

## **Summary of the Estimated Models for SimMobility Freight**

Date: January 23, 2020

## 1. Long-Term Model

### 1.1. Freight Generation Module (FGM)

Table Active supplier/receiver identification model

ind,fnc	Const.		ln floor (m <sup>2</sup> )		ln emp (no.)	
	Coef.	SE	Coef.	SE	Coef.	SE
Chemical Manufacturing,Office	-2.234	0.188	0.396	0.039	-0.464	0.044
Chemical Manufacturing,Factory	-1.174	0.139	0.254	0.028	0.438	0.040
Chemical Manufacturing,Retail & Restaurant	-1.607	1.623	0.058	0.272	0.850	0.442
Chemical Manufacturing,Logistics Facility	-3.639	1.331	0.662	0.179	0.553	0.318
Chemical Manufacturing,Others	-1.424	0.613	0.050	0.120	0.172	0.169
Steel Manufacturing,Office	-4.353	0.445	0.682	0.089	-0.381	0.100
Steel Manufacturing,Factory	-1.505	0.270	0.365	0.051	0.160	0.071
Steel Manufacturing,Logistics Facility	-20.392	155.064	2.857	26.425	13.093	78.387
Steel Manufacturing,Others	-16.192	13.966	4.031	3.317	-4.044	3.320
Metal manufacturing,Office	-2.345	0.213	0.201	0.043	0.028	0.056
Metal manufacturing,Factory	-1.187	0.127	0.184	0.025	0.437	0.036
Metal manufacturing,Retail & Restaurant	2.409	1.411	-0.047	0.173	-1.257	0.600
Metal manufacturing,Logistics Facility	-2.407	1.999	1.133	0.451	-1.232	0.560
Metal manufacturing,Others	-5.881	1.454	0.718	0.247	0.514	0.243
Machinery Manufacturing,Office	-2.255	0.111	0.309	0.025	-0.220	0.028
Machinery Manufacturing,Factory	-1.210	0.085	0.201	0.018	0.300	0.022
Machinery Manufacturing,Retail & Restaurant	-1.032	0.945	-0.159	0.215	1.060	0.364
Machinery Manufacturing,Logistics Facility	-6.780	1.697	1.187	0.261	0.414	0.262
Machinery Manufacturing,Others	-2.498	0.497	0.134	0.098	0.268	0.132
Light Manufacturing,Office	-1.784	0.099	0.215	0.022	-0.178	0.025
Light Manufacturing,Factory	-1.242	0.080	0.264	0.017	0.272	0.022
Light Manufacturing,Retail & Restaurant	0.609	0.310	-0.353	0.063	0.606	0.067
Light Manufacturing,Logistics Facility	1.352	0.650	0.046	0.115	0.288	0.155
Light Manufacturing,Others	-0.805	0.367	-0.160	0.092	0.571	0.118
Rd. Freight Trans. Service,Office	-3.490	0.084	0.306	0.016	0.090	0.022
Rd. Freight Trans. Service,Retail & Restaurant	-2.052	0.611	0.028	0.129	0.824	0.154
Rd. Freight Trans. Service,Logistics Facility	-1.290	0.116	0.295	0.020	0.282	0.030
Rd. Freight Trans. Service,Others	-2.438	0.190	0.131	0.036	0.407	0.051
Water/Air Freight Trans. Service and Trans. Related. Service,Office	-3.721	0.220	0.352	0.041	-0.165	0.055
Water/Air Freight Trans. Service and Trans. Related. Service,Retail & Restaurant	-5.955	1.089	0.265	0.203	0.842	0.403
Water/Air Freight Trans. Service and Trans. Related. Service,Logistics Facility	0.524	0.363	0.273	0.058	-0.309	0.095
Water/Air Freight Trans. Service and Trans. Related. Service,Others	-2.866	0.415	0.428	0.071	-0.061	0.092
Warehousing,Office	-4.579	0.371	0.425	0.050	0.212	0.066
Warehousing,Logistics Facility	-1.626	0.239	0.316	0.034	0.369	0.046
Warehousing,Others	-0.656	0.530	-0.002	0.080	0.498	0.122
Material Wholesale,Office	-2.259	0.110	0.509	0.024	-0.537	0.029
Material Wholesale,Factory	-0.420	0.432	0.310	0.074	0.346	0.124
Material Wholesale,Retail & Restaurant	-3.368	0.361	0.890	0.076	0.018	0.110
Material Wholesale,Logistics Facility	1.020	0.371	0.444	0.066	-0.560	0.100
Material Wholesale,Others	-1.411	0.525	0.118	0.094	0.612	0.150
Product Wholesale,Office	-2.121	0.050	0.364	0.011	-0.280	0.012
Product Wholesale,Factory	-0.439	0.222	0.200	0.043	0.188	0.046
Product Wholesale,Retail & Restaurant	0.009	0.110	-0.133	0.024	0.562	0.043
Product Wholesale,Logistics Facility	-0.091	0.293	0.407	0.057	0.227	0.082
Product Wholesale,Others	-2.687	0.269	0.295	0.051	0.482	0.077
Retail,Office	0.459	1.449	-0.381	0.277	0.344	0.261
Retail,Retail & Restaurant	0.005	0.995	0.033	0.211	-0.048	0.396
Retail,Logistics Facility	14.236	338.228	-0.069	52.567	0.014	71.225
Restaurant/Service,Office	-2.945	0.108	0.199	0.023	-0.075	0.027
Restaurant/Service,Factory	-1.923	0.127	-0.020	0.024	0.661	0.034
Restaurant/Service,Retail & Restaurant	0.021	0.171	-0.270	0.038	0.227	0.054
Restaurant/Service,Logistics Facility	-1.363	0.283	0.206	0.044	0.222	0.070
Restaurant/Service,Others	-1.830	0.213	0.145	0.039	-0.017	0.055
$\rho^2$	0.244					
$\bar{\rho}^2$	0.243					
n	41,754					

Table Outbound commodity type selection model  
(Chemical Manufacturing, Steel Manufacturing, and Metal Manufacturing)

	Chemical Manufacturing				Steel Manufacturing				Metal Manufacturing			
	non-factory		factory		non-factory		factory		non-factory		factory	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
<b>Const.</b>												
Agricultural products	-5.206	1.620									-0.066	0.613
Food products	-1.961	0.645	-2.351	0.270			-3.013	1.663			-1.412	0.599
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	-3.303	0.959	-3.044	0.481	-2.589	1.602	-6.226	1.910	-0.833	0.807	0.382	0.396
Minerals, ore, stone, cement, Ceramics or glass	0.494	0.285	0.187	0.108			-6.025	2.238	-3.106	0.915	-3.346	0.504
Metals or articles of metal	-3.274	0.704	-2.112	0.326	0.398	0.825	2.569	0.558	0.573	0.458	2.862	0.237
Machinery, appliances, and mechanical parts	-0.610	0.460	-0.973	0.147	-2.072	1.020	0.443	0.600	-1.020	0.545	1.113	0.249
Chemicals, rubber or plastics	-0.515	0.254	0.068	0.098			-3.953	1.685			-2.055	0.442
Mixed goods and parcel			-2.423	0.421			1.515	0.870			-1.003	0.971
<b>ln emp (no.)</b>												
Agricultural products	0.338	0.543									-0.930	0.327
Food products	-0.162	0.262	-0.020	0.090			0.397	0.565			-0.151	0.253
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	0.033	0.365	-0.228	0.175	0.700	0.642	1.313	0.437	-0.135	0.438	-0.516	0.181
Minerals, ore, stone, cement, Ceramics or glass	-0.291	0.117	-0.045	0.036			1.163	0.530	0.979	0.379	0.792	0.160
Metals or articles of metal	0.265	0.246	-0.279	0.121	0.946	0.395	0.497	0.221	0.758	0.234	0.138	0.095
Machinery, appliances, and mechanical parts	-0.402	0.200	0.009	0.048	1.078	0.434	0.529	0.232	0.822	0.262	0.349	0.099
Chemicals, rubber or plastics	0.285	0.094	0.175	0.032			0.723	0.498			0.452	0.157
Mixed goods and parcel			-0.377	0.162			-19.500	0.000			-0.983	0.537
L0	-1557		-10917		-201		-2247		-645		-9555	
LL	-1096		-7617		-91		-545		-379		-3826	
$\rho^2$	0.296		0.302		0.545		0.758		0.412		0.6	
$\bar{\rho}^2$	0.287		0.301		0.475		0.751		0.39		0.598	
n	243		1685		47		363		105		1171	

Table Outbound commodity type selection model  
(Machinery Manufacturing, Light Manufacturing, Rd. Freight Trans. Service, and Water/Air Freight Trans. Service and Trans. Related. Service)

	Machinery Manufacturing				Light Manufacturing				Rd. Freight Trans. Service		Water/Air Freight Trans. Service and Trans. Related. Service	
	non-factory Coef.	SE	factory Coef.	SE	non-factory Coef.	SE	factory Coef.	SE	Coef.	SE	Coef.	SE
<b>Const.</b>												
Agricultural products	-6.054	1.418	-4.958	0.768	-3.081	0.240	-2.972	0.125	-1.291	0.203	-2.228	0.523
Food products	-2.024	1.131	-2.957	0.689	-1.883	0.143	-1.693	0.072	-1.053	0.139	-1.889	0.386
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	-6.053	1.154	-1.750	0.408	-0.728	0.115	-0.488	0.068	-0.343	0.153	0.563	0.306
Minerals, ore, stone, cement, Ceramics or glass	-2.745	0.747	-0.694	0.279	-4.542	0.699	-4.424	0.431	0.255	0.156	-0.796	0.581
Metals or articles of metal	0.802	0.303	2.968	0.166	-3.049	0.291	-2.106	0.148	0.002	0.149	-0.173	0.384
Machinery, appliances, and mechanical parts	1.741	0.274	2.602	0.162	-4.121	0.346	-3.389	0.175	-0.368	0.133	0.330	0.306
Chemicals, rubber or plastics	-1.987	0.563	-1.134	0.257	-4.399	0.558	-3.478	0.209	0.219	0.141	-1.537	0.512
Mixed goods and parcel	-2.345	0.629	-2.380	0.519	-3.126	0.368	-2.698	0.307	-0.706	0.134	-1.340	0.497
<b>In emp (no.)</b>												
Agricultural products	0.949	0.343	0.611	0.185	0.451	0.089	0.484	0.041	-0.050	0.065	0.282	0.154
Food products	-0.642	0.597	0.026	0.232	0.502	0.055	0.627	0.025	0.299	0.042	0.458	0.112
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	1.065	0.264	0.006	0.139	0.244	0.048	0.157	0.026	-0.127	0.050	-0.152	0.100
Minerals, ore, stone, cement, Ceramics or glass	0.349	0.264	-0.022	0.096	0.041	0.302	-0.014	0.170	-0.471	0.056	-0.432	0.211
Metals or articles of metal	0.148	0.121	-0.252	0.057	0.222	0.117	-0.057	0.059	-0.260	0.050	-0.193	0.128
Machinery, appliances, and mechanical parts	0.417	0.110	0.209	0.055	0.563	0.121	0.347	0.059	0.092	0.041	-0.056	0.098
Chemicals, rubber or plastics	0.319	0.204	0.230	0.081	0.219	0.224	0.227	0.074	-0.277	0.048	0.049	0.161
Mixed goods and parcel	0.350	0.224	0.038	0.174	-0.024	0.163	-0.587	0.153	0.213	0.041	0.001	0.158
L0	-3788		-18957		-5536		-20831		-13578		-2023	
LL	-1389		-7641		-3737		-14224		-12844		-1800	
$\rho^2$	0.633		0.597		0.325		0.317		0.054		0.11	
$\bar{\rho}^2$	0.63		0.596		0.323		0.316		0.053		0.103	
n	530		2634		568		2382		1338		340	

Table Outbound commodity type selection model (Warehousing, Material Wholesale, Product Wholesale, and Retail)

	Warehousing		Material Wholesale		factory		Product Wholesale		factory		Retail	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
<b>Const.</b>												
Agricultural products	-0.202	0.175	-4.430	0.818	-0.692	1.359	-0.478	0.069	-1.677	0.229	-1.561	1.387
Food products	-0.831	0.154	-2.608	0.626	-0.237	1.204	-0.997	0.067	-2.118	0.243	-0.296	1.043
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	-0.498	0.177	0.932	0.203	0.331	0.597	-2.152	0.134	-2.855	0.526	1.682	1.882
Minerals, ore, stone, cement,												
Ceramics or glass	-1.823	0.316	1.191	0.205	-1.516	0.407	-2.289	0.172	-3.789	0.778		
Metals or articles of metal	-0.989	0.216	0.759	0.195	1.502	0.339	0.313	0.085	-1.861	0.325		
Machinery, appliances, and												
mechanical parts	-1.104	0.178	-2.293	0.370	-6.681	0.999	0.095	0.057	-3.605	0.253	1.899	2.918
Chemicals, rubber or plastics	-0.633	0.185	0.147	0.199	-1.709	0.421	-2.500	0.121	-3.713	0.491	0.971	2.777
Mixed goods and parcel	-5.068	0.820	-4.948	0.356			-2.820	0.142				
<b>In emp (no.)</b>												
Agricultural products	-0.311	0.069	0.659	0.330	-1.519	0.744	-0.084	0.026	0.891	0.103	0.256	0.336
Food products	0.253	0.052	0.063	0.293	-1.844	0.720	0.140	0.023	0.964	0.106	0.201	0.259
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products	-0.156	0.066	0.010	0.097	-0.727	0.265	-0.067	0.051	0.300	0.241	-1.062	0.638
Minerals, ore, stone, cement,												
Ceramics or glass	-0.222	0.124	-0.186	0.099	0.626	0.148	-0.227	0.070	0.348	0.349		
Metals or articles of metal	-0.180	0.082	0.294	0.091	-0.192	0.134	-0.694	0.039	0.376	0.149		
Machinery, appliances, and												
mechanical parts	0.160	0.060	0.512	0.159	1.410	0.267	-0.039	0.021	1.620	0.105	-1.541	1.159
Chemicals, rubber or plastics	-0.151	0.069	0.542	0.092	0.642	0.152	0.136	0.041	0.753	0.195	-1.152	0.996
Mixed goods and parcel	0.397	0.244	1.618	0.126			0.122	0.049				
L0	-4953		-9107		-1741		-31411		-3125		-125	
LL	-4290		-6978		-1185		-25753		-2237		-87	
$\rho^2$	0.134		0.234		0.319		0.18		0.284		0.304	
$\bar{\rho}^2$	0.131		0.232		0.311		0.18		0.28		0.192	
n	791		894		184		1398		151		52	

Table Outbound commodity type selection model (Restaurant/Service)

	Restaurant/Service non-factory		factory	
	Coef.	SE	Coef.	SE
<b>Const.</b>				
Agricultural products	-7.238	0.838	-6.195	0.938
Food products	-4.275	0.331	-4.494	0.519
Light manufacturing products	0	-	0	-
Wood and paper products	-2.201	0.182	-0.504	0.361
Minerals, ore, stone, cement, Ceramics or glass	-3.216	0.422	-2.515	0.433
Metals or articles of metal	-3.287	0.370	0.178	0.417
Machinery, appliances, and mechanical parts	-1.685	0.156	1.631	0.180
Chemicals, rubber or plastics	-5.417	0.416	-2.652	0.671
Mixed goods and parcel	-4.296	0.287	-3.952	0.861
<b>ln emp (no.)</b>				
Agricultural products	1.144	0.229	0.773	0.237
Food products	0.809	0.109	0.630	0.138
Light manufacturing products	0	-	0	-
Wood and paper products	0.564	0.069	-0.743	0.145
Minerals, ore, stone, cement, Ceramics or glass	0.081	0.180	0.027	0.135
Metals or articles of metal	0.277	0.147	-1.481	0.222
Machinery, appliances, and mechanical parts	0.548	0.061	-0.724	0.066
Chemicals, rubber or plastics	1.037	0.124	-0.325	0.235
Mixed goods and parcel	0.947	0.092	0.028	0.268
L0	-4090		-2902	
LL	-2897		-1665	
$\rho^2$	0.292		0.426	
$\bar{\rho}^2$	0.288		0.421	
n	447		324	

For the establishments with the combinations of industry, function, and produced commodity types listed below, the consumed commodity is the same with the produced commodity.

Table The combinations of industry, function, and produced commodity types which lead to the same commodity for production and consumption

Industry Type	Function Type	Produced Commodity Type
Chemical Manufacturing	non-factory	wood and paper products
	factory	metals or articles of metal
Steel Manufacturing	non-factory	light manufacturing
		wood and paper products
	factory	food products
Metal manufacturing	factory	food products
Machinery Manufacturing	non-factory	minerals, ore, stone, cement, ceramics or glass
		machinery, appliances, and mechanical parts
		wood and paper products
Light Manufacturing	non-factory	machinery, appliances, and mechanical parts
		minerals, ore, stone, cement, ceramics or glass
Water/Air Freight Trans. Service and Trans. Related. Service	non-factory	machinery, appliances, and mechanical parts
		minerals, ore, stone, cement, ceramics or glass
Warehousing	non-factory	wood and paper products
		machinery, appliances, and mechanical parts
		food products
		minerals, ore, stone, cement, ceramics or glass
Material Wholesale	non-factory	food products
		agricultural products
	factory	wood and paper products
		light manufacturing
		machinery, appliances, and mechanical parts
Product Wholesale	non-factory	machinery, appliances, and mechanical parts
	factory	metals or articles of metal
		minerals, ore, stone, cement, ceramics or glass
		machinery, appliances, and mechanical parts
Restaurant/Service	non-factory	machinery, appliances, and mechanical parts
		agricultural products
		minerals, ore, stone, cement, ceramics or glass
	factory	wood and paper products
		agricultural products

Table Inbound commodity type selection model  
(Chemical Manufacturing, Steel Manufacturing, and Metal Manufacturing)

	Chemical Manufacturing				Steel Manufacturing				Metal Manufacturing			
	non-factory		factory		non-factory		factory		non-factory		factory	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
<b>Const.</b>												
Agricultural products	-0.998	-0.752	-0.527	-1.436			-2.632	-1.457			-1.038	-1.462
Food products	-0.224	-0.193	0.010	0.028							-0.059	-0.063
Light manufacturing products	0	-	0	-			0	-	0	-	0	-
Wood and paper products			-1.474	-2.656			-3.243	-1.825	-2.664	-2.516	-1.364	-2.389
Minerals, ore, stone, cement, Ceramics or glass	-2.361	-1.686	0.230	0.796	-89.520	-0.804	-1.517	-1.514	-7.453	-3.214	-5.449	-7.077
Metals or articles of metal	0.682	0.731	-0.467	-1.188	0	-	1.347	1.413	0.181	0.248	2.690	7.079
Machinery, appliances, and mechanical parts	1.969	2.492	-2.012	-4.562	0.638	0.444	-0.283	-0.290	-2.959	-2.862	0.122	0.296
Chemicals, rubber or plastics	2.531	3.501	2.572	12.796	5.435	2.599	-2.803	-2.431			-0.675	-1.445
Mixed goods and parcel	0.052	0.030	-1.321	-2.637					-1.475	-0.932	-4.788	-4.000
<b>ln emp (no.)</b>												
Agricultural products	0.351	0.856	0.084	0.800			0.845	1.257			0.160	0.552
Food products	-0.100	-0.274	-0.214	-1.963							-0.858	-1.692
Light manufacturing products	0	-	0	-			0	-	0	-	0	-
Wood and paper products			-0.004	-0.024			1.090	1.752	1.162	2.793	0.572	2.698
Minerals, ore, stone, cement, Ceramics or glass	0.656	1.869	-0.019	-0.235	12.113	0.836	1.389	3.135	2.072	3.198	1.701	8.062
Metals or articles of metal	0.126	0.448	-0.001	-0.008	0	-	0.972	2.260	0.361	1.052	0.444	2.940
Machinery, appliances, and mechanical parts	-0.128	-0.552	-0.025	-0.281	-0.409	-1.033	0.775	1.749	0.894	2.310	0.299	1.869
Chemicals, rubber or plastics	-0.013	-0.073	0.014	0.318	-3.445	-2.342	1.453	3.138			0.675	3.771
Mixed goods and parcel	-0.278	-0.384	0.047	0.320					0.053	0.070	1.180	3.471
<b>com<sub>prod</sub> = com<sub>cons</sub></b>												
Agricultural products	0	-	0	-			0	-			4.083	6.906
Food products	4.177	5.957	3.775	15.300							4.313	4.938
Light manufacturing products	4.357	7.020	3.247	20.503			5.689	6.716	0.000	-	3.752	13.656
Wood and paper products			4.669	10.977			-3.687	-0.102	2.176	3.231	3.864	11.601
Minerals, ore, stone, cement, Ceramics or glass	7.141	8.593	5.832	32.557	0	-	0	-	0	-	6.742	11.165
Metals or articles of metal	3.450	4.813	0	-	3.933	3.838	1.731	5.607	3.982	8.279	1.507	10.321
Machinery, appliances, and mechanical parts	0	-	4.895	14.032	0	-	2.903	7.617	3.371	5.469	2.849	14.068
Chemicals, rubber or plastics	3.757	8.215	1.374	12.112	0	-	-6.623	-0.095			5.393	9.627
Mixed goods and parcel	0	-	4.797	12.088					0.000	-	0	-
L0	-1625		-11866		-173		-2156		-763		-10080	
LL	-358		-3278		-23		-497		-169		-2045	
$\rho^2$	0.780		0.724		0.869		0.769		0.778		0.797	
$\bar{\rho}^2$	0.768		0.722		0.828		0.761		0.761		0.795	
n	253		1725		41		375		111		1239	



Table Inbound commodity type selection model  
(Machinery Manufacturing, Light Manufacturing, Rd. Freight Trans. Service, and Water/Air Freight Trans. Service and Trans. Related. Service)

	Machinery Manufacturing				Light Manufacturing				Rd. Freight Trans. Service		Water/Air Freight Trans. Service and Trans. Related. Service	
	non-factory		factory		non-factory		factory		Coef.	SE	Coef.	SE
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE				
<b>Const.</b>												
Agricultural products	0.846	0.713	-0.159	-0.376	-1.185	-4.472	-1.108	-10.552	-0.221	-0.542	0.108	0.149
Food products	1.270	1.189	-2.358	-4.311	-5.020	-10.480	-2.513	-16.533	0.271	0.797	-5.026	-2.892
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products			-0.205	-0.565	-2.060	-6.959	-0.234	-2.108	-1.878	-3.396	1.558	2.229
Minerals, ore, stone, cement, Ceramics or glass	-0.643	-0.461	0.005	0.016			-3.906	-10.850	-0.938	-1.628		
Metals or articles of metal	2.574	5.138	3.339	16.864	-3.579	-4.642	-2.979	-11.327	-1.115	-2.429	-2.408	-1.914
Machinery, appliances, and mechanical parts	2.765	4.809	1.732	7.596	-2.039	-3.975	-2.038	-9.139	-0.981	-2.503	-0.097	-0.122
Chemicals, rubber or plastics	-0.021	-0.027	-0.018	-0.071	-3.352	-6.573	-1.751	-11.013	-2.268	-4.043	1.717	2.027
Mixed goods and parcel	0.442	0.601	-0.812	-1.966	-3.986	-4.356	-6.956	-9.729	-3.109	-4.661	0.533	0.775
<b>ln emp (no.)</b>												
Agricultural products	-1.304	-1.979	-0.394	-2.609	-0.050	-0.481	0.334	10.774	-0.304	-2.432	-0.006	-0.030
Food products	-1.645	-2.405	0.159	1.067	0.495	4.901	-0.003	-0.094	-0.204	-2.020	0.781	2.039
Light manufacturing products	0	-	0	-	0	-	0	-	0	-	0	-
Wood and paper products			-0.248	-2.084	-0.130	-1.757	-0.307	-8.771	-0.132	-0.898	-0.650	-2.902
Minerals, ore, stone, cement, Ceramics or glass	-0.390	-0.729	-0.187	-1.908			0.245	2.290	-0.623	-3.540		
Metals or articles of metal	-0.003	-0.020	-0.136	-2.345	-0.173	-0.539	0.111	1.337	0.105	0.814	0.299	0.923
Machinery, appliances, and mechanical parts	-0.085	-0.586	-0.049	-0.845	-0.638	-2.473	-0.131	-1.658	-0.090	-0.882	-0.297	-1.350
Chemicals, rubber or plastics	-0.023	-0.094	0.143	1.986	0.289	1.597	0.105	2.100	0.310	2.095	-1.008	-3.083
Mixed goods and parcel	-0.358	-1.461	-0.106	-0.822	-0.330	-0.871	0.804	4.873	0.243	1.446	-0.166	-0.838
<b>com<sub>prod</sub> = com<sub>cons</sub></b>												
Agricultural products	-0.477	-0.015	6.851	6.730	5.142	9.065	4.019	18.675	4.715	15.208	0	-
Food products	-1.968	-0.120	6.202	10.755	5.376	13.488	3.866	29.839	4.406	19.764	8.230	7.019
Light manufacturing products	4.462	11.132	3.850	22.997	2.278	12.631	2.043	31.647	3.675	19.334	3.259	9.515
Wood and paper products			5.957	15.230	3.500	13.563	2.275	30.187	6.065	16.499	4.952	10.248
Minerals, ore, stone, cement, Ceramics or glass	0	-	4.932	19.776			6.278	11.793	5.816	13.401		
Metals or articles of metal	3.281	8.167	1.951	16.735	6.700	12.214	6.515	24.079	5.715	15.363	5.799	8.258
Machinery, appliances, and mechanical parts	1.782	5.285	1.816	13.523	6.884	8.886	0	-	4.766	19.312	4.958	10.895
Chemicals, rubber or plastics	0	-	4.615	18.721	0	-	4.896	16.213	6.068	17.074	0	-
Mixed goods and parcel	5.604	7.513	6.007	9.264	5.173	8.207	9.356	12.186	7.096	18.377	0	-
L0	-3564		-19664		-5452		-21825		-12699		-1687	
LL	-946		-7301		-1540		-9749		-1743		-371	
$\rho^2$	0.735		0.629		0.717		0.553		0.863		0.780	
$\bar{\rho}^2$	0.729		0.627		0.714		0.552		0.861		0.769	
n	528		2724		592		2497		1264		299	

Table Inbound commodity type selection model (Warehousing, Material Wholesale, Product Wholesale, and Retail)

	Warehousing		Material Wholesale		factory		Product Wholesale		factory	
	Coef.	SE	non-factory	SE	Coef.	SE	non-factory	SE	Coef.	SE
<b>Const.</b>										
Agricultural products	0.875	0.799	0.331	0.274			-1.426	-5.093	-2.163	-6.198
Food products	1.546	1.624	2.032	1.948			1.149	5.017	-4.082	-9.277
Light manufacturing products	0	-	0	-			0	-	0	-
Wood and paper products	1.504	1.364	2.890	5.161	2.478	1.645	-3.083	-6.357	-2.247	-4.346
Minerals, ore, stone, cement, Ceramics or glass			0.748	1.149	-0.948	-0.649	-2.748	-3.870	-3.750	-4.705
Metals or articles of metal	1.197	1.186	1.125	1.674	0	-	-0.540	-1.367	-8.663	-13.473
Machinery, appliances, and mechanical parts	0.736	0.732	0.786	0.858	0.616	0.539	-0.378	-1.471	-1.137	-4.090
Chemicals, rubber or plastics	0.364	0.334	0.669	0.768	0.049	0.030	-0.220	-0.655	-1.691	-1.683
Mixed goods and parcel							0.712	2.350		
<b>In emp (no.)</b>										
Agricultural products	-0.010	-0.031	-0.785	-1.430			0.343	4.573	0.710	4.863
Food products	0.229	0.864	-2.379	-3.468			-0.478	-5.494	0.822	5.708
Light manufacturing products	0	-	0	-			0	-	0	-
Wood and paper products	-0.099	-0.271	-0.848	-4.038	-1.945	-2.375	0.446	3.353	0.276	1.216
Minerals, ore, stone, cement, Ceramics or glass			-0.137	-0.598	0.005	0.014	-0.127	-0.510	0.602	1.917
Metals or articles of metal	0.248	0.867	-0.713	-3.638	0	-	-0.801	-5.305	2.652	14.983
Machinery, appliances, and mechanical parts	0.361	1.367	-0.729	-1.855	-0.547	-1.563	-0.030	-0.390	0.595	4.798
Chemicals, rubber or plastics	0.511	1.686	-1.231	-3.568	-0.510	-0.878	-0.237	-1.823	-0.868	-1.416
Mixed goods and parcel							-0.754	-5.627		
<b>com<sub>prod</sub> = com<sub>cons</sub></b>										
Agricultural products	5.532	9.740	0	-			5.094	28.138	4.987	16.908
Food products	4.541	11.125	7.043	6.180			5.512	24.810	4.823	14.858
Light manufacturing products	7.521	9.740	5.856	12.211			4.316	30.164	0	-
Wood and paper products	0		4.529	13.497	0	-	6.458	18.961	3.191	7.069
Minerals, ore, stone, cement, Ceramics or glass			5.069	15.012	4.651	5.868	7.063	15.259	0	-
Metals or articles of metal	4.515	8.680	4.790	10.702	4.325	5.775	7.221	21.955	0	-
Machinery, appliances, and mechanical parts	3.942	8.844	6.108	9.208	2.728	2.474	5.203	32.824	0	-
Chemicals, rubber or plastics	0	-	9.412	12.307	0	-	0	-	0	-
Mixed goods and parcel							6.150	15.439		
L0	-3355		-9045		-907		-32790		-3006	
LL	-381		-814		-97		-3267		-935	
$\rho^2$	0.886		0.910		0.893		0.900		0.689	
$\bar{\rho}^2$	0.881		0.908		0.881		0.900		0.683	
n	621		946		123		1454		140	

Table Inbound commodity type selection model (Restaurant/Service)

	Restaurant/Service non-factory		factory	
	Coef.	SE	Coef.	SE
<b>Const.</b>				
Agricultural products	-2.530	-1.007	-16.725	-3.752
Food products	-0.589	-0.806	0.770	0.644
Light manufacturing products	0	-	0	-
Wood and paper products	-0.993	-1.249		
Minerals, ore, stone, cement, Ceramics or glass			1.636	1.697
Metals or articles of metal	1.311	2.676	3.844	4.243
Machinery, appliances, and mechanical parts	-0.087	-0.141	3.286	3.870
Chemicals, rubber or plastics	0.208	0.327	1.488	1.487
Mixed goods and parcel	-0.691	-1.282	2.196	1.923
<b>In emp (no.)</b>				
Agricultural products	-0.373	-0.373	3.932	4.546
Food products	-0.366	-1.488	-0.384	-1.208
Light manufacturing products	0	-	0	-
Wood and paper products	-0.358	-1.398		
Minerals, ore, stone, cement, Ceramics or glass			0.005	0.020
Metals or articles of metal	-0.412	-2.395	-1.167	-4.080
Machinery, appliances, and mechanical parts	-0.338	-1.649	-0.584	-2.794
Chemicals, rubber or plastics	-0.142	-0.651	0.048	0.193
Mixed goods and parcel	0.413	2.518	-0.571	-1.631
<b>com<sub>prod</sub> = com<sub>cons</sub></b>				
Agricultural products	0	-	0	-
Food products	5.913	9.437	6.227	7.344
Light manufacturing products	4.898	15.981	6.341	10.587
Wood and paper products	7.812	11.513		
Minerals, ore, stone, cement, Ceramics or glass			0	-
Metals or articles of metal	0	-	3.747	4.965
Machinery, appliances, and mechanical parts	6.338	14.670	4.662	11.993
Chemicals, rubber or plastics	0	-	1.869	3.173
Mixed goods and parcel	0	-	0	-
L0	-3955		-2624	
LL	-501		-334	
$\rho^2$	0.873		0.873	
$\bar{\rho}^2$	0.869		0.866	
n	449		315	

Table Production model (dependent variable: kg per day)

1 agricultural products				
IV	fnc	ind	Coef.	SE
const	Office	Light Manufacturing	-275.47	4567.18
		Rd. Freight Trans. Service	-51.39	7376.75
		Product Wholesale	3268.62	1495.39
	Factory	Metal Manufacturing	153.23	12747.62
		Light Manufacturing	2675.66	1106.32
		Product Wholesale	653.29	2033.04
	Retail & Restaurant Logistics Facility	Product Wholesale	-269.69	1460.99
		Light Manufacturing	-10164.07	12917.72
		Rd. Freight Trans. Service	9295.56	2391.64
	Warehousing	Product Wholesale	16564.27	3193.85
		Product Wholesale	5986.71	1361.08
		Product Wholesale	1043.92	2869.55
	Others	Light Manufacturing	225.19	127.04
		Rd. Freight Trans. Service	1643.10	753.26
		Product Wholesale	5.78	47.11
emp (no.)	Factory	Metal Manufacturing	162.51	1855.79
		Light Manufacturing	50.13	15.69
		Product Wholesale	268.84	116.29
	Retail & Restaurant Logistics Facility	Product Wholesale	190.96	119.60
		Light Manufacturing	2500.80	1395.69
		Rd. Freight Trans. Service	90.17	29.18
	Warehousing	Product Wholesale	-458.89	338.65
		Product Wholesale	103.75	40.92
		Product Wholesale	123.12	63.39
	Others	Light Manufacturing	0.06	0.12
		Rd. Freight Trans. Service	-2.16	0.94
		Product Wholesale	-0.07	0.11
	Factory	Metal Manufacturing	-0.41	4.70
		Light Manufacturing	-0.01	0.00
		Product Wholesale	-0.03	0.03
floor-emp	Retail & Restaurant Logistics Facility	Product Wholesale	0.01	0.14
		Light Manufacturing	-2.80	1.47
		Rd. Freight Trans. Service	0.00	0.00
	Warehousing	Product Wholesale	0.04	0.04
		Product Wholesale	0.00	0.01
		Product Wholesale	-0.13	0.04
	Others	Light Manufacturing	-4.08	7.43
		Rd. Freight Trans. Service	18.06	11.42
		Product Wholesale	4.34	2.38
	Factory	Metal Manufacturing	3.92	47.55
		Light Manufacturing	0.95	0.30
		Product Wholesale	0.76	0.79
	Retail & Restaurant Logistics Facility	Product Wholesale	-0.06	1.61
		Light Manufacturing	32.48	16.40
		Rd. Freight Trans. Service	-0.61	1.04

		Warehousing	-0.10	0.44
		Product Wholesale	0.47	0.72
	Others	Product Wholesale	6.58	2.20
<hr/>				
	R <sup>2</sup>		0.53	
	R <sup>2</sup> <sub>adj</sub>		0.48	
	n		452	
<hr/>				

2 food products

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	-13480.73	31452.59
		Light Manufacturing	960.52	1386.29
		Rd. Freight Trans. Service	11267.99	1496.48
		Water/Air Freight Trans. Service and Trans. Related. Service	-313.09	7544.38
		Product Wholesale	688.96	985.46
	Factory	Restaurant/Service	31.66	9252.07
		Chemical Manufacturing	525.76	2250.65
		Metal Manufacturing	250.64	14869.92
		Light Manufacturing	2524.46	353.59
		Product Wholesale	2738.05	2284.26
	Retail & Restaurant	Restaurant/Service	3080.60	4766.91
		Light Manufacturing	-92.03	2841.73
	Logistics Facility	Product Wholesale	683.09	1086.17
		Light Manufacturing	8468.90	2671.45
		Rd. Freight Trans. Service	11913.87	1702.80
		Water/Air Freight Trans. Service and Trans. Related. Service	-5741.03	6198.56
		Warehousing	13124.15	2029.64
		Product Wholesale	-2007.83	1045.22
		Restaurant/Service	9106.82	8185.93
		Light Manufacturing	774.47	304273.02
	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-589.66	5129.17
emp (no.)	Office	Chemical Manufacturing	2817.18	5511.39
		Light Manufacturing	5.37	29.94
		Rd. Freight Trans. Service	-16.63	35.94
		Water/Air Freight Trans. Service and Trans. Related. Service	18.51	118.89
		Product Wholesale	204.10	43.23
	Factory	Restaurant/Service	4.76	675.39
		Chemical Manufacturing	70.58	61.98
		Metal Manufacturing	-1.03	2613.50
		Light Manufacturing	34.57	4.19
		Product Wholesale	-1.10	143.71
	Retail & Restaurant	Restaurant/Service	-37.56	59.03
		Light Manufacturing	16.73	160.44
	Logistics Facility	Product Wholesale	-109.03	87.11
		Light Manufacturing	-32.80	53.15
		Rd. Freight Trans. Service	2.09	42.96
		Water/Air Freight Trans. Service and Trans. Related. Service	620.78	222.82
		Warehousing	90.28	67.80
		Product Wholesale	284.24	31.71
		Restaurant/Service	-50.73	151.67
		Light Manufacturing	-85.85	31451.65
	Others	Water/Air Freight Trans. Service and Trans. Related. Service	31.49	126.00
floor-emp	Office	Chemical Manufacturing	-7.78	17.65
		Light Manufacturing	0.00	0.00
		Rd. Freight Trans. Service	-0.01	0.02
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.05	0.10

floor(m <sup>2</sup> )	Factory	Product Wholesale	-0.02	0.00
		Restaurant/Service	0.00	0.23
		Chemical Manufacturing	0.00	0.00
		Metal Manufacturing	-0.05	6.60
		Light Manufacturing	0.00	0.00
	Retail & Restaurant	Product Wholesale	-0.03	0.09
		Restaurant/Service	-0.03	0.03
		Light Manufacturing	0.00	0.13
	Logistics Facility	Product Wholesale	0.08	0.07
		Light Manufacturing	0.00	0.01
		Rd. Freight Trans. Service	0.00	0.01
	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-0.16	0.05
		Warehousing	0.00	0.00
		Product Wholesale	-0.09	0.01
		Restaurant/Service	0.00	0.01
		Light Manufacturing	0.23	88.57
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.01
	Office	Chemical Manufacturing	55.04	130.52
		Light Manufacturing	0.06	0.67
		Rd. Freight Trans. Service	-0.16	0.53
		Water/Air Freight Trans. Service and Trans. Related. Service	4.58	6.55
		Product Wholesale	0.26	0.54
	Factory	Restaurant/Service	0.12	7.88
		Chemical Manufacturing	0.61	0.78
		Metal Manufacturing	0.33	91.27
		Light Manufacturing	0.02	0.02
		Product Wholesale	1.53	1.93
	Retail & Restaurant	Restaurant/Service	8.49	4.40
		Light Manufacturing	0.10	5.65
		Product Wholesale	4.13	3.61
	Logistics Facility	Light Manufacturing	2.50	0.85
		Rd. Freight Trans. Service	0.42	0.22
		Water/Air Freight Trans. Service and Trans. Related. Service	5.08	1.70
		Warehousing	-0.12	0.14
		Product Wholesale	5.08	0.79
	Others	Restaurant/Service	0.07	0.57
		Light Manufacturing	-0.59	483.69
		Water/Air Freight Trans. Service and Trans. Related. Service	0.44	6.46
			R <sup>2</sup>	0.47
			R <sup>2</sup> <sub>adj</sub>	0.43
			n	1243

3 household/light manufacturing				
IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	99.81	1478.78
		Machinery Manufacturing	-811.57	1690.61
		Light Manufacturing	105.32	584.19
		Rd. Freight Trans. Service	3053.39	1390.20
		Water/Air Freight Trans. Service and Trans. Related. Service	-555.23	7752.56
	Factory	Warehousing	1646.42	5654.09
		Material Wholesale	1188.42	1937.18
		Product Wholesale	834.08	268.27
		Retail	-32.13	6095.91
		Restaurant/Service	1657.43	1265.85
	Others	Chemical Manufacturing	-0.16	391.74

emp (no.)	Retail & Restaurant	Steel Manufacturing	697.76	8306.09
		Metal Manufacturing	109.42	1979.16
		Machinery Manufacturing	1034.79	1072.59
		Light Manufacturing	647.48	257.33
		Material Wholesale	4428.04	3122.22
		Product Wholesale	-120.45	1112.26
		Restaurant/Service	-988.71	630.50
		Chemical Manufacturing	57.03	11274.37
		Light Manufacturing	369.33	2217.36
		Material Wholesale	1434.00	5819.67
	Logistics Facility	Product Wholesale	232.11	702.10
		Restaurant/Service	-59.63	1238.94
		Chemical Manufacturing	1381.66	3996.64
		Light Manufacturing	2464.23	1863.82
		Rd. Freight Trans. Service	7252.30	633.66
		Water/Air Freight Trans. Service and Trans. Related. Service	-602.03	2364.85
		Warehousing	5331.10	830.29
		Material Wholesale	-3385.24	4859.87
		Product Wholesale	720.78	470.13
		Restaurant/Service	3425.05	2239.47
	Others	Light Manufacturing	-124.21	5040.26
		Rd. Freight Trans. Service	8711.81	6779.15
		Water/Air Freight Trans. Service and Trans. Related. Service	-3709.60	6708.54
		Warehousing	-2787.75	8035.77
		Product Wholesale	225.52	4320.74
		Restaurant/Service	-448.63	4491.17
	Office	Chemical Manufacturing	43.53	79.18
		Machinery Manufacturing	24.72	14.41
		Light Manufacturing	-24.52	37.91
		Rd. Freight Trans. Service	61.04	64.37
		Water/Air Freight Trans. Service and Trans. Related. Service	55.85	156.96
		Warehousing	-74.32	600.57
		Material Wholesale	-61.27	168.43
		Product Wholesale	-11.52	4.20
		Retail	5.24	66.32
		Restaurant/Service	7.17	37.99
	Factory	Chemical Manufacturing	59.67	8.66
		Steel Manufacturing	-44.48	737.40
		Metal Manufacturing	38.39	189.29
		Machinery Manufacturing	16.16	30.69
		Light Manufacturing	69.73	12.08
		Material Wholesale	-79.89	251.94
		Product Wholesale	-44.19	137.51
		Restaurant/Service	113.41	13.77
	Retail & Restaurant	Chemical Manufacturing	1.92	660.29
		Light Manufacturing	26.45	352.14
		Material Wholesale	-42.05	772.63
		Product Wholesale	8.73	39.76
		Restaurant/Service	20.90	223.10
	Logistics Facility	Chemical Manufacturing	110.96	191.70
		Light Manufacturing	-58.40	112.38
		Rd. Freight Trans. Service	39.13	13.34
		Water/Air Freight Trans. Service and Trans. Related. Service	294.57	78.39
		Warehousing	127.38	24.86
		Material Wholesale	1480.48	758.99
		Product Wholesale	140.36	19.72

floor-emp	Others	Restaurant/Service	-66.44	84.96
		Light Manufacturing	50.61	924.21
		Rd. Freight Trans. Service	188.50	268.35
		Water/Air Freight Trans. Service and Trans. Related. Service	4671.04	2947.82
		Warehousing	130.44	290.94
	Office	Product Wholesale	68.72	295.33
		Restaurant/Service	36.27	470.44
		Chemical Manufacturing	-0.01	0.02
		Machinery Manufacturing	-0.01	0.00
		Light Manufacturing	0.00	0.01
		Rd. Freight Trans. Service	0.03	0.10
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.18	1.64
		Warehousing	0.04	0.19
		Material Wholesale	0.16	0.16
		Product Wholesale	0.00	0.00
		Retail	0.00	0.00
		Restaurant/Service	0.11	0.05
		Chemical Manufacturing	0.00	0.00
		Steel Manufacturing	0.07	0.92
		Metal Manufacturing	0.01	0.05
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.00	0.00
		Material Wholesale	-0.07	0.14
floor(m <sup>2</sup> )	Factory	Product Wholesale	-0.03	0.07
		Restaurant/Service	-0.02	0.00
		Chemical Manufacturing	-0.01	2.22
		Light Manufacturing	-0.09	1.06
		Material Wholesale	0.15	1.78
	Retail & Restaurant	Product Wholesale	0.00	0.00
		Restaurant/Service	0.12	0.60
		Chemical Manufacturing	-0.02	0.03
		Light Manufacturing	0.12	0.03
		Rd. Freight Trans. Service	0.00	0.00
	Logistics Facility	Water/Air Freight Trans. Service and Trans. Related. Service	-0.02	0.01
		Warehousing	-0.01	0.00
		Material Wholesale	-0.42	0.25
		Product Wholesale	-0.01	0.00
		Restaurant/Service	0.00	0.01
	Others	Light Manufacturing	0.10	2.58
		Rd. Freight Trans. Service	-1.08	0.55
		Water/Air Freight Trans. Service and Trans. Related. Service	-1.68	0.96
		Warehousing	-0.02	0.03
		Product Wholesale	-0.04	0.37
floor(m <sup>2</sup> )	Office	Restaurant/Service	-0.04	0.13
		Chemical Manufacturing	0.61	0.92
		Machinery Manufacturing	3.13	1.81
		Light Manufacturing	2.12	0.95
		Rd. Freight Trans. Service	1.17	2.04
	Factory	Water/Air Freight Trans. Service and Trans. Related. Service	4.20	44.41
		Warehousing	0.99	3.21
		Material Wholesale	-0.52	2.76
		Product Wholesale	-0.11	0.07
		Retail	0.05	1.00
		Restaurant/Service	-3.39	2.60
		Chemical Manufacturing	0.51	0.14
		Steel Manufacturing	-1.21	25.87



		Metal Manufacturing	-0.08	0.74
		Machinery Manufacturing	0.72	0.80
		Light Manufacturing	0.27	0.07
		Material Wholesale	19.79	3.55
		Product Wholesale	3.81	2.63
		Restaurant/Service	3.41	0.41
	Retail & Restaurant	Chemical Manufacturing	-0.05	26.31
		Light Manufacturing	-0.04	6.32
		Material Wholesale	-1.87	19.64
		Product Wholesale	1.12	0.70
		Restaurant/Service	-0.54	2.96
	Logistics Facility	Chemical Manufacturing	1.48	1.67
		Light Manufacturing	-0.12	0.94
		Rd. Freight Trans. Service	0.08	0.08
		Water/Air Freight Trans. Service and Trans. Related. Service	0.64	0.54
		Warehousing	0.27	0.09
		Material Wholesale	0.92	5.12
		Product Wholesale	1.46	0.19
		Restaurant/Service	0.59	0.96
	Others	Light Manufacturing	-0.40	20.05
		Rd. Freight Trans. Service	2.74	6.93
		Water/Air Freight Trans. Service and Trans. Related. Service	-3.99	9.84
		Warehousing	1.25	5.05
		Product Wholesale	-0.41	11.02
		Restaurant/Service	3.20	5.87
$R^2$			0.49	
$R^2_{adj}$			0.46	
n			2431	

#### 4 wood and paper products

IV	fnc	ind	Coef.	SE
const	Office	Light Manufacturing	230.22	770.85
		Rd. Freight Trans. Service	7361.16	2087.13
		Water/Air Freight Trans. Service and Trans. Related. Service	1310.10	5103.48
		Material Wholesale	7193.48	1573.64
		Product Wholesale	611.26	1507.34
		Restaurant/Service	955.12	1150.98
	Factory	Chemical Manufacturing	-223.62	4644.12
		Metal Manufacturing	-458.67	5975.10
		Machinery Manufacturing	-981.02	4509.52
		Light Manufacturing	1576.24	361.59
		Material Wholesale	559.99	5697.04
		Product Wholesale	-295.97	10169.49
		Restaurant/Service	2170.16	6030.85
	Retail & Restaurant	Light Manufacturing	226.25	9426.62
		Material Wholesale	4700.06	2202.70
	Logistics Facility	Light Manufacturing	2626.10	2903.22
		Rd. Freight Trans. Service	5412.16	1546.24
		Water/Air Freight Trans. Service and Trans. Related. Service	-1180.85	2330.33
		Warehousing	1219.93	1522.70
		Material Wholesale	4995.07	1758.92
		Product Wholesale	2707.19	2368.33
		Restaurant/Service	6185.85	1974.82
	Others	Light Manufacturing	33.73	5562.25
		Water/Air Freight Trans. Service and Trans. Related. Service	-3472.20	16553.66

emp (no.)	Office	Light Manufacturing	55.96	35.71
		Rd. Freight Trans. Service	-46.90	77.16
		Water/Air Freight Trans. Service and Trans. Related. Service	67.24	224.65
		Material Wholesale	78.83	164.15
		Product Wholesale	9.25	120.32
	Factory	Restaurant/Service	-1.57	11.73
		Chemical Manufacturing	79.93	144.20
		Metal Manufacturing	164.17	861.76
		Machinery Manufacturing	189.33	375.88
		Light Manufacturing	80.67	11.37
		Material Wholesale	329.86	587.76
		Product Wholesale	91.30	825.83
	Retail & Restaurant	Restaurant/Service	-69.12	557.08
		Light Manufacturing	-6.44	722.85
		Material Wholesale	4.74	183.67
	Logistics Facility	Light Manufacturing	212.17	88.67
		Rd. Freight Trans. Service	95.80	54.36
		Water/Air Freight Trans. Service and Trans. Related. Service	207.96	75.32
		Warehousing	253.01	93.09
		Material Wholesale	436.01	150.01
		Product Wholesale	41.65	64.64
		Restaurant/Service	0.98	46.57
	Others	Light Manufacturing	-19.92	495.98
		Water/Air Freight Trans. Service and Trans. Related. Service	257.67	382.22
floor-emp	Office	Light Manufacturing	-0.01	0.01
		Rd. Freight Trans. Service	0.44	0.24
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.01	0.36
		Material Wholesale	-0.03	0.06
		Product Wholesale	-0.01	0.10
	Factory	Restaurant/Service	0.00	0.00
		Chemical Manufacturing	0.05	0.08
		Metal Manufacturing	-0.11	0.88
		Machinery Manufacturing	-0.03	0.03
		Light Manufacturing	-0.01	0.00
		Material Wholesale	-0.11	0.10
		Product Wholesale	-0.02	0.57
	Retail & Restaurant	Restaurant/Service	-0.01	0.29
		Light Manufacturing	0.01	3.91
		Material Wholesale	-0.08	0.76
	Logistics Facility	Light Manufacturing	-0.03	0.01
		Rd. Freight Trans. Service	0.00	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.05	0.02
		Warehousing	0.01	0.01
		Material Wholesale	-0.27	0.09
		Product Wholesale	-0.05	0.01
		Restaurant/Service	0.00	0.01
	Others	Light Manufacturing	-0.01	0.10
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.02	0.07
floor(m <sup>2</sup> )	Office	Light Manufacturing	1.39	0.78
		Rd. Freight Trans. Service	-16.13	7.79
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.96	14.54
		Material Wholesale	0.16	0.54
		Product Wholesale	0.13	2.94
	Factory	Restaurant/Service	-0.15	1.28
		Chemical Manufacturing	-1.21	4.91
		Metal Manufacturing	0.93	9.42

		Machinery Manufacturing	1.32	3.35
		Light Manufacturing	1.08	0.17
		Material Wholesale	2.08	1.88
		Product Wholesale	1.21	33.58
		Restaurant/Service	5.91	2.94
	Retail & Restaurant	Light Manufacturing	-0.23	64.72
		Material Wholesale	3.05	6.24
	Logistics Facility	Light Manufacturing	2.66	0.92
		Rd. Freight Trans. Service	0.65	0.40
		Water/Air Freight Trans. Service and Trans. Related. Service	3.75	1.12
		Warehousing	-0.05	0.17
		Material Wholesale	3.31	1.45
		Product Wholesale	7.15	2.07
		Restaurant/Service	-0.12	0.49
	Others	Light Manufacturing	1.20	20.64
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.18	5.15
$R^2$			0.48	
$R^2_{adj}$			0.43	
n			1208	

5 minerals, ore, stone, cement, ceramics or glass

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	3621.09	4018.05
		Rd. Freight Trans. Service	12932.85	5586.89
		Material Wholesale	6962.20	2106.79
		Product Wholesale	-1701.80	3957.09
	Factory	Chemical Manufacturing	7654.75	974.91
		Metal Manufacturing	-2138.47	7709.24
		Machinery Manufacturing	1998.29	2127.12
		Material Wholesale	-7092.52	9205.75
	Restaurant/Service		-597.60	11336.91
		Material Wholesale	15174.82	3597.86
	Logistics Facility	Chemical Manufacturing	43186.90	21415.43
		Rd. Freight Trans. Service	14132.84	7132.14
		Warehousing	32965.21	25994.68
		Material Wholesale	11914.57	3186.63
	emp (no.)	Office	Product Wholesale	-16478.10
Chemical Manufacturing			240.60	332.65
Rd. Freight Trans. Service			-187.40	351.91
Material Wholesale			-122.14	163.48
Factory		Product Wholesale	327.47	285.87
		Chemical Manufacturing	30.82	23.61
		Metal Manufacturing	486.59	328.15
		Machinery Manufacturing	-153.35	79.38
Material Wholesale			826.53	536.62
		Restaurant/Service	20.09	723.08
Retail & Restaurant		Material Wholesale	-819.80	468.36
		Chemical Manufacturing	-2727.70	2133.42
		Rd. Freight Trans. Service	-937.09	786.89
		Warehousing	-1186.83	1139.79
floor-emp		Office	Material Wholesale	-81.53
	Product Wholesale		2685.80	10739.03
	Chemical Manufacturing		-0.05	0.36
	Rd. Freight Trans. Service		-0.36	1.97
	Material Wholesale		0.05	0.26

floor(m <sup>2</sup> )	Factory	Product Wholesale	-0.29	0.58	
		Chemical Manufacturing	0.00	0.00	
		Metal Manufacturing	-0.05	0.06	
		Machinery Manufacturing	0.00	0.00	
		Material Wholesale	-0.33	0.34	
	Retail & Restaurant	Restaurant/Service	-0.04	1.29	
		Logistics Facility	Material Wholesale	1.21	1.56
			Chemical Manufacturing	0.83	2.37
			Rd. Freight Trans. Service	4.46	3.68
			Warehousing	1.17	1.04
	Office		Material Wholesale	-0.14	0.48
		Product Wholesale	-5.55	28.62	
		Chemical Manufacturing	0.38	4.40	
		Rd. Freight Trans. Service	-0.73	29.61	
		Material Wholesale	0.46	3.72	
	Factory	Product Wholesale	2.66	11.44	
		Chemical Manufacturing	0.18	0.15	
		Metal Manufacturing	-0.49	3.53	
		Machinery Manufacturing	1.67	0.63	
		Material Wholesale	9.59	8.90	
Retail & Restaurant	Restaurant/Service	1.29	17.33		
	Logistics Facility	Material Wholesale	-10.81	11.83	
		Chemical Manufacturing	-14.95	25.97	
		Rd. Freight Trans. Service	-42.78	39.86	
		Warehousing	-54.31	47.75	
Material Wholesale		1.92	5.48		
	Product Wholesale	41.33	245.81		
R <sup>2</sup>			0.54		
R <sup>2</sup> <sub>adj</sub>			0.46		
n			436.00		

6 metals or articles of metal

IV	fnc	ind	Coef.	SE
const	Office	Steel Manufacturing	3750.69	3253.84
		Metal Manufacturing	522.67	1061.45
		Machinery Manufacturing	-156.60	1080.86
		Light Manufacturing	-2420.82	3181.65
		Rd. Freight Trans. Service	10201.21	2305.93
		Material Wholesale	2269.46	785.32
		Product Wholesale	-1455.55	625.00
		Restaurant/Service	992.79	3573.33
	Factory	Chemical Manufacturing	-1404.54	2009.22
		Steel Manufacturing	4130.92	524.46
		Metal Manufacturing	1563.07	248.45
		Machinery Manufacturing	474.12	269.13
		Light Manufacturing	911.17	1017.22
		Material Wholesale	4311.78	1123.48
		Product Wholesale	-350.72	3049.50
		Restaurant/Service	2375.04	8331.35
	Retail & Restaurant	Material Wholesale	5455.59	2213.77
		Product Wholesale	7689.38	6663.87
	Logistics Facility	Steel Manufacturing	4835.55	5597.19
		Metal Manufacturing	-210.78	3539.03
		Machinery Manufacturing	6904.77	9125.55
		Rd. Freight Trans. Service	10769.53	1332.58

		Water/Air Freight Trans. Service and Trans. Related. Service	21788.77	5268.40
		Warehousing	12024.46	2427.35
		Material Wholesale	5466.88	1130.50
		Product Wholesale	5432.10	2586.02
	Others	Rd. Freight Trans. Service	13111.57	8391.48
		Water/Air Freight Trans. Service and Trans. Related. Service	5739.78	9228.31
		Material Wholesale	-1627.60	5921.04
emp (no.)	Office	Steel Manufacturing	9.81	170.92
		Metal Manufacturing	-11.26	69.51
		Machinery Manufacturing	52.44	45.11
		Light Manufacturing	398.46	151.99
		Rd. Freight Trans. Service	-66.68	105.83
		Material Wholesale	42.03	31.61
		Product Wholesale	82.15	60.72
		Restaurant/Service	-94.87	202.54
	Factory	Chemical Manufacturing	-116.88	88.88
		Steel Manufacturing	64.55	16.63
		Metal Manufacturing	73.01	9.51
		Machinery Manufacturing	41.87	8.75
		Light Manufacturing	66.51	80.04
		Material Wholesale	35.66	101.57
		Product Wholesale	259.13	197.27
		Restaurant/Service	-4434.43	6846.84
	Retail & Restaurant	Material Wholesale	-412.17	309.08
		Product Wholesale	356.63	897.93
	Logistics Facility	Steel Manufacturing	782.30	498.60
		Metal Manufacturing	-45.74	336.24
		Machinery Manufacturing	-361.02	937.06
		Rd. Freight Trans. Service	-73.15	41.53
		Water/Air Freight Trans. Service and Trans. Related. Service	-711.73	232.26
		Warehousing	309.69	150.26
		Material Wholesale	142.12	97.19
		Product Wholesale	-759.39	249.71
	Others	Rd. Freight Trans. Service	4375.04	895.98
		Water/Air Freight Trans. Service and Trans. Related. Service	-837.36	1283.50
		Material Wholesale	-1128.30	927.74
floor-emp	Office	Steel Manufacturing	0.00	0.03
		Metal Manufacturing	-0.01	0.00
		Machinery Manufacturing	0.01	0.01
		Light Manufacturing	0.04	0.14
		Rd. Freight Trans. Service	-0.12	0.05
		Material Wholesale	-0.05	0.03
		Product Wholesale	-0.04	0.01
		Restaurant/Service	0.58	0.54
	Factory	Chemical Manufacturing	-0.02	0.01
		Steel Manufacturing	0.00	0.00
		Metal Manufacturing	0.00	0.00
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	-0.01	0.01
		Material Wholesale	-0.01	0.01
		Product Wholesale	0.03	0.13
		Restaurant/Service	6.88	15.12
	Retail & Restaurant	Material Wholesale	0.91	0.42
		Product Wholesale	-0.48	1.56
	Logistics Facility	Steel Manufacturing	0.19	0.21
		Metal Manufacturing	-0.16	0.09

floor(m <sup>2</sup> )	Others	Machinery Manufacturing	0.19	0.53	
		Rd. Freight Trans. Service	0.07	0.06	
		Water/Air Freight Trans. Service and Trans. Related. Service	0.03	0.03	
		Warehousing	-0.01	0.01	
	Others	Material Wholesale	-0.04	0.01	
		Product Wholesale	0.32	0.09	
		Rd. Freight Trans. Service	5.14	3.59	
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.31	0.55	
	Office	Material Wholesale	-0.71	0.78	
		Steel Manufacturing	-0.14	1.27	
		Metal Manufacturing	2.53	1.68	
		Machinery Manufacturing	0.94	0.88	
	Factory	Light Manufacturing	-1.56	7.02	
		Rd. Freight Trans. Service	2.92	1.33	
		Material Wholesale	2.91	1.08	
		Product Wholesale	5.92	2.10	
		Restaurant/Service	-4.53	10.69	
		Chemical Manufacturing	6.95	1.38	
		Steel Manufacturing	0.23	0.12	
		Metal Manufacturing	0.23	0.06	
		Machinery Manufacturing	0.48	0.11	
		Light Manufacturing	0.89	0.58	
		Material Wholesale	2.04	0.69	
		Product Wholesale	-2.47	4.11	
		Retail & Restaurant	Restaurant/Service	24.16	25.30
			Material Wholesale	-7.41	4.76
		Logistics Facility	Product Wholesale	-10.89	12.63
			Steel Manufacturing	-1.93	3.62
	Metal Manufacturing		7.15	4.32	
	Machinery Manufacturing		-1.96	4.99	
	Others	Rd. Freight Trans. Service	-0.04	0.85	
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.98	0.96	
		Warehousing	0.40	0.29	
		Material Wholesale	3.38	0.55	
		Product Wholesale	2.50	1.60	
		Rd. Freight Trans. Service	-135.28	56.76	
		Water/Air Freight Trans. Service and Trans. Related. Service	14.07	16.01	
		Material Wholesale	51.17	25.20	
R <sup>2</sup>		0.49			
R <sup>2</sup> <sub>adj</sub>		0.46			
n		2507			

7 machinery, appliances, and mechanical parts				
IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	963.36	5332.78
		Steel Manufacturing	2885.48	4195.94
		Metal Manufacturing	973.72	2699.72
		Machinery Manufacturing	491.54	321.50
		Light Manufacturing	-154.82	2838.43
		Rd. Freight Trans. Service	5210.88	1032.04
		Water/Air Freight Trans. Service and Trans. Related. Service	-20277.85	10053.58
	Factory	Material Wholesale	527.33	3577.57
		Product Wholesale	430.28	205.54
		Restaurant/Service	615.01	783.49
		Chemical Manufacturing	860.00	607.22

		Steel Manufacturing	1264.43	1163.29
		Metal Manufacturing	1233.70	432.18
		Machinery Manufacturing	1190.40	144.38
		Light Manufacturing	392.85	935.29
		Product Wholesale	1390.50	711.12
		Restaurant/Service	-46.71	731.00
	Retail & Restaurant	Machinery Manufacturing	3155.69	12198.30
		Product Wholesale	-1133.54	2031.17
		Restaurant/Service	44.16	5245.26
	Logistics Facility	Machinery Manufacturing	8944.49	1984.48
		Rd. Freight Trans. Service	7926.37	645.52
		Water/Air Freight Trans. Service and Trans. Related. Service	2113.52	2380.09
		Warehousing	10336.82	978.50
		Material Wholesale	-1712.52	14576.77
		Product Wholesale	2717.03	462.64
		Restaurant/Service	7995.99	1332.02
	Others	Machinery Manufacturing	178.41	1862.92
		Water/Air Freight Trans. Service and Trans. Related. Service	-4447.93	4371.35
		Restaurant/Service	6127.20	12741.91
emp (no.)	Office	Chemical Manufacturing	-186.44	731.19
		Steel Manufacturing	46.26	213.57
		Metal Manufacturing	19.42	130.00
		Machinery Manufacturing	7.96	5.63
		Light Manufacturing	-301.13	189.67
		Rd. Freight Trans. Service	92.37	29.42
		Water/Air Freight Trans. Service and Trans. Related. Service	1557.78	494.56
		Material Wholesale	48.48	242.79
		Product Wholesale	2.86	4.65
		Restaurant/Service	0.84	23.48
	Factory	Chemical Manufacturing	32.82	13.12
		Steel Manufacturing	0.25	29.79
		Metal Manufacturing	60.13	15.56
		Machinery Manufacturing	17.99	1.60
		Light Manufacturing	6.17	30.44
		Product Wholesale	89.86	4.67
		Restaurant/Service	139.70	49.77
	Retail & Restaurant	Machinery Manufacturing	-651.26	2076.98
		Product Wholesale	180.93	195.10
		Restaurant/Service	-6.34	877.90
	Logistics Facility	Machinery Manufacturing	19.41	45.08
		Rd. Freight Trans. Service	6.03	12.43
		Water/Air Freight Trans. Service and Trans. Related. Service	360.91	163.49
		Warehousing	-2.50	12.70
		Material Wholesale	73.90	1888.00
		Product Wholesale	-5.40	16.71
		Restaurant/Service	-78.83	53.05
	Others	Machinery Manufacturing	3.28	4.76
		Water/Air Freight Trans. Service and Trans. Related. Service	917.07	273.24
		Restaurant/Service	-307.65	938.36
floor-emp	Office	Chemical Manufacturing	0.90	1.56
		Steel Manufacturing	0.03	0.05
		Metal Manufacturing	0.07	0.28
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.01	0.07
		Rd. Freight Trans. Service	-0.07	0.02
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.35	0.19

floor(m <sup>2</sup> )	Factory	Material Wholesale	-0.18	0.40
		Product Wholesale	0.00	0.00
		Restaurant/Service	0.00	0.01
		Chemical Manufacturing	0.00	0.00
		Steel Manufacturing	0.00	0.00
		Metal Manufacturing	0.00	0.00
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	-0.01	0.00
		Product Wholesale	0.00	0.00
	Retail & Restaurant	Restaurant/Service	-0.03	0.01
		Machinery Manufacturing	4.56	13.03
		Product Wholesale	-0.21	0.30
	Logistics Facility	Restaurant/Service	0.01	1.83
		Machinery Manufacturing	0.00	0.01
		Rd. Freight Trans. Service	0.00	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.01	0.02
		Warehousing	0.00	0.00
	Others	Material Wholesale	-0.54	2.23
		Product Wholesale	0.02	0.00
		Restaurant/Service	0.01	0.01
		Machinery Manufacturing	0.00	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.16	0.05
	Office	Restaurant/Service	0.06	0.17
		Chemical Manufacturing	-3.42	16.75
		Steel Manufacturing	-6.17	13.63
		Metal Manufacturing	-1.07	4.69
		Machinery Manufacturing	0.02	0.03
		Light Manufacturing	7.41	2.49
		Rd. Freight Trans. Service	2.64	0.97
		Water/Air Freight Trans. Service and Trans. Related. Service	4.80	2.39
		Material Wholesale	3.17	6.80
Factory	Product Wholesale	0.07	0.14	
	Restaurant/Service	0.44	0.79	
	Chemical Manufacturing	0.43	0.12	
	Steel Manufacturing	0.81	0.27	
	Metal Manufacturing	0.22	0.17	
	Machinery Manufacturing	0.05	0.01	
	Light Manufacturing	2.10	0.57	
	Product Wholesale	-0.17	0.22	
	Restaurant/Service	2.43	0.54	
Retail & Restaurant	Machinery Manufacturing	-25.23	95.33	
	Product Wholesale	2.50	4.12	
	Restaurant/Service	0.06	18.28	
Logistics Facility	Machinery Manufacturing	-0.37	0.46	
	Rd. Freight Trans. Service	0.41	0.15	
	Water/Air Freight Trans. Service and Trans. Related. Service	0.22	0.34	
	Warehousing	0.41	0.16	
	Material Wholesale	9.97	16.07	
Others	Product Wholesale	-0.19	0.06	
	Restaurant/Service	-0.64	0.24	
	Machinery Manufacturing	0.05	0.25	
	Water/Air Freight Trans. Service and Trans. Related. Service	1.14	0.63	
	Restaurant/Service	-1.21	3.23	
R <sup>2</sup>			0.48	
R <sup>2</sup> <sub>adj</sub>			0.46	
n			3447	



8 chemicals, rubber or plastics

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	1500.55	1664.34
		Machinery Manufacturing	-50.11	15725.25
		Rd. Freight Trans. Service	8637.31	2082.03
		Material Wholesale	873.26	1294.78
		Product Wholesale	1316.58	1502.85
		Restaurant/Service	1068.82	4905.67
	Factory	Chemical Manufacturing	4121.26	393.73
		Metal Manufacturing	884.26	3735.44
		Machinery Manufacturing	-757.35	1531.91
		Light Manufacturing	-468.45	2110.36
		Material Wholesale	4618.11	2491.43
		Restaurant/Service	-4230.15	9466.23
	Retail & Restaurant	Material Wholesale	-6227.48	5778.04
		Product Wholesale	1978.44	13309.08
		Chemical Manufacturing	7646.64	3102.32
	Logistics Facility	Rd. Freight Trans. Service	11509.11	1978.59
		Warehousing	10970.38	2819.41
		Material Wholesale	3958.96	1127.54
		Product Wholesale	6434.79	2824.78
		Chemical Manufacturing	-239.70	5709.69
		Rd. Freight Trans. Service	-1197.17	6887.20
emp (no.)	Office	Chemical Manufacturing	64.33	40.81
		Machinery Manufacturing	3.19	1269.46
		Rd. Freight Trans. Service	197.38	142.33
		Material Wholesale	128.70	112.66
		Product Wholesale	-59.72	70.40
		Restaurant/Service	-70.78	51.96
	Factory	Chemical Manufacturing	24.58	6.37
		Metal Manufacturing	60.56	84.84
		Machinery Manufacturing	4.71	31.07
		Light Manufacturing	108.41	104.14
		Material Wholesale	229.20	78.07
		Restaurant/Service	-20.24	516.64
	Retail & Restaurant	Material Wholesale	1111.97	780.99
		Product Wholesale	-85.69	1986.47
		Chemical Manufacturing	-108.65	207.38
	Logistics Facility	Rd. Freight Trans. Service	163.02	98.78
		Warehousing	-136.81	176.98
		Material Wholesale	126.39	34.34
		Product Wholesale	-149.12	220.05
		Chemical Manufacturing	76.55	335.08
		Rd. Freight Trans. Service	544.71	433.03
floor-emp	Office	Chemical Manufacturing	-0.01	0.00
		Machinery Manufacturing	-0.01	1.85
		Rd. Freight Trans. Service	-0.21	0.09
		Material Wholesale	-0.04	0.06
		Product Wholesale	0.08	0.09
		Restaurant/Service	0.24	0.08
	Factory	Chemical Manufacturing	0.00	0.00
		Metal Manufacturing	-0.01	0.04
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	-0.03	0.01

floor(m <sup>2</sup> )	Retail & Restaurant	Material Wholesale	-0.03	0.03
		Restaurant/Service	-0.31	0.46
		Material Wholesale	-5.64	4.11
		Product Wholesale	-0.67	6.68
	Logistics Facility	Chemical Manufacturing	0.00	0.01
		Rd. Freight Trans. Service	0.03	0.02
		Warehousing	-0.01	0.02
		Material Wholesale	-0.05	0.03
	Others	Product Wholesale	-0.16	0.29
		Chemical Manufacturing	0.00	0.01
		Rd. Freight Trans. Service	-0.30	0.84
		Office	Chemical Manufacturing	1.61
	Machinery Manufacturing		0.27	35.24
	Rd. Freight Trans. Service		3.70	1.90
	Material Wholesale		1.12	0.87
	Factory	Product Wholesale	-0.09	2.54
		Restaurant/Service	-0.71	4.25
		Chemical Manufacturing	0.18	0.06
		Metal Manufacturing	0.08	3.81
		Machinery Manufacturing	1.38	0.33
		Light Manufacturing	2.04	1.00
		Material Wholesale	1.51	1.44
		Restaurant/Service	20.72	23.02
	Retail & Restaurant	Material Wholesale	48.90	36.57
		Product Wholesale	6.55	49.89
	Logistics Facility	Chemical Manufacturing	1.53	0.51
		Rd. Freight Trans. Service	-0.37	1.01
		Warehousing	0.77	0.63
		Material Wholesale	0.73	0.51
	Others	Product Wholesale	0.46	2.34
		Chemical Manufacturing	-0.78	4.98
		Rd. Freight Trans. Service	18.47	20.87
R <sup>2</sup>		0.53		
R <sup>2</sup> <sub>adj</sub>		0.49		
n		1126		

9 mixed goods

IV	fnc	ind	Coef.	SE
const	Office	Machinery Manufacturing	130.95	9936.29
		Light Manufacturing	-540.91	10979.98
		Rd. Freight Trans. Service	-10311.15	10094.12
		Water/Air Freight Trans. Service and Trans. Related. Service	22.72	8822.73
	Factory	Material Wholesale	-792.02	6967.74
		Product Wholesale	502.01	2546.67
		Restaurant/Service	989.27	4289.22
		Chemical Manufacturing	198.41	7284.59
	Logistics Facility	Machinery Manufacturing	6.69	13242.46
		Light Manufacturing	2797.27	9162.77
		Rd. Freight Trans. Service	7896.06	825.62
		Product Wholesale	-1795.43	8201.73
	Office	Restaurant/Service	-10934.77	323402.18
		Machinery Manufacturing	-0.33	677.89
emp (no.)		Light Manufacturing	26.47	1479.09

floor-emp	Factory	Rd. Freight Trans. Service	745.91	424.49	
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.27	172.98	
		Material Wholesale	-0.64	137.14	
		Product Wholesale	-0.09	17.21	
		Restaurant/Service	-5.85	157.30	
	Logistics Facility	Chemical Manufacturing	-2.89	1093.76	
		Machinery Manufacturing	4.30	969.60	
		Light Manufacturing	-385.87	2325.16	
	Office	Rd. Freight Trans. Service	9.70	11.50	
		Product Wholesale	447.88	224.54	
		Restaurant/Service	194.36	5510.94	
		Machinery Manufacturing	0.00	0.06	
		Light Manufacturing	-0.31	2.52	
	floor(m²)	Factory	Rd. Freight Trans. Service	-0.59	0.43
			Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.02
			Material Wholesale	-0.04	0.18
			Product Wholesale	0.00	0.34
			Restaurant/Service	0.00	0.02
		Logistics Facility	Chemical Manufacturing	0.02	0.22
			Machinery Manufacturing	0.00	0.66
Light Manufacturing			1.02	2.08	
Office		Rd. Freight Trans. Service	0.00	0.00	
		Product Wholesale	-0.01	0.03	
		Restaurant/Service	-0.63	15.81	
		Machinery Manufacturing	-0.22	42.28	
		Light Manufacturing	5.25	42.99	
		Rd. Freight Trans. Service	41.45	30.83	
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.29	
	Factory	Material Wholesale	4.12	15.58	
		Product Wholesale	2.07	11.29	
		Restaurant/Service	-0.05	4.88	
		Chemical Manufacturing	0.00	18.24	
		Machinery Manufacturing	-0.04	15.81	
	Logistics Facility	Light Manufacturing	-12.92	23.45	
		Rd. Freight Trans. Service	0.94	0.26	
		Product Wholesale	-0.68	6.55	
		Restaurant/Service	36.10	901.30	
		R²		0.57	
		R²adj		0.45	
n		252			

Table Consumption model (dependent variable: kg per day)

1 agricultural products				
IV	fnc	ind	Coef.	SE
const	Office	Light Manufacturing	2127.96	2503.21
		Rd. Freight Trans. Service	3948.69	2990.19
		Product Wholesale	807.27	1084.86
	Factory	Chemical Manufacturing	3106.94	2793.15
		Metal Manufacturing	-4337.65	12810.48
		Machinery Manufacturing	208.89	3162.09
		Light Manufacturing	1877.58	414.01
		Product Wholesale	471.80	1238.63
		Restaurant/Service	4446.90	7617.99
	Retail & Restaurant	Light Manufacturing	6.50	2666.44
		Product Wholesale	-998.24	1056.96
	Logistics Facility	Light Manufacturing	598.70	8716.11
		Rd. Freight Trans. Service	3034.25	1610.69
		Water/Air Freight Trans. Service and Trans. Related. Service	-1004.18	8865.09
		Warehousing	11304.30	1804.98
		Product Wholesale	-1511.88	1110.10
		Retail	8659.74	27250.93
	Others	Light Manufacturing	-41.30	14711.99
		Product Wholesale	584.57	2260.50
emp (no.)	Office	Light Manufacturing	0.48	88.81
		Rd. Freight Trans. Service	290.73	198.44
		Product Wholesale	4.22	28.12
	Factory	Chemical Manufacturing	46.98	80.33
		Metal Manufacturing	798.08	2690.51
		Machinery Manufacturing	-3.72	115.68
		Light Manufacturing	37.61	4.63
		Product Wholesale	56.98	78.09
		Restaurant/Service	-15.58	25.49
	Retail & Restaurant	Light Manufacturing	-1.06	271.91
		Product Wholesale	159.29	90.83
	Logistics Facility	Light Manufacturing	1239.60	884.37
		Rd. Freight Trans. Service	95.10	19.45
		Water/Air Freight Trans. Service and Trans. Related. Service	62.07	291.69
		Warehousing	-32.79	132.21
		Product Wholesale	146.20	31.05
		Retail	120.69	422.61
	Others	Light Manufacturing	0.01	1584.60
		Product Wholesale	-77.77	59.15
floor- emp	Office	Light Manufacturing	0.01	0.07
		Rd. Freight Trans. Service	-0.75	0.33
		Product Wholesale	-0.07	0.05
	Factory	Chemical Manufacturing	-0.02	0.03
		Metal Manufacturing	-0.92	1.15
		Machinery Manufacturing	0.02	0.08
		Light Manufacturing	0.00	0.00
		Product Wholesale	0.01	0.02
		Restaurant/Service	0.00	0.00
	Retail & Restaurant	Light Manufacturing	0.00	0.17
		Product Wholesale	0.06	0.09
	Logistics Facility	Light Manufacturing	-1.32	0.93

		Rd. Freight Trans. Service	-0.01	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.01	0.05
		Warehousing	0.00	0.00
		Product Wholesale	-0.05	0.01
		Retail	0.08	0.30
	Others	Light Manufacturing	-0.05	3.10
		Product Wholesale	-0.02	0.05
floor(m <sup>2</sup> )	Office	Light Manufacturing	-0.67	4.47
		Rd. Freight Trans. Service	20.49	6.65
		Product Wholesale	7.84	1.40
	Factory	Chemical Manufacturing	0.81	1.68
		Metal Manufacturing	8.42	12.51
		Machinery Manufacturing	-1.84	5.59
		Light Manufacturing	0.17	0.06
		Product Wholesale	-0.22	0.50
		Restaurant/Service	-1.13	3.12
	Retail & Restaurant	Light Manufacturing	-0.13	4.21
		Product Wholesale	-0.70	1.11
	Logistics Facility	Light Manufacturing	4.41	11.35
		Rd. Freight Trans. Service	1.12	0.48
		Water/Air Freight Trans. Service and Trans. Related. Service	0.13	1.40
		Warehousing	-0.11	0.17
		Product Wholesale	1.17	0.51
		Retail	-3.52	14.07
	Others	Light Manufacturing	1.06	38.91
		Product Wholesale	1.41	2.75
prod (kg/day)	Office	Light Manufacturing	0.71	0.30
		Rd. Freight Trans. Service	0.04	0.02
		Product Wholesale	0.13	0.03
	Factory	Chemical Manufacturing	-0.02	0.02
		Metal Manufacturing	1.70	4.10
		Machinery Manufacturing	1.52	1.20
		Light Manufacturing	0.01	0.01
		Product Wholesale	0.38	0.14
		Restaurant/Service	0.83	0.29
	Retail & Restaurant	Light Manufacturing	1.08	3.88
		Product Wholesale	1.00	0.13
	Logistics Facility	Light Manufacturing	0.38	0.10
		Rd. Freight Trans. Service	0.02	0.02
		Water/Air Freight Trans. Service and Trans. Related. Service	0.22	0.11
		Warehousing	0.00	0.00
		Product Wholesale	0.66	0.09
		Retail	-0.19	0.49
	Others	Light Manufacturing	-0.07	9.75
		Product Wholesale	0.62	0.24
R <sup>2</sup>			0.63	
R <sup>2</sup> <sub>adj</sub>			0.58	
n			805	

## 2 food products

IV	fnc	ind	Coef.	SE
const	Office	Light Manufacturing	-109.64	1761.88
		Rd. Freight Trans. Service	6666.59	1281.86
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	6251.31

emp (no.)	Factory	Warehousing	521.95	11918.70
		Product Wholesale	-210.16	808.57
		Restaurant/Service	-400.77	20073.40
		Chemical Manufacturing	1413.88	1956.66
		Machinery Manufacturing	1680.81	3774.52
		Light Manufacturing	1324.28	414.71
	Retail & Restaurant	Product Wholesale	2544.42	1642.89
		Restaurant/Service	-564.50	4325.74
		Light Manufacturing	-28.01	3121.13
	Logistics Facility	Product Wholesale	-309.76	860.57
		Light Manufacturing	7687.59	2835.29
		Rd. Freight Trans. Service	10171.77	1254.29
	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-3075.35	6457.45
		Warehousing	11589.84	1545.20
		Product Wholesale	309.98	893.03
		Retail	-4261.71	10442.47
		Restaurant/Service	-158963.72	110584.88
		Rd. Freight Trans. Service	383.33	8998.57
floor-emp	Office	Water/Air Freight Trans. Service and Trans. Related. Service	-573.76	5148.30
		Light Manufacturing	-0.76	28.22
		Rd. Freight Trans. Service	-53.61	29.20
	Factory	Water/Air Freight Trans. Service and Trans. Related. Service	0.00	116.82
		Warehousing	-24.92	341.89
		Product Wholesale	35.15	43.73
	Retail & Restaurant	Restaurant/Service	41.08	2101.18
		Chemical Manufacturing	-71.42	68.50
		Machinery Manufacturing	-128.39	185.16
	Logistics Facility	Light Manufacturing	27.59	6.11
		Product Wholesale	-87.18	56.63
		Restaurant/Service	-28.36	109.56
	Others	Light Manufacturing	8.71	161.17
		Product Wholesale	92.08	84.48
		Light Manufacturing	-75.27	44.59
	Office	Rd. Freight Trans. Service	-93.32	28.20
		Water/Air Freight Trans. Service and Trans. Related. Service	114.58	357.12
		Warehousing	11.68	40.44
	Factory	Product Wholesale	20.39	34.32
		Retail	669.00	267.79
		Restaurant/Service	494.21	426.89
	Retail & Restaurant	Rd. Freight Trans. Service	-40.29	381.76
		Water/Air Freight Trans. Service and Trans. Related. Service	3.83	190.36
		Light Manufacturing	0.00	0.01
	Logistics Facility	Rd. Freight Trans. Service	0.02	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.19
		Warehousing	-0.46	0.83
	Office	Product Wholesale	0.00	0.00
		Restaurant/Service	-0.02	0.69
		Chemical Manufacturing	0.00	0.01
	Factory	Machinery Manufacturing	0.02	0.02
		Light Manufacturing	0.00	0.00
		Product Wholesale	0.01	0.01
	Retail & Restaurant	Restaurant/Service	-0.03	0.12
		Light Manufacturing	-0.01	0.47
		Product Wholesale	-0.07	0.06
	Logistics Facility	Light Manufacturing	0.02	0.01
		Rd. Freight Trans. Service	0.02	0.00

floor(m <sup>2</sup> )	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-0.03	0.09
		Warehousing	0.00	0.00
		Product Wholesale	-0.02	0.01
		Retail	-0.04	0.05
		Restaurant/Service	0.05	0.03
	Office	Rd. Freight Trans. Service	0.16	0.19
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.01
		Light Manufacturing	0.30	2.18
		Rd. Freight Trans. Service	-0.82	0.37
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	16.98
	Factory	Warehousing	27.84	50.93
		Product Wholesale	0.24	0.45
		Restaurant/Service	0.58	13.16
		Chemical Manufacturing	0.57	1.30
		Machinery Manufacturing	-3.76	4.31
	Retail & Restaurant	Light Manufacturing	0.61	0.12
		Product Wholesale	3.67	1.62
		Restaurant/Service	3.85	7.52
		Light Manufacturing	0.03	5.84
		Product Wholesale	-0.10	3.41
	Logistics Facility	Light Manufacturing	-2.22	1.38
		Rd. Freight Trans. Service	-0.39	0.18
		Water/Air Freight Trans. Service and Trans. Related. Service	0.91	2.69
		Warehousing	-0.14	0.09
Product Wholesale		1.90	0.79	
prod (kg/day)	Others	Retail	1.64	2.56
		Restaurant/Service	-0.40	0.63
		Rd. Freight Trans. Service	0.22	6.93
		Water/Air Freight Trans. Service and Trans. Related. Service	0.82	5.72
		Light Manufacturing	0.99	0.43
	Office	Rd. Freight Trans. Service	0.12	0.03
		Water/Air Freight Trans. Service and Trans. Related. Service	1.00	3.52
		Warehousing	0.02	0.02
		Product Wholesale	0.60	0.08
		Restaurant/Service	2.13	141.38
	Factory	Chemical Manufacturing	0.39	0.46
		Machinery Manufacturing	1.80	1.83
		Light Manufacturing	0.00	0.01
		Product Wholesale	0.09	0.08
		Restaurant/Service	1.18	0.31
	Retail & Restaurant	Light Manufacturing	0.57	10.15
		Product Wholesale	0.47	0.45
	Logistics Facility	Light Manufacturing	0.44	0.14
		Rd. Freight Trans. Service	0.02	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	0.89	0.86
		Warehousing	0.04	0.01
		Product Wholesale	0.51	0.06
	Others	Retail	-0.04	0.14
		Restaurant/Service	17.68	11.22
Rd. Freight Trans. Service		-0.04	0.08	
Water/Air Freight Trans. Service and Trans. Related. Service		1.10	5.09	
R <sup>2</sup>			0.57	
R <sup>2</sup> <sub>adj</sub>			0.51	
n			975	

## 3 household/light manufacturing

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	-172.42	1455.70
		Machinery Manufacturing	-369.07	2006.38
		Light Manufacturing	187.10	469.76
		Rd. Freight Trans. Service	6528.47	1242.42
		Water/Air Freight Trans. Service and Trans. Related. Service	-599.71	5422.86
		Warehousing	6517.22	23166.81
		Material Wholesale	1246.66	1669.69
		Product Wholesale	156.18	259.22
	Factory	Retail	135.05	5260.20
		Restaurant/Service	73.15	1081.99
		Chemical Manufacturing	470.71	448.69
		Steel Manufacturing	408.26	14944.18
		Metal Manufacturing	-854.62	1765.90
		Machinery Manufacturing	621.65	832.27
		Light Manufacturing	1289.16	205.26
		Material Wholesale	-5593.75	9614.75
	Retail & Restaurant	Product Wholesale	-114.94	1004.26
		Restaurant/Service	675.15	570.78
		Light Manufacturing	-130.21	1833.31
		Material Wholesale	-266.00	6015.06
		Product Wholesale	196.60	812.71
		Restaurant/Service	-8.03	1063.30
	Logistics Facility	Chemical Manufacturing	-1470.86	4626.31
		Light Manufacturing	-543.98	1878.60
		Rd. Freight Trans. Service	6254.45	559.96
		Water/Air Freight Trans. Service and Trans. Related. Service	3354.18	1637.41
		Warehousing	5375.87	719.09
		Material Wholesale	-72.66	3567.06
		Product Wholesale	872.37	473.45
		Retail	6099.82	8318.66
emp (no.)	Office	Restaurant/Service	2264.62	1942.76
		Light Manufacturing	-30.85	6111.44
		Rd. Freight Trans. Service	3156.69	6489.88
		Water/Air Freight Trans. Service and Trans. Related. Service	26808.97	49714.70
		Warehousing	8105.64	6844.50
		Product Wholesale	-1771.68	7869.99
		Restaurant/Service	8.82	2784.66
		Chemical Manufacturing	5.16	85.45
	Factory	Machinery Manufacturing	44.88	80.40
		Light Manufacturing	17.40	28.86
		Rd. Freight Trans. Service	-57.76	52.00
		Water/Air Freight Trans. Service and Trans. Related. Service	54.80	237.21
		Warehousing	-926.50	2647.33
		Material Wholesale	-10.31	145.47
		Product Wholesale	4.74	3.82
		Retail	-3.90	82.14
	Others	Restaurant/Service	-0.29	32.01
		Chemical Manufacturing	10.15	11.18
		Steel Manufacturing	-54.83	1129.21
		Metal Manufacturing	126.16	198.08
		Machinery Manufacturing	-17.21	13.96
		Light Manufacturing	25.91	7.61
		Material Wholesale	1751.50	1466.78
		Product Wholesale	-61.30	124.81



Retail & Restaurant	Restaurant/Service	-3.72	14.59
	Light Manufacturing	53.74	345.69
	Material Wholesale	31.64	672.26
	Product Wholesale	-11.02	41.81
Logistics Facility	Restaurant/Service	7.52	186.97
	Chemical Manufacturing	26.24	467.38
	Light Manufacturing	206.35	103.13
	Rd. Freight Trans. Service	3.50	10.36
	Water/Air Freight Trans. Service and Trans. Related. Service	94.89	40.72
	Warehousing	106.39	18.95
	Material Wholesale	-5.19	113.38
	Product Wholesale	22.81	21.86
Others	Retail	6.36	542.24
	Restaurant/Service	-47.84	65.36
	Light Manufacturing	8.24	1013.93
	Rd. Freight Trans. Service	-279.34	239.04
	Water/Air Freight Trans. Service and Trans. Related. Service	-482.47	3381.61
	Warehousing	-80.08	442.77
	Product Wholesale	196.28	565.99
	Restaurant/Service	-12.57	292.92
floor-emp Office	Chemical Manufacturing	0.00	0.02
	Machinery Manufacturing	-0.01	0.03
	Light Manufacturing	0.00	0.01
	Rd. Freight Trans. Service	0.08	0.05
	Water/Air Freight Trans. Service and Trans. Related. Service	-0.44	5.37
	Warehousing	0.78	3.73
	Material Wholesale	0.04	0.13
	Product Wholesale	0.00	0.00
	Retail	0.00	0.00
	Restaurant/Service	0.00	0.04
Factory	Chemical Manufacturing	0.00	0.00
	Steel Manufacturing	0.24	3.06
	Metal Manufacturing	-0.01	0.01
	Machinery Manufacturing	0.00	0.00
	Light Manufacturing	0.00	0.00
	Material Wholesale	-5.24	4.95
	Product Wholesale	-0.01	0.08
	Restaurant/Service	0.00	0.00
Retail & Restaurant	Light Manufacturing	-0.12	1.11
	Material Wholesale	-0.10	1.57
	Product Wholesale	0.02	0.02
	Restaurant/Service	-0.03	0.52
Logistics Facility	Chemical Manufacturing	-0.04	0.04
	Light Manufacturing	-0.06	0.03
	Rd. Freight Trans. Service	0.00	0.00
	Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.00
	Warehousing	0.00	0.00
	Material Wholesale	0.00	0.18
	Product Wholesale	0.00	0.00
	Retail	0.06	0.10
	Restaurant/Service	0.00	0.01
	Light Manufacturing	-0.01	2.51
Others	Rd. Freight Trans. Service	0.10	0.59
	Water/Air Freight Trans. Service and Trans. Related. Service	0.19	1.29
	Warehousing	0.03	0.06
	Product Wholesale	-0.09	0.30

floor(m <sup>2</sup> )	Office	Restaurant/Service	0.00	0.01	
		Chemical Manufacturing	0.04	0.95	
		Machinery Manufacturing	0.77	2.32	
		Light Manufacturing	-0.65	0.81	
		Rd. Freight Trans. Service	-0.55	1.36	
		Water/Air Freight Trans. Service and Trans. Related. Service	5.30	47.23	
		Warehousing	-16.66	87.05	
		Material Wholesale	1.30	2.33	
		Product Wholesale	0.02	0.06	
		Retail	-0.04	1.05	
	Factory	Restaurant/Service	-0.32	2.20	
		Chemical Manufacturing	0.00	0.05	
		Steel Manufacturing	-2.13	45.24	
		Metal Manufacturing	-0.11	1.02	
		Machinery Manufacturing	0.83	0.37	
		Light Manufacturing	0.21	0.06	
		Material Wholesale	16.63	38.25	
		Product Wholesale	2.22	4.01	
		Retail & Restaurant	Restaurant/Service	-0.67	0.39
			Light Manufacturing	0.54	5.84
	Material Wholesale		1.14	17.46	
	Product Wholesale		-0.28	0.79	
	Logistics Facility		Restaurant/Service	0.12	2.60
		Chemical Manufacturing	3.82	6.47	
		Light Manufacturing	-0.71	0.86	
		Rd. Freight Trans. Service	0.29	0.07	
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.21	0.24	
		Warehousing	0.17	0.08	
		Material Wholesale	-0.04	5.71	
		Product Wholesale	-0.03	0.19	
Retail		-7.02	11.60		
Others		Restaurant/Service	0.12	0.84	
	Light Manufacturing	-0.10	33.41		
	Rd. Freight Trans. Service	-2.61	6.03		
	Water/Air Freight Trans. Service and Trans. Related. Service	-9.10	19.97		
	Warehousing	-4.28	3.83		
	Product Wholesale	2.10	12.25		
	Restaurant/Service	0.56	12.44		
	prod (kg/day)	Office	Chemical Manufacturing	0.98	0.27
Machinery Manufacturing			0.07	0.48	
Light Manufacturing			0.77	0.11	
Rd. Freight Trans. Service			0.12	0.03	
Water/Air Freight Trans. Service and Trans. Related. Service			0.25	0.08	
Warehousing			2.20	6.26	
Material Wholesale			0.00	0.02	
Product Wholesale			0.99	0.10	
Retail			1.89	11.26	
Restaurant/Service			0.99	0.12	
Factory		Chemical Manufacturing	0.38	0.06	
		Steel Manufacturing	1.09	20.47	
		Metal Manufacturing	0.40	1.08	
		Machinery Manufacturing	0.00	0.06	
		Light Manufacturing	0.05	0.01	
		Material Wholesale	0.80	0.46	
		Product Wholesale	0.87	0.41	

Retail & Restaurant	Restaurant/Service	0.90	0.07
		0.17	0.85
		0.96	2.32
		0.66	0.33
Logistics Facility	Restaurant/Service	0.43	1.30
	Chemical Manufacturing	-0.22	0.96
	Light Manufacturing	0.86	0.13
	Rd. Freight Trans. Service	0.08	0.02
	Water/Air Freight Trans. Service and Trans. Related. Service	0.13	0.06
	Warehousing	0.05	0.01
	Material Wholesale	0.95	0.47
	Product Wholesale	0.62	0.08
Others	Retail	1.71	2.34
	Restaurant/Service	0.44	0.09
	Light Manufacturing	0.95	7.34
	Rd. Freight Trans. Service	1.13	0.33
	Water/Air Freight Trans. Service and Trans. Related. Service	0.18	0.52
	Warehousing	0.53	0.14
	Product Wholesale	2.50	3.80
	Restaurant/Service	1.16	2.95
$R^2$		0.56	
$R^2_{adj}$		0.52	
n		2353	

#### 4 wood and paper products

IV	fnc	ind	Coef.	SE
const	Office	Light Manufacturing	21.06	697.48
		Rd. Freight Trans. Service	898.28	1580.86
		Water/Air Freight Trans. Service and Trans. Related. Service	1831.83	3743.13
		Material Wholesale	440.91	1337.03
		Product Wholesale	5.49	1010.12
	Factory	Restaurant/Service	136.63	888.83
		Chemical Manufacturing	2557.74	6438.36
		Metal Manufacturing	-852.42	4222.18
		Machinery Manufacturing	237.01	2358.99
		Light Manufacturing	1869.64	302.81
		Material Wholesale	-2956.72	3935.84
		Product Wholesale	602.07	5508.13
		Restaurant/Service	2651.62	4099.29
	Retail & Restaurant	Material Wholesale	69.86	1706.68
		Restaurant/Service	-5.41	5422.12
	Logistics Facility	Light Manufacturing	-1714.78	2520.49
		Rd. Freight Trans. Service	1378.00	1287.47
		Water/Air Freight Trans. Service and Trans. Related. Service	1882.72	1433.57
		Warehousing	-7.70	1185.26
		Material Wholesale	1733.65	1247.80
		Product Wholesale	2833.92	1691.12
		Restaurant/Service	490.06	1619.32
		Light Manufacturing	-713.00	5772.37
emp (no.)	Office	Water/Air Freight Trans. Service and Trans. Related. Service	-17.47	5352.24
		Light Manufacturing	14.16	32.78
		Rd. Freight Trans. Service	83.83	58.33
		Water/Air Freight Trans. Service and Trans. Related. Service	41.49	167.77
		Material Wholesale	85.86	123.25
		Product Wholesale	0.06	6.79

floor-emp	Factory	Restaurant/Service	9.46	8.78
		Chemical Manufacturing	-339.02	375.19
		Metal Manufacturing	99.75	372.59
		Machinery Manufacturing	-10.18	149.28
		Light Manufacturing	49.15	10.91
		Material Wholesale	450.90	419.56
		Product Wholesale	-139.40	1905.71
	Retail & Restaurant	Restaurant/Service	-187.35	364.80
		Material Wholesale	40.33	191.91
		Restaurant/Service	5.35	571.22
	Logistics Facility	Light Manufacturing	-132.55	80.78
		Rd. Freight Trans. Service	4.24	41.71
		Water/Air Freight Trans. Service and Trans. Related. Service	28.82	42.03
		Warehousing	229.43	68.72
		Material Wholesale	-12.22	56.03
		Product Wholesale	-7.54	42.56
		Restaurant/Service	-1.90	34.60
	Others	Light Manufacturing	204.10	617.67
		Water/Air Freight Trans. Service and Trans. Related. Service	0.71	186.66
		Light Manufacturing	0.00	0.01
floor(m <sup>2</sup> )	Office	Rd. Freight Trans. Service	0.02	0.18
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.01	0.28
		Material Wholesale	-0.03	0.04
		Product Wholesale	0.00	0.05
		Restaurant/Service	0.00	0.00
		Chemical Manufacturing	0.10	0.11
		Metal Manufacturing	-0.18	0.31
	Factory	Machinery Manufacturing	0.00	0.02
		Light Manufacturing	0.00	0.00
		Material Wholesale	-0.10	0.09
		Product Wholesale	0.02	0.11
		Restaurant/Service	0.10	0.18
		Material Wholesale	-0.11	0.55
		Restaurant/Service	0.03	8.55
	Logistics Facility	Light Manufacturing	-0.01	0.01
		Rd. Freight Trans. Service	0.00	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.00
		Warehousing	0.01	0.01
		Material Wholesale	-0.01	0.02
		Product Wholesale	-0.01	0.01
		Restaurant/Service	0.00	0.01
	Others	Light Manufacturing	-0.22	1.52
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.03
		Light Manufacturing	-0.21	0.64
floor(m <sup>2</sup> )	Office	Rd. Freight Trans. Service	0.83	5.97
		Water/Air Freight Trans. Service and Trans. Related. Service	-1.25	11.27
		Material Wholesale	0.80	0.40
		Product Wholesale	0.20	2.25
		Restaurant/Service	-0.13	0.96
		Chemical Manufacturing	-0.31	2.93
		Metal Manufacturing	3.64	5.59
	Factory	Machinery Manufacturing	0.04	1.89
		Light Manufacturing	0.58	0.14
		Material Wholesale	1.96	1.82
		Product Wholesale	-0.99	12.85
		Restaurant/Service	-1.56	2.60

prod (kg/day)	Retail & Restaurant	Material Wholesale	0.32	4.53
		Restaurant/Service	-0.94	290.87
	Logistics Facility	Light Manufacturing	2.55	0.90
		Rd. Freight Trans. Service	0.23	0.31
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.29	0.36
		Warehousing	0.00	0.13
		Material Wholesale	-0.14	0.78
		Product Wholesale	1.36	0.62
	Others	Restaurant/Service	-0.05	0.36
		Light Manufacturing	0.28	16.98
		Water/Air Freight Trans. Service and Trans. Related. Service	0.03	2.21
	Office	Light Manufacturing	0.99	0.12
		Rd. Freight Trans. Service	0.05	0.03
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.01	0.07
		Material Wholesale	0.66	0.08
		Product Wholesale	0.52	0.81
		Restaurant/Service	0.11	0.18
	Factory	Chemical Manufacturing	1.65	1.10
		Metal Manufacturing	0.05	0.31
		Machinery Manufacturing	0.61	0.69
		Light Manufacturing	0.04	0.01
		Material Wholesale	0.66	0.49
		Product Wholesale	1.49	9.38
		Restaurant/Service	1.08	0.17
		Material Wholesale	1.11	0.22
		Restaurant/Service	9.40	2487.92
		Logistics Facility	Light Manufacturing	0.58
	Rd. Freight Trans. Service		0.60	0.07
	Water/Air Freight Trans. Service and Trans. Related. Service		0.00	0.00
	Warehousing		0.17	0.06
	Material Wholesale		0.61	0.08
	Product Wholesale		0.14	0.04
	Others	Restaurant/Service	1.03	0.13
		Light Manufacturing	0.27	6.10
Water/Air Freight Trans. Service and Trans. Related. Service		1.00	0.60	
R <sup>2</sup>			0.64	
R <sup>2</sup> <sub>adj</sub>			0.60	
n			1012	

5 minerals, ore, stone, cement, ceramics or glass

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	5380.72	3449.41
		Rd. Freight Trans. Service	388.23	6955.52
		Material Wholesale	1778.81	1567.23
		Product Wholesale	-2594.24	3460.82
	Factory	Chemical Manufacturing	6669.68	794.57
		Steel Manufacturing	143.03	3755.33
		Metal Manufacturing	1083.12	7320.89
		Machinery Manufacturing	414.73	1358.05
		Light Manufacturing	-1762.78	4939.72
		Material Wholesale	-3643.79	7004.60
	Retail & Restaurant	Material Wholesale	-5220.61	4180.15
		Chemical Manufacturing	101144.92	168994.17
	Logistics Facility	Rd. Freight Trans. Service	28967.47	7643.92

emp (no.)	Office	Warehousing	54904.38	20409.00
		Material Wholesale	9515.24	3250.74
		Product Wholesale	-1129.44	26230.54
		Chemical Manufacturing	-113.94	258.58
		Rd. Freight Trans. Service	46.66	499.07
		Material Wholesale	-8.74	65.13
	Factory	Product Wholesale	-53.22	320.57
		Chemical Manufacturing	-2.55	19.80
		Steel Manufacturing	-25.01	172.36
		Metal Manufacturing	-32.22	404.63
		Machinery Manufacturing	5.27	27.19
		Light Manufacturing	231.76	190.83
	Retail & Restaurant Logistics Facility	Material Wholesale	707.84	412.62
		Material Wholesale	572.68	446.27
		Chemical Manufacturing	-7210.32	11541.62
		Rd. Freight Trans. Service	-2238.50	760.10
		Warehousing	-2057.00	880.43
		Material Wholesale	-259.14	332.49
floor-emp	Office	Product Wholesale	-102.47	2375.05
		Chemical Manufacturing	-0.13	0.29
		Rd. Freight Trans. Service	0.63	3.32
		Material Wholesale	-0.02	0.20
		Product Wholesale	-0.76	0.54
		Chemical Manufacturing	0.00	0.00
	Factory	Steel Manufacturing	0.00	0.00
		Metal Manufacturing	0.01	0.06
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	-0.07	0.12
		Material Wholesale	-0.32	0.20
		Material Wholesale	-1.85	1.50
	Retail & Restaurant Logistics Facility	Chemical Manufacturing	1.50	3.83
		Rd. Freight Trans. Service	9.57	3.46
		Warehousing	2.06	0.86
		Material Wholesale	0.09	0.39
		Product Wholesale	-0.08	0.66
		Chemical Manufacturing	2.09	3.72
floor(m <sup>2</sup> )	Office	Rd. Freight Trans. Service	-10.63	51.74
		Material Wholesale	1.46	3.04
		Product Wholesale	19.68	9.58
		Chemical Manufacturing	-0.04	0.10
		Steel Manufacturing	0.41	1.43
		Metal Manufacturing	-0.12	2.80
	Factory	Machinery Manufacturing	-0.10	0.18
		Light Manufacturing	0.39	3.83
		Material Wholesale	9.16	5.32
		Material Wholesale	18.64	11.68
		Chemical Manufacturing	-24.35	56.95
		Rd. Freight Trans. Service	-108.09	36.92
	Retail & Restaurant Logistics Facility	Warehousing	-95.28	39.33
		Material Wholesale	4.59	4.11
		Product Wholesale	2.80	37.30
prod (kg/day)	Office	Chemical Manufacturing	0.00	0.00
		Rd. Freight Trans. Service	0.00	0.01
		Material Wholesale	0.50	0.08
		Product Wholesale	1.62	0.53

Factory	Chemical Manufacturing	0.00	0.00
	Steel Manufacturing	1.26	1.74
	Metal Manufacturing	0.43	0.67
	Machinery Manufacturing	0.59	0.21
	Light Manufacturing	0.43	0.13
	Material Wholesale	-0.01	0.01
	Material Wholesale	0.60	0.19
	Chemical Manufacturing	-0.62	2.76
	Rd. Freight Trans. Service	0.04	0.02
	Warehousing	0.17	0.07
Retail & Restaurant	Material Wholesale	0.01	0.03
	Product Wholesale	1.35	4.82
Logistics Facility			
R <sup>2</sup>		0.58	
R <sup>2</sup> <sub>adj</sub>		0.50	
n		475	

#### 6 metals or articles of metal

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	1803.95	7189.20
		Steel Manufacturing	-1886.97	1880.38
		Metal Manufacturing	-80.84	750.14
		Machinery Manufacturing	292.02	532.54
		Light Manufacturing	288.11	3427.88
		Rd. Freight Trans. Service	599.34	1743.89
		Water/Air Freight Trans. Service and Trans. Related. Service	-78770.54	15006.40
		Material Wholesale	-375.89	610.03
		Product Wholesale	378.07	461.50
		Restaurant/Service	709.05	3812.05
	Factory	Chemical Manufacturing	358.60	1006.37
		Steel Manufacturing	4146.49	384.90
		Metal Manufacturing	501.83	170.35
		Machinery Manufacturing	686.55	131.67
		Light Manufacturing	810.34	568.45
		Material Wholesale	963.91	861.88
		Product Wholesale	-56.96	926.61
		Restaurant/Service	1277.15	2437.17
		Material Wholesale	3355.28	1233.88
		Product Wholesale	282.01	4561.68
emp (no.)	Retail & Restaurant	Steel Manufacturing	-7083.77	12793.71
		Metal Manufacturing	-4148.58	4451.38
		Machinery Manufacturing	874.57	7517.38
		Rd. Freight Trans. Service	5805.43	1064.01
		Water/Air Freight Trans. Service and Trans. Related. Service	7375.69	4198.37
		Warehousing	14305.02	1513.17
		Material Wholesale	5384.40	834.54
		Product Wholesale	-362.93	1949.67
		Rd. Freight Trans. Service	1038.30	2804.61
	Logistics Facility	Chemical Manufacturing	-345.52	642.92
		Steel Manufacturing	509.34	93.09
		Metal Manufacturing	74.95	44.69
		Machinery Manufacturing	-9.12	16.90
		Light Manufacturing	-13.47	317.51
		Rd. Freight Trans. Service	123.37	73.50
		Water/Air Freight Trans. Service and Trans. Related. Service	7039.21	1087.99
		Material Wholesale	67.08	48.63
	Others			
	Office			

floor-emp	Factory	Product Wholesale	36.32	44.17
		Restaurant/Service	-90.39	311.24
		Chemical Manufacturing	61.34	39.41
		Steel Manufacturing	20.02	11.40
		Metal Manufacturing	34.59	6.90
		Machinery Manufacturing	8.34	2.06
		Light Manufacturing	61.18	30.31
		Material Wholesale	17.98	71.72
		Product Wholesale	7.53	30.39
		Restaurant/Service	-575.27	731.65
	Retail & Restaurant	Material Wholesale	-417.27	171.79
		Product Wholesale	-0.29	592.80
	Logistics Facility	Steel Manufacturing	778.72	2145.78
		Metal Manufacturing	504.37	495.13
		Machinery Manufacturing	-71.42	978.92
		Rd. Freight Trans. Service	-18.66	28.86
		Water/Air Freight Trans. Service and Trans. Related. Service	-217.76	176.69
	Others	Warehousing	208.16	70.63
		Material Wholesale	-149.34	77.16
		Product Wholesale	181.66	185.25
		Rd. Freight Trans. Service	366.45	351.69
		Chemical Manufacturing	0.61	1.06
		Steel Manufacturing	-0.02	0.00
		Metal Manufacturing	0.00	0.00
		Machinery Manufacturing	0.00	0.01
		Light Manufacturing	0.00	0.80
		Rd. Freight Trans. Service	-0.16	0.03
floor(m <sup>2</sup> )	Office	Water/Air Freight Trans. Service and Trans. Related. Service	-17.65	2.62
		Material Wholesale	-0.04	0.03
		Product Wholesale	0.00	0.01
		Restaurant/Service	0.61	1.76
	Factory	Chemical Manufacturing	0.00	0.00
		Steel Manufacturing	0.00	0.00
		Metal Manufacturing	0.00	0.00
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.00	0.00
	Retail & Restaurant	Material Wholesale	0.00	0.01
		Product Wholesale	0.00	0.00
		Restaurant/Service	-0.43	0.26
		Material Wholesale	0.38	0.24
		Product Wholesale	0.06	1.06
	Logistics Facility	Steel Manufacturing	0.19	1.04
		Metal Manufacturing	-0.31	0.39
		Machinery Manufacturing	0.04	0.55
		Rd. Freight Trans. Service	-0.14	0.03
		Water/Air Freight Trans. Service and Trans. Related. Service	0.02	0.02
floor(m <sup>2</sup> )	Others	Warehousing	0.00	0.01
		Material Wholesale	-0.01	0.01
		Product Wholesale	-0.07	0.07
		Rd. Freight Trans. Service	-0.11	0.33
	Office	Chemical Manufacturing	-3.10	13.62
		Steel Manufacturing	-1.11	0.47
		Metal Manufacturing	-0.70	1.02
		Machinery Manufacturing	-0.27	0.32
		Light Manufacturing	-0.39	9.64
		Rd. Freight Trans. Service	4.39	0.88



prod (kg/day)	Factory	Water/Air Freight Trans. Service and Trans. Related. Service	209.53	31.99	
		Material Wholesale	0.27	0.59	
		Product Wholesale	-1.22	1.51	
		Restaurant/Service	-4.61	15.19	
		Chemical Manufacturing	-1.00	0.61	
		Steel Manufacturing	0.13	0.09	
		Metal Manufacturing	0.21	0.05	
		Machinery Manufacturing	0.15	0.03	
		Light Manufacturing	0.06	0.36	
		Material Wholesale	0.01	0.49	
	Retail & Restaurant	Product Wholesale	-0.04	0.72	
		Restaurant/Service	10.55	5.35	
		Material Wholesale	-2.54	2.06	
		Product Wholesale	-1.40	8.92	
	Logistics Facility	Steel Manufacturing	1.65	5.62	
		Metal Manufacturing	4.20	7.29	
		Machinery Manufacturing	-0.38	3.85	
		Rd. Freight Trans. Service	3.01	0.44	
	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-0.51	0.55	
		Warehousing	-0.43	0.19	
		Material Wholesale	1.40	0.44	
		Product Wholesale	-0.52	1.21	
		Rd. Freight Trans. Service	-2.16	9.07	
		Office	Chemical Manufacturing	0.94	1.42
			Steel Manufacturing	0.04	0.02
			Metal Manufacturing	0.55	0.09
			Machinery Manufacturing	1.24	0.11
			Light Manufacturing	0.51	2.17
	Rd. Freight Trans. Service		0.03	0.01	
	Water/Air Freight Trans. Service and Trans. Related. Service		-0.01	0.01	
	Material Wholesale		0.91	0.07	
	Product Wholesale		0.48	0.12	
	Restaurant/Service		1.34	2.93	
	Factory	Chemical Manufacturing	0.63	0.10	
		Steel Manufacturing	0.05	0.01	
		Metal Manufacturing	0.50	0.02	
		Machinery Manufacturing	0.26	0.02	
		Light Manufacturing	0.00	0.00	
		Material Wholesale	0.72	0.05	
		Product Wholesale	0.93	0.30	
Restaurant/Service		0.12	0.09		
Retail & Restaurant		Material Wholesale	0.62	0.08	
Product Wholesale		0.99	0.13		
Logistics Facility	Steel Manufacturing	0.51	0.31		
	Metal Manufacturing	1.17	0.51		
	Machinery Manufacturing	0.98	0.60		
	Rd. Freight Trans. Service	0.17	0.03		
	Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.02		
	Warehousing	-0.01	0.01		
	Material Wholesale	0.40	0.05		
	Product Wholesale	1.08	0.14		
	Others	Rd. Freight Trans. Service	0.31	0.15	
	R <sup>2</sup>			0.72	
R <sup>2</sup> <sub>adj</sub>			0.70		
n			3168		

7 machinery, appliances, and mechanical parts

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	-213.72	5552.26
		Metal Manufacturing	-269.93	2389.70
		Machinery Manufacturing	97.24	300.31
		Light Manufacturing	-24.68	2198.52
		Rd. Freight Trans. Service	5436.97	887.73
		Water/Air Freight Trans. Service and Trans. Related. Service	-12317.28	17554.78
		Material Wholesale	-418.39	2628.99
		Product Wholesale	276.15	173.31
		Restaurant/Service	80.90	627.60
	Factory	Chemical Manufacturing	664.10	732.76
		Steel Manufacturing	590.99	1648.85
		Metal Manufacturing	821.37	497.19
		Machinery Manufacturing	868.24	159.37
		Light Manufacturing	631.18	1061.07
		Product Wholesale	-491.12	1196.18
		Restaurant/Service	-300.72	584.37
	Retail & Restaurant	Machinery Manufacturing	-3.39	37375.05
		Product Wholesale	42.86	1617.27
		Restaurant/Service	47.89	4156.04
	Logistics Facility	Machinery Manufacturing	945.98	1658.88
		Rd. Freight Trans. Service	7873.95	538.04
		Water/Air Freight Trans. Service and Trans. Related. Service	-1504.15	1432.19
		Warehousing	6474.65	931.77
		Material Wholesale	-560.48	9515.66
		Product Wholesale	858.35	404.86
		Restaurant/Service	-764.24	1523.89
	Others	Machinery Manufacturing	-71.64	1822.91
		Water/Air Freight Trans. Service and Trans. Related. Service	5046.17	3567.85
		Restaurant/Service	133.83	6758.66
emp (no.)	Office	Chemical Manufacturing	41.66	952.76
		Metal Manufacturing	21.33	129.32
		Machinery Manufacturing	-2.32	5.14
		Light Manufacturing	0.82	256.26
		Rd. Freight Trans. Service	-24.25	23.73
		Water/Air Freight Trans. Service and Trans. Related. Service	821.85	1062.27
		Material Wholesale	0.54	181.62
		Product Wholesale	-1.21	3.76
		Restaurant/Service	-0.31	18.82
	Factory	Chemical Manufacturing	10.82	14.96
		Steel Manufacturing	63.00	79.05
		Metal Manufacturing	51.94	16.80
		Machinery Manufacturing	16.57	2.05
		Light Manufacturing	32.58	57.13
		Product Wholesale	27.62	79.13
		Restaurant/Service	117.91	38.10
	Retail & Restaurant	Machinery Manufacturing	-4.29	9813.11
		Product Wholesale	-6.91	160.46
		Restaurant/Service	-0.92	705.49
	Logistics Facility	Machinery Manufacturing	81.59	27.30
		Rd. Freight Trans. Service	-14.24	10.18
		Water/Air Freight Trans. Service and Trans. Related. Service	369.52	70.02
		Warehousing	-8.62	10.36

floor-emp	Others	Material Wholesale	180.68	1457.53
		Product Wholesale	7.37	13.50
		Restaurant/Service	-11.32	94.16
		Machinery Manufacturing	-0.51	4.12
		Water/Air Freight Trans. Service and Trans. Related. Service	-275.26	258.89
	Office	Restaurant/Service	-4.66	529.68
		Chemical Manufacturing	-0.17	7.11
		Metal Manufacturing	-0.06	0.31
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.00	0.07
	Factory	Rd. Freight Trans. Service	-0.02	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.18	0.39
		Material Wholesale	-0.05	0.21
		Product Wholesale	0.00	0.00
		Restaurant/Service	0.00	0.01
		Chemical Manufacturing	0.00	0.00
		Steel Manufacturing	0.00	0.00
		Metal Manufacturing	0.00	0.00
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.00	0.00
floor(m <sup>2</sup> )	Retail & Restaurant	Product Wholesale	-0.01	0.03
		Restaurant/Service	-0.03	0.01
		Machinery Manufacturing	0.01	51.28
		Product Wholesale	-0.02	0.24
		Restaurant/Service	0.04	1.47
	Logistics Facility	Machinery Manufacturing	-0.01	0.00
		Rd. Freight Trans. Service	0.00	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.00
		Warehousing	0.00	0.00
		Material Wholesale	-0.03	1.36
	Others	Product Wholesale	0.00	0.00
		Restaurant/Service	0.00	0.01
		Machinery Manufacturing	0.00	0.00
		Water/Air Freight Trans. Service and Trans. Related. Service	0.05	0.05
		Restaurant/Service	0.00	0.10
	Office	Chemical Manufacturing	1.04	25.67
		Metal Manufacturing	1.19	5.19
		Machinery Manufacturing	0.00	0.03
		Light Manufacturing	0.14	6.59
		Rd. Freight Trans. Service	2.05	0.78
	Factory	Water/Air Freight Trans. Service and Trans. Related. Service	2.74	4.68
		Material Wholesale	1.12	3.53
		Product Wholesale	0.00	0.13
		Restaurant/Service	-0.15	0.65
		Chemical Manufacturing	0.18	0.12
	Retail & Restaurant	Steel Manufacturing	-0.17	0.73
		Metal Manufacturing	-0.68	0.26
		Machinery Manufacturing	0.02	0.01
		Light Manufacturing	-0.61	0.74
		Product Wholesale	0.19	0.65
	Logistics Facility	Restaurant/Service	2.14	0.45
		Machinery Manufacturing	0.20	144.69
		Product Wholesale	0.49	3.33
		Restaurant/Service	-0.41	14.82
		Machinery Manufacturing	0.65	0.37
		Rd. Freight Trans. Service	0.30	0.12

prod (kg/day)	Others	Water/Air Freight Trans. Service and Trans. Related. Service	-0.02	0.16	
		Warehousing	-0.09	0.15	
		Material Wholesale	-2.90	9.71	
		Product Wholesale	0.05	0.05	
		Restaurant/Service	0.19	0.21	
		Machinery Manufacturing	0.06	0.85	
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.55	0.53	
		Restaurant/Service	-0.12	1.85	
	Office	Chemical Manufacturing	0.65	9.18	
		Metal Manufacturing	1.02	0.35	
		Machinery Manufacturing	0.71	0.15	
		Light Manufacturing	0.07	16.90	
		Rd. Freight Trans. Service	0.01	0.01	
		Water/Air Freight Trans. Service and Trans. Related. Service	0.17	0.28	
		Material Wholesale	1.88	0.53	
		Product Wholesale	0.75	0.07	
		Restaurant/Service	0.93	0.25	
	Factory	Chemical Manufacturing	0.30	0.12	
		Steel Manufacturing	0.57	0.12	
		Metal Manufacturing	0.52	0.05	
		Machinery Manufacturing	0.02	0.00	
		Light Manufacturing	0.62	0.11	
		Product Wholesale	0.93	0.10	
		Restaurant/Service	0.00	0.02	
		Retail & Restaurant	Machinery Manufacturing	0.99	13.33
			Product Wholesale	1.00	0.30
	Restaurant/Service		1.00	1.99	
	Logistics Facility	Machinery Manufacturing	0.09	0.05	
		Rd. Freight Trans. Service	0.02	0.01	
		Water/Air Freight Trans. Service and Trans. Related. Service	0.13	0.04	
		Warehousing	0.29	0.05	
	Others	Material Wholesale	1.53	1.55	
		Product Wholesale	0.55	0.06	
		Restaurant/Service	0.91	0.11	
		Machinery Manufacturing	0.99	0.46	
		Water/Air Freight Trans. Service and Trans. Related. Service	0.50	0.13	
		Restaurant/Service	1.02	0.76	
R <sup>2</sup>		0.53			
R <sup>2</sup> <sub>adj</sub>		0.50			
n		2381			

#### 8 chemicals, rubber or plastics

IV	fnc	ind	Coef.	SE
const	Office	Chemical Manufacturing	821.45	1196.68
		Machinery Manufacturing	-44.54	8971.71
		Light Manufacturing	-27.55	10537.10
		Rd. Freight Trans. Service	1198.02	1770.42
		Water/Air Freight Trans. Service and Trans. Related. Service	164.79	23399.56
		Material Wholesale	1615.73	1056.69
		Product Wholesale	1050.49	1189.54
		Restaurant/Service	-440.39	3501.00
	Factory	Chemical Manufacturing	2954.80	285.07
		Metal Manufacturing	-159.24	1938.17
		Machinery Manufacturing	632.19	780.56

		Light Manufacturing	402.65	775.27
		Material Wholesale	3869.58	1890.90
		Product Wholesale	-3320.11	36240.44
		Restaurant/Service	1221.93	4511.91
	Retail & Restaurant	Material Wholesale	1321.64	3565.54
		Product Wholesale	-3992.81	11377.28
	Logistics Facility	Chemical Manufacturing	2610.16	2563.89
		Rd. Freight Trans. Service	8599.58	1601.19
		Water/Air Freight Trans. Service and Trans. Related. Service	-221.97	6972.48
		Warehousing	9787.11	2082.75
		Material Wholesale	1355.46	989.80
		Product Wholesale	885.29	2562.39
		Restaurant/Service	922.32	16383.84
	Others	Chemical Manufacturing	-7.88	4660.99
emp (no.)	Office	Chemical Manufacturing	70.58	32.05
		Machinery Manufacturing	1.34	673.83
		Light Manufacturing	2.42	753.77
		Rd. Freight Trans. Service	356.37	103.45
		Water/Air Freight Trans. Service and Trans. Related. Service	-8.01	722.74
		Material Wholesale	-65.12	95.93
		Product Wholesale	-57.38	56.78
		Restaurant/Service	55.78	99.65
	Factory	Chemical Manufacturing	13.72	2.97
		Metal Manufacturing	3.34	54.79
		Machinery Manufacturing	0.85	9.95
		Light Manufacturing	-23.87	24.36
		Material Wholesale	256.66	53.82
		Product Wholesale	709.17	6976.24
		Restaurant/Service	-225.94	157.81
	Retail & Restaurant	Material Wholesale	-141.17	554.23
		Product Wholesale	544.39	1615.51
	Logistics Facility	Chemical Manufacturing	-68.07	165.30
		Rd. Freight Trans. Service	81.57	83.36
		Water/Air Freight Trans. Service and Trans. Related. Service	95.57	296.11
		Warehousing	-110.58	144.28
		Material Wholesale	35.90	29.48
		Product Wholesale	5.70	212.52
		Restaurant/Service	176.79	853.00
	Others	Chemical Manufacturing	0.24	379.79
floor-emp	Office	Chemical Manufacturing	-0.01	0.00
		Machinery Manufacturing	-0.01	1.07
		Light Manufacturing	0.00	2.03
		Rd. Freight Trans. Service	-0.11	0.07
		Water/Air Freight Trans. Service and Trans. Related. Service	0.02	3.07
		Material Wholesale	0.08	0.06
		Product Wholesale	0.07	0.07
		Restaurant/Service	-0.20	0.31
	Factory	Chemical Manufacturing	0.00	0.00
		Metal Manufacturing	0.00	0.02
		Machinery Manufacturing	0.00	0.00
		Light Manufacturing	0.00	0.00
		Material Wholesale	-0.03	0.02
		Product Wholesale	-2.88	25.55
		Restaurant/Service	-0.01	0.28
	Retail & Restaurant	Material Wholesale	0.12	1.68
		Product Wholesale	-0.76	5.54

floor(m <sup>2</sup> )	Logistics Facility	Chemical Manufacturing	0.01	0.01
		Rd. Freight Trans. Service	-0.03	0.02
		Water/Air Freight Trans. Service and Trans. Related. Service	0.09	0.15
		Warehousing	0.00	0.01
		Material Wholesale	-0.01	0.02
		Product Wholesale	-0.14	0.27
		Restaurant/Service	-3.90	5.12
	Others	Chemical Manufacturing	0.00	0.01
	Office	Chemical Manufacturing	1.12	0.48
		Machinery Manufacturing	0.01	15.55
		Light Manufacturing	0.04	99.90
		Rd. Freight Trans. Service	0.94	1.35
		Water/Air Freight Trans. Service and Trans. Related. Service	0.04	245.75
		Material Wholesale	-0.65	0.72
		Product Wholesale	-0.93	2.05
		Restaurant/Service	4.25	3.60
	Factory	Chemical Manufacturing	0.36	0.04
		Metal Manufacturing	0.07	1.90
		Machinery Manufacturing	0.21	0.20
		Light Manufacturing	0.67	0.28
prod (kg/day)		Material Wholesale	1.71	0.99
		Product Wholesale	13.09	127.03
		Restaurant/Service	1.92	12.11
	Retail & Restaurant	Material Wholesale	1.07	13.05
		Product Wholesale	6.92	42.16
	Logistics Facility	Chemical Manufacturing	-0.84	0.46
		Rd. Freight Trans. Service	1.37	0.75
		Water/Air Freight Trans. Service and Trans. Related. Service	-0.62	3.22
		Warehousing	-0.23	0.34
		Material Wholesale	0.75	0.42
		Product Wholesale	0.94	1.95
		Restaurant/Service	73.69	111.29
	Others	Chemical Manufacturing	0.02	4.89
	Office	Chemical Manufacturing	0.00	0.01
		Machinery Manufacturing	3.10	10.92
		Light Manufacturing	1.05	15.89
		Rd. Freight Trans. Service	0.00	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	-185.21	28435.74
		Material Wholesale	0.36	0.11
		Product Wholesale	0.58	0.09
		Restaurant/Service	0.67	1.26
	Factory	Chemical Manufacturing	0.00	0.00
		Metal Manufacturing	0.96	0.48
		Machinery Manufacturing	0.00	0.03
		Light Manufacturing	0.71	0.12
		Material Wholesale	0.03	0.03
		Product Wholesale	7.30	54.90
		Restaurant/Service	1.29	0.43
	Retail & Restaurant	Material Wholesale	0.06	0.21
		Product Wholesale	1.30	1.85
	Logistics Facility	Chemical Manufacturing	0.98	0.14
		Rd. Freight Trans. Service	0.02	0.01
		Water/Air Freight Trans. Service and Trans. Related. Service	0.26	0.20
		Warehousing	-0.01	0.01
		Material Wholesale	0.46	0.08

		Product Wholesale	0.74	0.24
		Restaurant/Service	-0.67	2.10
	Others	Chemical Manufacturing	0.48	3.53
$R^2$			0.53	
$R^2_{adj}$			0.49	
n			1437	

9 mixed goods

IV	fnc	ind	Coef.	SE
const	Office	Machinery Manufacturing	0.00	6433.01
		Light Manufacturing	14.64	16045.23
		Rd. Freight Trans. Service	-669.76	8421.17
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	8136.65
		Material Wholesale	1094.91	9872.38
		Product Wholesale	-499.64	2018.75
		Restaurant/Service	10.70	2597.38
	Factory	Chemical Manufacturing	333.84	3306.93
		Machinery Manufacturing	-77.14	3747.52
		Light Manufacturing	26.81	1856.12
	Logistics Facility	Rd. Freight Trans. Service	3050.75	565.82
emp (no.)	Office	Machinery Manufacturing	0.00	689.56
		Light Manufacturing	2.26	1241.28
		Rd. Freight Trans. Service	32.28	525.40
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	123.25
		Material Wholesale	-5.04	77.79
		Product Wholesale	-15.39	135.48
		Restaurant/Service	-0.15	95.08
	Factory	Chemical Manufacturing	0.25	163.17
	Factory	Machinery Manufacturing	5.02	119.15
	Factory	Light Manufacturing	33.72	134.68
	Logistics Facility	Rd. Freight Trans. Service	7.64	6.56
floor-emp	Office	Machinery Manufacturing	0.00	0.04
		Light Manufacturing	0.00	0.31
		Rd. Freight Trans. Service	-0.40	2.57
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.01
		Material Wholesale	0.04	0.48
		Product Wholesale	-0.20	0.26
		Restaurant/Service	0.00	0.01
	Factory	Chemical Manufacturing	0.02	0.07
		Machinery Manufacturing	0.00	0.08
		Light Manufacturing	0.00	0.02
	Logistics Facility	Rd. Freight Trans. Service	0.00	0.00
floor(m <sup>2</sup> )	Office	Machinery Manufacturing	0.00	19.32
		Light Manufacturing	-0.02	14.22
		Rd. Freight Trans. Service	4.84	34.23
		Water/Air Freight Trans. Service and Trans. Related. Service	0.00	0.20
		Material Wholesale	-3.72	47.96
		Product Wholesale	6.65	7.54
		Restaurant/Service	0.00	2.84
	Factory	Chemical Manufacturing	-0.63	3.27
		Machinery Manufacturing	0.08	3.39
		Light Manufacturing	-0.67	3.28
	Logistics Facility	Rd. Freight Trans. Service	-0.16	0.18
prod (kg/day)	Office	Machinery Manufacturing	1.00	43.80

	Light Manufacturing	-2.38	2081.15
	Rd. Freight Trans. Service	1.04	0.30
	Water/Air Freight Trans. Service and Trans. Related. Service	0.57	283.14
	Material Wholesale	0.77	11.43
	Product Wholesale	0.34	0.31
	Restaurant/Service	1.00	0.48
Factory	Chemical Manufacturing	0.28	1.23
	Machinery Manufacturing	1.05	8.80
	Light Manufacturing	0.12	0.43
Logistics Facility	Rd. Freight Trans. Service	0.72	0.04
$R^2$		0.84	
$R^2_{adj}$		0.80	
n		244	



## 1.2. Supplier Selection Module (SSM)

Table		Contract-based demand (a binary choice model: one contract or more than one [base])			
IV	com	fnc	coef	se	
const	agricultural products	Office	-0.096	0.812	
		Factory	-0.509	0.481	
		Retail & Restaurant	-0.005	0.574	
		Logistics Facility	-1.803	0.615	
		Others	17.032	2051.521	
	food products	Office	0.351	0.326	
		Factory	-1.107	0.227	
		Retail & Restaurant	1.655	0.511	
		Logistics Facility	-1.081	0.304	
		Others	-0.442	1.907	
	light manufacturing	Office	-0.652	0.254	
		Factory	-1.284	0.170	
		Retail & Restaurant	1.643	0.678	
		Logistics Facility	-1.319	0.345	
		Others	-1.388	1.351	
	wood and paper products	Office	-0.106	0.264	
		Factory	-1.431	0.281	
		Retail & Restaurant	-18.566	4578.927	
		Logistics Facility	-1.155	0.458	
		Others	-32.117	4899.128	
	minerals, ore, stone, cement, ceramics or glass	Office	-1.189	0.447	
		Factory	-1.568	0.299	
		Retail & Restaurant	-18.566	6732.993	
		Logistics Facility	-1.913	0.711	
		Others	-18.566	4618.677	
	metals or articles of metal	Office	-1.316	0.320	
		Factory	-1.378	0.125	
		Retail & Restaurant	-229.341	6203.810	
		Logistics Facility	-0.684	0.386	
		Others	-422.032	28716.469	
	machinery, appliances, and mechanical parts	Office	-0.664	0.212	
		Factory	-1.192	0.122	
		Retail & Restaurant	-0.279	0.497	
		Logistics Facility	-0.361	0.354	
		Others	-0.528	1.120	
	chemicals, rubber or plastics	Office	-1.848	0.436	
		Factory	-1.625	0.300	
		Retail & Restaurant	-18.566	6667.000	
		Logistics Facility	-1.190	0.378	
		Others	-0.243	1.681	
	mixed goods and parcel	Office	-0.660	1.434	
		Factory	-18.566	6522.639	
		Retail & Restaurant	18.566	6522.639	
		Logistics Facility	2.199	0.606	
		Others	-18.566	6522.639	
cons (ton/yr)	agricultural products	Office	-0.0002	0.0002	
		Factory	-0.0002	0.0001	
		Retail & Restaurant	0.0000	0.0003	
		Logistics Facility	0.0000	0.0000	
		Others	-0.0054	0.4420	

food products	Office	-0.0001	0.0001
	Factory	-0.0002	0.0001
	Retail & Restaurant	-0.0003	0.0008
	Logistics Facility	0.0000	0.0000
	Others	0.0005	0.0009
light manufacturing	Office	0.0000	0.0000
	Factory	0.0000	0.0000
	Retail & Restaurant	-0.0085	0.0054
	Logistics Facility	0.0000	0.0000
	Others	0.0000	0.0002
wood and paper products	Office	-0.0004	0.0003
	Factory	-0.0001	0.0001
	Retail & Restaurant	0.0000	8.2696
	Logistics Facility	0.0000	0.0001
	Others	0.0819	13.6991
minerals, ore, stone, cement, ceramics or glass	Office	0.0000	0.0000
	Factory	0.0000	0.0000
	Retail & Restaurant	0.0000	0.7496
	Logistics Facility	0.0000	0.0000
	Others	0.0000	1.7429
metals or articles of metal	Office	0.0000	0.0000
	Factory	0.0000	0.0000
	Retail & Restaurant	0.0441	1.1934
	Logistics Facility	0.0000	0.0000
	Others	0.2044	13.9273
machinery, appliances, and mechanical parts	Office	-0.0001	0.0002
	Factory	-0.0001	0.0001
	Retail & Restaurant	0.0002	0.0002
	Logistics Facility	-0.0001	0.0000
	Others	-0.0004	0.0006
chemicals, rubber or plastics	Office	0.0000	0.0001
	Factory	-0.0001	0.0001
	Retail & Restaurant	0.0000	4.4007
	Logistics Facility	0.0000	0.0000
	Others	-0.0006	0.0016
mixed goods and parcel	Office	-0.0693	0.1158
	Logistics Facility	-0.0001	0.0001
L0		-2001	
LL		-1401	
$\rho^2$		0.300	
$\bar{\rho}^2$		0.256	
n		2887	

Table Mean and standard deviation of the logit of CS<sub>1</sub>

com	fnc	Mean of the logit of CS <sub>1</sub>	SD of the logit of CS <sub>1</sub>
agricultural products	Office	-1.639	0.988
	Factory	-0.794	1.100
	Retail & Restaurant	-0.708	0.796
	Logistics Facility	-0.354	2.250
	Others	-1.656	0.027
food products	Office	-0.923	1.272
	Factory	-0.502	1.309
	Retail & Restaurant	-0.090	2.346
	Logistics Facility	-1.212	1.057
	Others	0.773	0.001
light manufacturing	Office	-0.791	1.311
	Factory	-0.677	1.319
	Retail & Restaurant	-1.202	0.986
	Logistics Facility	-1.048	1.253
	Others	-1.438	0.842
wood and paper products	Office	-1.360	0.940
	Factory	-0.606	1.208
	Retail & Restaurant	-0.950	0.713
	Logistics Facility	-0.628	1.287
	Others	-0.810	2.145
minerals, ore, stone, cement, ceramics or glass	Office	-0.830	1.337
	Factory	-0.801	1.027
	Retail & Restaurant	-0.205	0.810
	Logistics Facility	-0.561	1.510
	Others	0.438	1.796
metals or articles of metal	Office	-0.787	1.211
	Factory	-0.489	1.226
	Retail & Restaurant	-0.859	1.064
	Logistics Facility	-0.467	1.366
	Others	0.318	1.430
machinery, appliances, and mechanical parts	Office	-0.641	1.452
	Factory	-0.655	1.261
	Retail & Restaurant	-0.941	1.228
	Logistics Facility	-0.804	1.360
	Others	0.109	2.047
chemicals, rubber or plastics	Office	-0.710	1.318
	Factory	-0.402	1.351
	Retail & Restaurant	-0.352	0.498
	Logistics Facility	-0.314	1.254
	Others	0.149	2.351
mixed goods and parcel	Office	-1.222	1.356
	Factory	-2.197	0.001
	Logistics Facility	-0.413	1.322
	Others	0.000	0.001

Table Supplier selection model (error component logit mixture models)

Explanatory variable	Agricultural products rfnc				Food products rfnc				Household/light manufacturing rfnc			
	office/retail/ restaurant	logistics facility	factory	other	office/retail/ restaurant	logistics facility	factory	other	office/retail/ restaurant	logistics facility	factory	other
In time <sub>sfnc = office/retail</sub>	-2.37 (-148.1)	-0.679 (-18.6)	-1.74 (-16.9)	-1.40 (-21.8)	-2.81 (-149.3)	-2.29 (-56.2)	-1.24 (-23.8)	-2.34 (-77.6)	-1.94 (-163.5)	-1.49 (-44.1)	-1.52 (-75.8)	-3.50 (-161.6)
In time <sub>sfnc = logistics facility</sub>	-2.40 (-189.9)	-2.49 (-192.9)	-1.67 (-36.9)	-0.111 (-1.1)	-2.53 (-322.5)	-1.23 (-99.6)	-1.63 (-58.5)	-1.49 (-88.8)	-1.70 (-149.4)	-1.16 (-62.4)	-2.17 (-94.7)	-2.61 (-82.9)
In time <sub>sfnc = factory</sub>	-2.51 (-129)	-0.838 (-20.2)	-1.36 (-21.9)	-3.51 (-37.5)	-2.06 (-215.6)	-0.830 (-64.3)	-1.69 (-93.7)	-3.18 (-69.3)	-2.07 (-172.1)	-1.19 (-58.4)	-1.62 (-122.5)	-2.43 (-60.7)
In prod <sub>sfnc = office/retail</sub>	0.503 (110.9)	0.511 (38.2)	0.483 (15.1)	0.586 (25.7)	0.272 (98.9)	0.376 (47.3)	0.556 (31.8)	0.384 (57.2)	0.408 (128.1)	0.418 (58.2)	0.452 (78.6)	0.427 (87.2)
In prod <sub>sfnc = logistics facility</sub>	0.069 (22.4)	0.246 (66.4)	0.305 (19)	- (-)	0.312 (149)	0.541 (106.6)	0.759 (53.1)	0.093 (28.2)	0.232 (72.0)	0.281 (47.7)	0.399 (55.9)	0.001 (0.1)
In prod <sub>sfnc = factory</sub>	0.391 (63.2)	0.253 (19.5)	0.182 (9.3)	- (-)	0.318 (118.4)	0.327 (88.6)	0.410 (74.7)	0.457 (41.8)	0.391 (108.2)	0.302 (49.8)	0.416 (99.0)	0.584 (51.6)
Const <sub>sfnc = logistics facility</sub>	4.66 (39.7)	24.6 (51.4)	1.57 (2.3)	-4.37 (-4.9)	-5.33 (-37.1)	-9.41 (-38.2)	1.19 (2.5)	3.65 (10.9)	-2.27 (-19.6)	-1.46 (-6.2)	3.63 (20.5)	-7.06 (-30.6)
Const <sub>sfnc = factory</sub>	-0.042 (-0.3)	6.00 (14.2)	1.75 (2.3)	25.8 (31.3)	-6.05 (-39.3)	-8.49 (-34.9)	9.83 (22.3)	0.543 (1.3)	-1.35 (-11.3)	-1.45 (-5.9)	0.137 (0.9)	-27.4 (-30.1)
In cd_size <sub>sfnc = logistics facility</sub>	-0.039 (-4.2)	-1.19 (-27.4)	0.168 (4.6)	0.056 (0.5)	1.57 (64.7)	0.600 (26.4)	-0.126 (-4.7)	-1.51 (-26.4)	0.769 (52.5)	0.374 (15.3)	0.218 (17.0)	1.050 (47.4)
In cd_size <sub>sfnc = factory</sub>	0.297 (19)	-0.352 (-16.4)	-0.079 (-2)	-1.78 (-14)	0.507 (17.5)	0.329 (13.6)	-0.619 (-20.3)	0.642 (8.3)	0.679 (45.5)	0.265 (10.1)	0.283 (22.9)	3.670 (25.1)
Covariance parameter												
$\sigma^{or}$	0.923 (13.7)	0.000 (0.0)	0.453 (0.7)	0.000 (0.0)	3.95 (54.2)	2.69 (19.1)	1.32 (5.7)	4.37 (22.7)	2.15 (35.4)	2.46 (11.2)	0.831 (5.5)	0.003 (0.0)
$\sigma^{lf}$	0.000 (0.0)	1.77 (12.1)	0.056 (0.0)	0.001 (0.0)	0.829 (18.0)	0.000 (0.0)	0.051 (0.3)	3.39 (23.3)	1.46 (28.2)	1.13 (7.1)	0.911 (9.4)	0.009 (0.1)
$\sigma^{dws}$	2.390 (35.5)	0.037 (0.1)	0.000 (0.0)	0.000 (0.0)	3.52 (53.8)	1.32 (13.7)	1.17 (7.5)	1.31 (6.9)	1.07 (14.9)	0.0713 (0.1)	0.006 (0.0)	6.03 (22.3)
L (0)	-186139	-136771	-8620	-6792	-508188	-145328	-48978	-72655	-252033	-60798	-99516	-102539
L ( $\hat{\beta}$ )	-117201	-64546	-5995	-3534	-302334	-107906	-32249	-49094	-171708	-47122	-64836	-35750
$\rho^2$	0.370	0.528	0.305	0.480	0.405	0.258	0.342	0.324	0.319	0.225	0.348	0.651
$\bar{\rho}^2$	0.370	0.528	0.303	0.478	0.405	0.257	0.341	0.324	0.319	0.225	0.348	0.651
N.	6277	4358	494	522	28779	10294	4028	4890	14172	3701	6230	5323

	Wood and paper products				Minerals, ore, stone, cement, ceramics or glass			Metals or articles of metal			
	rfnc office/retail/ restaurant	logistics facility	factory	other	rfnc office/retail/ restaurant	logistics facility	factory	rfnc office/retail/ restaurant	logistics facility	factory	other
Explanatory variable											
In time <sub>sfnc = office/retail</sub>	-2.28 (-100.8)	-2.14 (-48.3)	-2.10 (-45.5)	-1.18 (-63.0)	-1.19 (-22.2)	-1.57 (-20.2)	-1.91 (-40.9)	-2.50 (-59.0)	-1.46 (-21.9)	-2.58 (-90.2)	-1.06 (-4.2)
In time <sub>sfnc = logistics facility</sub>	-2.41 (-121.2)	-2.23 (-81.0)	-2.20 (-48.8)	-1.58 (-26.6)	-1.40 (-21.4)	-2.36 (-34.0)	-2.22 (-37.1)	-1.83 (-43.7)	-1.59 (-40.1)	-1.61 (-88.1)	-2.30 (-5.4)
In time <sub>sfnc = factory</sub>	-1.45 (-70.6)	-1.05 (-34.2)	-1.25 (-73.8)	-1.80 (-38.9)	-1.58 (-28.8)	-1.08 (-27.6)	-1.31 (-52.3)	-1.03 (-26.7)	-0.665 (-25.4)	-1.37 (-155.4)	-2.10 (-28.7)
In prod <sub>sfnc = office/retail</sub>	0.265 (46.8)	0.675 (37.9)	0.296 (28.6)	0.106 (24.4)	0.375 (22)	0.263 (13.8)	- (-)	0.335 (33.7)	0.536 (29.3)	0.304 (50.8)	- (-)
In prod <sub>sfnc = logistics facility</sub>	0.215 (41.3)	0.308 (36.4)	0.089 (8.1)	- (-)	0.159 (8.8)	0.211 (11.0)	0.448 (16.6)	0.049 (6.1)	0.263 (23.8)	0.176 (28.5)	- (-)
In prod <sub>sfnc = factory</sub>	0.541 (79.4)	0.525 (44.2)	0.454 (73.4)	0.019 (1.8)	0.077 (6.3)	0.212 (18.2)	0.206 (28.5)	0.092 (10.5)	0.353 (45.6)	0.292 (106.5)	- (-)
Const <sub>sfnc = logistics facility</sub>	-0.478 (-2.7)	2.33 (7.0)	-0.726 (-1.7)	-4.76 (-7.6)	7.33 (9.7)	6.11 (9.6)	-4.31 (-8.6)	-1.59 (-3.8)	5.72 (11.2)	-5.84 (-27.5)	30.5 (4.4)
Const <sub>sfnc = factory</sub>	-6.05 (-25.2)	-9.64 (-14.6)	-10.0 (-20.8)	-2.06 (-4.8)	-3.32 (-1.3)	-6.59 (-9.7)	-7.39 (-18.8)	-19.0 (-10)	-2.52 (-5.3)	-6.95 (-39.8)	134 (1.1)
In cd_size <sub>sfnc = logistics facility</sub>	0.597 (43.6)	0.459 (15.5)	0.526 (12.6)	2.03 (15.9)	-0.487 (-7.8)	0.194 (4.3)	0.310 (15.8)	-0.135 (-4.2)	0.303 (5.8)	0.464 (29.6)	-3.68 (-3.9)
In cd_size <sub>sfnc = factory</sub>	-2.02 (-8.7)	0.208 (3.6)	1.31 (17.2)	1.66 (14.2)	0.868 (3.5)	0.586 (9.5)	0.339 (15.0)	-2.34 (-7.3)	0.300 (5.9)	0.187 (12.9)	-15.3 (-1)
Covariance parameter											
$\sigma^{or}$	0.000 (0.0)	1.82 (11.1)	2.85 (17.0)	2.55 (10.4)	0.008 (0.0)	1.27 (1.8)	0.081 (0.1)	6.41 (12.1)	4.15 (8.8)	3.18 (30.3)	0.587 (0.6)
$\sigma^{lf}$	0.000 (0.0)	0.215 (0.3)	2.40 (11.8)	0.000 (0.0)	1.46 (4.0)	0.000 (0.0)	0.004 (0.0)	7.09 (10.4)	2.21 (11.9)	0.000 (0.0)	1.12 (0.7)
$\sigma^{dws}$	13.1 (10.3)	6.86 (9.8)	5.31 (17.5)	0.000 (0.0)	4.68 (3.9)	2.73 (7.4)	1.58 (6.5)	24.3 (7.0)	0.000 (0.0)	0.000 (0.0)	47.9 (0.9)
L (0)	-105370	-38928	-45172	-32676	-8320	-10910	-19256	-28141	-27230	-142554	-2443
L ( $\hat{\beta}$ )	-70078	-25451	-32203	-23323	-6455	-7924	-14462	-19513	-20309	-108038	-1830
$\rho^2$	0.335	0.346	0.287	0.286	0.224	0.274	0.249	0.307	0.254	0.242	0.251
$\bar{\rho}^2$	0.335	0.346	0.287	0.286	0.223	0.273	0.248	0.306	0.254	0.242	0.247
N.	5297	2087	2832	1056	590	781	1508	1809	1960	9871	135

Explanatory variable	Machinery, appliances, and mechanical parts				Chemicals, rubber or plastics				Mixed goods and parcel		
	rfnc office/retail/ restaurant	logistics facility	factory	other	rfnc office/retail/ restaurant	logistics facility	factory	other	rfnc office/retail/ restaurant	logistics facility	factory
In time <sub>sfnc = office/retail</sub>	-1.67 (-90.7)	-1.04 (-45.6)	-1.88 (-85.7)	-2.33 (-87.0)	-1.71 (-58.1)	-1.50 (-54.2)	-2.36 (-96.1)	-2.21 (-52.7)	-1.76 (-23.4)	-3.10 (-15.8)	-5.80 (-21.4)
In time <sub>sfnc = logistics facility</sub>	-2.44 (-104.3)	-0.969 (-39.1)	-1.67 (-81.1)	-2.17 (-66.4)	-1.47 (-45.3)	-1.97 (-70.6)	-2.24 (-88.6)	-3.36 (-20.4)	-3.05 (-55.2)	-2.40 (-91.8)	-5.52 (-48.1)
In time <sub>sfnc = factory</sub>	-1.30 (-45.8)	-1.00 (-43.1)	-1.48 (-143.6)	-0.742 (-6.5)	-0.801 (-23.1)	-0.857 (-38.3)	-1.08 (-76.3)	-3.02 (-43.1)	-3.45 (-5.3)	-2.11 (-7.2)	-4.66 (-14.2)
In prod <sub>sfnc = office/retail</sub>	0.273 (50.7)	0.379 (52.8)	0.238 (48.4)	0.200 (28.2)	- (-)	0.034 (3.8)	0.233 (32.8)	0.276 (21.3)	0.028 (1.8)	0.363 (12.5)	0.453 (9.3)
In prod <sub>sfnc = logistics facility</sub>	0.240 (43.7)	0.162 (22.5)	0.315 (52.7)	- (-)	0.137 (14.3)	0.097 (14.9)	0.285 (37.6)	0.104 (3.1)	0.409 (18.8)	0.550 (49.2)	0.801 (25.1)
In prod <sub>sfnc = factory</sub>	0.092 (14.7)	0.327 (46.9)	0.170 (61.6)	- (-)	0.533 (48.4)	0.273 (41.5)	0.274 (69.4)	0.519 (28.9)	- (-)	- (-)	0.333 (3.9)
Const <sub>sfnc = logistics facility</sub>	5.10 (30.9)	0.079 (0.3)	-2.81 (-14.3)	0.792 (3.0)	-4.65 (-11.0)	3.08 (12.3)	-4.20 (-15.4)	1.24 (1.3)	0.391 (0.7)	-7.30 (-6.8)	-3.05 (-2.0)
Const <sub>sfnc = factory</sub>	-8.06 (-12.7)	-1.04 (-4.6)	-2.45 (-14.9)	-65.9 (-1.6)	-15.1 (-29.1)	-8.53 (-26.6)	-11.7 (-47.0)	-0.932 (-1.8)	4.24 (1.3)	-5.24 (-2.2)	-3.69 (-1.4)
In cd_size <sub>sfnc = logistics facility</sub>	0.327 (25.7)	0.280 (24.4)	0.953 (24.3)	-0.054 (-3.7)	0.312 (8.8)	0.244 (12.2)	1.29 (25.4)	0.993 (8.0)	1.54 (21.4)	0.735 (7.9)	-0.44 (-4.7)
In cd_size <sub>sfnc = factory</sub>	0.081 (2)	0.073 (5.8)	0.864 (22.2)	1.19 (1.2)	0.493 (10.7)	0.510 (17.0)	1.22 (24.3)	0.571 (7.9)	1.09 (4.3)	0.461 (3.1)	-0.567 (-3.9)
Covariance parameter											
$\sigma^{or}$	0.447 (2.5)	0.000 (0.0)	4.45 (22.6)	0.000 (0.0)	0.000 (0.0)	0.720 (2.7)	6.28 (26.6)	3.26 (11.5)	0.000 (0.0)	2.64 (5.1)	1.99 (7.1)
$\sigma^{lf}$	0.106 (0.4)	0.017 (0.1)	0.518 (4.6)	0.061 (0.1)	2.56 (7.5)	0.018 (0.1)	0.293 (0.5)	2.60 (5.4)	0.000 (0.0)	0.000 (0.0)	0.000 (0.0)
$\sigma^{dws}$	6.870 (12.9)	1.230 (7.5)	0.910 (9.1)	29.0 (1.3)	2.69 (8.1)	1.31 (7.2)	2.37 (16.4)	0.000 (0.0)	2.210 (2.0)	0.000 (0.0)	0.000 (0.0)
L (0)	-77391	-37533	-128925	-30123	-32445	-43800	-102465	-13686	-7657	-18932	-11997
L ( $\beta$ )	-47407	-30103	-98303	-16267	-25399	-32683	-78467	-8370	-3736	-8940	-1792
$\rho^2$	0.387	0.198	0.238	0.460	0.217	0.254	0.234	0.388	0.512	0.528	0.851
$\bar{\rho}^2$	0.387	0.198	0.237	0.460	0.217	0.254	0.234	0.387	0.510	0.527	0.850
N.	4064	2812	9246	888	2340	3163	7753	1028	602	1471	726

### 1.3. Size & Frequency Module (SFM)

Table Shipment size model (linear regression models; dependent variable: kg)

rfnc	Commodity	Const.		ln c_size (ton/yr)		ln dist (km)		ln est_dens (no./km <sup>2</sup> )		R <sup>2</sup>	R <sup>2</sup> _adj	n
		Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE			
Office	agricultural products	4.162	0.804	0.509	0.047	0.762	0.139	-0.532	0.110	0.753	0.746	101
Office	food products	3.515	0.715	0.836	0.042			-0.380	0.102	0.766	0.763	176
Office	light manufacturing	4.232	0.271	0.572	0.017			-0.285	0.044	0.684	0.683	587
Office	wood and paper products	2.038	0.417	0.924	0.029	0.166	0.059	-0.169	0.051	0.746	0.744	341
Office	minerals, ore, stone, cement, ceramics or glass	3.095	0.904	0.558	0.048	0.358	0.157	-0.154	0.119	0.586	0.576	124
Office	metals or articles of metal	3.659	0.444	0.747	0.027	0.001	0.066	-0.270	0.056	0.760	0.758	369
Office	machinery, appliances, and mechanical parts	3.200	0.452	0.598	0.026	0.151	0.062	-0.300	0.059	0.625	0.623	519
Office	chemicals, rubber or plastics	1.519	0.293	0.769	0.033	0.223	0.078			0.622	0.619	342
Factory	agricultural products	0.900	0.138	0.597	0.015	0.591	0.046			0.733	0.733	849
Factory	food products	2.612	0.217	0.519	0.018	0.220	0.061			0.474	0.473	1003
Factory	light manufacturing	1.654	0.178	0.586	0.012	0.330	0.026	-0.028	0.024	0.527	0.526	2744
Factory	wood and paper products	2.779	0.568	0.542	0.033	0.273	0.092	-0.110	0.080	0.489	0.484	347
Factory	minerals, ore, stone, cement, ceramics or glass	4.188	0.301	0.535	0.018	0.134	0.052	-0.095	0.041	0.606	0.604	611
Factory	metals or articles of metal	2.953	0.167	0.612	0.010	0.191	0.027	-0.133	0.024	0.540	0.539	3616
Factory	machinery, appliances, and mechanical parts	3.689	0.249	0.566	0.012	0.260	0.035	-0.347	0.038	0.574	0.574	2193
Factory	chemicals, rubber or plastics	2.768	0.296	0.539	0.018	0.286	0.052	-0.127	0.042	0.426	0.424	1595
Retail & Restaurant	agricultural products	1.447	0.895	0.811	0.066	0.281	0.157	-0.101	0.118	0.780	0.771	78
Retail & Restaurant	food products	1.581	0.310	0.857	0.034			-0.012	0.055	0.809	0.807	160
Retail & Restaurant	light manufacturing	1.283	0.105	0.772	0.058					0.627	0.623	107
Retail & Restaurant	Others	4.151	0.695	0.570	0.047			-0.300	0.116	0.479	0.474	197
Logistics Facility	agricultural products	1.677	0.370	0.444	0.047	0.634	0.078			0.263	0.260	427
Logistics Facility	food products	2.685	0.209	0.537	0.022	0.199	0.043			0.277	0.276	1581
Logistics Facility	light manufacturing	1.985	0.196	0.634	0.021	0.330	0.049			0.457	0.456	1102
Logistics Facility	wood and paper products	4.388	0.281	0.327	0.029	0.039	0.078			0.256	0.251	364
Logistics Facility	minerals, ore, stone, cement, ceramics or glass	1.945	0.408	0.589	0.051	0.489	0.106			0.722	0.715	83
Logistics Facility	metals or articles of metal	0.952	0.275	0.866	0.037	0.205	0.070			0.665	0.663	318
Logistics Facility	machinery, appliances, and mechanical parts	2.847	0.156	0.670	0.032					0.522	0.521	414
Logistics Facility	chemicals, rubber or plastics	4.041	0.413	0.520	0.038	0.059	0.095			0.444	0.439	239
Others	All	2.137	0.245	0.543	0.023	0.381	0.082			0.695	0.693	324
All	mixed goods and parcel	2.716	0.556	0.499	0.032			0.046	0.087	0.716	0.710	100

#### 1.4. Overnight Parking Choice for Goods Vehicle

Table Overnight parking choice model (multinomial logit model)		
Variable	Coef.	SE
dum <sub>private-open</sub>	0.306	0.161
dum <sub>private-closed</sub>	2.50	0.232
dum <sub>public-type 2</sub>	0.455	0.211
dum <sub>manufacturing industry</sub>	0.364	0.153
dum <sub>transportation industry</sub>	-0.599	0.106
ln dist (km)	-1.36	0.0272
ln price (SGD)	-2.37	0.459
ln w (tonnes)	-0.546	0.0604
ln age (years)	0.0268	0.00949
ln cap (no.)	1	-
$\rho^2$	0.184	
n.	3830	



## 2. Mid-Term Model

### 2.1. Shipping Requirement Definition

The alternative specific constants and the coefficients were adjusted to achieve reasonable distributions as the simulation result.

Table Assumed coefficients for shipment requirement definition (multinomial logit model)

Variable	Coef.
FTL (Base)	
LTL	
const	16.00
ss (kg)	-0.01
Parcel	
const	18.00
ss (kg)	-0.05

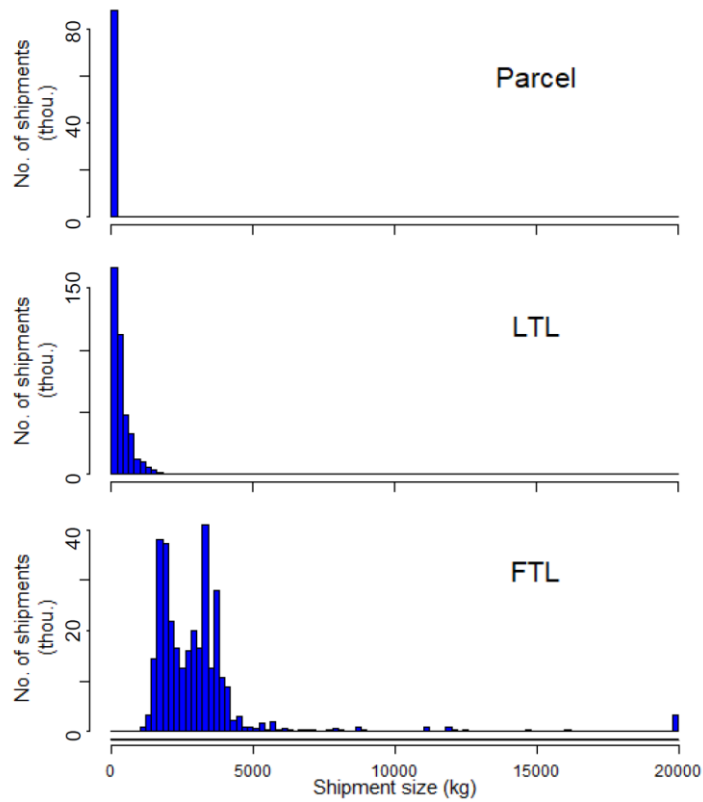


Figure (Ref.) Size distribution by shipping requirement (base case simulation)

## 2.2. Delivery Time Definition

The probability distributions defined by commodity type were used for prediction. The initial probability distributions were generated based on the empirical data and adjusted based on the match between the simulated and observed hourly screen line counts

Commodity type	Table Probability distributions for delivery time window									All
	Time window									
	5h-7h	7h-10h	10h-13h	13h-16h	16h-19h	19h-22h	7h-13h	13h-19h	7h-19h	
							(morning)	(afternoon)	(day-time)	
Agricultural products	11.8%	18.3%	7.1%	8.3%	10.6%	4.2%	9.7%	4.8%	25.2%	100.0%
Food products	5.0%	17.4%	7.4%	12.4%	14.9%	2.8%	7.3%	7.7%	25.2%	100.0%
Household/light manufacturing	3.6%	16.8%	7.9%	12.3%	17.1%	2.2%	7.1%	8.0%	25.1%	100.0%
Wood and paper products	3.4%	19.9%	6.8%	13.5%	16.3%	0.3%	7.3%	7.9%	24.5%	100.0%
Minerals, ore, stone, cement, ceramics or glass	3.6%	18.3%	5.9%	10.1%	17.8%	4.0%	6.1%	8.9%	25.4%	100.0%
Metals or articles of metal	3.6%	22.0%	6.7%	10.6%	14.5%	2.4%	8.1%	7.2%	24.8%	100.0%
Machinery, appliances, and mechanical parts	3.8%	19.7%	6.8%	11.4%	16.0%	2.5%	7.3%	7.6%	24.8%	100.0%
Chemicals, rubber or plastics	4.9%	20.5%	7.1%	12.5%	13.5%	1.5%	8.1%	7.0%	24.9%	100.0%
Mixed goods and parcel	3.8%	17.2%	8.0%	12.0%	17.2%	2.3%	6.9%	7.4%	25.3%	100.0%

2.3. Carrier Selection

The coefficients were adjusted to achieve reasonable distributions of the distances between shippers and carriers as the simulation result.

Table	Assumed coefficients for carrier selection (multinomial logit model)	
	Variable	Coef.
	Parcel carriers	
	ln dist (km)	-3.0
	Non-parcel carriers	
	ln dist (km)	-1.0

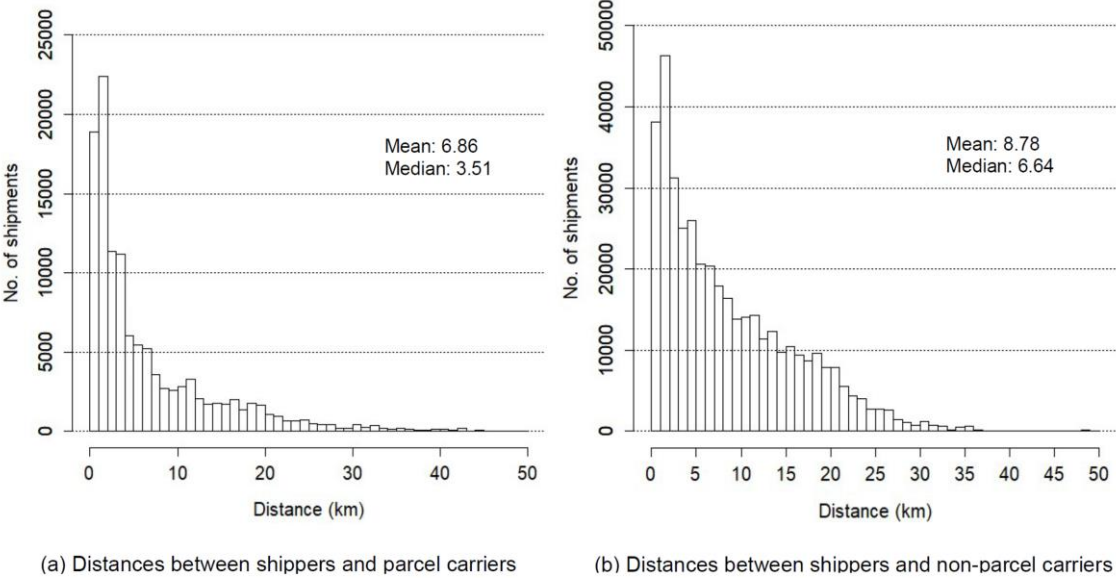


Figure (Ref.) Distances between shippers and carriers (base case simulation)

## 2.4. Within-day Goods Vehicle Operations

Table Route choice model (multinomial logit model)		
Variable	Coef.	SE
TT (seconds)	-0.00360	-0.181
cost (SGD)	-0.167	-2.492
hwy_ratio	1.349	9.764
shortest_TT	0.578	1.843
shortest_dist	0.325	3.725
most_hwy	0.122	0.429
TT $\times$ inhouse	-0.000938	-0.0129
cost $\times$ inhouse	-0.00279	-0.0469
hwy_ratio $\times$ LGV	-0.842	-3.502
ln PS	1.0	-
L (0)	-2,222.10	
L ( $\hat{\beta}$ )	-1,247.95	
$\rho^2$	0.44	
$\bar{\rho}^2$	0.43	
n.	1,021	

Table Pickup/delivery parking choice model		
	Coef.	SE
<i>Loading Bay (LB)-specific attributes</i>		
cost (SGD)	-1.010	0.17
queue/cap	-10.60	3.77
delta	-3.850	2.080
vol/worker	0.602	0.190
<i>Public Carpark (PC)-specific attributes</i>		
const	-4.750	0.677
cost (SGD)	-0.965	0.360
<i>Illegal parking (IP)-specific attributes</i>		
const	-4.880	0.768
cost (SGD)	-1.410	0.292
cost $\times$ dum <sup>HGV</sup>	0.774	0.230
dum <sup>workers&gt;1</sup>	1.350	0.267
L0	-613.08	
LL	-300.68	
Rho	0.510	
Rho adj	0.492	
n	740	