

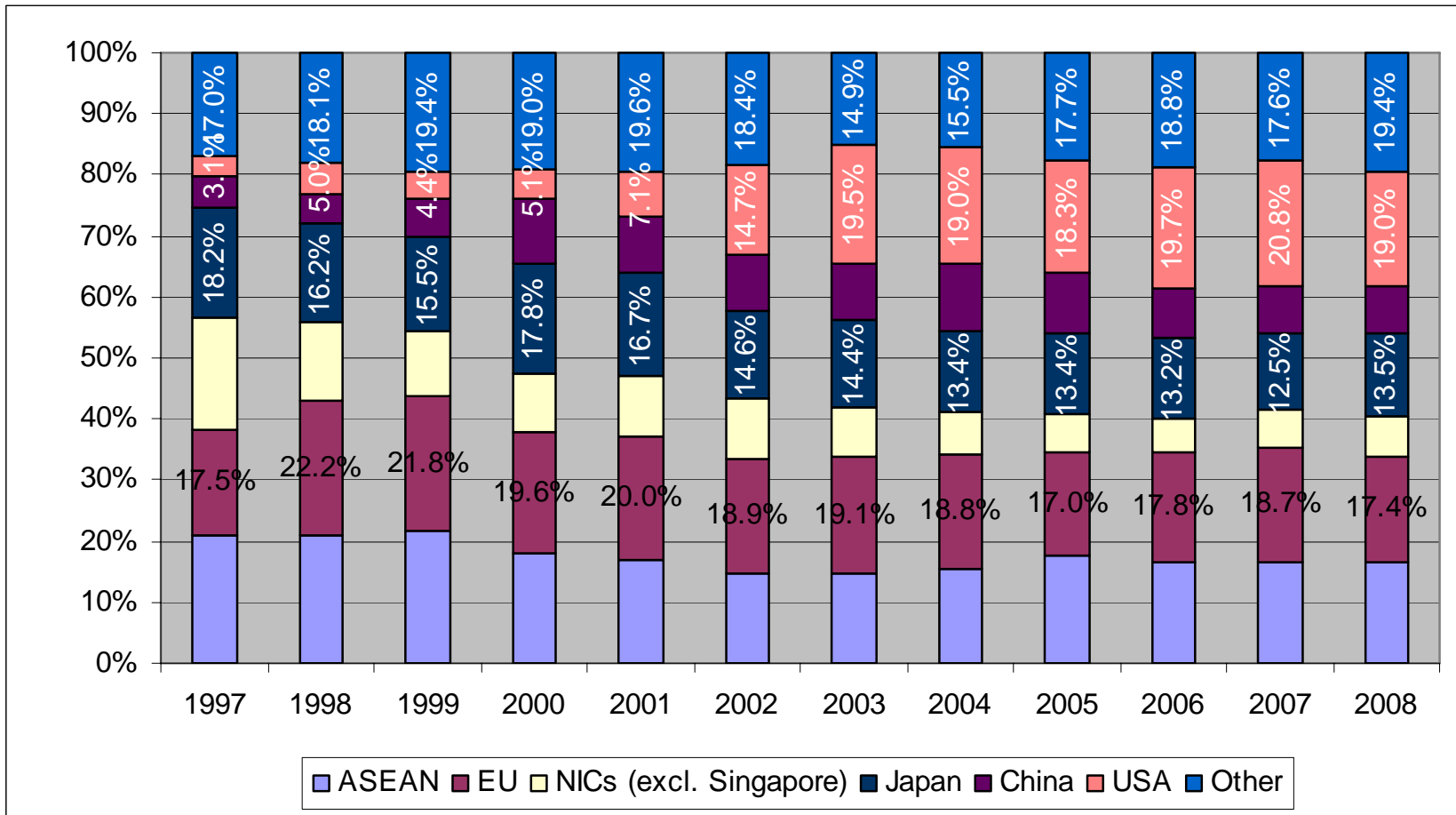
Analyzing the trade performance of Vietnam during 1997-2008 using the CMS and gravity models

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Export and GDP Growth



Share of export, by country



Share of export, by goods classification

	1997	2001	2004	2005	2006	2007	2008
Food and live animals chiefly for food	29.3%	27.0%	19.9%	19.6%	18.9%	18.9%	19.4%
Beverages and tobacco	0.4%	0.3%	0.7%	0.5%	0.4%	0.3%	0.3%
Crude materials, inedible, except fuels	4.1%	2.7%	3.1%	3.8%	4.6%	4.5%	4.0%
Mineral fuels, lubricants and related materials	18.0%	23.1%	23.5%	25.8%	24.4%	20.7%	20.3%
Animal and vegetable oils, fats and waxes	0.3%	0.2%	0.1%	0.1%	0.0%	0.1%	0.2%
Chemicals and related products, nes	1.2%	1.5%	1.6%	1.7%	2.0%	2.1%	2.3%
Manufactured goods classified chiefly by materials	6.1%	6.6%	7.1%	6.7%	7.3%	8.2%	10.2%
Machinery and transport equipment	8.2%	9.3%	9.7%	9.7%	10.5%	11.5%	11.8%
Miscellaneous manufactured articles	32.4%	29.3%	34.2%	32.3%	31.8%	33.5%	31.0%
Commodities and transactions not classified elsewhere in the SITC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%

Share of export, by technology

	2001	2004	2005	2006	2007	2008
High technology	6.7	7.1	7.2	7.7	7.3	6.2
Medium technology	6.8	7.4	7.7	8.5	9.8	11.9
Low technology	41.9	48.4	46.8	45.6	46.1	44.5
Material intensive	10.7	9.4	8.5	8.9	8.7	8.7
Raw materials	34.0	27.7	29.8	29.4	28.1	28.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Number of export commodities (by level of technology)

	2001	2004	2005	2006	2007	2008
High-technology	194	223	255	284	284	288
Medium technology	574	766	802	859	865	882
Low technology	860	1137	1159	1216	1212	1192
Material intensive	432	609	654	671	675	675
Raw materials	293	368	405	413	407	410
Total	2353	3103	3275	3443	3443	3447

Competitiveness of Vietnam Goods in US Market

	2001	2004	2005	2006	2007	2008	2009
High-technology	0.001	0.092	0.144	0.200	0.137	0.172	0.193
Medium technology	1.003	3.765	3.828	3.769	4.039	4.277	4.074
Low technology	0.010	0.031	0.040	0.075	0.161	0.180	0.208
Raw materials	9.621	2.892	2.589	1.915	1.866	1.736	1.660
Material intensive	0.762	0.299	0.264	0.251	0.209	0.227	0.231

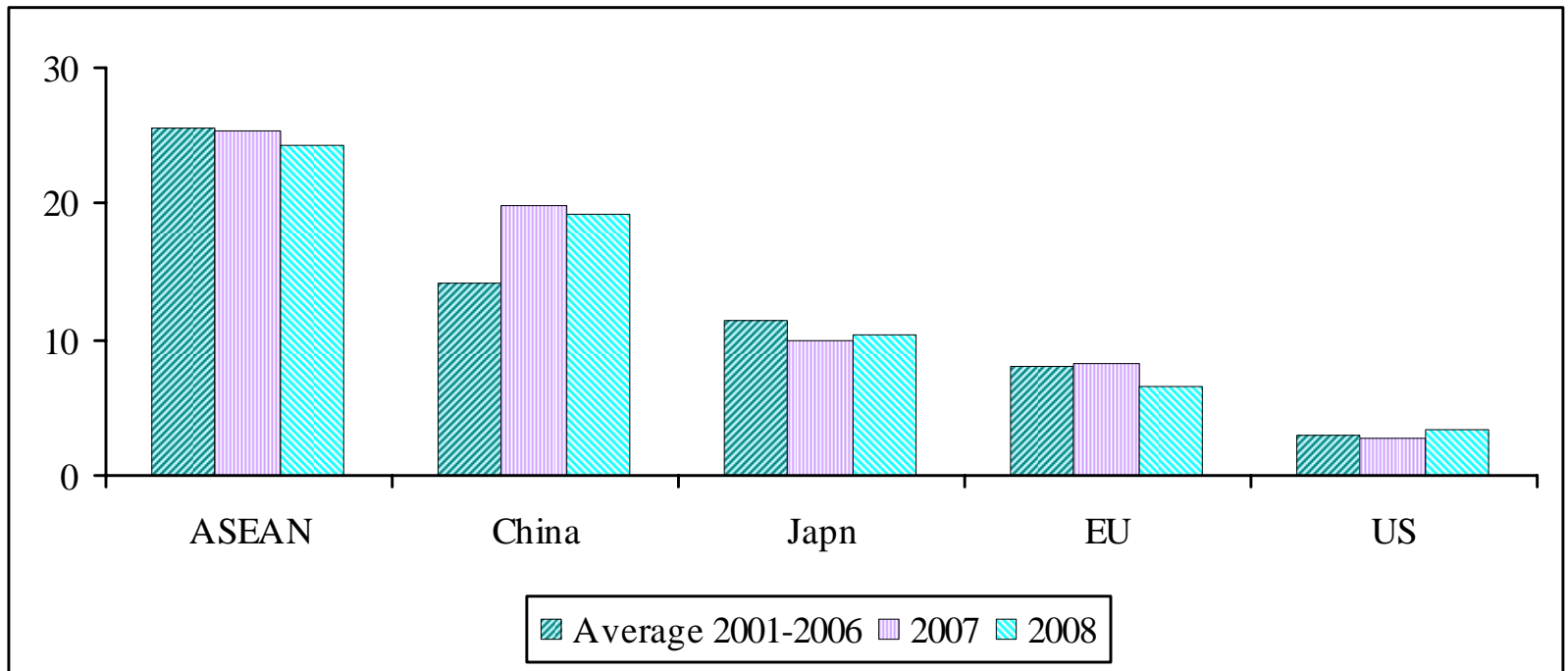
Number of competitive products ($RCA \geq 1$) in major markets

Market	Year	High- technology products	Low- technology products	Medium- technology products	Raw material	Material- intensive products
US	2001	63	153	70	67	190
	2006	61	127	63	59	152
	2007	85	202	109	81	184
	2008	78	199	106	84	183
	2009	86	201	107	86	184
Japan	2001	85	411	155	153	281
	2006	92	406	176	152	276
	2007	112	516	228	191	294
	2008	119	479	235	183	295
	2009	117	514	256	188	314
EU-15	2001	79	448	83	123	238
	2006	80	470	84	119	200
	2007	104	540	135	153	233
	2008	100	568	132	148	231

Trade Balance



Import Partners



Constant Market Share Analysis

At the first level, the CMS model decomposes the change in exports into three components:

- The structural effect (*the change in exports due to the change in the selected importing countries*);
- The competitive effect (*the change in exports due to the change in the exporting country's competitiveness*); and
- The second-order-effect (*the change in exports due to the interaction of the change in Vietnamese product competitiveness and the change in the importing countries*).

Constant Market Share Analysis

$$\Delta E = \sum_i \sum_j S_{ij}^0 \Delta Q_{ij} + \sum_i \sum_j Q_{ij}^0 \Delta S_{ij} + \sum_i \sum_j \Delta S_{ij} \Delta Q_{ij}^0$$

of which $\sum_i \sum_j S_{ij}^0 \Delta Q_{ij}$ is structural effect; $\sum_i \sum_j Q_{ij}^0 \Delta S_{ij}$ is competitive effect and $\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij}^0$ is second order effect

Constant Market Share Analysis

$$\begin{aligned}
 \Delta E = & S^0 \Delta Q + \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_i^0 \Delta Q_i \right) + \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j \right) \\
 & + \left[\left(\sum_i S_i^0 \Delta Q_i - S^0 \Delta Q \right) - \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j \right) \right] + \Delta S Q^0 \\
 & + \left(\sum_i \sum_j \Delta S_{ij} Q_{ij}^0 - \Delta S Q^0 \right) \\
 & + \left(\frac{Q^1}{Q^0} - 1 \right) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 + \left[\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij}^0 - \left(\frac{Q^1}{Q^0} - 1 \right) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 \right]
 \end{aligned}$$

Constant Market Share Analysis

$$\begin{aligned}
 \Delta E = & S^0 \Delta Q + \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_i^0 \Delta Q_i \right) + \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j \right) \\
 & + \left[\left(\sum_i S_i^0 \Delta Q_i - S^0 \Delta Q \right) - \left(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j \right) \right] + \Delta S Q^0 \\
 & + \left(\sum_i \sum_j \Delta S_{ij} Q_{ij}^0 - \Delta S Q^0 \right) \\
 & + \left(\frac{Q^1}{Q^0} - 1 \right) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 + \left[\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij}^0 - \left(\frac{Q^1}{Q^0} - 1 \right) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0 \right]
 \end{aligned}$$

of which $S^0 \Delta Q$ is the growth effect; $(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_i S_i^0 \Delta Q_i)$ is market effect; $(\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j)$ is commodity effect; $(\sum_i S_i^0 \Delta Q_i - S^0 \Delta Q) - (\sum_i \sum_j S_{ij}^0 \Delta Q_{ij} - \sum_j S_j^0 \Delta Q_j)$ is structural effect; $\Delta S Q^0$ is general competitive effect; $(\sum_i \sum_j \Delta S_{ij} Q_{ij}^0 - \Delta S Q^0)$ is specific effect; $(\frac{Q^1}{Q^0} - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0$ is pure secondary effect; $[\sum_i \sum_j \Delta S_{ij} \Delta Q_{ij}^0 - (\frac{Q^1}{Q^0} - 1) \sum_i \sum_j \Delta S_{ij} Q_{ij}^0]$ is the dynamic structural residual.

Constant Market Share Analysis

Change	1997-2001	2001-2006	2006-2008	1997-2008
Structural	17.4%	47.3%	58.0%	33.3%
Growth	0.0%	0.1%	0.2%	0.1%
Market	-10.5%	3.1%	-0.6%	0.7%
Commodity	-14.9%	-21.1%	-4.0%	-40.0%
Structural interaction	42.8%	65.2%	62.4%	72.5%
Competitive Residual	71.3%	34.2%	37.3%	29.5%
General competitive effect	0.1%	0.1%	0.1%	0.0%
Specific competitive effect	71.2%	34.1%	37.2%	29.4%
Second order	11.2%	18.5%	4.7%	37.2%
Pure second-ordered effect	10.9%	32.0%	11.9%	57.2%
Dynamic structural effect	0.3%	-13.5%	-7.2%	-20.0%

Constant Market Share Analysis

Change	Garment - Textile		Footwear		Electronics	
	2001-2006	2006-2008	2001-2006	2006-2008	2001-2006	2006-2008
Structural	41.3%	20.5%	58.3%	72.6%	48.5%	16.4%
Growth	31.6%	34.8%	55.1%	72.8%	50.7%	22.6%
Market	11.7%	-16.0%	-3.5%	-8.0%	-1.4%	-3.2%
Commodity	-1.7%	-0.2%	1.6%	4.6%	7.5%	-3.0%
Structural interaction	-0.4%	1.9%	5.0%	3.4%	-8.4%	-0.1%
Competitive Residual	52.5%	80.6%	26.5%	24.5%	28.2%	120.0%
General competitive effect	42.1%	54.4%	26.6%	21.9%	26.4%	65.4%
Specific competitive effect	10.4%	26.2%	-0.2%	2.5%	1.8%	54.6%
Second order	6.2%	-1.0%	15.3%	2.9%	23.3%	-36.4%
Pure second-ordered effect	3.9%	-0.2%	10.5%	0.7%	20.2%	-6.7%
Dynamic structural effect	2.3%	-0.8%	4.8%	2.2%	3.1%	-29.7%

Gravity Model

$$\log EXP_{vit} = \log GDP_{it} + \log IMP_{vit} + \log POP_{it} + \log DIST_{vi} + DFX_{vit} + \log TIME_{vit}$$

- $\log EXP_{vit}$ is exports of Vietnam to country i in year t in log
- $\log GDP_{it}$ is the GDP of country i in year t in log form
- $\log IMP_{vit}$ is the import of Vietnam from country i in year t in log form
- $\log POP_{it}$ is the total population of country i in year t in log form
- $\log DIST_{vi}$ is the distance between Vietnam and country I in log form
- DFX is the depreciation rate of real bilateral exchange rate between Vietnam and the country i. The variable is computed as follows:

$$DFX = \ln EXR_t - \ln EXR_{t-1} \text{ and } EXR_t = EX_t * \frac{CPI_{ft}}{CPI_{vt}}$$

in which EXR_t is the real annual bilateral exchange rate between Vietnam and a foreign country; EX_t is the nominal bilateral exchange rate; CPI is the consumer price index of foreign countries f and Vietnam.

- $\log TIME_{vit}$ is log of total time required to carry out importing procedure in country i and exporting procedure in Vietnam

Gravity Model: OLS

loggdp	0.659*** (0.03)	0.706*** (0.03)	0.661*** (0.03)	0.709*** (0.03)
logdist	-0.465*** (0.06)	(0.08) (0.07)	-0.475*** (0.06)	(0.09) (0.07)
logimp	0.274*** (0.02)	0.234*** (0.02)	0.268*** (0.02)	0.227*** (0.02)
fd	0.01 (0.10)	0.03 (0.10)	0.02 (0.10)	0.04 (0.10)
dummy	0.728*** (0.11)	0.761*** (0.11)	0.23 (0.16)	0.22 (0.16)
asean		2.251*** (0.20)		2.284*** (0.20)
dgdg			0.862*** (0.20)	0.937*** (0.19)
_cons	(0.11) (0.71)	-4.170*** (0.77)	-20.937*** (4.95)	-26.852*** (4.75)
R-sqr	0.71	0.74	0.72	0.74
dfres	1306.00	1305.00	1305.00	1304.00
BIC	4820.80	4709.30	4810.00	4693.20

Gravity Model: OLS with time

loggdp	0.572*** (0.04)	0.503*** (0.04)	0.575*** (0.04)	0.507*** (0.04)
logdist	-0.07 (0.10)	-0.428*** (0.09)	-0.07 (0.10)	-0.434*** (0.09)
logimp	0.288*** (0.03)	0.350*** (0.03)	0.284*** -0.03	0.346*** -0.03
fd	0.32 (0.55)	0.45 (0.58)	0.60 (0.56)	0.74 (0.59)
dummy	0.272* (0.11)	0.234* (0.12)	-0.19 (0.22)	-0.24 (0.23)
asean	2.023*** (0.29)		2.013*** (0.28)	
logtime	-0.345* (0.17)	-0.33 (0.18)	-0.31 (0.17)	-0.30 (0.18)
dgdg			1.801* (0.74)	1.878* (0.78)
_cons	(0.53) (1.42)	3.499* (1.37)	-44.917* (18.28)	-42.789* (19.26)
R-sqr	0.80	0.78	0.80	0.78
dfres	447.00	448.00	446.00	447.00
BIC	1432.00	1474.20	1432.10	1474.50

Gravity Model:

OLS for US, EU15, Japan, China, Korea and ASEAN

	es201 b/se	es202 b/se	es203 b/se	es204 b/se
logimp	0.502*** (0.04)	0.493*** (0.04)	0.458*** (0.04)	0.459*** (0.04)
loggdp	0.188* (0.07)	0.184* (0.08)	0.151* (0.08)	0.149 (0.08)
logpop	0.325*** (0.05)	0.349*** (0.06)	0.400*** (0.06)	0.400*** (0.06)
logdist	-0.288* (0.12)	-0.266* (0.13)	-0.259* (0.13)	-0.257* (0.13)
fd		-0.053 (0.08)		-0.012 (0.08)
dgdp			0.849*** (0.19)	0.858*** (0.19)
_cons	1.579* (0.76)	1.293 (0.80)	-18.803*** (4.53)	-19.004*** (4.58)
R-sqr	0.807	0.808	0.819	0.821
dfres	309	281	283	280
BIC	887.6	822.7	809.6	808.4

Gravity Model: Heckman procedure

logexp					
logimp	0.437***	0.296***	0.363***	0.370***	0.313***
	-0.02	-0.02	-0.03	-0.03	-0.03
loggdp	0.426***	0.658***	0.499***	0.307***	0.378***
	-0.02	-0.03	-0.04	-0.05	-0.05
logdist	-0.368***	-0.430***	-0.413***	-0.341***	0.009
	-0.07	-0.06	-0.09	-0.09	-0.1
fd		0.003	0.426	0.674	0.523
		-0.11	-0.58	-0.57	-0.54
logtime			-0.374*	-0.933***	-0.930***
			-0.18	-0.2	-0.19
logpop				0.288***	0.276***
				-0.05	-0.05
asean					1.947***
					-0.28
_cons	2.238**	-0.649	3.479*	4.214**	0.336
	-0.7	-0.73	-1.37	-1.33	-1.38

Gravity Model: Heckman procedure

Selection model					
logimp	0.009	-0.024	-0.061	-0.058	-0.074
	-0.02	-0.03	-0.07	-0.07	-0.07
loggdp	0.209***	0.322***	0.421***	0.389*	0.404**
	-0.03	-0.05	-0.11	-0.15	-0.16
logdist	-0.089	-0.057	-0.238	-0.226	-0.095
	-0.09	-0.1	-0.27	-0.27	-0.34
fd		0.166	0.83	0.858	0.839
		-0.3	-0.85	-0.85	-0.86
logtime			-0.258	-0.344	-0.348
			-0.54	-0.58	-0.58
logpop				0.048	0.044
				-0.15	-0.15
asean					6.475
					-2131401
_cons	-2.335*	-4.753***	-3.961	-3.862	-5.143
	-1.08	-1.44	-3.92	-3.93	-4.33

Gravity Model: Heckman procedure (without US, EU15, Japan)

logexp			
logimp	0.270***	0.231***	0.291***
	-0.02	-0.02	-0.03
loggdp	0.584***	0.660***	0.370***
	-0.04	-0.04	-0.06
logpop	0.077*	0.058	0.267***
	-0.03	-0.04	-0.06
logdist	0.018	0.002	0.035
	-0.08	-0.08	-0.11
fd		0.401	0.575
		-0.23	-0.58
logtime			-1.093***
			-0.22
_cons	-3.927***	-4.650***	1.206
	-0.93	-0.98	-1.57

Gravity Model: Heckman procedure (without US, EU15, Japan)

selection model

logimp	-0.042	-0.036	-0.074
	-0.02	-0.03	-0.07
loggdp	0.311***	0.322***	0.397*
	-0.05	-0.07	-0.16
logpop	-0.037	0.004	0.047
	-0.05	-0.06	-0.15
logdist	0.073	0.072	-0.089
	-0.1	-0.12	-0.34
fd		0.212	0.846
		-0.31	-0.86
logtime			-0.35
			-0.59
_cons	-4.880***	-5.828***	-5.04
	-1.32	-1.6	-4.36

Conclusion

- The constant market share analysis has revealed two components contributed the most to the export growth of Vietnam during period 1997-2008 are (i) the growth of the world demand; and (ii) the improvement of competitiveness of Vietnam's exporting goods while the other factors do not contribute. However, the contribution level of each component changed over the sub-periods (1997-2000; 2001-2005 and 2006-2008)
- distance negatively affects the trade flows between Vietnam and its trading partners;
- improvement of some behind-the-border drives the bilateral trade but the relationship is not statistically significant in some regression.
- The depreciation of real bilateral exchange rate also has a positive impact on the bilateral trade, but the effect is rather small and not statistically significant.
- Participating in the Free Trade Agreement has a positive impact on the bilateral trade

THANK YOU