

An Economic-wide CGE Analysis of Consumption Voucher Policy to Recover from Recession Caused by Financial Crisis

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Abstract

To recover household consumption and macroeconomy, the government proposed an economic stimulus act names “Special Act for the Distribution of Consumption Voucher to Revitalize the Economy” on December 2008 in Taiwan, and the budget of the plan is NT\$ 83.26 billion (nearly 2.6 billion US dollars) which amounts to 0.65% of Taiwan's GDP in 2008. The plan distribute vouchers worth NT\$3,600 (113.4 US dollars) to each of the citizens.

The analysis tool is a comprehensive computable general equilibrium names ORANI model developed by CoPs of MONASH university in Australia. This study considers the survey data conducted by government of the behavior of citizens how to use the money, and then spread out the money as policy shocks to the industries. Database will update to 2009 to simulate the baseline with financial crisis, and then perform the consumption voucher policy simulation.

The results reveal the policy will increase real GDP growth rate by 0.28 to 0.43 percent in 2009. The commodity trading, electronic product, and transport and communication industries have benefited greatly from consumption voucher plan. In view of employment benefit, the commodity trading, other service, food and hotel service, clothing and electronic product industries have benefited from the distribution of consumption voucher. To compare the effects of different policies, the scenarios design includes tax cut and tax rebate policies (like a stimulate policy of US in 2008, every tax payer will get 300 to 600 US dollars in a tax rebate check). We also consider the turnover effect and substitution effect in scenarios. Finally we would discuss the crowing-out effect and Ricardian Equivalence proposition.

Keywords: Consumption voucher, CGE, financial crisis, tax rebate.

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1. Introduction

Breaking a contract of subprime mortgage cause the financial crisis has the global economy face the biggest recession after the Great Depression in 1929. Each country expands their government expenditures or tax rebates to save economy. For instance, Each American gets \$300-600 for his or her tax rebate in February 2008; and, Shapiro and Shlemrod (2008) pointed out that the GDP has grown 2.2% in the second quarter of 2008 and 0.4% in the third quarter because of the tax rebate. The policy of tax debate has been come into force for many times in the past. And, there are two sides of research conclusion: considering the policy worked includes Blinder (1981) who found that refunding one US dollar would induce 0.16 dollars' consumption in 1975; moreover, this could continue to fifth to eighth quarter. Poterba (1988) considered the consumption would be between 0.18 to 0.24 dollars. Also, Johnson et. al. (2006) had similar view points.

Modigliani and Steindel (1977) considered temporary tax rebate has no significant effects and so as Agarwal et. al., (2007). The reason might be after receiving the tax rebate check, the populace won't spend all of the rebates in consumption completely. Souleles (1999) detected people only spent 60% tax rebates on consumption. Shapiro and Shlemrod (2003a) found that American people in 2001 spent 46.2% of tax rebates on clearing debt, 32% on saving, and only 21.8% on

consumption. Shapiro and Shlemrod (2008) detected American in 2008 spent 48.2% tax rebate on clearing debt, 31.9% on saving, and only 19.9% on consumer spending. The rate of the twice tax rebates spent on consumption is about 20% (Only 20% of people spent their tax rebates on consumer expenses. Therefore, the policy of tax rebate to stimulate the economy doesn't work very well.

If tax rebate policy has such question, the consumer vouchers issued by the government, which can only use for consumption, will be a much better way to stimulate the economy. Being directed at the under 15 and above 65 years old people, Japan government issued regional promotion coupons to enhance the economic development in 1999. Economic Planning Agency of Japan discovered that 32% of regional promotion coupons bring out consumption or 0.1% of consumption in 1999, in Japan. Hori et al. (2002) discovered the marginal propensity of consumption between 0.2 and 0.3 decreased to 0.1 after three to four months. The data means the effect of the policy is limited.

The poor effect of tax rebate can't stimulate consumption and the low income household can't benefit from it, either. To recover household consumption and macroeconomy, issuing consumption voucher in fixed sum of money comprehensively not only increases its coverage but also preserves its characteristics of temporarily financial expansion. Therefore, in Taiwan, the government proposed an

economic stimulus act names “Special Act for the Distribution of Consumption Voucher to Revitalize the Economy” on December 2008, and the budget of the plan is NT\$ 83.26 billion dollars (nearly 2.73 billion US dollars) which amounts to 0.65% of Taiwan's GDP in 2008. The plan distributes vouchers worth NT\$3,600 (113.4 US dollars) to each of the citizens. Issuing consumption voucher by government aimed at the whole people is a rare case in the global. Hence, this article is assessed at the main subject by CGE model; afterwards, it will compare with the policy of tax rebate.

2. Computable General Equilibrium (CGE) Model and database

A single-country multi-sectoral CGE model (Johansen, 1960; Scarf, 1967) of Taiwan is used to simulate how an economy might react to consumption voucher policy. This model is originated from the Australian ORANI CGE model in Monash University (Dixon et al., 1982). The Taiwan CGE model distinguishes 170 sectors, 6 types of labor, 8 types of margins, and 184 commodities.

The model uses a full simultaneous equations system to describe the macro economy as well as individual industries. Based on the conventional neo-classical school assumptions, all economic agents are assumed to follow optimal behaviors. Firms minimize cost and are subject to production functions. Representative households maximize utility and are subject to budget constraints. Like the ORANI

model, the supply structure of the Taiwan CGE model allows for each industry to produce a mixture of all the commodities, using domestic and imported commodities, labor of several types, land, capital, energy of several types and other costs as inputs. The multi-input, multi-output production specification is kept manageable using a series of weak assumptions, as illustrated by the nested structure.

Moreover, the conversion of undifferentiated commodities into goods destined for export and those for local use is governed by a constant elasticity of transformation (CET) functional form. The input demand of industry production is formulated by a five-level nested structure, and the production decision-making of each level is independent. By assuming cost minimization and technology constraint at each level of production, producers will make optimal input demand decisions. When the economy reaches its demand-supply equilibrium, the market is cleared. To simplify the complexity associated with nonlinear models, Johansen (1960)'s method is adopted to transform nonlinear level equations to linear percentage change form. A detailed description is available in Dixon et al (1982) and Dixon and Rimmer (2002).

The CGE models are descended from the input-output models pioneered by Leontief, but they pay special attention to market clearing conditions and price determinations. The CGE models allow prices to affect demand and supply

simultaneously, but the IO models assume that all prices are fixed. Thus, the IO models is useful in calculating the short-run policy impacts of an economy, while the CGE models encompass market equilibrium effect in both the input and output markets so that an intermediate or long-run policy impacts can be portrayed. They are complementary in this context. This study will adopt both models to evaluate the short-run and long-run impacts of avian flu on Taiwan.

The database used by this study was based on Taiwan's Input-Output (IO) Tables which spanned 161 sectors in 2004. The shocks calculated by survey data collected by two public sectors.

3. Scenario design

In order to avoid the IO data out-of-date and represent the recession from 2008 to 09, the article follows setting of Dixon and Rimmer (2002) to update IO database to 2009 including the situation of the financial crisis (Figure 1). The reference data of the updated macroeconomic variables can be seen in Table 1. Then, according to the conclusion of the survey, 83.26 billion dollars of consumption voucher was divided into different sum of the consuming money of varied products to calculate the increasing incomes of every industry (Table 2). The source of the consumption voucher budget comes from special budget or debt financing. It can't supplant other

government budgets. This is Scenario I.

Because the consumption voucher is for buying products use only, it will replace part of the money which is for consumption use originally. And, it is called substitution effect. Base on the two surveys, the substitution effect in Scenario II and III is 71.5% and 76.06. That means the consumption shocks in Scenario II and III is 28.5% and 23.94% of Scenario I respectively. The two Scenarios also consider turnover rate. When an industry gets the voucher and spent it on other products, the turnover rate is 0.8615. Then, the process of Scenario IV substitutes the tax rebate for 83.26 billion dollars and simulates the household income tax in the SAM decreasing by 83.26 billion NT dollars.

4. Results and Discussion

4.1 Macroeconomy impacts: Scenario I-IV

In the Scenario I, issuing consumption voucher will have real consumption go up to 1.18%, so the GDP grows 0.43%. Because requirement is improving, GDP deflator grows 1.20 which means the real GDP grows 0.43%. Demand side drives the supply side and has the output value increase 0.14%; then, it increase the employment rate by 0.42%. The increase of macroeconomic variables in Scenario II and III is lower than Scenario I and the real GDP increases 0.32% and 0.28% separately (Table 3).

Observing GDP, the consumption voucher in Scenario I brings out 1035.73 billion dollars, the multiplier is 2.24 (186.838/83.26 billion dollars), the multiplier minus 1 is about 1.24 times of issuing money (103.573/83.26 billion dollars). If we estimate real GDP, the multiplier will be only 0.65 times (53.895/83.26 billion dollars). Scenario II and III are much lower than 1 (0.49 and 0.42), which represents the effect of issuing consumption voucher under inflation isn't superior and the influence to the economy isn't as good as what we imagine. The real GDP increases 0.16% in the Scenario IV, the influence of which is lower than scenario I to III. The main reason is because of the serious inflation. However, the real consumption increases 0.88%, and the employment rate, increasing 0.18%, is higher than Scenario II and III. Tax rebate has positive effect on reducing unemployment rate, increasing consumer spending and improving people's welfare, but have a smaller positive effect on economic growth.

4.2. Microeconomy impacts: Industry GDP

In the Scenario I, the consumption voucher that has an effect on real GDP influences the commodities trading most. The second is electrical products which increase 17.553 billion dollars (1.24%). Transportation, storage and communication increase 10.856 billion dollars (add 1.6%), process foods increase 8.387 billion dollars (add 2.75%), and education & medical services increase 8.367 billion dollars (add

1.1%). The consumption voucher has the most influential effect on service trade and a higher effect on Electrical Products only in the manufacturing. Besides, the consumption for basic industry, like construction, real estate services, minerals, miscellaneous metals, industrial chemicals, and forest products has negative effect. The effect in Scenario II to III is similar to I. The effect in Scenario IV is different from II and III (Table 4).

4.3. Microeconomy impacts: Employment

Consumption voucher can increase the employment rate. The main point in Scenario I is to increase service trade, the result of which has higher employment rate. The commodity trading creates 26,000 jobs (1.03%). The following shows the number in order: other service creates 10,000 jobs (0.96%), food, beverage & hotel Service creates 7,000 jobs (2.08), wearing apparel and accessories creates 5,000 jobs (4.08%), electrical products creates 5,000 jobs (1.86%), and transportation, storage and communication creates 4,000 jobs (add 0.73%). Consumption voucher can get 45,000 employment people more. Scenario II to III follow the same way as Scenario I, but its influence range is lower and it can creates about 16,000 to 14,000 jobs.

Hiring about 20 thousand more labor in Scenario IV is higher than in Scenario II. Commodity trading creates 7,000 jobs (0.29%). The following shows the number in

order: other services creates 45,000 jobs (0.45%), education & medical services creates 35,000 jobs (0.54%), agricultural products & livestock creates 33,000 jobs (0.46%), and food, beverage & hHotel Services creates 14,000 jobs (add 0.39%) (Table 5).

4.4. Discussion

This article discovers that the real GDP growth rate of issuing consumption voucher is between 0.28% and 0.43%, but the multiplier effect is under 1. Although consumption voucher can lighten the negative impact of economy in recession, it represents that it is a policy without cost-benefit efficiency. To respond to the past study, the multiplier effect of tax rebate policy comparing with consumption voucher has lower effect, which represents consumption voucher and tax rebates doesn't possess the policy of cost-benefit. Therefore, when proceeding to expanded policy in recession, government should consider whether the money is worth to spend.

Individual industry, especially the service trade, such as the commodities trading, electrical products, and transportation, storage and communication, and the GDP and employment of some manufacturing has positive effect. These industries need a large number of labors. So, in this aspect, consumption voucher and tax rebate can reduce unemployment rate, which is good for stabilizing the economy.

The policy of consumption voucher considered not only the positive beneficial result of promoting consumption, but also the effect of industry sales promotion, the consumers' desire to consume, populace's confident on the consumption, the effect of life support for the low income populace, and the state of social security and stable economy. Therefore, the effect of consumption voucher and tax rebates should be regarded as the minimum of the positive side of the policy.

Government's financial policy may increase the interest rate, depress effective demand, and then reduce the expanded effect of financial policy. This is called crowding-out effect. In the period of issuing consumption voucher, the interest rate continued to drop in Taiwan. They are many possible reasons, such as the influence of the recession, internal and international money flow, and easy money policy carried out by the Central Bank, and so on. In theory, crowding-out effect doesn't show out in Taiwan.

According to the survey, 61.15% people believe issuing consumption voucher will increase tax load of government in the future. In these people, 43% people would reduce their current consumer spending and 56.31% people express they have no influence. So, the rate of people with "Ricardian equivalent theorem" is low (about 26.29%). Therefore, the rate of replacing consumer money of consumption voucher (71.5% and 76.06%) is overestimate in the survey. In terms of the calculation in the

survey, the marginal propensity of consumption of consumer voucher is 0.3259. The data is higher than the effect of "regional promotion coupons" which leads Japanese to consume. Such consequence relates to who and when to issue the voucher and how to use it.

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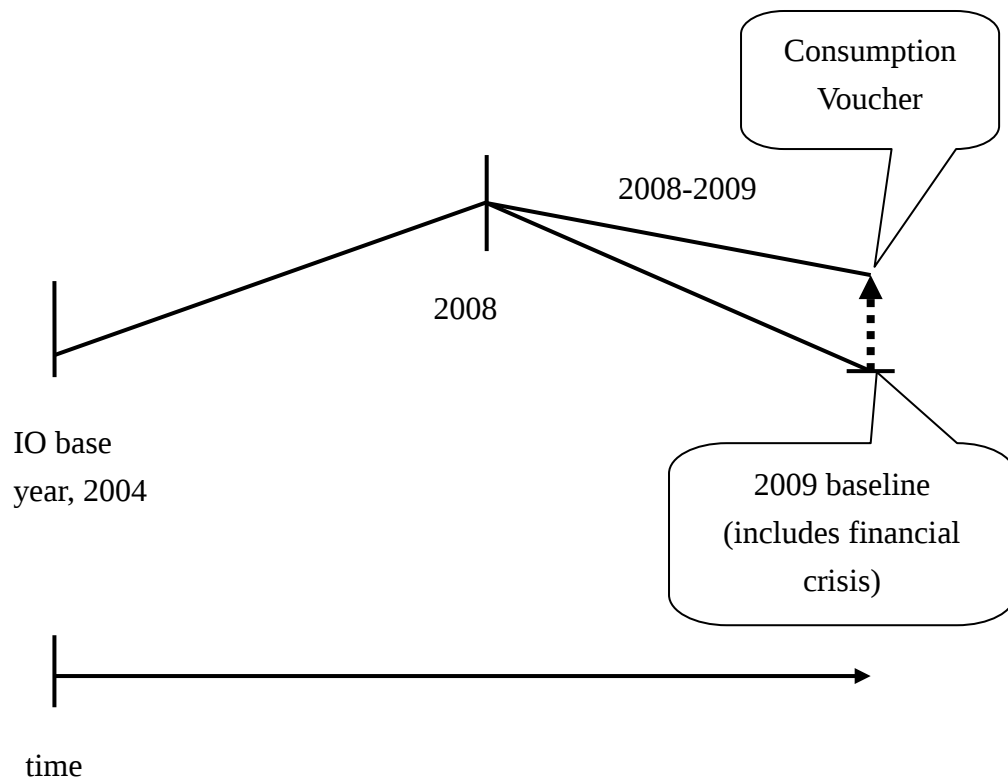


Figure 1. Historical simulation and baseline forecasting

Table 1. Exogenous macroeconomic shocks for historical simulation and baseline forecasting: from 2004 to 2009

Unit: million NT dollars

Year	Real GDP	Real Consumption	Real Government Expenditure	Real Investment	Real Export	Real Import
2004	11,337,829	6,665,766	1,433,873	2,345,745	6,932,458	6,118,459
2005	11,809,552	6,865,202	1,449,400	2,373,586	7,460,902	6,348,824
2006	12,376,337	6,985,999	1,443,268	2,394,276	8,226,329	6,705,696
2007	13,082,183	7,147,604	1,456,499	2,439,745	8,951,872	6,959,946
2008	13,089,718	7,126,491	1,473,158	2,180,915	8,949,151	6,682,732
2009	12,560,245	7,141,621	1,521,970	1,792,815	7,884,119	5,703,642

Table 2. Consumption voucher spend share of commodities

sectors	2009 baseline (billion NTD)	Consumption voucher share (%)	Consumption voucher share (billion NTD)	Shocks (%)
Agricultural Products	146.87	2.9258%	2.43617	1.659%
Livestock	27.02	0.5382%	0.44811	1.659%
Forest Products	0.31	0.0021%	0.00173	0.556%
Fisheries	60.51	1.1131%	0.92681	1.532%
Minerals	1.07	0.0122%	0.01015	0.950%
Process Foods	432.79	8.4368%	7.02488	1.623%
Beverages	133.34	2.1477%	1.78828	1.341%
Tobacco	55.94	0.9879%	0.82256	1.471%
Textile Mill Products	6.86	0.4088%	0.34038	4.964%
Wearing Apparel and Accessories	125.72	7.0852%	5.89953	4.693%
Leather & Leather Products	27.30	1.5384%	1.28093	4.693%
Wood & Wood Products	23.61	0.3639%	0.30297	1.283%
Paper & Paper Products & Printed Matter	61.96	5.2471%	4.36901	7.052%
Industrial Chemicals	0.10	0.0000%	0.00000	0.000%
Artificial Fibers	0.00	0.0000%	0.00000	0.000%
Plastic	0.00	0.0000%	0.00000	0.000%
Plastic & Rubber Products	42.04	0.0000%	0.00000	0.000%
Misc. Chemical Manufactures	125.91	10.1885%	8.48343	6.738%
Petroleum Refining Products	89.91	0.9475%	0.78893	0.877%
Non-metallic Mineral Products	11.72	0.1154%	0.09610	0.820%
Manufacturing				
Iron and Steel Products	0.00	0.0000%	0.00000	0.000%
Miscellaneous Metals	0.02	0.0000%	0.00000	0.000%
Metallic Products	35.89	0.0000%	0.00000	0.000%
Machinery	4.29	0.0000%	0.00000	0.000%
Household Electrical, Electronic Products	105.03	1.5885%	1.32264	1.259%
Information Products	48.42	4.6595%	3.87973	8.013%
Communication Equipment	31.47	0.5390%	0.44880	1.426%
Electronic Components & Parts	4.79	0.0000%	0.00000	0.000%
Electrical Machinery & Other Appliances	147.47	0.0000%	0.00000	0.000%
Transport Equipment	213.97	0.0000%	0.00000	0.000%
Other Manufactures	82.44	0.0000%	0.00000	0.000%
Residential Building Construction	0.00	0.0000%	0.00000	0.000%
Public & Other Construction	0.00	0.0000%	0.00000	0.000%
Electricity	92.17	0.0024%	0.00198	0.002%

Gas	25.54	0.0005%	0.00045	0.002%
City Water	14.31	0.0003%	0.00025	0.002%
Transportation and Warehousing	341.54	2.6585%	2.21359	0.648%
Post & Telecommunication Services	192.31	1.4969%	1.24640	0.648%
Commodities Trading	1087.49	29.4003%	24.48014	2.251%
Finance & Insurance Services	475.79	0.0123%	0.01020	0.002%
Real Estate Services	1123.67	0.0261%	0.02176	0.002%
Restaurant & Hotel Services	362.16	7.9579%	6.62615	1.830%
Information Services	5.05	0.0000%	0.00000	0.000%
Other Business Services	23.35	0.0000%	0.00000	0.000%
Public Administration Services	0.00	0.0000%	0.00000	0.000%
Education Services	330.97	1.5583%	1.29751	0.392%
Medical Services	354.42	2.2422%	1.86696	0.527%
Broadcasting, Recreational & Cultural Services	179.49	3.5983%	2.99614	1.669%
Other Social, Personal and Related Community Services	491.95	2.2006%	1.83232	0.372%
Total	7146.94	100.00%	83.26000	1.17%

Table 3. Macroeconomy variables under scenarios I–IV

Unit : million NT dollars, thousands people									
variables	2009 level	Scenario I		Scenario II		Scenario III		Scenario IV	
		Diff.	%	Diff.	%	Diff.	%	Diff.	%
Real GDP	12,533,658	53,895	0.43	40,647	0.32	35,094	0.28	19,653	0.16
GDP deflator			1.20		0.24		0.18		0.58
Nominal GDP	11,454,727	186,838	1.63	64,559	0.56	53,012	0.46	84,650	0.74
Employment	10,860	45	0.42	16	0.15	14	0.13	20	0.18
Production value	22,377,780	30,330	0.14	18599	0.08	17680	0.08	13,186	0.06
Real consumption	7,179,226	84,392	1.18	26,448	0.37	23,813	0.33	62,833	0.88
CPI			0.98		0.30		0.26		0.53

Table 4. Real industry GDP under scenarios I–IV

Secctors	2009 level (million NTD)	Scenario I		Scenario II		Scenario III		Scenario IV	
		difference	%	difference	%	difference	%	difference	%
Agricultural products and livestock	128,391	3,281	2.56	1,654	1,384	1.08	1.29	827	0.64
Forest Products	1,909	-34	-1.78	-17	-11	-0.58	-0.86	-8	-0.43
Fisheries	68,972	2,366	3.43	435	328	0.48	0.63	218	0.32
Minerals	56,236	-7,696	-13.69	-7,706	-6,156	-10.95	-13.70	-3,853	-6.85
Process Foods	304,445	8,387	2.75	2,301	1,713	0.56	0.76	1,151	0.38
Beverages	88,458	3,053	3.45	1,654	1,501	1.70	1.87	827	0.93
Tobacco	23,617	935	3.96	528	484	2.05	2.23	264	1.12
Textile Mill Products	137,225	2,132	1.55	700	521	0.38	0.51	350	0.26
Wearing Apparel and Accessories	93,743	4,012	4.28	1,062	1,784	1.90	1.13	531	0.57
Leather, Wood and products	25,410	389	1.53	77	41	0.16	0.30	39	0.15
Paper & Paper Products & Printed Matter	61,988	3,106	5.01	984	787	1.27	1.59	492	0.79
Industrial Chemicals	148,859	-2,941	-1.98	-3,947	-4,097	-2.75	-2.65	-1,974	-1.33
Artificial Fibers	53,946	1,030	1.91	637	580	1.07	1.18	319	0.59
Plastic	166,476	983	0.59	-201	-374	-0.22	-0.12	-100	-0.06
Plastic & Rubber Products	172,294	2,674	1.55	1,320	1,130	0.66	0.77	660	0.38
Misc. Chemical Manufactures	102,038	3,018	2.96	956	665	0.65	0.94	478	0.47
Petroleum Refining Products	204,288	5,674	2.78	2,175	1,878	0.92	1.06	1,088	0.53
Non-metallic Mineral Products Manufacturing	40,258	583	1.45	509	484	1.20	1.27	255	0.63
Iron and Steel Products	196,996	572	0.29	-699	-893	-0.45	-0.35	-349	-0.18
Miscellaneous Metals	34,697	-3,659	-10.54	-3,953	-3,991	-11.50	-11.39	-1,977	-5.70
Metallic Products	169,190	3,209	1.90	1,340	1,110	0.66	0.79	670	0.40
Machinery	331,925	639	0.19	936	799	0.24	0.28	468	0.14
Household Electrical, Electronic Products	109,466	2,262	2.07	1,355	1,230	1.12	1.24	677	0.62
Electrical Machinery & Other Appliances	523,638	6,654	1.27	1,316	720	0.14	0.25	658	0.13
Electrical Products	1,418,387	17,553	1.24	8,912	7,148	0.50	0.63	4,456	0.31

Transport Equipment	372,920	3,568	0.96	2,212	2,003	0.54	0.59	1,106	0.30
Other Manufactures	135,419	4,992	3.69	3,686	3,516	2.60	2.72	1,843	1.36
Residential Building Construction	1,120,297	-43,217	-3.86	-8,726	-6,556	-0.59	-0.78	-4,363	-0.39
Electricity	79,741	1,954	2.45	1,243	1,148	1.44	1.56	622	0.78
Gas & City water	32,402	572	1.76	411	382	1.18	1.27	205	0.63
Transportation and Warehousing	677,867	10,856	1.60	4,258	3,408	0.50	0.63	2,129	0.31
Commodities trading	1,423,409	32,482	2.28	12,591	8,989	0.63	0.88	6,296	0.44
Finance & Insurance Services	410,112	4,516	1.10	2,877	2,548	0.62	0.70	1,439	0.35
Real Estate Services	966,791	-20,408	-2.11	-1,655	-649	-0.07	-0.17	-827	-0.09
Restaurant & Hotel Services	263,806	7,646	2.90	3,050	2,549	0.97	1.16	1,525	0.58
Business service	115,542	2,630	2.28	1,731	1,604	1.39	1.50	866	0.75
Public Adminstration Services	927,633	0	0.00	0	0	0.00	0.00	0	0.00
Education Services	762,093	8,367	1.10	3,247	2,551	0.33	0.43	1,623	0.21
Other service	582,774	8,076	1.39	2,851	1,077	0.18	0.49	1,426	0.24

Table 5. Employment under scenarios I–IV

Sectors	2009 level (person)	Scenario I		Scenario II		Scenario III		Scenario IV	
		difference	%	difference	%	difference	%	difference	%
Agricultural products and livestock	733,469	3,843	0.524	279	0.038	213	0.029	3,346	0.456
Forest Products	7,053	501	7.103	184	2.615	159	2.259	-41	-0.586
Fisheries	161,715	2,529	1.564	917	0.567	789	0.488	383	0.237
Minerals	51,348	-1,088	-2.119	-384	-0.749	-329	-0.640	17	0.032
Process Foods	164,372	3,374	2.053	1,161	0.706	986	0.600	1,104	0.671
Beverages	26,207	677	2.582	233	0.887	197	0.753	252	0.963
Tobacco	5,350	169	3.158	62	1.155	53	0.996	46	0.856
Textile Mill Products	141,594	2,174	1.535	861	0.608	757	0.535	-1,034	-0.730
Wearing Apparel and Accessories	176,907	7,224	4.084	2,559	1.446	2,190	1.238	750	0.424
Leather, Wood and products	70,019	-218	-0.312	-63	-0.090	-51	-0.073	125	0.179
Paper & Paper Products & Printed Matter	200,002	4,054	2.027	1,447	0.724	1,241	0.621	-39	-0.019
Industrial Chemicals	32,554	279	0.858	115	0.352	102	0.312	-229	-0.702
Artificial Fibers	27,957	281	1.006	110	0.394	97	0.346	-168	-0.602
Plastic	23,602	126	0.533	52	0.219	46	0.194	-110	-0.466
Plastic & Rubber Products	154,100	518	0.336	225	0.146	202	0.131	-250	-0.162
Misc. Chemical Manufactures	107,769	2,944	2.732	1,019	0.946	867	0.805	276	0.257
Petroleum Refining Products	26,171	251	0.958	110	0.419	99	0.377	-23	-0.086
Non-metallic Mineral Products Manufacturing	124,942	-4,099	-3.280	-1,458	-1.167	-1,249	-1.000	194	0.156
Iron and Steel Products	127,059	-1,469	-1.156	-439	-0.345	-357	-0.281	-703	-0.553
Miscellaneous Metals	26,522	205	0.771	101	0.380	93	0.349	-265	-1.001
Metallic Products	206,659	-633	-0.306	-162	-0.078	-125	-0.060	-426	-0.206
Machinery	169,216	-1,244	-0.735	-350	-0.207	-279	-0.165	-877	-0.518
Household Electrical, Electronic Products	53,673	155	0.289	57	0.106	49	0.092	276	0.515
Electrical Machinery & Other Appliances	263,228	4,904	1.863	4,346	1.651	4,301	1.634	-521	-0.198
Electrical Products	85,918	684	0.796	299	0.348	268	0.312	-600	-0.698

Transport Equipment	197,566	-425	-0.215	-71	-0.036	-43	-0.022	332	0.168
Other Manufactures	131,840	1,282	0.972	550	0.417	492	0.373	-554	-0.420
Residential Building Construction	639,471	-32,475	-5.078	-12,080	-1.889	-10,467	-1.637	486	0.076
Electricity	34,215	414	1.210	166	0.486	147	0.429	205	0.600
Gas & City water	20,043	107	0.532	36	0.178	30	0.150	136	0.677
Transportation and Warehousing	588,328	4,311	0.733	1,655	0.281	1,445	0.246	1,211	0.206
Commodities trading	2,475,325	25,554	1.032	8,065	0.326	6,682	0.270	7,104	0.287
Finance & Insurance Services	331,420	1,403	0.423	495	0.149	423	0.128	968	0.292
Real Estate Services	83,007	-1,699	-2.047	-642	-0.774	-559	-0.673	173	0.209
Restaurant & Hotel Services	354,290	7,368	2.080	2,585	0.730	2,207	0.623	1,371	0.387
Business service	264,271	1,916	0.725	751	0.284	659	0.249	-471	-0.178
Public Adminstration Services	912,199	-456	-0.050	-456	-0.050	-456	-0.050	-912	-0.100
Education Services	651,842	2,240	0.344	552	0.085	419	0.064	3,525	0.541
Other service	1,009,776	9,675	0.958	3,254	0.322	2,746	0.272	4,523	0.448