A North-South Model of Structural Change and Growth Online Appendix

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Appendix A. Data

Using data from PWT 9.1, we aggregate real GDP in PPP constant dollars , GDP in nominal dollars, population, and total investment in nominal dollars, into blocks A and B, as the sum of the country level values n in block i and year t.[1] Using these values, we compute real GDP in PPP per capita and the investment ratio, per block as the ratio of the aggregated GDP PPP to population, and total investment to GDP in nominal US, correspondingly.[2]

Using data from WDI, we aggregate sectoral shares as the average sectoral share per year within a block. The reason to use a different aggregation method is because before 1980, there are substantial missing values in the cross-section, and the first method would result in an under estimation. Table A.1 shows the summary statistics for the main variables of our analysis.

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[1]Block level variables are defined as $X_{i,t} = \sum_{n=1}^{N} x_{i,n,t}$

[2]Block level ratios are defined $\frac{X_{i,t}}{Y_{i,t}} = \frac{\sum_{n=1}^{N} x_{i,n,t}}{\sum_{n=1}^{N} y_{i,n,t}}$

Table A.1: Summary Statistics

	Mean	**Std. Dev**	**Min**	**Max**	**T**
GDP PC in PPP	28400.01	10881.53	11452.16	47523.39	58
Investment to GDP	24.09	1.99	19.54	27.81	58
Agriculture to GDP	4.37	2.36	1.65	10.55	58
Manufacturing to GDP	27.26	2.73	22.25	30.70	58
Services-GDP to GDP	59.90	4.53	53.72	66.64	48

Note: Summary Statistics of the main variables of analysis. Data Source: PWT 9.1 and WDI.

Appendix B. Trade by sector

Figure B.1: All Countries in Blocks A and B

(a) Exports **(b)** Imports

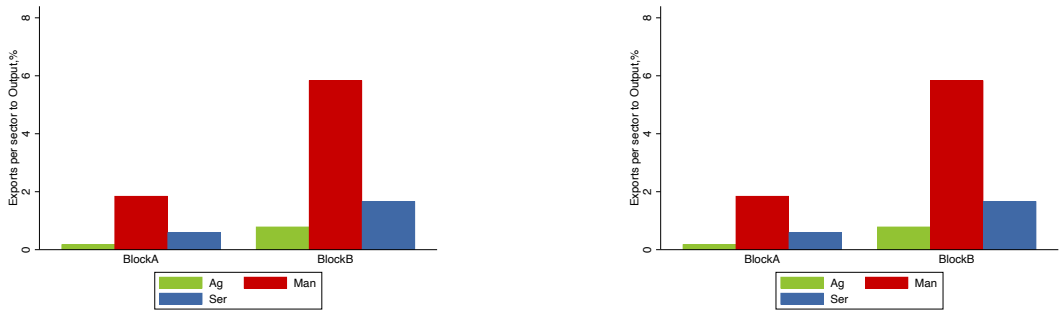
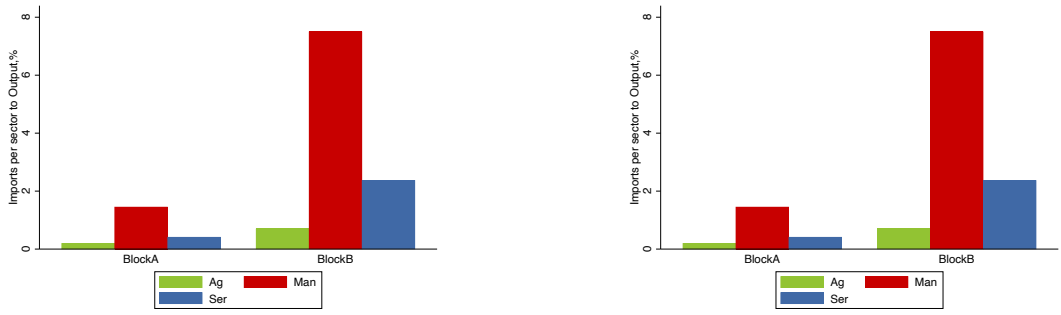


Figure B.2: Excluding Mexico

(a) Exports **(b)** Imports



Note: We use data from the WIOD input output tables from 2000-2014. Agriculture corresponds to ISIC divisions 1-5. Manufacturing corresponds to ISIC divisions 10-45. Services correspond to ISIC divisions 50-99. Each bar in Panels A and C represents the average exports per sector to total output in Blocks A and B between 2000-2014. Each bar in Panels B and S represents the average exports per sector to total output in Blocks A and B between 2000-2014.

Appendix C. Calibration

Appendix C.1. Labor Shares

Table C.2: Summary Statistics: Capital Shares per Country of Block A over years 2000-2014

	Agriculture, θ	**Manufacturing,** γ	**Services,** φ
AUS	0.7	0.3	0.4
AUT	0.1	0.4	0.4
BEL	0.5	0.4	0.4
CAN	0.8	0.4	0.4
CHE	0.3	0.4	0.4
DEU	0.2	0.3	0.4
DNK	0.7	0.3	0.3
FIN	0.3	0.4	0.4
FRA	0.4	0.3	0.4
GBR	0.7	0.2	0.3
ITA	0.5	0.3	0.5
JPN	0.5	0.3	0.4
LUX	0.2	0.3	0.5
NLD	0.8	0.4	0.4
NOR	0.9	0.3	0.4
SWE	0.4	0.5	0.4
USA	0.7	0.4	0.4

Appendix C.2. TFP Growth

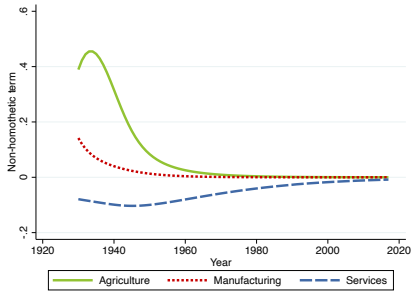
Table C.3: Summary Statistics: TFP Growth Rates per Country of Block A over years 2000-2014

	Agriculture, θ	**Manufacturing,** γ	**Services,** φ
AUS	0.97	1.03	1.01
AUT	0.93	1.00	1.01
BEL	1.04	1.02	1.02
CAN	1.00	1.05	0.99
CHE	0.98	1.00	0.99
DEU	0.98	0.99	1.00
DNK	1.02	1.01	1.02
FIN	0.96	1.07	1.02
FRA	1.07	1.04	1.02
GBR	1.06	1.05	1.00
ITA	1.00	1.04	1.00
JPN	1.10	1.02	0.96
LUX	0.99	1.05	1.03
NLD	0.98	1.00	1.01
NOR	1.02	1.02	1.02
SWE	0.98	1.05	1.02
USA	0.96	0.96	1.00

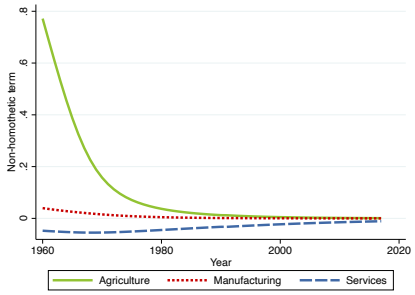
Appendix C.3. Simulated path of the time-varying term in preferences

Figure C.3: The simulated paths of the time-varying term for both Blocks A and B

(a) Block A



(b) Block B

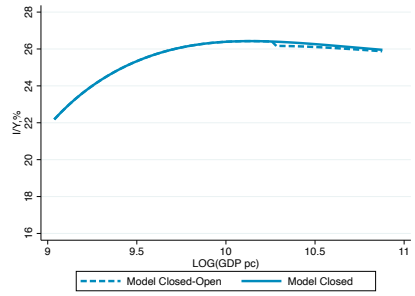


Note: Each line represents the simulated path of the time-varying term implied by the model. Recall that the time-varying term is equal to $\frac{\tilde{epsilon}^i_{jt}}{g^i_{jt}} C^i_{jt}$, where $\tilde{epsilon}^i_{jt} = \rho_j \tilde{epsilon}^i_{jt-1}$

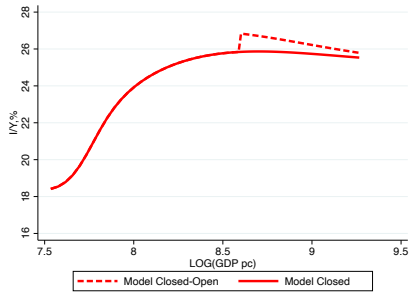
Appendix D. Comparing the Model to the Data

Figure D.4: The simulated paths of the investment rate relative to real per capita GDP for both Blocks A and B, 1960-2067

(a) Block A

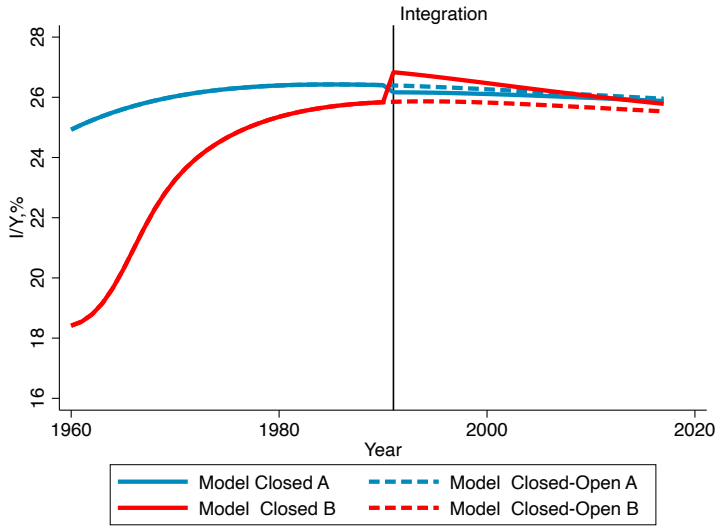


(b) Block B



Note: Each dot corresponds to an observation in Block j in year t. Data Source: PWT9.1. The solid line corresponds to the simulated results of the closed economy, and the dashed line corresponds to the open economy opening in 1991.

Figure D.5: The simulated paths of the investment rate relative to time for both Blocks A and B,1960-2067



Note: Each dot corresponds to an observation in Block j in year t. Data Source: PWT9.1. The solid line corresponds to the simulated results of the closed economy, and the dashed line corresponds to the open economy opening in 1991.

Figure D.6a: Determinants of the structural transformation process: Block A

(a) Baseline **(b)** Growth rates **(c)** Labor shares **(d)** Efficiency **(e)** Preferences

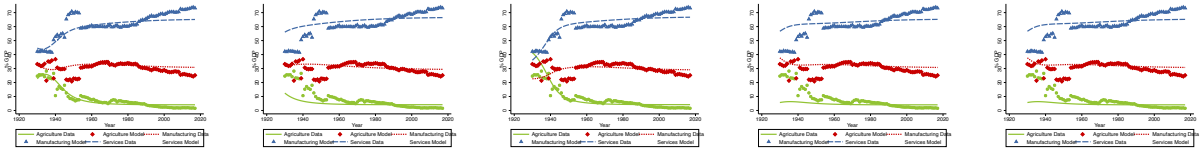
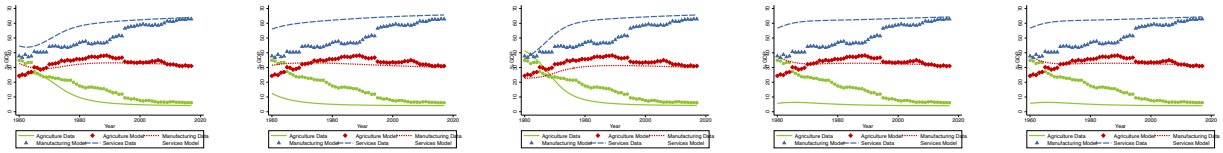


Figure D.6b: Determinants of the structural transformation process: Block B

(a) Baseline **(b)** Growth rates **(c)** Labor shares **(d)** Efficiency **(e)** Preferences



Note: Panel (a) compares the simulated path of the investment share to GDP versus of the baseline model. Panel (b) uses the same growth rate across sectors and regions. We set $\lambda = \mu = \nu = 1.01$. Panel (c) the same labor share across sectors and regions $\theta = \gamma = \varphi = 0.38$. Panel (d) uses the same efficiency parameters across sectors by region: $A^A = B^A = C^A = 0.48$, and $A^B = B^B = C^B = 0.24$. Panel (d) uses Cobb-Douglas preferences. We set $\tilde{\epsilon}^i_{j,0} = 0$ and $\rho_j = 0$.