Econometric Modeling of Technical Change (Supplement)

by

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Supplementary Figures

Figure 1: $v_{KT} - v_{K1}$

Figure 2: $v_{LT} - v_{L1}$

Figure 3: $v_{ET} - v_{E1}$

Figure 4: $v_{MT} - v_{M1}$

Figure 5: $(\beta_{KK} \ln \frac{P_{KT}}{P_{MT}} + \beta_{KL} \ln \frac{P_{LT}}{P_{MT}} + \beta_{KE} \ln \frac{P_{ET}}{P_{MT}}) - (\beta_{KK} \ln \frac{P_{K1}}{P_{M1}} + \beta_{KL} \ln \frac{P_{L1}}{P_{M1}} + \beta_{KE} \ln \frac{P_{E1}}{P_{M1}})$
$= (\beta_{KK} \ln P_{KT} + \beta_{KL} \ln P_{LT} + \beta_{KE} \ln P_{ET} + \beta_{KM} \ln P_{MT}) - (\beta_{KK} \ln P_{K1} + \beta_{KL} \ln P_{L1} + \beta_{KE} \ln P_{E1} + \beta_{KM} \ln P_{M1})$

Figure 6: $(\beta_{KL} \ln \frac{P_{KT}}{P_{MT}} + \beta_{LL} \ln \frac{P_{LT}}{P_{MT}} + \beta_{LE} \ln \frac{P_{ET}}{P_{MT}}) - (\beta_{KL} \ln \frac{P_{K1}}{P_{M1}} + \beta_{LL} \ln \frac{P_{L1}}{P_{M1}} + \beta_{LE} \ln \frac{P_{E1}}{P_{M1}})$

Figure 7: $(\beta_{KE} \ln \frac{P_{KT}}{P_{MT}} + \beta_{LE} \ln \frac{P_{LT}}{P_{MT}} + \beta_{EE} \ln \frac{P_{ET}}{P_{MT}}) - (\beta_{KE} \ln \frac{P_{K1}}{P_{M1}} + \beta_{LE} \ln \frac{P_{L1}}{P_{M1}} + \beta_{EE} \ln \frac{P_{E1}}{P_{M1}})$

Figure 8: $= (\beta_{KM} \ln P_{LM} + \beta_{LM} \ln P_{LT} + \beta_{EM} \ln P_{ET} + \beta_{MM} \ln P_{MT}) - (\beta_{KM} \ln P_{K1} + \beta_{LM} \ln P_{L1} + \beta_{EM} \ln P_{E1} + \beta_{MM} \ln P_{M1})$

Figure 9: $f_{KT} - f_{K1}$

Figure 10: $f_{LT} - f_{L1}$

Figure 11: $f_{ET} - f_{E1}$

Figure 12: $f_{MT} - f_{M1}$

Figure 13: $-(\ln\frac{P_{QT}}{P_{MT}}-\ln\frac{P_{Q1}}{P_{M1}})$

Figure 14:

$$-\left\{\begin{bmatrix}\alpha_K & \alpha_L & \alpha_E & \beta_{KK} & \beta_{LL} & \beta_{EE} & \beta_{KL} & \beta_{KE} & \beta_{LE}\end{bmatrix}\left(\begin{bmatrix}\ln\frac{P_{KT}}{P_{MT}}\\ \ln\frac{P_{LT}}{P_{MT}}\\ \ln\frac{P_{ET}}{P_{MT}}\\ \frac{1}{2}(\ln\frac{P_{KT}}{P_{MT}})^2\\ \frac{1}{2}(\ln\frac{P_{LT}}{P_{MT}})^2\\ \frac{1}{2}(\ln\frac{P_{ET}}{P_{MT}})^2\\ \ln\frac{P_{KT}}{P_{MT}}\ln\frac{P_{LT}}{P_{MT}}\\ \ln\frac{P_{KT}}{P_{MT}}\ln\frac{P_{ET}}{P_{MT}}\\ \ln\frac{P_{LT}}{P_{MT}}\ln\frac{P_{ET}}{P_{MT}}\end{bmatrix}-\begin{bmatrix}\ln\frac{P_{K1}}{P_{M1}}\\ \ln\frac{P_{L1}}{P_{M1}}\\ \ln\frac{P_{E1}}{P_{M1}}\\ \frac{1}{2}(\ln\frac{P_{K1}}{P_{M1}})^2\\ \frac{1}{2}(\ln\frac{P_{L1}}{P_{M1}})^2\\ \frac{1}{2}(\ln\frac{P_{E1}}{P_{M1}})^2\\ \ln\frac{P_{K1}}{P_{M1}}\ln\frac{P_{L1}}{P_{M1}}\\ \ln\frac{P_{K1}}{P_{M1}}\ln\frac{P_{E1}}{P_{M1}}\\ \ln\frac{P_{L1}}{P_{M1}}\ln\frac{P_{E1}}{P_{M1}}\end{bmatrix}\right)+\\ \sum_{t=2}^{T} f_{Kt}(\ln\frac{P_{Kt}}{P_{Mt}}-\ln\frac{P_{Kt-1}}{P_{Mt-1}})+f_{Lt}(\ln\frac{P_{Lt}}{P_{Mt}}-\ln\frac{P_{Lt-1}}{P_{Mt-1}})+f_{Kt}(\ln\frac{P_{Et}}{P_{Mt}}-\ln\frac{P_{Et-1}}{P_{Mt-1}})\end{bmatrix}\right\}$$

Figure 15:

$$-[\sum_{t=2}^{T}\ln\frac{P_{Kt}}{P_{Mt}}(f_{Kt}-f_{Kt-1})+\ln\frac{P_{Lt}}{P_{Mt}}(f_{Lt}-f_{Lt-1})+\ln\frac{P_{Et}}{P_{Mt}}(f_{Et}-f_{Et-1})]$$

$$=-[\sum_{t=2}^{T}\ln P_{Kt}(f_{Kt}-f_{Kt-1})+\ln P_{Lt}(f_{Lt}-f_{Lt-1})+\ln P_{Et}(f_{Et}-f_{Et-1})+\ln P_{Mt}(f_{Mt}-f_{Mt-1})]$$

Figure 16: $-(f_{pT} - f_{p1})$

Figure 17: $f_{E1980} - f_{E1960}$

Figure 18: $f_{E2005} - f_{E1980}$

Figure 19: $f_{E2030} - f_{E2006}$

Figure 20: $f_{K2030} - f_{K2006}$

Figure 21: $f_{L2030} - f_{L2006}$

Figure 22: $f_{M2030} - f_{M2006}$

Figure S1.

Latent biases of technical change for capital, 1960-2005, and projections for 2006-2030

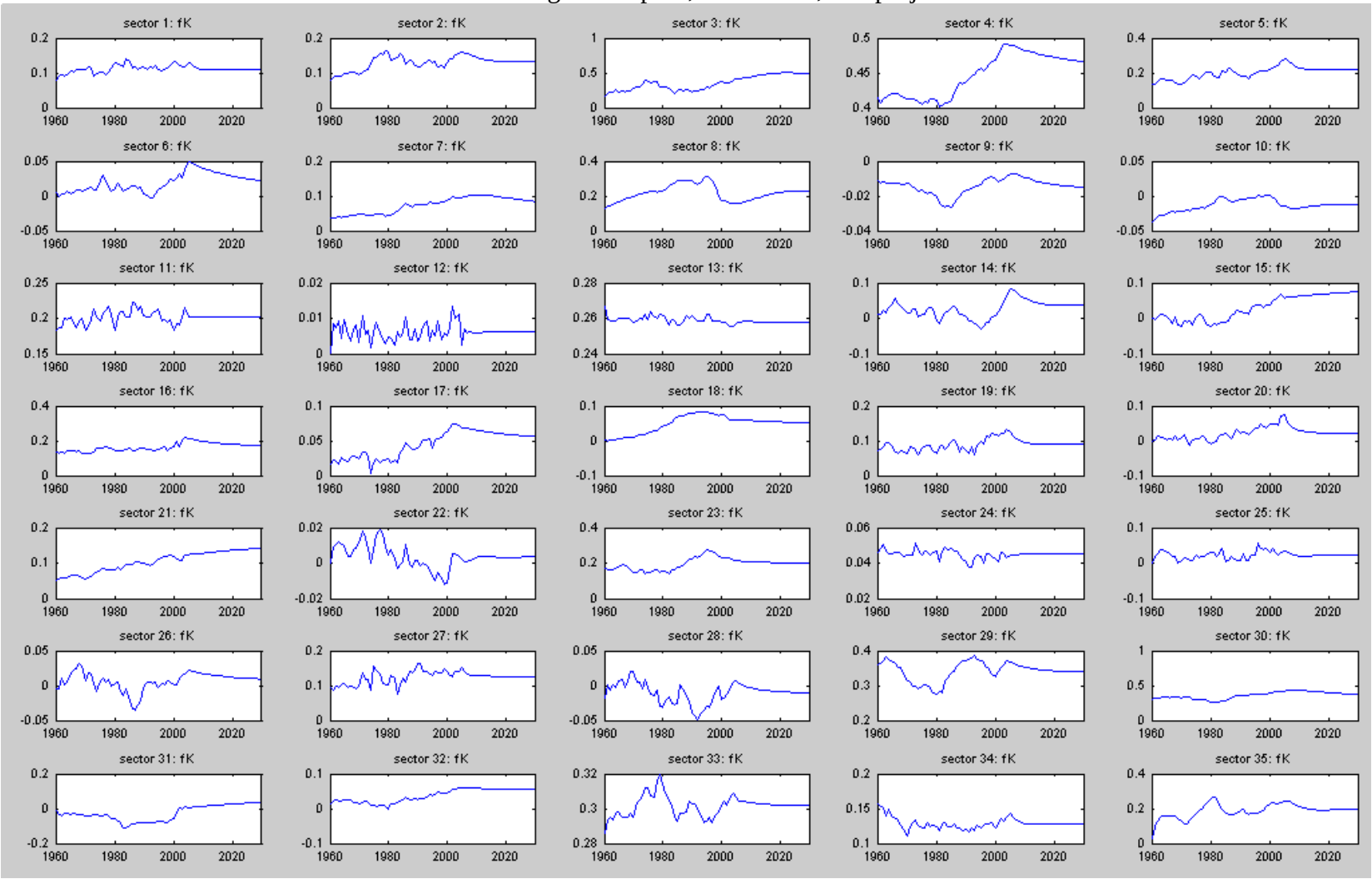


Figure S2.

Latent biases of technical change for labor, 1960-2005, and projections for 2006-2030

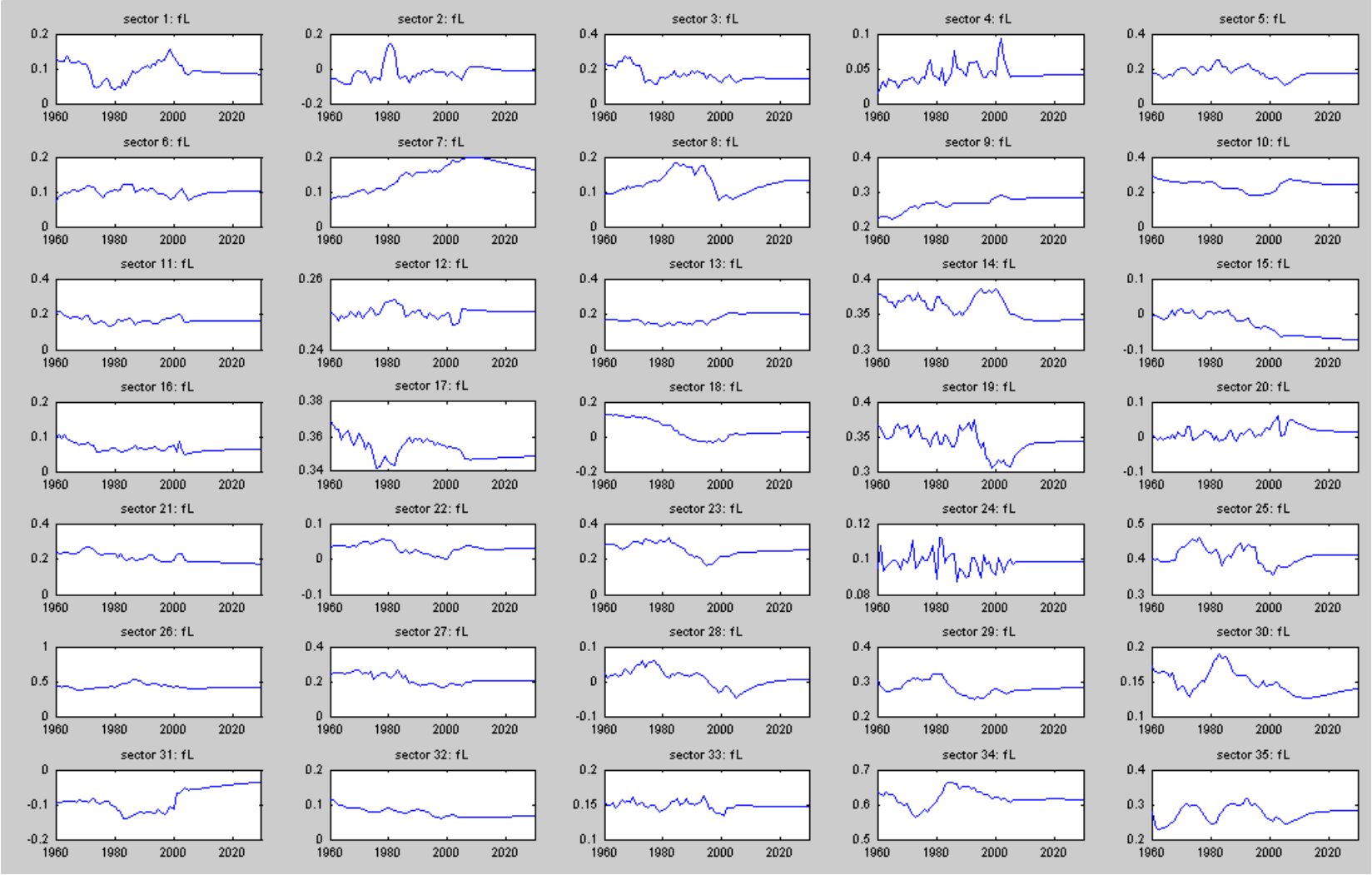


Figure S3.

Latent biases of technical change for energy, 1960-2005, and projections for 2006-2030

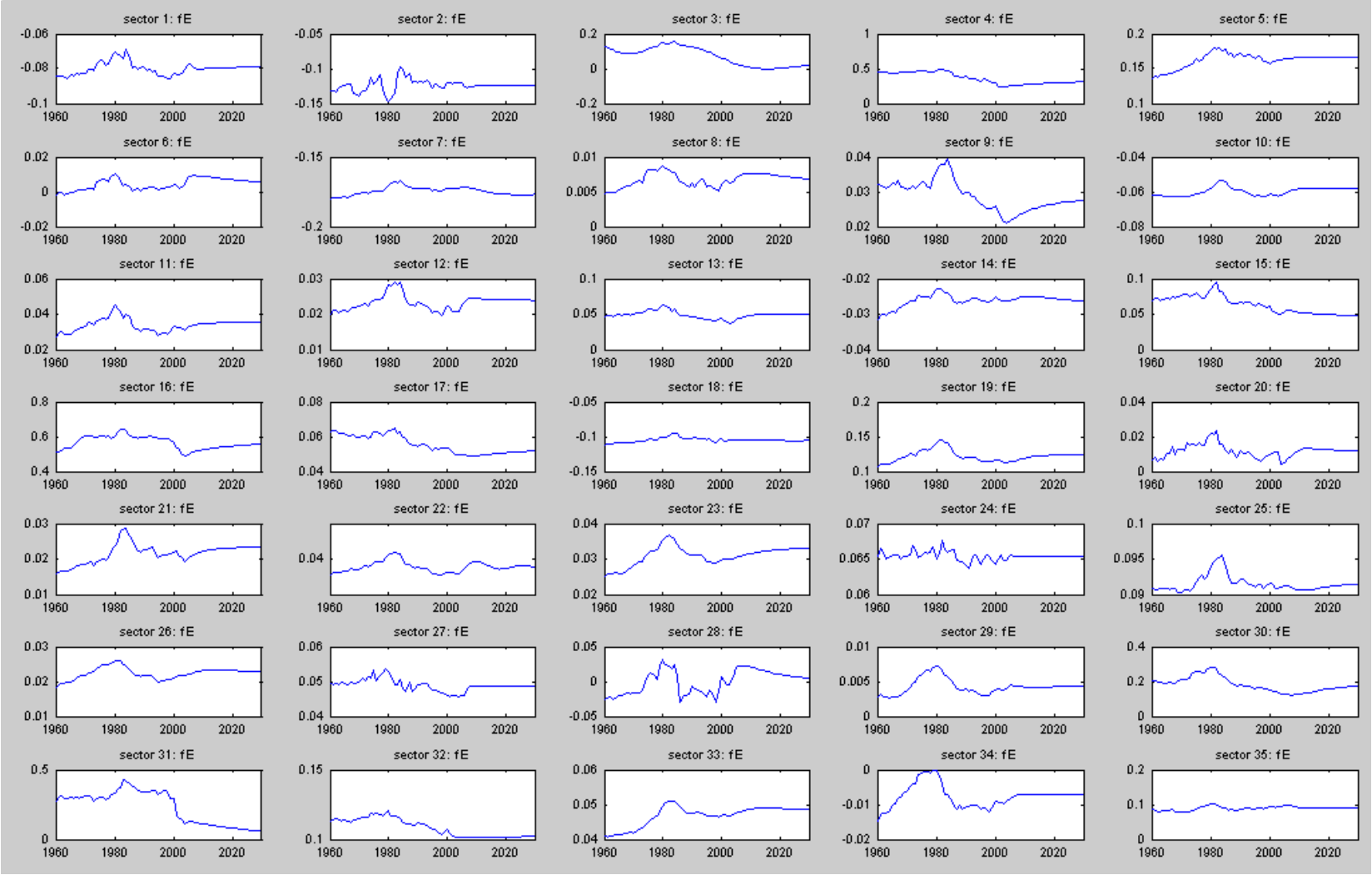


Figure S4.

Latent biases of technical change for material, 1960-2005, and projections for 2006-2030

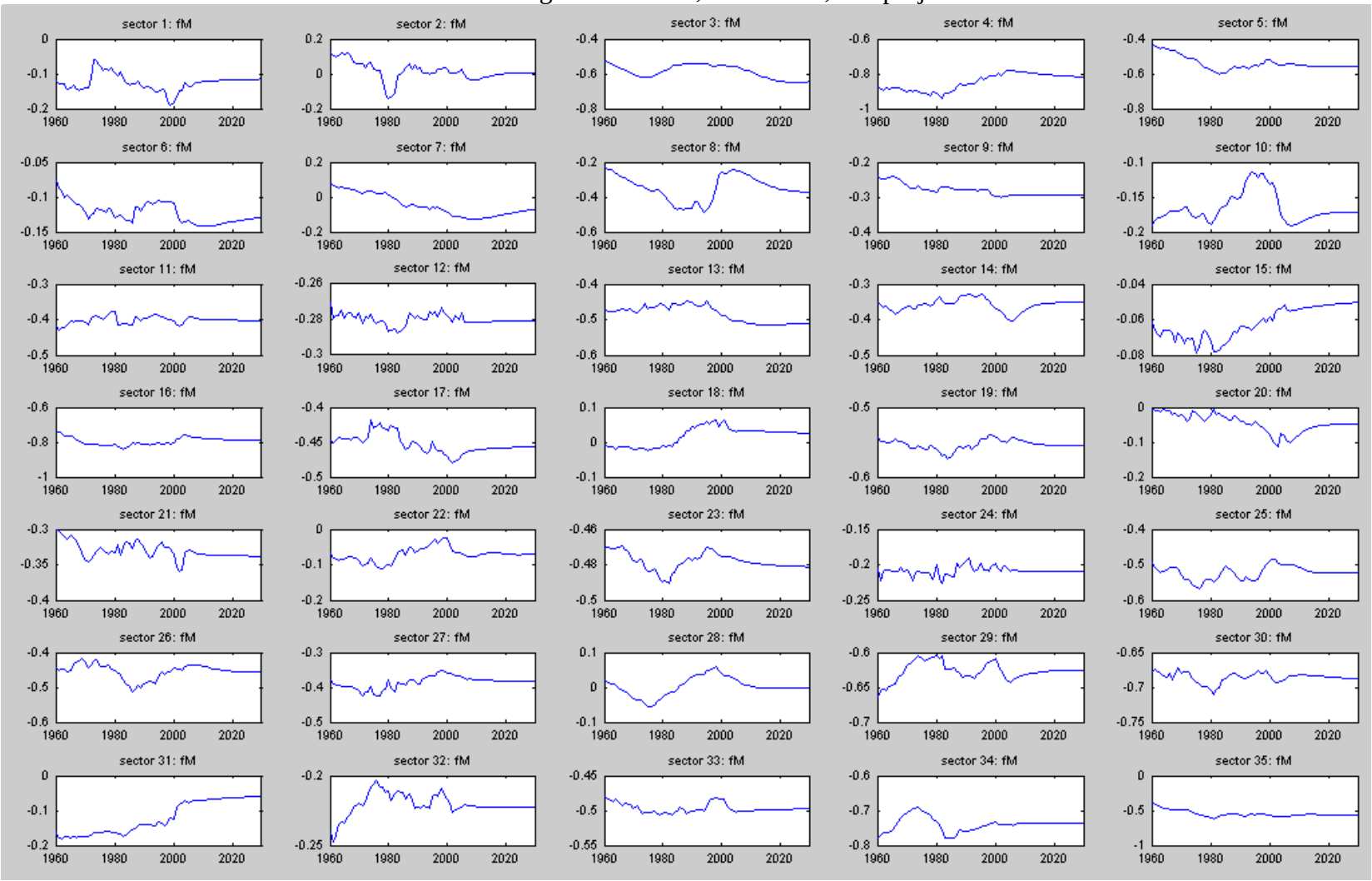
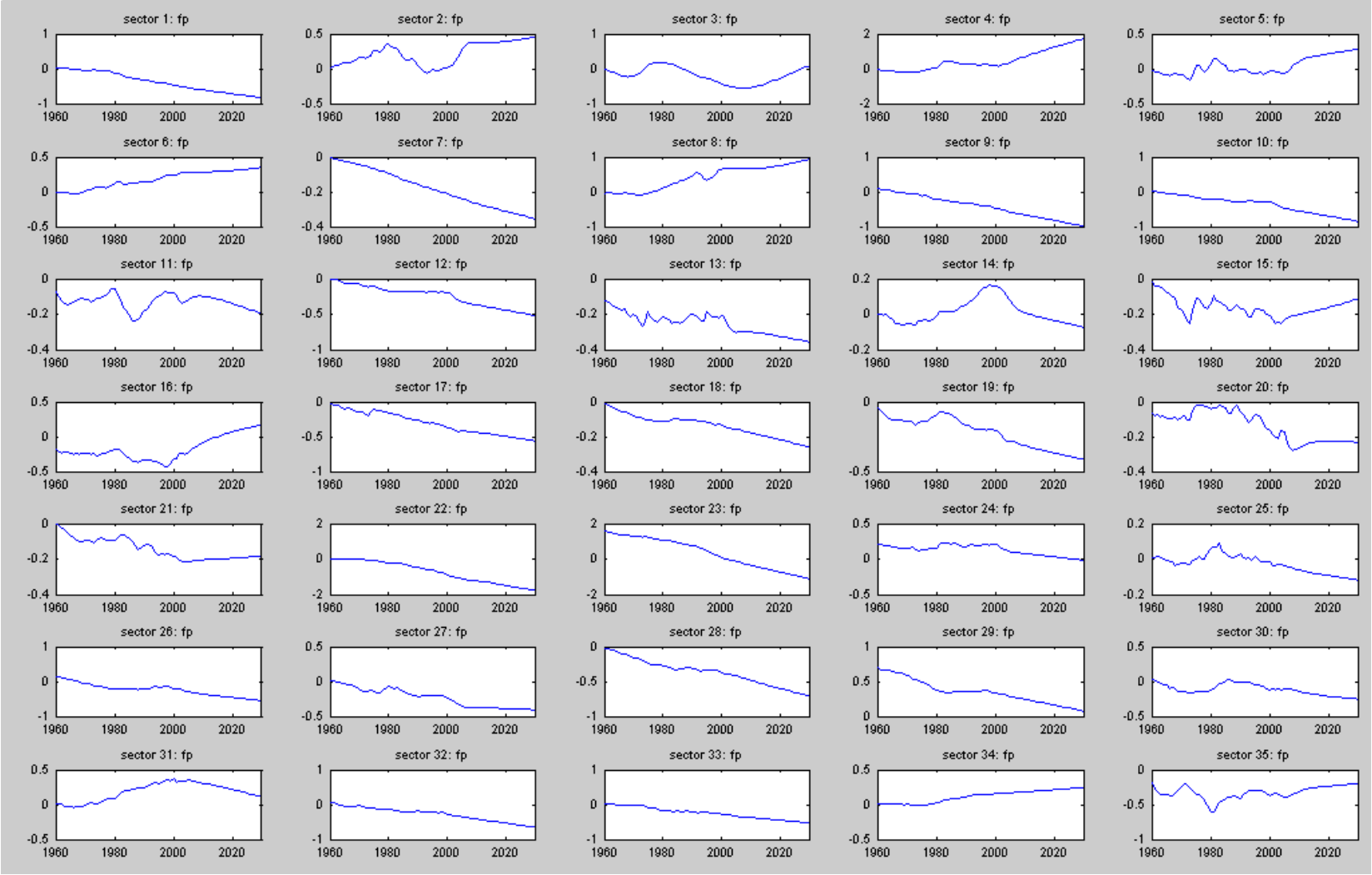


Figure S5.

Latent levels of technology, 1960-2005, and projections for 2006-2030



Supplementary Estimates

In Table S1 we present estimates of the unknown parameters for each of the 35 sectors in Table 1. These parameters are the coefficients of the explanatory variables in the state equations (4') and (5') and coefficients of lagged values of the latent variables in the transition equation (12). We have used the parameters of the transition equation to extrapolate the endogenous rates and biases of technical change given in the Appendix.

We have constructed constrained two-step maximum likelihood estimates of the parameters of the observation equation (14). These estimates are presented in Table S1 and correspond to the parameters in the matrix A' in the definition of the Kalman filter. The parameters β_{ik} are the share elasticities and represent the responses of the shares of the four inputs – capital, labor, energy, and materials – to changes in the input prices in Equation (5) for a given state of technology. Note that the matrix H' in the definition of the Kalman filter involves no unknown parameters and consists of known constants and functions of the data.

Table S1. Parameter Estimates

SECTOR	1 Agriculture		2 Metal Mining		3 Coal Mining		4 Petroleum and Gas		5 Nonmetallic Mining		6 Construction		7 Food Products	
α_k	-0.021	(0.066)	-0.043	(0.017)	0.067	(0.891)	-0.070	(0.153)	-0.109	(0.002)	-0.044	(0.006)	-0.024	(0.583)
α_l	-0.018	(0.042)	0.311	(0.169)	0.352	(0.357)	-0.058	(0.129)	-0.017	(0.003)	0.297	(0.081)	0.112	(0.023)
α_e	0.010	(0.045)	-0.039	(0.001)	0.120	(0.396)	0.115	(0.253)	0.002	(0.056)	0.041	(0.005)	0.099	(0.006)
α_t	0.027	(11.400)	-0.363	(0.704)	0.290	(0.595)	0.111	(1.010)	0.000	(0.020)	-0.158	(2.837)	0.041	(4.204)
β_{kk}	0.098	(0.017)	0.072	(0.001)	0.025	(0.281)	0.033	(0.007)	0.055	(0.000)	0.020	(0.002)	0.030	(1.303)
β_{kl}	-0.054	(0.036)	-0.032	(0.027)	0.015	(0.006)	-0.004	(0.050)	-0.033	(0.004)	0.030	(0.007)	0.019	(1.562)
β_{ke}	0.005	(0.009)	-0.005	(0.016)	-0.020	(0.094)	-0.010	(0.021)	0.006	(0.004)	0.005	(0.000)	0.002	(0.514)
β_{ll}	0.086	(0.080)	0.105	(0.760)	-0.099	(0.258)	-0.046	(0.100)	-0.224	(0.018)	-0.122	(0.020)	-0.057	(2.181)
β_{le}	-0.009	(0.025)	-0.008	(0.277)	0.074	(0.072)	0.019	(0.102)	0.025	(0.006)	-0.007	(0.002)	-0.027	(0.661)
β_{ee}	0.009	(0.017)	-0.010	(0.142)	0.003	(0.074)	0.020	(0.080)	0.037	(0.017)	0.011	(0.002)	0.005	(0.278)
χ_k	-0.007	(0.001)	0.054	(0.003)	0.032	(0.016)	-0.018	(0.066)	0.059	(0.007)	0.090	(0.004)	0.086	(0.646)
χ_l	0.053	(0.059)	-0.010	(0.012)	0.140	(0.636)	0.013	(0.150)	0.077	(0.008)	-0.171	(0.085)	0.039	(1.127)
χ_e	0.000	(0.003)	0.022	(0.043)	0.058	(0.102)	-0.030	(0.149)	0.013	(0.005)	-0.021	(0.013)	-0.049	(0.770)
χ_p	0.028	(0.173)	0.175	(0.174)	0.016	(0.733)	-0.302	(0.335)	-0.016	(0.010)	-0.029	(0.205)	-0.005	(3.088)
δ_{kk}	0.970	(0.077)	0.639	(0.366)	0.838	(0.580)	0.781	(0.079)	0.691	(0.000)	0.183	(0.097)	0.470	(10.765)
δ_{kl}	0.050	(0.008)	0.141	(0.103)	-0.184	(0.359)	0.512	(0.185)	0.181	(0.006)	-0.097	(0.032)	0.192	(18.674)
δ_{ke}	-0.026	(1.056)	0.490	(0.797)	-0.012	(0.568)	0.070	(0.036)	0.081	(0.003)	-0.222	(0.285)	0.274	(11.968)
δ_{kp}	-0.007	(0.041)	0.138	(0.243)	-0.004	(0.255)	-0.098	(0.010)	-0.230	(0.002)	0.014	(0.122)	0.028	(2.148)
δ_{lk}	-0.066	(0.331)	0.179	(1.030)	-0.561	(2.506)	0.059	(0.170)	-0.345	(0.001)	1.694	(0.865)	0.213	(2.089)
δ_{ll}	0.834	(0.454)	0.619	(0.979)	1.181	(0.754)	0.806	(0.253)	1.130	(0.000)	1.112	(0.127)	0.667	(2.597)
δ_{le}	0.242	(0.523)	-0.405	(2.330)	-1.446	(6.709)	0.002	(0.073)	0.160	(0.001)	0.830	(0.992)	0.592	(15.637)
δ_{lp}	-0.006	(0.009)	-0.195	(1.119)	0.042	(0.100)	0.006	(0.038)	-0.284	(0.000)	-0.019	(0.451)	-0.264	(4.258)
δ_{ek}	0.044	(0.112)	-0.105	(0.023)	-0.222	(0.570)	0.183	(0.141)	0.007	(0.010)	0.133	(0.103)	0.005	(0.271)
δ_{el}	-0.023	(0.040)	0.058	(0.074)	0.177	(0.222)	-0.247	(0.363)	-0.015	(0.009)	0.019	(0.000)	0.126	(1.484)
δ_{ee}	0.887	(0.543)	1.080	(0.369)	0.306	(0.330)	0.967	(0.061)	0.904	(0.017)	0.751	(0.005)	0.507	(8.453)
δ_{ep}	0.004	(0.007)	0.060	(0.032)	-0.006	(0.118)	-0.055	(0.023)	0.246	(0.008)	0.010	(0.047)	-0.012	(0.246)
δ_{pk}	-0.230	(0.763)	-0.487	(0.062)	-0.069	(2.885)	0.807	(0.443)	0.072	(0.001)	0.231	(1.871)	-0.284	(22.480)
δ_{pl}	0.037	(0.566)	-0.009	(0.239)	0.540	(0.872)	-0.369	(0.401)	0.059	(0.007)	0.062	(0.322)	0.170	(12.799)
δ_{pe}	-0.590	(8.307)	-0.396	(1.330)	-0.718	(7.091)	0.112	(0.059)	-0.243	(0.002)	-0.089	(1.100)	-0.321	(5.789)
δ_{pp}	-0.002	(0.052)	0.141	(0.003)	-0.277	(0.931)	0.538	(0.071)	0.567	(0.001)	0.399	(0.477)	-0.676	(24.336)

Note: For other parameter estimates, see Table S2 below.

Table S1. Parameter Estimates (Continued)

SECTOR	8 Tobacco Products		9 Textile Mill Products		10 Apparel and Textiles		11 Lumber and Wood		12 Furniture and Fixtures		13 Paper Products		14 Printing and Publishing	
α_k	-0.009	(0.100)	0.071	(0.009)	0.000	(0.009)	-0.032	(0.042)	0.034	(0.001)	-0.054	(0.010)	-0.027	(0.023)
α_l	0.081	(0.270)	-0.044	(0.025)	0.145	(0.006)	0.088	(0.070)	0.348	(0.026)	0.017	(0.003)	0.202	(0.043)
α_e	0.001	(0.025)	-0.050	(0.021)	0.019	(0.017)	-0.005	(0.015)	-0.011	(0.002)	0.017	(0.008)	-0.081	(0.003)
α_t	0.714	(0.843)	-0.362	(3.687)	0.481	(0.452)	-0.004	(0.122)	0.937	(10.203)	-0.211	(0.053)	0.093	(0.605)
β_{kk}	0.081	(0.012)	0.026	(0.002)	0.003	(0.012)	0.029	(0.026)	0.040	(0.002)	0.039	(0.006)	0.003	(0.105)
β_{kl}	-0.025	(0.015)	-0.026	(0.017)	0.053	(0.010)	0.021	(0.036)	-0.003	(0.008)	-0.001	(0.003)	-0.029	(0.063)
β_{ke}	-0.002	(0.001)	-0.001	(0.012)	0.003	(0.006)	0.000	(0.004)	-0.002	(0.000)	0.002	(0.003)	0.007	(0.009)
β_{ll}	-0.005	(0.049)	-0.049	(0.053)	0.018	(0.057)	-0.167	(0.030)	0.049	(0.016)	0.023	(0.001)	-0.045	(0.063)
β_{le}	-0.001	(0.003)	-0.004	(0.029)	-0.001	(0.011)	0.003	(0.003)	-0.009	(0.003)	0.011	(0.002)	-0.008	(0.000)
β_{ee}	0.004	(0.001)	0.014	(0.041)	0.004	(0.003)	0.014	(0.003)	0.008	(0.001)	0.025	(0.006)	0.006	(0.005)
χ_k	0.108	(0.145)	0.000	(0.063)	0.011	(0.035)	0.054	(0.056)	0.011	(0.001)	0.032	(0.011)	0.018	(0.212)
χ_l	-0.025	(0.056)	0.110	(0.353)	0.145	(0.345)	0.022	(0.038)	0.002	(0.000)	-0.039	(0.003)	0.176	(0.020)
χ_e	0.007	(0.021)	0.021	(0.026)	-0.010	(0.028)	0.011	(0.008)	0.004	(0.000)	-0.008	(0.003)	0.047	(0.001)
χ_p	0.002	(0.012)	-0.013	(0.018)	-0.007	(0.001)	-0.083	(0.116)	-0.029	(0.003)	0.193	(0.002)	-0.011	(0.174)
δ_{kk}	0.440	(0.046)	1.181	(0.474)	0.627	(0.062)	-0.073	(0.209)	0.674	(0.154)	0.867	(0.030)	0.880	(0.460)
δ_{kl}	0.795	(0.071)	-0.128	(0.098)	0.108	(0.163)	0.525	(0.242)	-0.027	(0.092)	-0.023	(0.021)	0.113	(0.313)
δ_{ke}	0.486	(0.033)	0.483	(0.348)	-0.123	(1.612)	0.460	(0.020)	0.309	(0.429)	-0.020	(0.030)	-0.213	(2.244)
δ_{kp}	-0.012	(0.029)	0.298	(0.451)	0.214	(0.773)	0.052	(0.016)	0.151	(0.022)	0.105	(0.009)	-0.064	(0.372)
δ_{lk}	0.064	(0.011)	1.179	(2.311)	-1.473	(5.338)	0.374	(1.176)	0.881	(0.018)	0.263	(0.004)	-0.035	(0.234)
δ_{ll}	0.816	(0.040)	0.228	(0.457)	0.773	(0.255)	0.600	(0.513)	1.069	(0.054)	0.945	(0.004)	1.264	(0.209)
δ_{le}	3.880	(0.031)	1.214	(2.539)	2.167	(7.002)	-0.288	(1.339)	-1.886	(0.101)	0.113	(0.002)	-2.476	(0.335)
δ_{lp}	-0.007	(0.017)	0.071	(2.254)	-0.401	(0.853)	-0.122	(0.353)	0.039	(0.027)	-0.039	(0.002)	0.031	(0.183)
δ_{ek}	-0.013	(0.007)	0.055	(0.373)	0.095	(0.197)	-0.120	(0.448)	0.212	(0.053)	-0.002	(0.010)	0.000	(0.016)
δ_{el}	0.023	(0.015)	-0.020	(0.112)	0.019	(0.055)	0.053	(0.292)	0.052	(0.012)	0.052	(0.009)	0.067	(0.028)
δ_{ee}	0.104	(0.012)	0.811	(0.127)	0.773	(0.386)	0.900	(0.253)	0.391	(0.151)	0.857	(0.007)	0.326	(0.002)
δ_{ep}	0.005	(0.001)	0.040	(0.251)	-0.004	(0.015)	0.008	(0.073)	0.056	(0.014)	0.066	(0.003)	0.009	(0.024)
δ_{pk}	0.015	(0.001)	-0.433	(0.057)	-0.083	(0.253)	0.344	(2.287)	0.067	(0.004)	-0.477	(0.010)	0.109	(0.695)
δ_{pl}	0.147	(0.000)	0.291	(0.014)	0.044	(0.040)	0.274	(0.634)	0.037	(0.004)	-0.322	(0.000)	-0.004	(0.478)
δ_{pe}	-1.024	(0.002)	-0.855	(0.201)	0.620	(2.618)	-0.401	(2.461)	0.726	(0.026)	-1.257	(0.006)	-0.065	(1.715)
δ_{pp}	0.334	(0.000)	0.635	(0.117)	0.330	(0.937)	0.552	(0.435)	0.214	(0.006)	-0.258	(0.001)	0.400	(0.522)

Table S1. Parameter Estimates (Continued)

SECTOR	15 Chemical Products		16 Petroleum Refining		17 Rubber and Plastic		18 Leather Products		19 Stone, Clay, and Glass		20 Primary Metals		21 Fabricated Metals	
α_k	0.261	(0.036)	-0.286	(0.145)	0.013	(0.056)	0.105	(0.034)	0.055	(0.036)	0.026	(0.004)	-0.018	(0.026)
α_l	0.206	(0.011)	0.204	(0.012)	0.256	(0.003)	0.125	(0.074)	0.103	(0.032)	-0.067	(0.006)	0.086	(0.072)
α_e	0.040	(0.015)	0.354	(0.160)	-0.002	(0.002)	0.008	(0.003)	0.049	(0.019)	0.047	(0.003)	0.003	(0.051)
α_t	0.201	(4.277)	0.150	(18.632)	0.518	(2.551)	-0.138	(0.696)	-0.120	(0.236)	0.003	(0.054)	0.554	(0.381)
β_{kk}	0.066	(0.254)	0.002	(0.128)	0.014	(0.051)	0.017	(0.034)	0.020	(0.007)	0.008	(0.035)	0.025	(0.001)
β_{kl}	0.070	(0.006)	0.013	(0.029)	-0.004	(0.069)	-0.073	(0.053)	0.000	(0.036)	0.002	(0.048)	0.007	(0.000)
β_{ke}	-0.017	(0.044)	-0.003	(0.026)	-0.006	(0.006)	-0.002	(0.001)	0.000	(0.002)	0.002	(0.002)	-0.001	(0.000)
β_{ll}	-0.050	(0.151)	0.000	(0.170)	0.020	(0.056)	0.013	(0.098)	-0.007	(0.002)	0.085	(0.094)	0.020	(0.001)
β_{le}	-0.009	(0.021)	-0.063	(0.029)	-0.004	(0.003)	-0.004	(0.005)	-0.012	(0.020)	-0.007	(0.017)	0.008	(0.001)
β_{ee}	0.024	(0.029)	0.088	(0.046)	0.014	(0.002)	0.006	(0.003)	0.044	(0.033)	0.041	(0.011)	0.013	(0.002)
χ_k	-0.036	(0.020)	0.122	(0.115)	0.016	(0.137)	0.022	(0.001)	0.231	(0.011)	0.056	(0.017)	0.022	(0.020)
χ_l	0.004	(0.003)	-0.019	(0.712)	0.007	(0.013)	-0.015	(0.014)	0.078	(0.006)	0.108	(0.025)	0.583	(0.224)
χ_e	0.007	(0.015)	0.100	(1.263)	0.007	(0.006)	-0.002	(0.004)	-0.368	(0.035)	0.005	(0.010)	0.040	(0.013)
χ_p	0.012	(0.028)	-0.039	(1.936)	-0.044	(0.048)	-0.024	(0.019)	0.004	(0.253)	0.067	(0.010)	-0.075	(0.041)
δ_{kk}	0.426	(0.262)	0.762	(0.104)	0.794	(0.202)	0.781	(0.122)	0.304	(0.334)	0.606	(0.103)	0.895	(0.061)
δ_{kl}	0.000	(0.325)	0.079	(0.549)	0.078	(1.092)	-0.059	(0.018)	-0.714	(0.187)	-0.090	(0.059)	-0.028	(0.046)
δ_{ke}	0.270	(0.702)	-0.071	(0.058)	0.009	(1.083)	-0.896	(0.831)	0.104	(0.597)	-0.160	(0.061)	0.021	(0.154)
δ_{kp}	-0.403	(2.237)	-0.004	(0.459)	0.188	(0.901)	0.019	(0.002)	0.032	(0.297)	-0.178	(0.021)	0.088	(0.010)
δ_{lk}	0.108	(0.757)	-0.019	(0.697)	0.072	(0.380)	0.622	(0.038)	-0.109	(0.128)	0.251	(0.004)	-1.680	(0.049)
δ_{ll}	0.700	(0.660)	0.731	(3.698)	0.669	(0.080)	1.062	(0.132)	0.721	(0.118)	0.459	(0.058)	-0.159	(0.078)
δ_{le}	0.218	(1.994)	-0.048	(0.241)	0.412	(1.749)	-1.165	(1.456)	0.008	(0.647)	0.404	(0.014)	-4.174	(0.020)
δ_{lp}	0.217	(1.571)	0.097	(1.187)	-0.048	(0.414)	-0.083	(0.051)	0.008	(0.195)	-0.527	(0.047)	-0.252	(0.060)
δ_{ek}	0.002	(0.022)	0.022	(1.384)	0.002	(0.055)	0.079	(0.033)	1.005	(0.176)	-0.109	(0.023)	-0.115	(0.035)
δ_{el}	0.047	(0.287)	0.984	(5.497)	0.012	(0.031)	0.012	(0.023)	1.179	(0.185)	0.031	(0.042)	-0.069	(0.021)
δ_{ee}	0.612	(0.747)	1.129	(0.107)	0.718	(0.088)	0.812	(0.061)	0.750	(0.018)	0.715	(0.022)	0.542	(0.107)
δ_{ep}	0.217	(0.228)	0.275	(1.051)	-0.015	(0.072)	-0.004	(0.002)	0.071	(0.007)	0.094	(0.004)	-0.013	(0.004)
δ_{pk}	0.082	(0.516)	0.098	(1.479)	0.201	(0.114)	0.044	(0.115)	-0.221	(0.464)	-0.319	(0.064)	0.328	(0.009)
δ_{pl}	0.170	(0.929)	0.043	(12.806)	0.048	(0.644)	0.117	(0.113)	0.042	(0.839)	-0.224	(0.062)	0.180	(0.009)
δ_{pe}	-0.595	(2.866)	0.037	(1.367)	0.158	(0.402)	1.307	(0.011)	-0.021	(0.036)	0.721	(0.044)	-0.984	(0.039)
δ_{pp}	0.802	(0.203)	0.614	(3.495)	0.070	(0.535)	-0.139	(0.017)	0.238	(0.211)	-0.293	(0.051)	0.184	(0.006)

Table S1. Parameter Estimates (Continued)

SECTOR	22 Industrial Machinery and Equipment		23 Electronic and Electric Equipment		24 Motor Vehicles		25 Other Transportation Equipment		26 Instruments		27 Miscellaneous Manufacturing		28 Transport and Warehouse	
α_k	0.108	(0.068)	0.115	(0.040)	0.066	(0.010)	0.020	(0.071)	0.142	(0.032)	0.098	(0.018)	-0.012	(0.032)
α_l	0.147	(0.012)	0.034	(0.264)	0.164	(0.009)	0.404	(0.061)	0.347	(0.002)	0.199	(0.036)	0.037	(0.065)
α_e	-0.005	(0.055)	-0.033	(0.041)	0.002	(0.009)	0.116	(0.001)	0.112	(0.011)	0.011	(0.006)	0.006	(0.009)
α_t	0.907	(5.491)	0.949	(4.262)	-0.370	(0.173)	0.202	(0.214)	0.383	(5.352)	-0.156	(3.171)	-0.276	(0.513)
β_{kk}	0.030	(0.064)	-0.013	(0.001)	0.037	(0.025)	-0.008	(0.005)	0.022	(0.029)	0.060	(0.032)	0.010	(0.057)
β_{kl}	-0.010	(0.019)	0.043	(0.006)	0.013	(0.002)	0.014	(0.005)	-0.003	(0.048)	0.027	(0.081)	-0.017	(0.030)
β_{ke}	0.000	(0.002)	-0.001	(0.000)	-0.003	(0.001)	0.001	(0.001)	-0.002	(0.003)	0.005	(0.003)	0.019	(0.014)
β_{ll}	-0.008	(0.052)	-0.051	(0.003)	0.029	(0.017)	0.021	(0.004)	0.072	(0.080)	-0.266	(0.176)	-0.027	(0.137)
β_{le}	-0.002	(0.000)	-0.002	(0.000)	0.001	(0.000)	-0.001	(0.000)	-0.006	(0.001)	-0.022	(0.009)	-0.023	(0.074)
β_{ee}	0.004	(0.015)	0.002	(0.002)	0.005	(0.001)	0.007	(0.002)	0.006	(0.004)	-0.001	(0.008)	0.031	(0.011)
χ_k	-0.014	(0.201)	0.077	(0.038)	-0.001	(0.009)	0.032	(0.190)	0.037	(0.040)	0.003	(0.008)	0.077	(0.465)
χ_l	0.066	(0.115)	-0.107	(0.086)	-0.020	(0.002)	0.129	(0.369)	0.119	(0.120)	0.015	(0.003)	-0.018	(0.339)
χ_e	-0.007	(0.010)	0.018	(0.004)	0.003	(0.001)	-0.127	(0.051)	-0.003	(0.006)	0.002	(0.004)	0.002	(0.001)
χ_p	-0.008	(0.033)	-0.009	(0.014)	-0.011	(0.008)	0.048	(1.059)	-0.067	(0.861)	-0.003	(0.175)	0.066	(0.131)
δ_{kk}	0.803	(0.816)	0.119	(0.026)	1.032	(0.217)	0.617	(0.238)	0.563	(3.921)	0.799	(0.014)	0.740	(0.292)
δ_{kl}	0.025	(1.345)	-0.083	(0.131)	-0.056	(0.240)	-0.109	(0.017)	0.007	(1.744)	0.046	(0.084)	-0.059	(1.104)
δ_{ke}	0.446	(3.067)	-0.352	(0.005)	0.006	(0.579)	0.134	(1.611)	0.624	(0.168)	0.439	(0.263)	-0.181	(0.622)
δ_{kp}	-0.034	(0.403)	-0.004	(0.019)	0.154	(0.370)	0.166	(0.054)	0.013	(0.088)	-0.065	(0.009)	-0.001	(0.023)
δ_{lk}	0.471	(1.010)	1.516	(0.523)	0.572	(0.581)	-0.256	(0.132)	0.008	(2.252)	-0.065	(0.112)	0.136	(0.189)
δ_{ll}	0.756	(0.661)	1.272	(0.062)	0.467	(0.223)	0.841	(0.028)	0.703	(1.263)	0.865	(0.084)	0.964	(0.803)
δ_{le}	-1.014	(12.599)	-0.767	(0.435)	0.613	(0.765)	1.089	(3.312)	0.739	(1.678)	0.069	(0.377)	0.097	(0.514)
δ_{lp}	-0.020	(0.357)	-0.034	(0.061)	0.028	(0.095)	0.143	(0.233)	0.029	(0.294)	0.000	(0.455)	0.007	(0.014)
δ_{ek}	-0.014	(0.277)	-0.108	(0.158)	0.020	(0.045)	-0.045	(0.047)	-0.015	(0.099)	-0.048	(0.102)	0.077	(0.112)
δ_{el}	0.055	(0.074)	0.151	(0.099)	0.005	(0.054)	0.008	(0.011)	-0.014	(0.064)	0.010	(0.033)	-0.041	(0.100)
δ_{ee}	0.797	(1.922)	-0.214	(0.424)	0.547	(0.251)	-0.231	(0.533)	0.960	(0.008)	1.052	(0.390)	0.981	(0.151)
δ_{ep}	-0.002	(0.028)	-0.007	(0.002)	0.001	(0.020)	-0.007	(0.001)	-0.008	(0.016)	0.030	(0.204)	0.002	(0.008)
δ_{pk}	0.156	(3.184)	-0.040	(0.134)	0.027	(0.266)	-0.355	(0.574)	0.338	(4.133)	0.249	(2.931)	-0.294	(0.061)
δ_{pl}	-0.019	(2.161)	0.097	(0.022)	-0.089	(0.534)	-0.164	(0.121)	0.219	(1.630)	-0.179	(1.550)	-0.068	(0.420)
δ_{pe}	0.004	(27.331)	-0.925	(0.076)	0.991	(1.218)	0.292	(9.992)	-0.443	(8.715)	0.424	(12.904)	-0.146	(0.001)
δ_{pp}	0.454	(0.413)	0.301	(0.342)	-0.082	(0.098)	0.694	(0.833)	0.316	(1.038)	-0.117	(1.919)	-0.003	(0.012)

Table S1. Parameter Estimates (Concluded)

SECTOR	29 Communications		30 Electric Utilities		31 Gas Utilities		32 Trade		33 Finance, Insurance, and Real Estate		34 Services		35 Government Enterprises	
α_k	-0.179	(0.048)	0.452	(0.010)	-0.025	(0.095)	0.161	(1.047)	0.315	(0.004)	0.028	(0.021)	0.055	(0.046)
α_l	-0.130	(0.033)	0.247	(0.015)	0.005	(0.026)	0.043	(1.376)	0.366	(0.027)	0.230	(0.013)	0.211	(0.090)
α_e	-0.002	(0.005)	0.192	(0.025)	0.165	(0.252)	-0.016	(0.546)	0.016	(0.003)	0.008	(0.019)	-0.131	(0.040)
α_f	0.257	(14.165)	0.343	(1.267)	0.055	(1.223)	0.427	(161.302)	0.761	(1.400)	0.079	(1.351)	-0.038	(0.213)
β_{kk}	-0.378	(0.239)	0.173	(0.014)	0.062	(0.010)	-0.030	(0.489)	-0.071	(0.048)	0.069	(0.040)	0.100	(0.106)
β_{kl}	-0.324	(0.152)	-0.013	(0.016)	0.009	(0.013)	0.012	(0.356)	-0.034	(0.003)	-0.013	(0.004)	-0.059	(0.064)
β_{ke}	-0.022	(0.008)	-0.065	(0.012)	-0.085	(0.021)	0.011	(0.418)	-0.016	(0.000)	-0.005	(0.018)	0.006	(0.028)
β_{ll}	-0.343	(0.064)	-0.012	(0.001)	0.010	(0.007)	-0.049	(0.341)	-0.028	(0.021)	0.001	(0.043)	-0.030	(0.178)
β_{le}	-0.014	(0.013)	-0.006	(0.006)	-0.037	(0.005)	-0.006	(0.124)	-0.002	(0.001)	-0.002	(0.017)	-0.033	(0.093)
β_{ee}	0.000	(0.014)	0.093	(0.009)	0.149	(0.049)	0.016	(0.255)	0.004	(0.002)	0.008	(0.001)	0.020	(0.011)
χ_k	0.217	(0.508)	-0.001	(0.033)	0.313	(0.516)	-0.267	(2.279)	0.012	(0.002)	-0.001	(0.011)	0.007	(0.136)
χ_l	0.160	(0.245)	-0.026	(0.029)	0.061	(0.080)	0.093	(0.258)	-0.033	(0.037)	0.024	(0.010)	0.086	(0.127)
χ_e	0.014	(0.034)	-0.010	(0.008)	-0.043	(0.350)	0.007	(0.871)	-0.002	(0.001)	0.015	(0.004)	0.034	(0.013)
χ_p	-0.035	(0.022)	0.014	(0.195)	0.162	(0.566)	0.030	(5.609)	0.002	(0.015)	-0.014	(0.042)	0.047	(0.018)
δ_{kk}	0.673	(0.721)	0.932	(0.155)	0.094	(1.343)	0.101	(4.421)	0.895	(0.034)	0.918	(0.184)	0.819	(0.110)
δ_{kl}	-0.111	(0.174)	-0.003	(0.556)	-0.463	(0.904)	0.707	(0.263)	0.105	(0.003)	0.027	(0.046)	0.303	(0.158)
δ_{ke}	-0.441	(11.832)	0.054	(0.350)	-0.224	(0.428)	-0.894	(41.590)	-0.757	(0.694)	0.253	(0.020)	-0.075	(0.549)
δ_{kp}	-0.382	(0.534)	-0.048	(0.109)	0.055	(0.043)	-0.093	(0.936)	-0.148	(0.088)	0.059	(0.180)	-0.330	(0.338)
δ_{lk}	-0.196	(0.295)	0.269	(0.054)	0.014	(0.179)	0.170	(4.792)	0.297	(0.109)	0.054	(0.066)	0.341	(0.159)
δ_{ll}	0.861	(0.373)	0.339	(0.325)	-0.003	(0.007)	0.770	(2.577)	0.729	(0.314)	0.902	(0.058)	0.974	(0.392)
δ_{le}	-0.912	(26.400)	0.121	(0.036)	0.016	(0.040)	0.099	(27.805)	1.370	(0.697)	0.189	(0.006)	-0.822	(0.255)
δ_{lp}	-0.561	(0.505)	-0.038	(0.066)	-0.025	(0.032)	0.012	(1.748)	0.370	(0.186)	0.249	(0.021)	0.179	(0.660)
δ_{ek}	-0.022	(0.047)	0.150	(0.147)	0.147	(1.004)	-0.239	(4.459)	0.014	(0.004)	-0.077	(0.125)	0.096	(0.055)
δ_{el}	0.000	(0.007)	-0.251	(0.159)	0.430	(0.491)	0.041	(0.389)	-0.008	(0.011)	-0.020	(0.045)	0.127	(0.286)
δ_{ee}	0.705	(0.869)	0.941	(0.086)	0.970	(0.274)	0.371	(14.422)	0.997	(0.052)	0.727	(0.122)	0.603	(0.128)
δ_{ep}	-0.043	(0.067)	-0.049	(0.001)	-0.216	(0.047)	-0.009	(0.997)	-0.005	(0.010)	0.001	(0.101)	-0.009	(0.196)
δ_{pk}	0.080	(0.196)	-0.495	(0.416)	-0.394	(0.402)	0.209	(30.575)	-0.060	(0.062)	0.035	(0.892)	-0.161	(1.392)
δ_{pl}	-0.038	(0.557)	0.606	(3.830)	0.497	(5.752)	-0.141	(18.304)	0.056	(0.079)	0.027	(0.200)	-0.042	(0.567)
δ_{pe}	0.538	(14.212)	0.070	(0.765)	-0.236	(0.131)	0.545	(48.515)	0.115	(0.000)	0.119	(0.503)	-0.095	(2.221)
δ_{pp}	0.705	(0.429)	0.014	(0.205)	0.141	(0.972)	0.315	(0.817)	0.230	(0.106)	0.772	(0.689)	0.160	(1.927)

In Table S2 we present estimates of the parameters of the covariance matrices, defined as follows:

$$R = Var(w_t) = L_r L_r', L_r = \begin{bmatrix} r_{11} & 0 & 0 & 0 \\ r_{21} & r_{22} & 0 & 0 \\ r_{31} & r_{32} & r_{33} & 0 \\ r_{41} & r_{42} & r_{43} & r_{44} \end{bmatrix},$$

$$Q = Var(v_t) = L_q L_q', L_q = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & q_{11} & 0 & 0 & 0 & 0 \\ 0 & q_{21} & q_{22} & 0 & 0 & 0 \\ 0 & q_{31} & q_{32} & q_{33} & 0 & 0 \\ 0 & q_{41} & q_{42} & q_{43} & q_{44} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}.$$

The r's and q's are unknown parameters; the matrices R and Q are symmetric and positive semi-definite, as required for a covariance matrix.

In Table S2 we also present estimates of the mean and covariance matrix of the initial state of technology ξ_1, with f_{p0} normalized to constant 0. These are defined as follows:

$$\hat{\xi}_{1|0} = \begin{bmatrix} 1 \\ \hat{f}_{K1|0} \\ f_{L1|0} \\ \hat{f}_{E1|0} \\ \hat{f}_{p1|0} \\ 0 \end{bmatrix}; P_{1|0} = L_P L_P', L_P = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \hat{p}_{11} & 0 & 0 & 0 & 0 \\ 0 & \hat{p}_{21} & \hat{p}_{22} & 0 & 0 & 0 \\ 0 & \hat{p}_{31} & \hat{p}_{32} & \hat{p}_{33} & 0 & 0 \\ 0 & \hat{p}_{41} & \hat{p}_{42} & \hat{p}_{43} & \hat{p}_{44} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

.Table S2. Parameter Estimates

SECTOR	1 Agriculture		2 Metal Mining		3 Coal Mining		4 Petroleum and Gas		5 Nonmetallic Mining		6 Construction		7 Food Products	
$\hat{f}_{K1\|0}$	0.125	(0.211)	-0.001	(0.674)	0.064	(0.715)	0.360	(0.212)	0.306	(0.003)	0.130	(0.007)	0.115	(1.059)
$\hat{f}_{L1\|0}$	0.162	(1.045)	1.028	(2.279)	0.001	(0.485)	0.203	(0.098)	0.212	(0.011)	3.257	(2.986)	-0.050	(5.256)
$\hat{f}_{E1\|0}$	0.097	(0.757)	0.295	(0.712)	0.157	(0.044)	3.688	(0.848)	0.077	(0.044)	-0.525	(0.529)	-0.146	(12.653)
$\hat{f}_{p1\|0}$	0.253	(11.754)	-0.408	(0.971)	0.071	(1.552)	0.491	(0.032)	-0.072	(0.019)	-0.391	(3.234)	-0.062	(15.865)
r_{11}	-0.020	(0.000)	0.051	(0.000)	-0.025	(0.016)	-0.013	(0.003)	-0.016	(0.000)	0.006	(0.001)	0.001	(0.068)
r_{21}	0.009	(0.002)	0.003	(0.056)	0.031	(0.007)	0.006	(0.006)	0.012	(0.000)	-0.002	(0.004)	-0.003	(0.002)
r_{31}	0.001	(0.001)	-0.007	(0.013)	-0.005	(0.003)	0.002	(0.008)	0.001	(0.000)	0.000	(0.000)	0.000	(0.008)
r_{41}	0.001	(0.011)	-0.004	(0.021)	-0.023	(0.110)	0.004	(0.005)	0.026	(0.001)	0.002	(0.003)	-0.005	(0.117)
r_{22}	0.001	(0.001)	-0.024	(0.049)	0.000	(0.036)	-0.007	(0.001)	-0.015	(0.000)	-0.001	(0.006)	-0.003	(0.046)
r_{32}	0.000	(0.000)	0.004	(0.013)	0.002	(0.028)	0.006	(0.004)	0.004	(0.000)	0.000	(0.001)	0.000	(0.006)
r_{42}	0.009	(0.003)	-0.040	(0.023)	0.000	(0.166)	0.013	(0.014)	0.004	(0.001)	0.003	(0.003)	0.006	(0.283)
r_{33}	-0.001	(0.001)	-0.002	(0.009)	-0.002	(0.009)	0.000	(0.001)	0.002	(0.000)	0.000	(0.000)	0.000	(0.004)
r_{43}	0.013	(0.004)	-0.020	(0.018)	-0.028	(0.119)	-0.015	(0.005)	-0.028	(0.000)	0.003	(0.002)	-0.006	(0.180)
r_{44}	-0.019	(0.010)	0.012	(0.044)	0.007	(0.002)	0.004	(0.005)	0.000	(0.000)	0.002	(0.002)	0.003	(0.190)
q_{11}	0.003	(0.005)	0.003	(0.007)	-0.020	(0.008)	-0.015	(0.006)	0.005	(0.000)	0.004	(0.002)	0.009	(0.028)
q_{21}	0.001	(0.001)	0.050	(0.054)	0.005	(0.011)	0.005	(0.000)	0.005	(0.000)	0.007	(0.000)	0.001	(0.089)
q_{31}	0.002	(0.000)	0.005	(0.001)	0.008	(0.002)	0.012	(0.001)	-0.002	(0.001)	0.000	(0.001)	0.000	(0.011)
q_{41}	-0.014	(0.027)	0.014	(0.038)	-0.004	(0.181)	0.018	(0.007)	-0.006	(0.001)	0.000	(0.003)	0.004	(0.047)
q_{22}	0.012	(0.001)	0.043	(0.097)	0.005	(0.016)	0.013	(0.001)	0.011	(0.001)	0.005	(0.000)	0.003	(0.034)
q_{32}	-0.002	(0.000)	-0.008	(0.011)	-0.001	(0.002)	-0.010	(0.000)	-0.003	(0.001)	-0.001	(0.000)	0.001	(0.010)
q_{42}	-0.003	(0.001)	-0.029	(0.064)	0.039	(0.049)	-0.008	(0.012)	-0.006	(0.002)	-0.006	(0.008)	0.003	(0.143)
q_{33}	0.000	(0.001)	0.003	(0.025)	0.000	(0.002)	0.003	(0.004)	0.005	(0.000)	0.000	(0.001)	-0.001	(0.007)
q_{43}	0.021	(0.042)	0.016	(0.047)	0.008	(0.032)	-0.009	(0.015)	0.017	(0.001)	-0.005	(0.012)	0.005	(0.567)
q_{44}	0.005	(0.012)	0.001	(0.002)	0.024	(0.133)	-0.007	(0.012)	0.000	(0.000)	-0.015	(0.004)	0.008	(0.282)
$\hat{p}_{11}$	0.174	(0.007)	-0.529	(0.059)	0.025	(0.014)	-0.018	(0.005)	-0.001	(0.000)	-0.013	(0.000)	-0.003	(0.684)
$\hat{p}_{21}$	0.648	(0.006)	1.958	(0.028)	0.072	(0.005)	-0.036	(0.009)	-0.057	(0.000)	-0.610	(0.002)	-0.127	(0.659)
$\hat{p}_{31}$	-0.449	(0.005)	0.485	(0.071)	-0.083	(0.320)	6.544	(0.011)	0.001	(0.000)	0.360	(0.004)	-0.168	(10.188)
$\hat{p}_{41}$	-0.231	(0.002)	-1.185	(0.110)	1.100	(1.565)	0.175	(0.014)	0.206	(0.000)	-0.205	(0.006)	0.191	(5.826)
$\hat{p}_{22}$	-0.058	(0.006)	-0.025	(0.078)	-0.003	(0.016)	-0.118	(0.000)	-0.033	(0.000)	3.610	(0.002)	0.025	(2.713)
$\hat{p}_{32}$	0.037	(0.008)	-0.001	(0.041)	0.039	(0.134)	6.418	(0.003)	0.000	(0.000)	-0.363	(0.001)	-0.013	(0.605)
$\hat{p}_{42}$	0.335	(0.020)	0.000	(0.068)	4.966	(0.646)	-1.192	(0.001)	0.122	(0.000)	-0.636	(0.002)	0.434	(7.374)
$\hat{p}_{33}$	0.000	(0.005)	-0.066	(0.027)	0.077	(0.125)	8.040	(0.003)	0.000	(0.000)	-0.084	(0.002)	0.022	(0.888)
$\hat{p}_{43}$	0.550	(0.004)	-0.029	(0.022)	2.915	(0.394)	0.272	(0.002)	0.003	(0.000)	0.244	(0.003)	-0.194	(7.366)
$\hat{p}_{44}$	0.189	(0.006)	0.008	(0.010)	-0.405	(0.009)	-0.155	(0.012)	0.000	(0.000)	-0.012	(0.006)	-0.080	(5.884)

Table S2. Parameter Estimates (Continued)

SECTOR	8 Tobacco Products		9 Textile Mill Products		10 Apparel and Textiles		11 Lumber and Wood		12 Furniture and Fixtures		13 Paper Products		14 Printing and Publishing	
$\hat{f}_{K\|0}$	-1.419	(0.085)	-0.027	(0.003)	0.063	(0.010)	0.125	(0.020)	0.030	(0.011)	0.189	(0.007)	0.119	(0.118)
$\hat{f}_{L\|0}$	0.400	(0.524)	0.214	(0.000)	0.165	(0.018)	0.106	(0.075)	-0.025	(0.013)	-0.367	(0.042)	0.291	(0.002)
$\hat{f}_{E\|0}$	0.080	(0.038)	0.069	(0.009)	-0.013	(0.033)	0.026	(0.016)	0.038	(0.002)	-0.188	(0.009)	0.104	(0.003)
$\hat{f}_{p\|0}$	1.470	(1.767)	-1.165	(0.017)	0.590	(2.740)	0.043	(0.120)	1.467	(10.077)	-0.633	(0.141)	0.094	(0.763)
r_{11}	-0.017	(0.000)	-0.006	(0.000)	0.009	(0.001)	-0.011	(0.001)	0.004	(0.001)	-0.002	(0.000)	-0.008	(0.000)
r_{21}	0.008	(0.000)	0.008	(0.000)	-0.004	(0.003)	0.012	(0.001)	0.003	(0.001)	0.004	(0.000)	0.007	(0.000)
r_{31}	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	-0.001	(0.000)	0.000	(0.000)	0.000	(0.000)
r_{41}	0.018	(0.000)	0.003	(0.000)	0.000	(0.000)	0.006	(0.001)	0.017	(0.001)	0.006	(0.000)	0.007	(0.002)
r_{22}	0.003	(0.000)	-0.001	(0.000)	0.007	(0.008)	0.007	(0.001)	0.000	(0.000)	0.000	(0.000)	0.001	(0.001)
r_{32}	-0.001	(0.000)	0.000	(0.000)	0.000	(0.000)	-0.001	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
r_{42}	0.043	(0.000)	-0.012	(0.000)	0.006	(0.007)	0.010	(0.005)	-0.001	(0.004)	-0.018	(0.000)	0.005	(0.002)
r_{33}	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
r_{43}	-0.018	(0.000)	0.000	(0.000)	-0.001	(0.012)	0.000	(0.000)	-0.008	(0.004)	-0.004	(0.000)	0.005	(0.000)
r_{44}	0.002	(0.000)	0.000	(0.000)	0.000	(0.002)	0.000	(0.000)	0.000	(0.003)	-0.007	(0.001)	0.004	(0.009)
q_{11}	0.010	(0.000)	0.004	(0.006)	-0.001	(0.001)	0.002	(0.003)	-0.006	(0.001)	0.008	(0.000)	0.008	(0.004)
q_{21}	0.006	(0.000)	0.000	(0.007)	0.000	(0.017)	0.009	(0.003)	0.006	(0.000)	-0.010	(0.000)	-0.001	(0.005)
q_{31}	0.000	(0.000)	-0.001	(0.001)	0.000	(0.002)	-0.001	(0.002)	0.000	(0.000)	-0.001	(0.000)	0.000	(0.000)
q_{41}	-0.016	(0.008)	-0.005	(0.007)	-0.006	(0.003)	-0.021	(0.004)	0.012	(0.002)	0.000	(0.001)	-0.011	(0.004)
q_{22}	0.010	(0.001)	0.005	(0.000)	-0.008	(0.014)	-0.001	(0.014)	0.006	(0.001)	0.007	(0.000)	0.004	(0.002)
q_{32}	0.000	(0.000)	0.001	(0.001)	-0.001	(0.001)	0.001	(0.002)	0.000	(0.000)	-0.001	(0.000)	0.000	(0.000)
q_{42}	-0.010	(0.002)	-0.001	(0.002)	0.009	(0.031)	0.000	(0.043)	0.001	(0.003)	-0.012	(0.000)	0.001	(0.006)
q_{33}	0.000	(0.000)	-0.001	(0.000)	0.000	(0.001)	-0.001	(0.003)	0.001	(0.000)	0.001	(0.000)	0.000	(0.000)
q_{43}	0.006	(0.001)	0.001	(0.001)	-0.004	(0.025)	-0.001	(0.004)	0.008	(0.004)	0.009	(0.000)	0.007	(0.005)
q_{44}	0.023	(0.005)	0.000	(0.000)	-0.004	(0.006)	0.002	(0.003)	-0.005	(0.004)	0.000	(0.000)	0.009	(0.005)
$\hat{p}_{11}$	-3.809	(0.000)	0.000	(0.000)	0.037	(0.021)	0.005	(0.000)	-0.001	(0.003)	0.009	(0.000)	-0.016	(0.004)
$\hat{p}_{21}$	1.681	(0.000)	0.000	(0.000)	-0.255	(0.019)	-0.005	(0.000)	0.001	(0.001)	-0.732	(0.000)	0.363	(0.011)
$\hat{p}_{31}$	0.005	(0.000)	0.000	(0.000)	0.100	(0.008)	0.000	(0.000)	-0.013	(0.000)	-0.255	(0.000)	0.054	(0.001)
$\hat{p}_{41}$	-1.147	(0.000)	3.255	(0.000)	-1.767	(0.012)	-0.002	(0.001)	-0.580	(0.001)	-1.087	(0.000)	0.203	(0.033)
$\hat{p}_{22}$	0.224	(0.000)	0.000	(0.000)	0.084	(0.002)	0.002	(0.000)	-0.116	(0.001)	-0.008	(0.000)	-0.164	(0.016)
$\hat{p}_{32}$	-0.052	(0.000)	0.000	(0.000)	-0.033	(0.009)	0.000	(0.000)	0.021	(0.000)	-0.003	(0.000)	-0.025	(0.002)
$\hat{p}_{42}$	-2.122	(0.000)	0.366	(0.000)	1.786	(0.009)	0.004	(0.002)	2.555	(0.002)	-0.225	(0.000)	-0.124	(0.003)
$\hat{p}_{33}$	0.000	(0.000)	0.000	(0.000)	-0.001	(0.016)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.002	(0.001)
$\hat{p}_{43}$	0.485	(0.000)	-0.049	(0.000)	0.448	(0.007)	0.000	(0.000)	0.015	(0.001)	0.047	(0.000)	0.174	(0.006)
$\hat{p}_{44}$	-0.318	(0.000)	-0.812	(0.000)	-0.938	(0.010)	0.000	(0.000)	0.001	(0.002)	-0.273	(0.001)	0.095	(0.008)

Table S2. Parameter Estimates (Continued)

SECTOR	15 Chemical Products		16 Petroleum Refining		17 Rubber and Plastic		18 Leather Products		19 Stone, Clay, and Glass		20 Primary Metals		21 Fabricated Metals	
$\hat{f}_{K1\|0}$	-0.030	(0.066)	0.350	(0.229)	0.121	(0.023)	0.279	(0.224)	0.158	(0.004)	0.084	(0.006)	0.111	(0.024)
$\hat{f}_{L1\|0}$	-0.046	(0.179)	-0.155	(0.123)	0.127	(0.485)	0.910	(0.093)	0.197	(0.004)	0.302	(0.015)	0.282	(0.078)
$\hat{f}_{E1\|0}$	-0.004	(0.001)	0.147	(0.253)	0.082	(0.172)	0.061	(0.317)	-0.855	(1.591)	0.012	(0.001)	0.024	(0.055)
$\hat{f}_{p1\|0}$	0.121	(4.310)	0.160	(18.521)	0.212	(0.427)	-0.383	(0.736)	-0.460	(1.023)	-0.004	(0.043)	0.745	(0.665)
r_{11}	-0.010	(0.008)	-0.015	(0.018)	-0.003	(0.004)	-0.014	(0.003)	0.007	(0.001)	0.010	(0.000)	-0.003	(0.000)
r_{21}	0.000	(0.004)	-0.001	(0.015)	0.004	(0.002)	-0.004	(0.001)	-0.008	(0.001)	-0.016	(0.000)	-0.007	(0.000)
r_{31}	0.002	(0.001)	0.010	(0.016)	0.000	(0.000)	0.000	(0.000)	0.001	(0.001)	0.001	(0.000)	-0.001	(0.000)
r_{41}	-0.032	(0.022)	0.071	(0.008)	0.004	(0.010)	-0.010	(0.003)	-0.007	(0.003)	-0.016	(0.004)	-0.012	(0.000)
r_{22}	0.000	(0.002)	-0.002	(0.005)	-0.001	(0.012)	-0.012	(0.001)	0.008	(0.000)	0.000	(0.000)	0.000	(0.000)
r_{32}	0.000	(0.001)	0.005	(0.044)	0.000	(0.000)	0.000	(0.000)	-0.001	(0.002)	0.000	(0.000)	0.000	(0.000)
r_{42}	0.000	(0.000)	0.008	(0.094)	-0.004	(0.036)	0.004	(0.003)	0.006	(0.003)	-0.018	(0.002)	-0.001	(0.000)
r_{33}	0.000	(0.000)	-0.007	(0.003)	0.000	(0.000)	0.000	(0.000)	-0.001	(0.001)	0.000	(0.000)	0.000	(0.000)
r_{43}	0.001	(0.004)	-0.021	(0.005)	-0.001	(0.004)	0.003	(0.001)	0.005	(0.009)	-0.005	(0.027)	0.001	(0.000)
r_{44}	0.003	(0.017)	-0.003	(0.001)	0.002	(0.003)	-0.001	(0.000)	0.001	(0.000)	-0.012	(0.020)	0.000	(0.000)
q_{11}	-0.009	(0.001)	0.013	(0.003)	0.009	(0.007)	0.006	(0.000)	-0.009	(0.002)	0.013	(0.001)	0.007	(0.000)
q_{21}	0.008	(0.003)	-0.001	(0.007)	-0.007	(0.006)	-0.002	(0.006)	0.010	(0.006)	-0.004	(0.001)	-0.006	(0.000)
q_{31}	0.000	(0.002)	-0.008	(0.013)	0.000	(0.000)	0.001	(0.000)	0.001	(0.003)	-0.001	(0.000)	0.000	(0.000)
q_{41}	0.001	(0.011)	0.006	(0.024)	-0.007	(0.015)	0.000	(0.005)	-0.003	(0.002)	0.002	(0.007)	-0.015	(0.002)
q_{22}	0.008	(0.001)	0.010	(0.000)	0.007	(0.002)	0.004	(0.005)	0.000	(0.002)	0.009	(0.001)	-0.003	(0.001)
q_{32}	0.000	(0.001)	-0.014	(0.004)	0.000	(0.002)	0.000	(0.001)	0.000	(0.003)	0.000	(0.001)	0.001	(0.000)
q_{42}	-0.002	(0.010)	-0.029	(0.054)	0.005	(0.007)	-0.007	(0.002)	-0.011	(0.006)	-0.002	(0.001)	0.004	(0.001)
q_{33}	0.003	(0.002)	0.002	(0.088)	-0.001	(0.000)	0.000	(0.000)	-0.002	(0.000)	0.003	(0.000)	0.000	(0.000)
q_{43}	0.009	(0.010)	-0.001	(0.053)	0.000	(0.013)	-0.011	(0.010)	-0.011	(0.002)	-0.005	(0.003)	0.015	(0.006)
q_{44}	0.001	(0.000)	0.010	(0.062)	-0.017	(0.005)	0.025	(0.005)	-0.003	(0.002)	0.000	(0.002)	0.010	(0.008)
$\hat{p}_{11}$	0.000	(0.064)	0.003	(0.006)	0.105	(0.056)	0.356	(0.002)	0.530	(0.001)	-0.004	(0.000)	0.007	(0.000)
$\hat{p}_{21}$	0.000	(0.000)	-0.008	(0.009)	0.155	(0.024)	0.747	(0.000)	-0.356	(0.001)	0.007	(0.000)	0.014	(0.000)
$\hat{p}_{31}$	0.002	(0.010)	-0.051	(0.104)	0.170	(0.092)	-0.034	(0.002)	-0.569	(0.001)	0.000	(0.000)	0.018	(0.000)
$\hat{p}_{41}$	0.121	(0.312)	-0.070	(0.038)	-0.217	(0.033)	-0.700	(0.001)	-0.710	(0.001)	-0.002	(0.000)	1.291	(0.000)
$\hat{p}_{22}$	-0.002	(0.002)	0.007	(0.027)	0.192	(0.072)	0.625	(0.002)	0.000	(0.001)	0.000	(0.000)	0.000	(0.000)
$\hat{p}_{32}$	-0.002	(0.003)	0.044	(0.089)	-0.034	(0.113)	0.463	(0.003)	-0.560	(0.002)	0.000	(0.000)	0.000	(0.000)
$\hat{p}_{42}$	-0.104	(0.169)	0.049	(0.072)	-1.015	(0.176)	1.577	(0.001)	-0.440	(0.000)	0.003	(0.002)	-0.359	(0.000)
$\hat{p}_{33}$	0.000	(0.000)	-0.087	(0.014)	-0.007	(0.036)	0.001	(0.002)	-0.628	(0.005)	0.000	(0.000)	0.000	(0.000)
$\hat{p}_{43}$	-0.002	(0.054)	0.099	(0.205)	-0.474	(0.021)	0.003	(0.001)	-0.494	(0.005)	0.000	(0.003)	-2.610	(0.000)
$\hat{p}_{44}$	0.004	(0.007)	0.015	(0.061)	-0.835	(0.014)	0.014	(0.002)	-0.004	(0.002)	0.001	(0.025)	0.908	(0.000)

Table S2. Parameter Estimates (Continued)

SECTOR	22 Industrial Machinery and Equipment		23 Electronic and Electric Equipment		24 Motor Vehicles		25 Other Transportation Equipment		26 Instruments		27 Miscellaneous Manufacturing		28 Transport and Warehouse	
$\hat{f}_{K1\|0}$	-0.019	(0.068)	0.481	(2.593)	0.013	(0.102)	0.054	(0.067)	-0.084	(0.097)	-0.024	(0.062)	0.141	(0.007)
$\hat{f}_{L1\|0}$	0.131	(3.107)	0.197	(0.578)	-0.005	(0.003)	-0.033	(0.019)	0.193	(0.381)	0.209	(0.298)	0.572	(0.194)
$\hat{f}_{E1\|0}$	-0.025	(1.134)	-0.026	(0.599)	1.012	(0.409)	-0.184	(0.022)	-0.249	(0.527)	-0.015	(0.003)	0.092	(0.059)
$\hat{f}_{p1\|0}$	1.062	(2.554)	0.686	(2.133)	-0.460	(0.676)	0.186	(0.240)	-0.123	(7.366)	-0.659	(2.271)	0.230	(0.506)
r_{11}	-0.008	(0.015)	0.032	(0.001)	-0.027	(0.001)	0.000	(0.000)	-0.006	(0.015)	-0.011	(0.007)	-0.007	(0.013)
r_{21}	0.011	(0.004)	-0.025	(0.000)	0.008	(0.001)	-0.010	(0.000)	-0.002	(0.011)	0.011	(0.009)	0.007	(0.007)
r_{31}	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.001	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.004)
r_{41}	0.002	(0.020)	0.006	(0.011)	-0.022	(0.000)	-0.008	(0.013)	-0.016	(0.030)	-0.003	(0.009)	0.006	(0.003)
r_{22}	-0.005	(0.013)	-0.007	(0.001)	0.007	(0.000)	-0.006	(0.002)	0.000	(0.003)	-0.003	(0.013)	-0.002	(0.002)
r_{32}	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.001	(0.000)	0.000	(0.001)	0.000	(0.000)	0.002	(0.002)
r_{42}	-0.007	(0.004)	-0.006	(0.004)	0.010	(0.001)	0.011	(0.006)	0.000	(0.008)	0.003	(0.029)	-0.003	(0.002)
r_{33}	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.001)	0.000	(0.002)	0.000	(0.001)
r_{43}	-0.002	(0.019)	-0.004	(0.010)	0.005	(0.000)	0.009	(0.001)	-0.008	(0.040)	-0.016	(0.042)	-0.001	(0.001)
r_{44}	-0.001	(0.030)	0.000	(0.008)	0.004	(0.001)	-0.007	(0.008)	0.003	(0.002)	0.007	(0.046)	-0.001	(0.000)
q_{11}	-0.006	(0.017)	0.000	(0.003)	0.005	(0.002)	-0.010	(0.000)	0.010	(0.008)	0.003	(0.007)	0.014	(0.006)
q_{21}	-0.002	(0.029)	0.000	(0.002)	-0.005	(0.003)	0.002	(0.002)	-0.014	(0.008)	0.007	(0.022)	-0.005	(0.010)
q_{31}	0.000	(0.001)	0.000	(0.001)	0.000	(0.000)	0.001	(0.000)	0.000	(0.000)	0.000	(0.002)	-0.005	(0.003)
q_{41}	-0.007	(0.007)	0.006	(0.033)	-0.013	(0.003)	-0.003	(0.008)	-0.002	(0.008)	-0.009	(0.003)	-0.002	(0.010)
q_{22}	0.002	(0.004)	-0.005	(0.002)	0.009	(0.002)	-0.009	(0.002)	0.006	(0.001)	0.002	(0.014)	0.005	(0.006)
q_{32}	0.000	(0.001)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.001	(0.004)	-0.006	(0.002)
q_{42}	0.006	(0.013)	-0.010	(0.008)	0.010	(0.019)	-0.007	(0.016)	0.001	(0.023)	0.022	(0.049)	-0.003	(0.002)
q_{33}	0.000	(0.000)	0.000	(0.000)	-0.001	(0.000)	0.000	(0.000)	0.000	(0.000)	-0.001	(0.001)	0.007	(0.001)
q_{43}	0.008	(0.008)	-0.005	(0.001)	-0.004	(0.000)	-0.014	(0.005)	0.018	(0.040)	-0.005	(0.004)	0.001	(0.006)
q_{44}	0.023	(0.015)	0.021	(0.020)	0.002	(0.004)	0.004	(0.014)	0.034	(0.039)	0.003	(0.197)	0.015	(0.008)
$\hat{p}_{11}$	0.030	(0.014)	-1.070	(0.001)	-0.002	(0.002)	0.000	(0.000)	0.148	(0.035)	0.029	(0.015)	0.028	(0.016)
$\hat{p}_{21}$	-0.946	(0.045)	0.149	(0.006)	-0.157	(0.001)	0.571	(0.013)	-0.407	(0.086)	0.061	(0.377)	-0.251	(0.020)
$\hat{p}_{31}$	0.251	(0.032)	-0.611	(0.003)	1.017	(0.000)	0.564	(0.012)	0.010	(0.265)	-0.017	(0.036)	-0.079	(0.007)
$\hat{p}_{41}$	1.237	(0.007)	-0.709	(0.022)	-0.646	(0.001)	-0.073	(0.019)	1.472	(0.389)	-0.196	(2.873)	0.755	(0.009)
$\hat{p}_{22}$	0.033	(0.072)	-0.085	(0.001)	-0.198	(0.000)	-0.130	(0.010)	-0.009	(0.018)	0.164	(0.039)	-0.014	(0.002)
$\hat{p}_{32}$	-0.008	(0.030)	0.366	(0.001)	1.802	(0.001)	-0.167	(0.006)	-0.154	(0.512)	-0.014	(0.012)	-0.007	(0.002)
$\hat{p}_{42}$	-0.077	(0.036)	-0.348	(0.007)	-1.477	(0.001)	0.051	(0.011)	-0.027	(0.096)	-0.777	(0.566)	0.064	(0.003)
$\hat{p}_{33}$	0.107	(0.036)	-1.755	(0.006)	0.408	(0.002)	-0.224	(0.027)	-0.072	(0.061)	0.006	(0.003)	-0.001	(0.000)
$\hat{p}_{43}$	-2.152	(0.064)	0.218	(0.006)	-0.496	(0.000)	1.182	(0.012)	-0.510	(0.617)	-0.548	(0.514)	0.009	(0.005)
$\hat{p}_{44}$	0.156	(0.042)	0.005	(0.009)	-0.005	(0.000)	-0.475	(0.004)	-1.097	(0.188)	-0.423	(2.681)	0.005	(0.008)

Table S2. Parameter Estimates (Concluded)

SECTOR	29 Communications		30 Electric Utilities		31 Gas Utilities		32 Trade		33 Finance, Insurance, and Real Estate		34 Services		35 Government Enterprises	
$\hat{f}_{K1\|0}$	0.454	(0.168)	-0.014	(0.148)	0.170	(0.025)	0.045	(0.095)	0.713	(0.227)	0.129	(0.066)	0.066	(0.108)
$f_{L1\|0}$	0.395	(0.029)	-0.030	(0.001)	0.086	(0.010)	0.457	(2.045)	0.627	(0.432)	5.321	(0.064)	0.136	(0.189)
$f_{E1\|0}$	0.014	(0.025)	-0.100	(0.691)	0.512	(0.020)	0.009	(0.137)	0.039	(0.023)	0.597	(0.004)	0.110	(0.043)
$f_{p1\|0}$	0.089	(13.534)	0.177	(4.683)	-0.010	(1.645)	0.254	(162.603)	1.147	(2.228)	-0.354	(1.517)	-0.083	(0.797)
r_{11}	0.010	(0.051)	-0.011	(0.000)	-0.024	(0.000)	0.013	(0.015)	0.025	(0.002)	-0.007	(0.001)	-0.035	(0.005)
r_{21}	0.013	(0.034)	0.005	(0.001)	-0.007	(0.000)	-0.011	(0.007)	-0.023	(0.002)	0.004	(0.002)	0.017	(0.004)
r_{31}	0.001	(0.003)	0.005	(0.001)	0.041	(0.000)	0.001	(0.009)	0.001	(0.000)	0.000	(0.000)	0.004	(0.002)
r_{41}	-0.003	(0.004)	-0.008	(0.003)	0.035	(0.014)	-0.003	(0.057)	-0.006	(0.002)	0.006	(0.002)	-0.021	(0.046)
r_{22}	-0.003	(0.008)	-0.004	(0.003)	0.003	(0.000)	0.000	(0.002)	-0.001	(0.000)	0.003	(0.002)	-0.004	(0.000)
r_{32}	0.000	(0.001)	0.003	(0.002)	-0.004	(0.001)	0.000	(0.005)	0.000	(0.000)	-0.001	(0.001)	0.002	(0.006)
r_{42}	-0.009	(0.001)	0.008	(0.000)	0.025	(0.028)	0.002	(0.036)	-0.007	(0.001)	0.003	(0.002)	0.006	(0.025)
r_{33}	0.000	(0.000)	0.001	(0.000)	0.001	(0.001)	0.000	(0.003)	0.000	(0.000)	0.000	(0.001)	0.000	(0.000)
r_{43}	-0.003	(0.007)	0.005	(0.002)	0.028	(0.003)	-0.001	(0.115)	0.003	(0.002)	-0.004	(0.001)	-0.001	(0.037)
r_{44}	0.000	(0.003)	0.001	(0.002)	-0.010	(0.029)	-0.004	(0.155)	0.002	(0.004)	-0.003	(0.001)	-0.004	(0.095)
q_{11}	0.038	(0.002)	-0.008	(0.001)	-0.002	(0.001)	-0.003	(0.037)	0.004	(0.002)	-0.002	(0.002)	0.014	(0.030)
q_{21}	0.028	(0.011)	-0.001	(0.002)	-0.002	(0.001)	0.002	(0.029)	-0.001	(0.004)	-0.001	(0.007)	-0.008	(0.020)
q_{31}	0.002	(0.000)	0.008	(0.003)	0.004	(0.002)	0.001	(0.009)	0.000	(0.000)	0.000	(0.002)	0.001	(0.001)
q_{41}	-0.009	(0.050)	-0.016	(0.005)	0.027	(0.013)	0.005	(0.086)	-0.001	(0.012)	-0.003	(0.001)	-0.012	(0.047)
q_{22}	0.013	(0.015)	0.003	(0.001)	0.000	(0.001)	0.003	(0.010)	-0.006	(0.002)	-0.006	(0.005)	-0.001	(0.001)
q_{32}	0.000	(0.001)	-0.003	(0.001)	0.005	(0.004)	0.000	(0.008)	0.000	(0.000)	0.000	(0.001)	-0.001	(0.001)
q_{42}	0.001	(0.002)	-0.005	(0.012)	-0.014	(0.003)	-0.003	(0.032)	-0.002	(0.002)	0.004	(0.010)	0.015	(0.111)
q_{33}	0.000	(0.000)	-0.003	(0.002)	0.001	(0.000)	0.000	(0.015)	0.000	(0.000)	-0.001	(0.000)	-0.003	(0.005)
q_{43}	-0.002	(0.007)	-0.019	(0.006)	-0.001	(0.002)	-0.008	(0.020)	0.000	(0.002)	-0.006	(0.003)	-0.005	(0.116)
q_{44}	-0.018	(0.016)	-0.008	(0.001)	0.001	(0.001)	0.003	(0.121)	0.012	(0.002)	0.002	(0.001)	-0.023	(0.216)
$\hat{p}_{11}$	-0.067	(0.088)	-0.100	(0.001)	0.116	(0.045)	0.005	(0.015)	1.349	(0.003)	0.090	(0.007)	-0.021	(0.116)
$\hat{p}_{21}$	-0.059	(0.057)	-0.029	(0.003)	-0.048	(0.052)	-0.007	(0.004)	1.661	(0.007)	0.372	(0.002)	0.066	(0.153)
$\hat{p}_{31}$	0.010	(0.004)	-0.637	(0.003)	-0.560	(0.185)	-0.006	(0.016)	0.091	(0.005)	0.057	(0.000)	-0.005	(0.017)
$\hat{p}_{41}$	0.270	(1.310)	3.137	(0.004)	0.133	(0.098)	0.079	(0.484)	3.719	(0.002)	-0.367	(0.004)	-0.001	(0.365)
$\hat{p}_{22}$	-0.010	(0.038)	0.001	(0.001)	-0.002	(0.011)	-0.004	(0.024)	-0.426	(0.009)	3.850	(0.003)	-0.094	(0.094)
$\hat{p}_{32}$	0.008	(0.004)	-0.022	(0.000)	-0.004	(0.049)	-0.024	(0.040)	-0.017	(0.002)	0.440	(0.001)	0.010	(0.038)
$\hat{p}_{42}$	0.263	(1.249)	0.087	(0.004)	-0.357	(0.267)	0.136	(0.567)	-0.904	(0.004)	-0.528	(0.004)	0.058	(1.121)
$\hat{p}_{33}$	0.003	(0.007)	-0.047	(0.000)	0.011	(0.096)	0.001	(0.013)	0.006	(0.004)	0.001	(0.000)	0.003	(0.003)
$\hat{p}_{43}$	0.344	(0.806)	0.273	(0.000)	-0.432	(0.110)	-0.008	(0.152)	-0.486	(0.001)	-0.058	(0.001)	0.084	(0.048)
$\hat{p}_{44}$	-0.339	(0.336)	-0.007	(0.002)	0.641	(0.177)	0.000	(0.005)	0.445	(0.003)	0.255	(0.002)	0.044	(0.026)