether inefficiencies are time varying or time invariant for the u_{it} function. The u_{it} function is defined as $u_{it} = \exp\{-\eta(t-T_i)\}u_i$. The value of η_t is lie between zero and one. According to Battese and Coelli (1992), the behaviour of technical efficiency over time is due to this value. When η_t is positive $(i.e\, \eta_t > 0)$, the technical efficiency is rising at a decreasing rate, if η_t is negative $(i.e\, \eta_t < 0)$ the technical efficiency shows a declining pattern at an increasing rate, and if $\eta_t = 0$ technical efficiency remain unchanged across all industries and the model become time-invariant in nature.

Technical efficiency according to Battese and Coelli (1992) are obtained by estimating the minimum-square-error predictor i.e.,

$$TE_{it} = E\left[\exp(-u_{it})|\varepsilon_{it}\right] = \left[\frac{1-\Phi\left(\eta_t\sigma_* - (\mu_{*i}/\sigma_*)\right)}{1-\Phi\left(-(\mu_{*i}/\sigma_*)\right)}\right]\exp\left\{-\eta_t\mu_{*i} + 0.5\eta_t^2\sigma_*^2\right\} \tag{3}$$

where

$$\mu_{*i} = \frac{\mu\sigma_v^2 - \eta'\varepsilon_i\sigma_u^2}{\sigma_v^2 + \eta'\eta\sigma_u^2} \tag{3.1}$$

$$\sigma_*^2 = \frac{\sigma_u^2\sigma_v^2}{\sigma_v^2 + \eta'\eta\sigma_u^2} \tag{3.2}$$

$\eta' = (\eta_1\eta_2....\eta_T)$ and $\Phi(\bullet)$ is a standard normal cumulative distribution. $\tag{3.3}$

In this study, a common Cobb-Douglas frontier production function will be employed to represent the production technology and all unknown parameters estimated using the maximum likelihood estimation (MLE) procedure. The MLE method has been found to be preferred technique when the contribution of the inefficiency effects of the total variance is large (Coelli, Rao and Battese 1998). Output in the original model will be replaced with value added together with two independent variables i.e. capital and labour. All variables are transformed into natural logarithm form as a smoothing procedure to avoid outliers' in the observations.

4. Data Description

The annual data for all industries which observed throughout the periods of 1986 to 1995 were obtained from Department of Statistic Malaysia (DOSM). For each year, 28 industries in the 3 digits form are classified according to Malaysia Industrial Classification (MIC), 1979. This classification is a standard industrial classification based on International Standard of Industrial Classification (ISIC), Version 2.

Total observations across industries for the 10 years period is 280 with three variables involved make it perfect balance panel. Indigenous variable is value added, va, which is derived from subtracting total cost of input from value of gross output. The exogenous variables consists of capital, k, the value of fixed assets owned as at 31 December each year of observations and labour, l, is the total number of employees engaged during December or the last pay period each year of observations. Number of employees is used instead of man hours due to the unavailability of the data. All variables except total employees are in nominal thousand-ringgit nominations. This is to allow for price effect to be included in the analysis. All data transformed into its natural logarithm so as the entire coefficient indicate its elasticity. The summary statistics of the manufacturing industries for the periods of 1986 to 1995 is shown in Table 2.

5. Empirical Results

The model was estimated using Stata statistical program for the whole 1986-1995 samples. For all industrial groups, the estimated parameter of the model is reported as in Table 2. It is found that the parameter for both labour and capital is positive and highly significant. A Malaysian manufacturing industry during 1986-1995 periods was classified as input-driven, largely dominated by labour and capital. However to what extent that skilled and non-skilled labour contributes to this study is undetermined. Parameter estimates of the model are reported in Table 3.

The time varying coefficient, eta (η) found to be positive and highly significant. This value indicates that the technical efficiency for all manufacturing industries in Malaysia under the stipulated periods is rising over time across industries.

Moreover, the ratio of industry-specific variation to total variation (γ) is also highly significant. This indicates that the inclusion of the industry-specific efficiency related variable u_{it} in the equation is necessary to explain the variation of value added in the frontier equations.

It is found that, resources in the Malaysian manufacturing industries for the stipulated time periods are being utilized inefficiently. The technical efficiency (TE) figure for all industries in both groups is reported in Table 4. On average, technical efficiency across industries for the past 10 years was recorded increase only at 1.5 percent with annual progressive increment around 0.1 percentage points. The most technically efficient industry was 351 (Industrial Chemicals) with an average around 5.98 percent. The least efficient industry was 323 (Leather industries) with an average is less than half percent.

Surprisingly, the performance for resource-based (RBIs) under this periods supersede non-resources based industry with overall technical efficiency at 2.06 percent and 0.94 percent respectively. Moreover, 80 percent of the RBIs are among the top 8 ranking of the highly efficient industries with Electrical and Transport industries (383, 1.54% and 384, 1.59%) are ranked 9 and 10 respectively. It is clear that for the period of IMP1, RBIs found to be more technically efficient compared to its counterpart. Though the results prove that emphasize on RBIs in the early stage of implementing the IMP1 had been successfully achieved, but the intensity effect of capital found to be very minimal in the sector. Higher technical efficiency figure for RBIs might be due to the substantial labour market reform made available during the late 1980s and early 1990s and less affected by the investment incentives reform made through the amendment of the Promotion of Investment Act in 1986. As pointed out by Athukorala (1997), the amendment of the Investment Act in 1986 has caused foreign manufacturer shift their operation to a low-cost production country like Malaysia. Though total figure of FDI inflow to Malaysia has increased significantly right after the amendment, the investment also triggered huge needs in total employment (Athukorala and Menon, 1997) and leaving the sectors engaged with low capital synergy in their operations (Guyton, 1995 and Menon, 1998). The reliance of input factors in the Malaysian manufacturing sector is not surprising. Although the contributions of labour and capital were very obvious as shares of capital outdo shares of labour for almost six times, but most of the industries still relying on relatively cheap manpower for their operations. As reported by the World Bank (1995), although some advance technology have been brought into Malaysia as a results of massive FDI in 1990s, the technological incentives was not fully optimized as numbers of unskilled labour had lowering the R&D ratio, preventing the capital-intensive sectors to operates beyond its potentials.

According to figure released by Bank Negara Malaysia (BNM) in the 2000, Malaysia is a way behind from Japan, Taiwan, South Korea and Singapore in terms of research and development (R&D) expenditure. The ratio of R&D expenditure to GDP was recorded low at only 0.6% in 1992 and 1994. Although Malaysia had successfully attracted FDI from the NIEs during the 1990s, the principle mode of technology acquisition however is not well integrated in such investment. The said situations reflect a minimal total factor productivity growth (TFP) during 1980s and 1990s as reported by Okamoto (1994) and Tham (1996).

6. Summary and Conclusion

The implementation of IMP1 (1986-1995) had successfully changed the Malaysian manufacturing landscape into more comprehensive and structured industry but such developments only promoting RBIs rather than non-RBIs. The initial target to enhance the said industries was a tremendous achievement though a mixture of investment strategies and substantial labour market reform implemented during the plan. The massive inflow of FDI followed by liberalization and deregulation measure of investment policy had resulted in significant shift of investment intensity within the economy. However technological efficiency by mean of FDI is still very low and this might contribute to the low skills intensity among the workforce that translated into constant value added growth over time. Although emphasize had been focusing into science and development and human resource development to further support the industrialization process, but the results is not fully achieved. As noted by Lall (2001), Malaysia has unable to fulfill the technical gap (constant supply of skilled workers) needed by the industries although reform of educational system had been made in the 1990s (Tham, 1997). The shortage of skilled workers had also reported by the World Bank (1995).

Lastly, the performance of Malaysian manufacturing industries for the periods of IMP1 is clearly not so impressive. Massive foreign investment inflow through the amendment of Investment Act in 1986 had inefficiently absorbed as reliance on cheap (foreign) labour in the production process has growingly increased. This would in turn preventing absorptions process of advanced technology brought by the Multinational Corporations (MNCs).

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Table 1. Summary Statistics on the manufacturing industries, 1986-1995 (mean)

Industry Code	Industry Description	Value added (RM'000)	Labour (total workers)	Capital (RM'000)
311-312*	Food	2814642.00	77467.62	619517.00
313*	Beverage	391382.60	4688.42	75562.39
314*	Tobacco	453121.20	5963.42	32570.26
321	Textiles	987578.40	38467.72	562041.80
322	Wearing Apparel	742391.60	59515.77	110515.30
323	Leather	28446.97	2123.11	6919.25
324	Footwear	22568.04	1508.61	4591.86
331*	Wood	1895654.00	96224.31	766400.20
332*	Furniture & Fixtures	334098.60	21629.21	109084.90
341*	Paper	500743.20	14602.00	365806.20
342*	Printing, Publishing	853272.10	24346.51	194425.60
351*	Industrial Chemicals	2429758.00	10239.00	996976.10
352*	Other Chemicals	760144.40	13106.60	158822.40
353*	Petroleum Refineries	659984.60	1514.70	364441.90
354*	Misc. Product of Petroleum and Coal	112539.90	1052.20	11484.43
355*	Rubber	1588727.00	57263.00	448852.60
356*	Plastic	976407.00	40319.01	400543.80
361	Pottery, China & Earthenware	105268.20	6544.20	28426.41
362	Glass	222641.40	3672.30	207373.30
369*	Non-metallic Mineral	1392943.00	25969.30	531495.40
371	Iron & Steel	753167.10	14587.40	732210.40
372	Non-Ferrous Metal	237478.40	5260.20	134179.70
381	Fabricated Metal	1178881.00	37871.21	385455.00
382	Machinery	1307572.00	31831.71	472500.00
383	Electrical Machinery	7564669.00	235199.20	3279418.00
384	Transport Equipment	1438130.00	28965.90	537689.40
385	Professional & Scientific & Measuring Controlling Equipment	350173.30	14781.90	146082.40
390	Other Manufacturing	315281.90	16771.01	58920.88

Note: an asterisk (*) besides the classification denote RBIs

Table 2. Percentage Contributions of Value-added shares in Manufacturing Sector, Malaysia

Industries	1985	1990	1996
Food, beverage and tobacco	14.7	9.7	8.8
Textiles, clothing and footwear, and leather products	4.9	6.5	4.6
Wood products and furniture	6.2	7.2	6.8
Paper and printing	5.2	4.6	4.3
Chemicals	15.8	10.8	7.8
Petroleum and coal	3.2	2.6	2.5
Rubber	3.4	4.7	4.0
Non-metallic mineral products	6.1	4.9	4.1
Metal products	3.0	3.5	3.5
Machinery	2.0	3.9	5.6
Electrical machinery	15.1	21.5	30.5
Transport equipment	4.3	5.5	6.3

Source: Department of Statistics (Malaysia)

Table 3. Maximum Likelihood Estimates (MLE) of the Stochastic Production Frontier

Variables	Parameter	Parameter estimates	
Constant	β_0	9.7772	(1.4118)***
Labour (industry)	β_l	0.0952	(0.0215)***
Capital (industry)	β_k	0.7011	(0.0499)***
Mu	μ	4.1370	(1.3856)***
Eta	η	0.0176	(0.0054)***
Sigma2	σ^2	0.4415	(0.1155)***
Gamma	γ	0.9346	(0.0180)***
Sigma_u2	σ_u^2	0.4127	(0.1155)***
Sigma_v2	σ_v^2	0.0289	(0.0026)***
Log likelihood		27.1704	
AIC		-40.3409	
Total industry		28	
Time period		1986-1995	

Note: Figures in parentheses are asymptotic standard errors

*** Significant at the 1% level

Table 4. Technical Efficiency (TE) for All Group, 1986-1995

	Group	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Mean
	311-312*	0.0115	0.0124	0.0134	0.0145	0.0156	0.0168	0.0180	0.0193	0.0207	0.0221	0.0164 (8)
	313*	0.0147	0.0158	0.0170	0.0182	0.0195	0.0209	0.0224	0.0239	0.0255	0.0272	0.0205 (4)
	314*	0.0170	0.0183	0.0196	0.0210	0.0224	0.0240	0.0256	0.0273	0.0291	0.0309	0.0235 (3)
	321	0.0064	0.0070	0.0076	0.0083	0.0090	0.0098	0.0106	0.0115	0.0124	0.0134	0.0096 (18)
	322	0.0039	0.0043	0.0048	0.0052	0.0057	0.0063	0.0069	0.0075	0.0081	0.0089	0.0062 (24)
	323	0.0018	0.0020	0.0022	0.0025	0.0027	0.0030	0.0033	0.0037	0.0041	0.0045	0.0030 (28)
	324	0.0019	0.0022	0.0024	0.0027	0.0030	0.0033	0.0036	0.0040	0.0044	0.0048	0.0032 (27)
	331*	0.0062	0.0067	0.0074	0.0080	0.0087	0.0095	0.0103	0.0111	0.0120	0.0130	0.0093 (20)
	332*	0.0032	0.0035	0.0039	0.0043	0.0047	0.0052	0.0057	0.0062	0.0068	0.0074	0.0051 (25)
	341*	0.0063	0.0069	0.0075	0.0081	0.0089	0.0096	0.0104	0.0113	0.0122	0.0132	0.0094 (19)
	342*	0.0082	0.0090	0.0097	0.0105	0.0114	0.0123	0.0133	0.0144	0.0155	0.0166	0.0121 (14)
	351*	0.0471	0.0497	0.0523	0.0551	0.0580	0.0609	0.0640	0.0671	0.0704	0.0737	0.0598 (1)
	352*	0.0123	0.0133	0.0143	0.0154	0.0166	0.0178	0.0191	0.0205	0.0219	0.0234	0.0174 (6)
	353*	0.0467	0.0492	0.0519	0.0546	0.0575	0.0604	0.0635	0.0666	0.0698	0.0731	0.0593 (2)
	354*	0.0122	0.0131	0.0142	0.0152	0.0164	0.0176	0.0189	0.0203	0.0217	0.0232	0.0173 (7)
	355*	0.0083	0.0090	0.0098	0.0106	0.0115	0.0124	0.0134	0.0144	0.0155	0.0167	0.0122 (13)
	356*	0.0056	0.0061	0.0067	0.0073	0.0080	0.0087	0.0094	0.0102	0.0111	0.0120	0.0085 (21)
	361	0.0030	0.0033	0.0036	0.0040	0.0044	0.0049	0.0053	0.0058	0.0064	0.0070	0.0048 (26)
	362	0.0078	0.0085	0.0092	0.0100	0.0109	0.0118	0.0127	0.0137	0.0148	0.0159	0.0115 (15)
	369*	0.0123	0.0133	0.0143	0.0154	0.0166	0.0178	0.0191	0.0205	0.0219	0.0235	0.0175 (5)
	371	0.0102	0.0110	0.0119	0.0129	0.0139	0.0150	0.0161	0.0173	0.0186	0.0200	0.0147 (11)
	372	0.0069	0.0076	0.0082	0.0089	0.0097	0.0105	0.0114	0.0123	0.0133	0.0144	0.0103 (17)
	381	0.0075	0.0082	0.0089	0.0096	0.0105	0.0113	0.0122	0.0132	0.0143	0.0154	0.0111 (16)
	382	0.0087	0.0095	0.0103	0.0111	0.0121	0.0130	0.0141	0.0151	0.0163	0.0175	0.0128 (12)
	383	0.0107	0.0116	0.0126	0.0136	0.0146	0.0157	0.0169	0.0182	0.0195	0.0209	0.0154 (10)
	384	0.0111	0.0120	0.0130	0.0140	0.0151	0.0162	0.0174	0.0187	0.0201	0.0215	0.0159 (9)
	385	0.0046	0.0051	0.0056	0.0061	0.0067	0.0073	0.0079	0.0086	0.0094	0.0102	0.0071 (22)
	390	0.0042	0.0046	0.0051	0.0056	0.0061	0.0067	0.0073	0.0079	0.0086	0.0094	0.0065 (23)
Mean	Overall	0.0107	0.0115	0.0124	0.0133	0.0143	0.0153	0.0164	0.0175	0.0187	0.0200	**0.0150**
	RBIs	0.0151	0.0162	0.0173	0.0185	0.0197	0.0210	0.0224	0.0238	0.0253	0.0269	**0.0206**
	Non-RBIs	0.0063	0.0069	0.0075	0.0082	0.0089	0.0096	0.0104	0.0113	0.0122	0.0131	**0.0094**

Note: Industry with an asterisk is classified as Resource-based otherwise is Non-resource based; Figure in parenthesis indicate ranking for each industry