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THE IMPACT OF MANUFACTURING EFFICIENCY ON THE INDONESIAN WELFARE

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Abstract: *Un-optimal level of manufacturing technical efficiency affects substantially to ineffectiveness in supporting macroeconomic performance, especially the acceleration of economic growth, employment and welfare. By employing a dynamic recursive computable general equilibrium (CGE) model for the Indonesian economy, this study analyses the impact of efficiency increase in manufacturing and the combination with transportation on macroeconomic and industrial performance in 2025. The simulation results demonstrate that efficiency increase in manufacturing lead macroeconomic performance up, welfare of all groups of households increased, however the employment in all types of labour except for the operator down. The study suggests that the government should always promote the increase of manufacturing efficiency with simultaneously restrain the rate of price increases, and arrange the policies that support the enhancement of the labour skills through formal education.*

Keywords*: Indonesia manufacturing industry; efficiency of industry, welfare impact. computable general equilibrium*

JEL Classification: *L60, L16, I31, C68*

INTRODUCTION

Manufacturing industry is one of the economic sectors that provide an important role to Indonesian economic development. After experiencing a critical condition in 1998, specifically due to the global economic and financial crisis, gradually, manufacturing industry is back to be a leading sector in Indonesian economy. The manufacturing contributes the GDP by 25.49% in 2014, the highest share than the other sectors. The major dimensions that drive the manufacturing development after economic crisis 1998 lie on the diversification (Rodrick, 2006), in which the structural transformation within manufacturing in Indonesia clearly shows the shift from light industries that are labour-intensive to heavy industries that are capital or technology intensive (Hill *et al*, 2008). Table 1 shows the stages of industrial development in Indonesia, since 1967 to recently.

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Table 1
The periods of industrialization in Indonesia 1967–2025

Period of Industrial Development	*Basic Condition*	*Industrial Development Policies*	
		Development Strategy	*MarketOrientation*
1967 – 1972	Rehabilitation and Stabilization	Import Substitution (IS)	Inward Looking (IL)
1973 – 1981	Oil Booming	Import Substitution (IS)	Inward Looking (IL)
1982 – 1985	Oil Price Declining	• Import Substitution**(+)** • Deepening industrial structure • High technology industrial based	Inward Looking (IL)
1986 – 1996	Oil Price Declining	• Import Substitution (IS)**(+)** • Deepening industrial structure • High technology industrial based • Export orientation industries	Outward Looking (OL)
1997 – 2004	Economic Crisis and Recovery	• Revitalization, Consolidation, and Restructuring Industry	Inward Looking (IL) and Outward Looking (OL)
2005 – 2009	Recovery and Development	• Revitalization, Consolidation, and Restructuring Industry**(+)** • Cluster and Regional Based Approach	Inward Looking (IL) and Outward Looking (OL)
2010 – 2025	Global Competition Level	• Cluster and Regional Based Approach • Rapid growth • Global Value-Chain	Inward Looking (IL) and Outward Looking (OL)

Source: compiled from Ministry of Industry Republic of Indonesia (2005); Ministry of Industry Republic of Indonesia (2015); Ministry of State Secretariat Republic of Indonesia (2014).

Industrial development policy reforms, including trade implemented by the GOI provide an important challenge for the improvement of welfare. The improvement of resource allocation and the whole economy efficiency leads to enhance the people's welfare. Dhanani (2000) reported that the manufacturing industry efficiency and productivity increased since the intensive industrial policy reforms implemented by the GOI. However, this improvement has not be enable to drive the competitiveness of manufacturing industry to the optimal level. It is proved by level of capacity utilization. The Ministry of Industry reports that the capacity utilization of manufacturing industry, onaverage, is 65 percent during 2005–2014. It is lower than prior to the period of financial crisis 1998, which reached 85 percent, on average. In addition, the manufacturing contribution to the GDP also tends to be constant since 2004, at level 30–32 percent. According to the data, since early 1970 sun til recent times, the distribution of manufacturing industry is concentrated in Java with total share of value added, labour and number of firm around 75 to 80 percent. This regional distribution of manufacturing industry has a crucial consequence on the resources' distribution, especially transportation. With unequal distribution of value added a mongregions (provinces), the intra-regional welfare will also be unbalanced, so that the distribution of manufacturing input and output is very important ford is tribution of welfare as a whole.

This study aims to analyse the efficiency and productivity change in manufacturing industry toward the Indonesian macroeconomic performance and welfare in the framework of general equilibrium model. From theoretical and practical perspective, this study contributes on the mix analysis that integrates several simulation scenarios, specifically the structural changes in manufacturing industry, in which the level of efficiency and productivity is obtained from factual data or empirical estimation technique. Moreover, this study provides a series of policy implications on macroeconomic performance based on the industrial development.

This paper consists of five sections, following the introduction is literature review, discussing of the impact of productivity on the economy. Consecutively, the rest of the paper is organized as: research model, estimation and analysis, and conclusion.

1. Literature review

Based on Fulginiti and Perrin (2005), productivity growth is traditionally defined as the difference between the growth rate of output produced and the level of input used. The difference reflects the changes in technology that can produce an output based on a fixed number of inputs. The productivity affects the welfare without prices distortions through the changes in production possibility frontier, which show the changes in technology. The increase of technology improves the consumer utility or welfare in the equilibrium of the higher quantity of goods and lower prices.

The importance of efficiency for improving a wide economy performance has been recognized since the first stage of neoclassical growth theory proposed by Solow (1956)

and Swan (1956). The formulation of productive efficiency it self is pioneered by Farell (1957), and it became very popular after a seminal work proposed by Meeusenandvan Broeck (1977) and Aigner, Lovell and Schmidt (1977). The study of the efficiency level in Indonesia is firstly conducted by Pittand Lee (1981) focusing on the weaving industry, then, following by Hilland Kalirajan (1993). The most recently studies are, for example, Battese et al. (2001), Takii and Ramsetter (2005), Vial (2006), and Suyanto et al. (2012) Most of those studies focus on the analysis of technical efficiency change and productivity growth and its determinant, which one of the aimsisto figure out the importance of efficiency as the source of productivity growth. Meanwhile, the specific studies of the effect of efficiency and productivity change upon macroeconomic performance are mostly performed by the Indonesian Government Institutions, which is intended to support the formulation of national development planning. The Ministry of National Development Planning (Bappenas) is one of the government institutions that use the simulation on the efficiency change to formulate the national development planning.

2. Data and methodology

The research model using the Indonesia social accounting matrices (SAM) 2008 and the Indonesia Input-Output (I-O) 2008 as a database. Indonesia SAM 2008 has 23 production sectors, and in this research, it developed into 50 sectors (the classification of industries and commodities can be seen in the Table 3, the estimation result). The data base model of Indonesia RD-CGE shows in Figure 2. The tittle of column identifies the domestic producers which were classified as industriesi, investors in industriesi, ten households, aggregate buyers of export, other demand categories (i.e.government), and the stock changes of domestic goods productions.

By using the data classification of I-O and SAM 2008 (BPS, 2010a; 2010b), households were divided into 10 groups/types of households, which were distinguished based on income and resources. Table 1 shows the classification of the household. Labour is classified into 4 types, i.e. 1) Labor1 (Agriculture); 2) Labor2 (Production, Transport - Equipment Operators, Manual and Unskilled labourers); 3) Labor3 (Administration, Sales, Service); and 4) Labor4 (Leadership, Management, Military, Professional and Technician).

The research model is are cursive dynamic computable general equilibrium (RD-CGE) for the Indonesian economy. The basic model which is used as are ferenceis ORANI for Australian economy, which is developed by Centre of Policy Studies (CoPS) and CGE models of Indonesian economy, suchas WAYANG (Erwidodo, Stringer, and Wittwer, 1999), INDORANI (Abimanyu, 2000), INDOF (Oktaviani and Drynan, 2000), AGRINDO Haryono (2008) and PERTANINDO-F(Firmansyah, 2013).

RD-CGE model for this researchis the PERTANINDO-F (Firmansyah, 2013), with modification. PERTANINDO-F is a single period recursive model, with dynamic element in the model is represented by capital accumulation and employment growth from year to year. In this study, the policy scenarios are simulated up to 2020. The

system of equations that forms the basis of the model are demand for labour, demand for primary factors, demand for intermediate inputs, demand for composite primary factors and intermediate inputs, commodity composites of industry outputs, demand for investment goods, demand for margins, household demands, export and other final demands, purchaser's prices, market clearing conditions, indirect taxes, GDP from the income and expenditure sides, trade balance and other aggregates, rates of return and indexing and other equations, investment-capital accumulation, and real wage adjustment mechanism.

Table 1
Household classification

No	*Household classification*	*Code*
	Agriculture	
1	Employees	RHH1
2	Operator, Land Owner 0.000 - 0.500 Ha	RHH2
3	Operator, Land Owner 0.501 - 1.000 Ha	RHH3
4	Operator, Land Owner >1.000 Ha	RHH4
	Non-Agriculture	
	Rural	
5	Lower Level; Non Agriculture Self Employed, Clerical, Retail Sales, Personal Services, and Transport & Manual Workers	RHH5
6	Non Labor Force and Unclassified Household	RHH1
7	Higher Level; Non Agriculture Self Employed, Clerical & Sales, Services, Managers, Supervisors, Technicians, Teachers, and Non Civilians	RHH1
	Urban	
8	Lower Level; Non Agriculture Self Employed, Clerical, Retail Sales, Personal Services, and Transport & Manual Workers	UHH1
9	Non Labor Force and Unclassified Household	UHH2
10	Higher Level; Non Agriculture Self Employed, Clerical & Sales, Services, Managers, Supervisors, Technicians, Teachers, and Non Civilians	UHH3

RD-CGE model assumes that all producers operate in a perfect competitive market, which generate profit, both in input and output markets. All economic agents are price-takers. The equations of demand and supply for the private sector derived from the optimization problem solution (cost minimization cost and utility maximization, etc.) are assumed to underlie the behaviour of agents in the conventional neo-classical microeconomics. The model is solved using the equations of non-linear with the percentage changes of the variables(Wittwer, 1999).

3. ESTIMATION AND ANALYSIS

3.1. Scenario of simulation and the time frame of the impact

RD-CGE model can producesoutput in yearly predictions, so the policy shocks can be simulated until several years ahead. The simulation results of the shocks in this study are estimated until 2025.

The policy scenarios that are used to simulate the economic impact is the increase of the efficiency of the manufacturing industries (code 29-38). Moreover, it also be seen how the support of the transportationindustries (code 45-47) on the economy. So, it is known how the efficiency of the manufacturing industries is supported by the efficiency of the transportation industries.

The scenarios are:

1. Increase of the efficiency by 10 percent for all manufacturing industries (SIM1).
2. Increase of the efficiencyby 30 percent for all manufacturing industries (SIM2).
3. The combination of the 10 percent increaseof the efficiency of the manufacturing industriesand 20 percent increase of the efficiency of the transportionindustries (SIM3).
4. The combination of the 30 percent increaseof the efficiency of the manufacturing industriesand 20 percent increase of the efficiency of the transportionindustries (SIM4).

3.2. Simulation results and interpretation

3.2.1. Macroeconomic impact

Ingeneral, the increase of the efficiency in the manufacturing and transportation industries improve welfare. The higher the level of efficiency of the manufacturing sector (SIM1 to SIM2), the higher the return to the economy. The 10 increase of the efficiency in the manufacturing industries (SIM1) leads 2.66 percent increase in real GDP in 2025. The 30 percent increase of the efficiency of the manufacturing industries (SIM2) boosts GDP by 7.98 percent. The combination of efficiency increases in the manufacturing and transportation industries (SIM3 and SIM 4) drive higher the economic growth.

Table 2
Macroeconomic Impact of the Increase of the Efficiency of Manufacturing and Transportation industries (in percentage changes)

Description	*SIM1*	*SIM2*	*SIM3*	*SIM4*
%(Balance of trade)/GDP (change)	0.23	0.68	0.38	0.84
Aggregate employment: wage bill weights	0	0	0	0
Real devaluation	-2.76	-8.29	-2.52	-8.05
Consumer price index	3.36	10.08	3.09	9.81
Average real wage	2.88	8.63	3.92	9.67
Real GDP from expenditure side	2.66	7.98	4.02	9.34
Import volume index, duty-paid weights	3.42	10.26	3.97	10.81
Aggregate capital stock, rental weights	0	0	0	0
Aggregate real investment expenditure	-0.03	-0.09	0.18	0.12
Real household consumption	3.14	9.42	4.63	10.91
Export volume index	4.68	14.03	6.27	15.62
Aggregate real government demands	0	0	0	0

The aggregate real wages and household consumption also increase when the efficiency of the manufacturing industries increase, and when it combine by the increase of the efficiency of the transportation industries. It is seen that the increase of manufacturing efficiency alone (SIM1 and SIM2) lead in an increase in prices higher than with the combination of the increaseof manufacturing and transportation efficiency (SIM 3 and SIM4). The increase of economic activities due to the increase of the efficiency of manufacturing industries, with the aggregate employment is assumed to be constant, encourage an increase in real wages. The price increase is due to an increase in wages and the increase of aggregate demand including exports.

These economic activities generate the positive changes in all macroeconomic indicators until 2015, beside the negative of currency devaluation (revaluation) and the aggregate investment in SIM1 and SIM2 simulations (Table 2). The negative devaluation of currency was reasonable because the more efficient of manufacturing and transportation industries, strengthening the domestic economy, then strengthenthe rupiahs compared to US dollar. Investment spending is estimated to be negative due to the increase of efficiency in manufacturing industries, require more capital, and then increase the capital lease. This matter can be confirmed while the prices of capital by industries, which are increased in general. The increase of the efficiency of the transportation industriesto help to suppress a decrease in the investment.

The increase of economic activities is also reflected in the increase in international trade, and percentage of balance of payment (BOP) of GDP. The combination of the efficiency increase in the manufacturing and transportation industries lead to improve further the growth of international trade volume.

3.2.2. Industry, employment, and household impact

The impact of efficiency increase in the manufacturing and transportation which were carried out by each scenario simulations (SIM1, SIM2, SIM3, and SIM4), to each industries can be seen in Table 3. The increase of efficiency in the manufacturing industry, SIM1 and SIM2, leads to higher output of each industry, and lower the employment and investment in mostly manufacturing industries. Meanwhile, the impact on the domestic price, specifically for manufacturing industries, shows a various results. Its impact depends on the characteristic of each industry, such as technology. In addition, as expected, increasing productive efficiency level drives the level of industry output because with higher efficiency, firm requires lower input for production process. Higher productive efficiency indicates a better technology used in production process, it is proved by the adjustment of the employment level in almost manufacturing industries. Different with the SIM1 and SIM2, SIM3 and SIM4 show the greater impact on all main indicators, showing that with the increase of efficiency in transportation industry, it allows providing a better condition.

The simulation results of SIM1, SIM2, SIM3 and SIM 4 indicate that the direction of employment changes, on average, is similar for all manufacturing industries except for production, transport equipment operators, manual and unskilled labours (Labor2). The increase of efficiency in the manufacturing industries leads to increase the income levels in most of these industries. By assuming that the aggregate employment is constant, then labours by other occupation types shift to the production, transport equipment operators, manual and unskilled labours (Labor2).

Finally, Table 4 shows the impact of the increase of efficiency in manufacturing and transportation industries on household consumption. Household consumption is projected to increase in all household types. The Increase of consumption signifies that the level of welfare is projected to increase is on all of Households. This increase is associated with an increase in wages and prices as a result of increasingly efficient manufacturing and transportation industries.

CONCLUSIONS

In general, the efficiency increase in the manufacturing industries, as well as supported by the efficiency increase in the transportation industries, improve the economy and welfare. Macroeconomic indicators, industries, and household show the positive movement.

The increase in manufacturing industries efficiency lead to increase GDP, real consumption, wage levels, and stimulate exports and imports in 2025. The aggregate prices is projected to increase as the efficiency increase. This is due to the increase in real wages and an increase in export demand. The combination of the efficiency increase in manufacturing and transportation industries lead to the real GDP to grow higher, and the combination can restrain the rate of the aggregate price increase.

The increase in the level of efficiency in the manufacturing industry that positively affects on welfare should be driven and facilitated continuously by the government of Indonesia through industrial policies. However, due to the rise of aggregate prices which accompanies the efficiency increase, it also requires policies that can suppress the impact, such as a policy that ensures the smoothness and continuity of the inputs or final goods distribution - in accordance with the effects of efficiency increase in the transportation industry.The indication of a shift in the type of occupation to the production, transport equipment operators, manual and unskilled labours (Labor2), the government is suggested to prepare the policies that support the enhancement of the labour skills through formal education. Finally, for future research, it is suggested to be developed a fully dynamic model, the combination of more complex scenarios, and updating the data and elasticity of variables may be covering the recent economic activities.

Table 3
Industrial impact of the increase of the efficiency of manufacturing and transportation industries (in percentage changes)

No	*Industries*	*Domestic prices*				*Domestic Output*				*Employment*				*Investment*			
		SIM1	*SIM2*	*SIM3*	*SIM4*	*SIM1*	*SIM2*	*SIM3*	*SIM4*	*SIM1*	*SIM2*	*SIM3*	*SIM4*	*SIM1*	*SIM2*	*SIM3*	*SIM4*
1	Paddy	14.20	42.59	17.22	45.61	1.89	5.68	2.43	6.22	0.81	2.43	1.44	3.06	6.06	18.18	8.09	20.22
2	Maize	14.44	43.31	17.10	45.98	1.86	5.58	2.06	5.78	0.85	2.55	0.99	2.69	6.18	18.55	6.68	19.04
3	Cassava	14.89	44.67	17.99	47.77	0.75	2.24	1.09	2.59	-0.25	-0.74	0.23	-0.26	2.7	8.1	4.26	9.66
4	Sweet potatoes	14.31	42.93	17.51	46.13	-0.44	-1.32	-0.19	-1.07	-1.84	-5.52	-1.47	-5.15	-0.11	-0.34	-0.06	-0.28
5	Groundnut	14.04	42.11	16.96	45.03	-0.40	-1.19	-0.32	-1.11	-1.79	-5.36	-1.71	-5.28	-2.19	-6.57	-1.91	-6.29
6	Soybean	9.72	29.16	11.32	30.76	-3.54	-10.63	-4.52	-11.61	-7.03	-21.08	-8.68	-22.73	-0.91	-2.74	-1.16	-2.99
7	Vegetables	12.99	38.98	15.89	41.88	-1.18	-3.53	-0.98	-3.33	-3.09	-9.26	-2.93	-9.1	-6.33	-18.99	-5.78	-18.44
8	Fruits	13.24	39.72	16.31	42.79	-0.87	-2.61	-0.7	-2.44	-2.76	-8.28	-2.56	-8.08	-5.29	-15.87	-4.63	-15.21
9	Other food crops	10.47	31.42	12.39	33.34	-1.57	-4.71	-2.14	-5.28	-4.77	-14.31	-5.87	-15.41	-0.56	-1.69	-0.73	-1.86
10	Rubber	18.73	56.19	21.47	58.93	10.33	31	10.88	31.55	12.55	37.64	13.17	38.26	42.42	127.27	44.26	129.11
11	Sugarcane	12.82	38.46	14.78	40.42	0.50	1.5	0.14	1.15	-0.63	-1.89	-1.28	-2.54	0.54	1.61	-1.68	-0.6
12	Coconut	14.52	43.55	17.03	46.06	1.57	4.71	1.6	4.74	1.29	3.88	1.28	3.86	6.65	19.95	6.44	19.74
13	Palm oil	13.98	41.95	16.17	44.13	4.46	13.37	4.47	13.38	4.98	14.95	4.84	14.81	18.38	55.15	17.77	54.54
14	Tobacco	8.92	26.77	10.72	28.57	4.65	13.95	4.65	13.95	1.6	4.81	1.14	4.34	7.64	22.91	6	21.28
15	Coffee	5.06	15.19	5.98	16.11	-6.62	-19.86	-8.29	-21.53	-12.54	-37.63	-15.32	-40.41	-37.33	-112	-46.32	-120.99
16	Tea	15.06	45.18	17.24	47.36	2.79	8.37	2.39	7.97	2.67	8.01	1.97	7.31	11.03	33.1	8.64	30.7
17	Clove	12.49	37.48	14.23	39.21	0.28	0.83	-0.5	0.06	-1.59	-4.77	-2.99	-6.17	-2.51	-7.52	-7.14	-12.15
18	Cocoa	1.49	4.48	1.79	4.77	-8.82	-26.47	-10.69	-28.34	-16.64	-49.93	-19.9	-53.19	-50.36	-151.09	-60.88	-161.61
19	Cashew fruit	7.18	21.55	8.42	22.79	-4.72	-14.15	-5.88	-15.32	-9.43	-28.3	-11.48	-30.34	-27.44	-82.32	-34.11	-88.99
20	Other estate crops	3.99	11.96	4.94	12.91	-5.10	-15.31	-5.91	-16.12	-11.3	-33.89	-12.87	-35.46	-1.61	-4.84	-1.86	-5.09
21	Livestock	13.3	39.9	15.7	42.31	1.42	4.27	1.09	3.94	1.29	3.87	0.89	3.47	6.64	19.93	5.22	18.51
22	Fresh Milk	11.6	34.79	13.56	36.75	0.50	1.5	0.36	1.36	0.15	0.45	0	0.3	3.02	9.05	2.39	8.42
23	Poultry	9.71	29.14	11.81	31.24	1.51	4.53	2.19	5.21	1.43	4.3	2.27	5.14	7.1	21.3	9.6	23.79
24	Other livestock raising	12	36.01	14.43	38.43	-4.64	-13.92	-5.26	-14.54	-6.03	-18.09	-6.76	-18.81	-16.62	-49.87	-19.09	-52.34
25	Forestry and hunting	10.99	32.97	12.64	34.62	-2.04	-6.12	-2.67	-6.75	-3.19	-9.57	-4.05	-10.43	-0.52	-1.57	-0.7	-1.74
26	Fishery	11.64	34.92	13.94	37.22	-0.82	-2.47	-0.97	-2.61	-2.5	-7.51	-2.84	-7.85	-0.02	-0.06	-0.02	-0.06
27	Mining	0.98	2.95	1.09	3.05	-0.47	-1.41	-0.4	-1.34	-2.24	-6.72	-2.3	-6.78	0	0	0	0
28	Other mining and quarrying	3.02	9.06	3.18	9.22	-0.42	-1.26	0.01	-0.83	-1.03	-3.08	-0.69	-2.74	0	0	0	0
29	Rice milling	5.64	16.92	7.93	19.22	1.87	5.6	2.4	6.14	-15.21	-45.64	-14.54	-44.97	-20.2	-60.6	-18.6	-59
30	Flour	-2.1	-6.31	-1.55	-5.76	4.92	14.76	5.54	15.38	-8.13	-24.38	-7.42	-23.68	-0.01	-0.02	0	-0.02
31	Sugar	3.84	11.51	4.89	12.56	0.48	1.45	0.11	1.08	-14.02	-42.06	-14.83	-42.87	-22.7	-68.09	-23.19	-68.58

contd. table

No	Industries	Domestic prices				Domestic Output				Employment				Investment			
		SIM1	SIM2	SIM3	SIM4	SIM1	SIM2	SIM3	SIM4	SIM1	SIM2	SIM3	SIM4	SIM1	SIM2	SIM3	SIM4
32	Other food, beverages, and tobacco	-1.49	-4.48	-1.01	-3.99	5.28	15.85	5.13	15.69	-8.95	-26.85	-9.45	-27.35	0	0	0	0
33	Textile, wearing apparel and leather	-2.11	-6.32	-2.14	-6.36	11.15	33.44	11.78	34.07	1.5	4.49	2.12	5.11	0	0	0	0
34	Wood products	-1.97	-5.91	-1.95	-5.9	9.31	27.93	9.51	28.13	-1.75	-5.24	-1.38	-4.87	0	0	0	0
35	Paper, paper products, transport equipment, machinery and iron	-2.46	-7.38	-2.35	-7.27	10.62	31.87	11.18	32.43	0.95	2.86	1.57	3.48	0	0	0	0
36	Fertilizer	-3.71	-11.13	-2.89	-10.31	8.48	25.43	10.25	27.2	-2.49	-7.46	-0.02	-4.99	-2.76	-8.29	1.36	-4.17
37	Pesticide	-4.69	-14.08	-4.48	-13.87	1.12	3.37	2.81	5.06	-13.63	-40.9	-11.48	-38.75	-24.7	-74.1	-19.69	-69.09
38	Other chemical and cement	-2.53	-7.58	-2.13	-7.18	3.59	10.78	6.09	13.27	-9.18	-27.53	-5.98	-24.33	0	0	0	0
39	Electricity, Gas and Water	3.8	11.41	4.78	12.39	4.18	12.55	5.7	14.06	6.47	19.42	8.67	21.61	0.52	1.57	0.72	1.77
40	Irrigation building	2.75	8.24	3.22	8.71	-0.01	-0.02	0.18	0.17	-0.28	-0.84	-0.07	-0.63	0.84	2.53	1.38	3.07
41	Construction	2.38	7.13	2.93	7.68	0.04	0.12	0.46	0.54	-0.33	-0.99	0.37	-0.29	0	0	0	0
42	Trade	5.67	17.02	10.11	21.45	0.68	2.03	2.54	3.9	1.96	5.87	7.54	11.45	0.46	1.37	1.44	2.35
43	Restaurant	5.97	17.92	7.65	19.6	1.05	3.14	2.13	4.22	1.71	5.14	3.81	7.23	2.02	6.05	3.44	7.47
44	Hotel	-2.1	-6.29	4.33	0.14	-4.26	-12.77	-0.53	-9.05	-10.62	-31.85	-2.01	-23.24	-4.77	-14.32	0.34	-9.21
45	Road and railway transport	4.61	13.83	-14.16	-4.94	2.51	7.53	8.09	13.1	4.55	13.66	-22.79	-13.69	0.16	0.47	-0.61	-0.29
46	Air and water transport, and communication	2.83	8.48	-16.08	-10.43	-0.24	-0.72	11.07	10.59	-1.49	-4.47	-16.9	-19.89	0	0	-0.01	-0.01
47	Services allied to transport	2.2	6.6	-16.22	-11.83	-1.11	-3.34	13.36	11.13	-2.32	-6.97	-12.92	-17.56	-0.93	-2.78	-7.51	-9.37
48	Bank and insurance	8.24	24.73	11.07	27.55	1.53	4.58	2.71	5.76	3.22	9.66	5.91	12.35	0.01	0.03	0.02	0.03
49	Agriculture services	8.34	25.01	9.59	26.26	1.36	4.09	1.64	4.36	2.96	8.88	3.47	9.39	1.97	5.91	2.51	6.45
50	Real estate and business service	4.27	12.8	6.53	15.06	0.17	0.52	1.3	1.65	-0.6	-1.79	1.85	0.66	0.05	0.15	0.18	0.28

Table 4
Household Impact of the Efficiency of Manufacturing and Transportation Industries on Nominal Consumption (in percentage changes)

	Household	*SIM1*	*SIM2*	*SIM3*	*SIM4*
1.	RHH1	6	18.01	7.95	19.96
2.	RHH2	3.5	10.51	5.08	12.09
3.	RHH3	3.76	11.29	5.32	12.84
4.	RHH4	3.94	11.81	5.58	13.45
5.	RHH5	1.94	5.81	3.21	7.09
6.	RHH6	2.72	8.15	4.06	9.49
7.	RHH7	2.27	6.82	3.63	8.18
8.	UHH1	1.82	5.46	3.11	6.75
9.	UHH2	3.29	9.86	4.85	11.42
10.	UHH3	2.08	6.25	3.44	7.61

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