Gender Barriers, Structural Transformation and Economic Development

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ABCDE
June 2023

Motivation

- Extensive literature studies the causes of structural transformation and consequences for economic development
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- However, the gender aspect of structural transformation remains understudied
- From the gender perspective, substantial changes across the world over the last 50 years:
  - higher FLFP, closing wage gaps b/w men and women
  - lower gender education gaps, esp. after 1990s Figure
    (Evans, Akmal and Jakiela, 2021)
  - measurable changes in gendered laws at the workplace, mobility for women, HH norms WBL Data, World Bank

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- Substantial gender barriers continue to persist, despite economic development $\rightarrow$ extensive applied micro literature documenting its causes and consequences

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  - inefficient talent allocation across sectors $\rightarrow$ loss in aggregate productivity/output (Chiplunkar and Goldberg, 2022; Hsieh, Hurst, Jones and Klenow, 2019; Cuberes and Teignier, 2014, 2016)

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Q2. How important are gender barriers for countries' structural transformation and economic development?

What we do:

i) Estimate a G.E. model of occupation-sector choice
- decompose diff./changes $\rightarrow$ economic & non-economic channels

ii) How much do these gender barriers matter?
- quantify growth b/w 1970-2015 coming from gender barriers

Data

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  - Nationally representative (census, labor force surveys)
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- Core Sample: 6 countries (34 country-years)

  Global Coverage | Countries
  - India, Indonesia, Brazil, Mexico, Canada, and USA
  - Data on hourly wages, sectoral value-added, etc. available
  - Long decadal panels for each country b/w 1970-75 to 2015-18 at the sector-occupation-gender level.

Classification of Sectors

Sector	IPUMS Sector Classifications
Agriculture	Agriculture, Fishing and Forestry
Manufacturing	Mining, Construction, Electricity, Gas, Water
Market Services	Retail, Wholesale, Transport, Hotels, Education, Health
Home Services	Household Services, Unemployed, Inactive

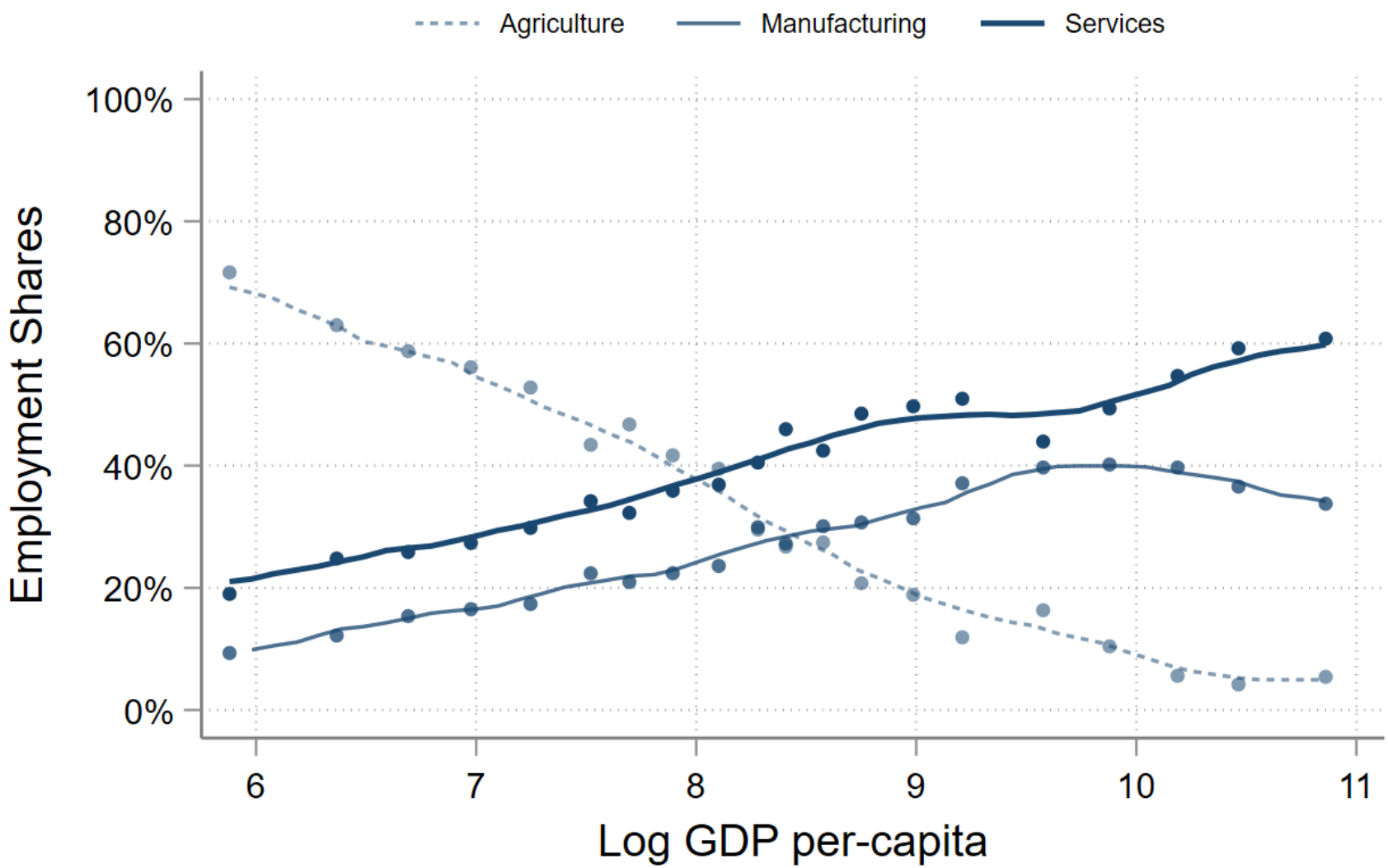
Similar to Herrendorf et al. (2013); Herrendorf and Schoellman (2018)

Classification of Occupations

Code	Occupation	Classification	Sector	Details
1	Officials and Managers	Professional	M, S	Senior Officials,
2	Professionals	Professional	M, S	General and Technical
3	Technicians	Professional	M, S	Managers
4	Clerks	Clerks	M, S	Secretaries, Librarians, Cashiers
5	Service Workers and Shop and Market Sales	Services Workers	M, S	Travel, Housekeeping, Personal-care Workers, Shop and Market Sales and Service Workers
6	Skilled Agricultural and Fishery Workers	Skilled Agri.	A	Farmers, Animal Producers, Forestry and Fishery Workers
7	Crafts and Related Trades Workers	Craft/Trade Wrkrs	M, S	Builders, Painters, Blacksmiths, Electricians, Potters, Printers, Textile, Leather Workers
8	Plant and Machine Operators	Plant & Machine	M, S	Plant and Machine Operators in Mining, Metal, Glass, Wood, Chemical, Rubber, Transportation
9	Elementary Occupations	Elementary	A,M,S	Street Vendors, Domestic Helpers, Porters, Doorkeepers, Garbage Collectors, Manual and Transportation Laborers

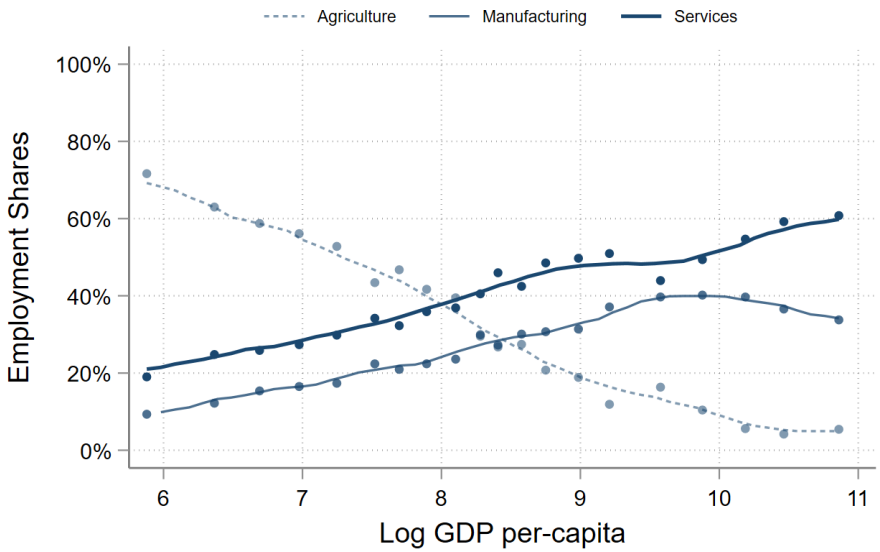
Stylized Facts on Gender and Structural Transformation

#1 Structural Transformation and Development

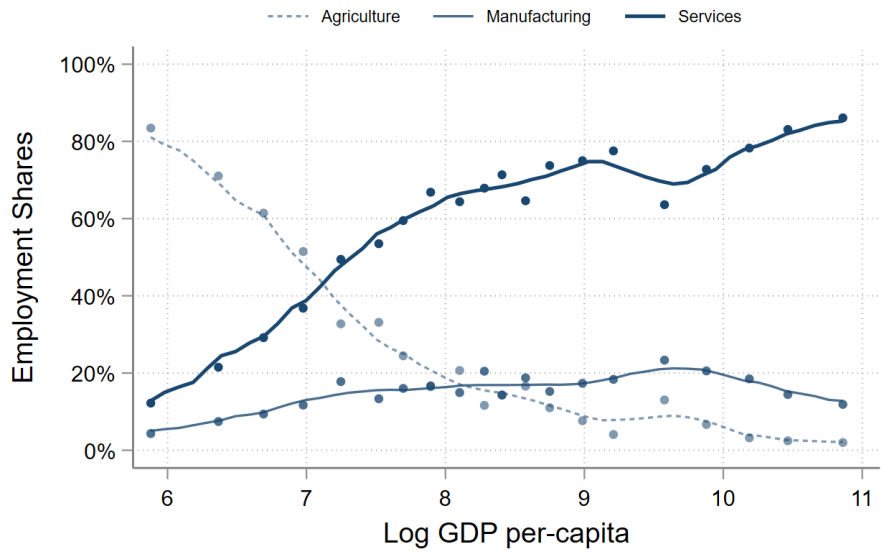


#1 Struc. Trans. b/w Men and Women

Excluding home-work, i.e., conditional on LFP



(a) Men



(b) Women

- Men leave Agriculture → enter Manufacturing & Services
- Women leave Agriculture → enter Services

With Country FEs

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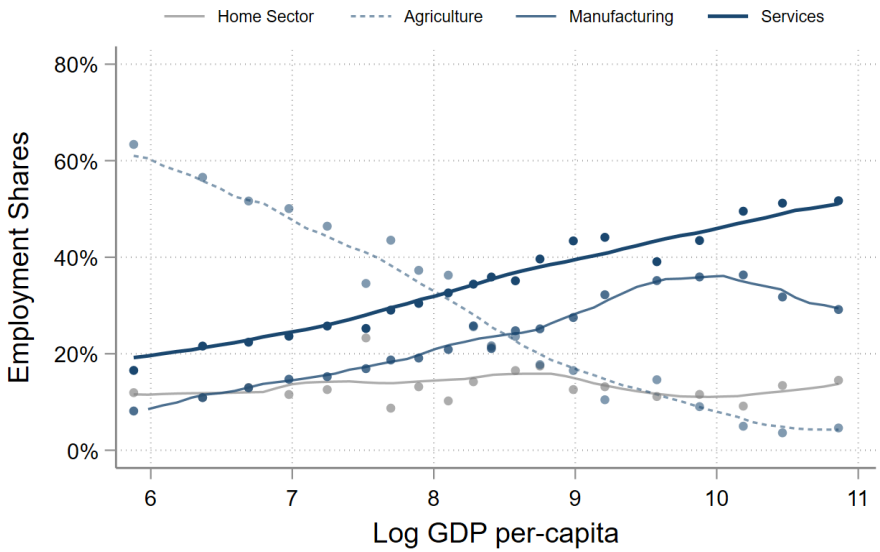

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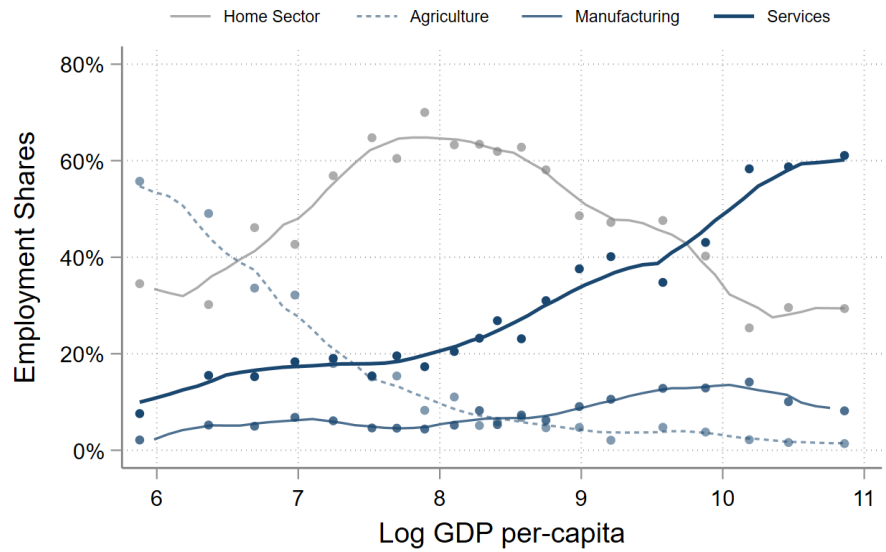


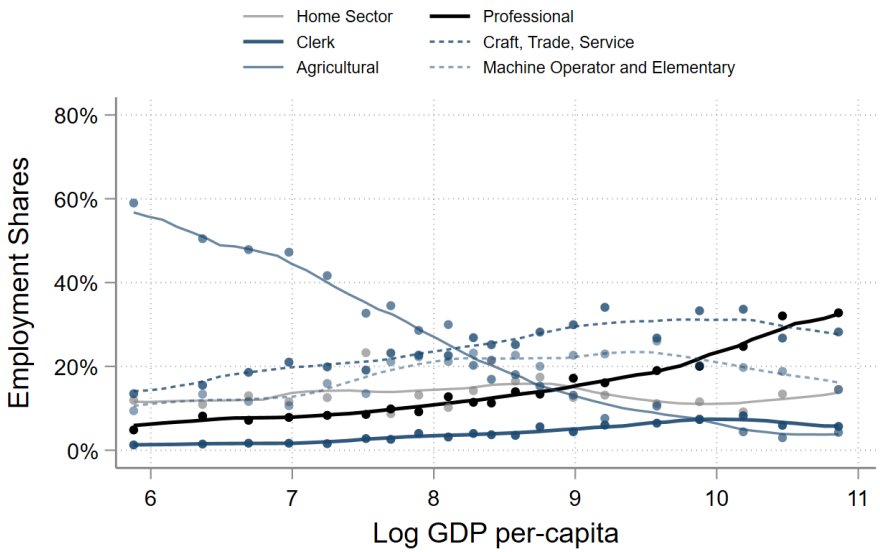
(b) Women

- **First:** Leave Agriculture → enter Services & Home Work (LFP ↓)
- **Then:** Leave Home Work → enter Services (LFP ↑)

With Country FEs

#2 Occ. Trans. b/w Men and Women

Including home-work



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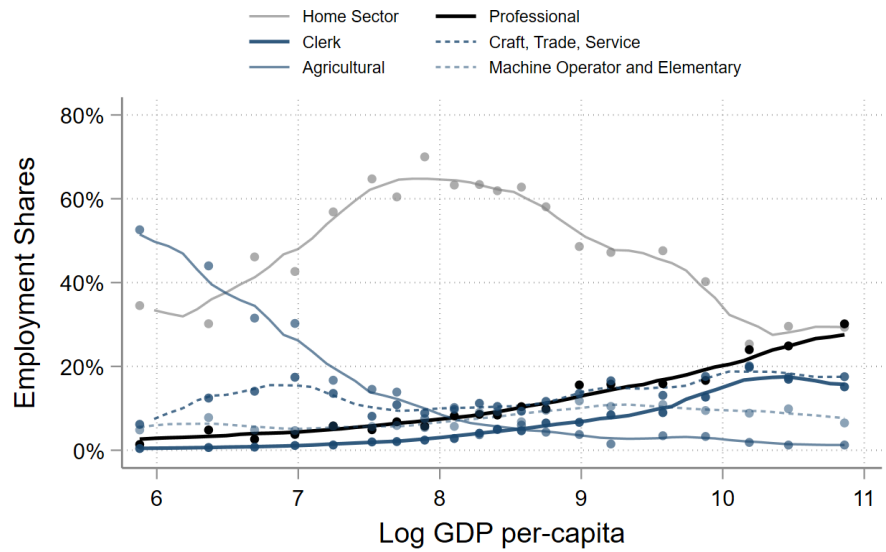

(b) Women

- Men leave Agriculture → Craft/Trade Wrkrs → Professionals
- Women leave Agriculture → Leave LF → Clerks and Professionals

With Country FEs

Gender Employment and Wage Gaps Over Time

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  - FLFP: Women 8.5x more likely to stay at home in 1970s; 3.5x more likely by 2010s
  - Sectoral gaps $\downarrow$: esp. Services (0.63$\rightarrow$0.87)
  - Occ. gaps $\downarrow$: esp. Professional (0.41$\rightarrow$0.86); Women over-represented in Clerk occupations

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  - Women earn 80c per 1$ by men in 85% of occupations even today
  - No correlation across development → gaps in LICs, MICs, HICs
  - Little correlation b/w Emp and Wage Gaps: Eg: Professionals→ highest wage gaps despite low emp. gaps

Measuring Segregation: Theil Index

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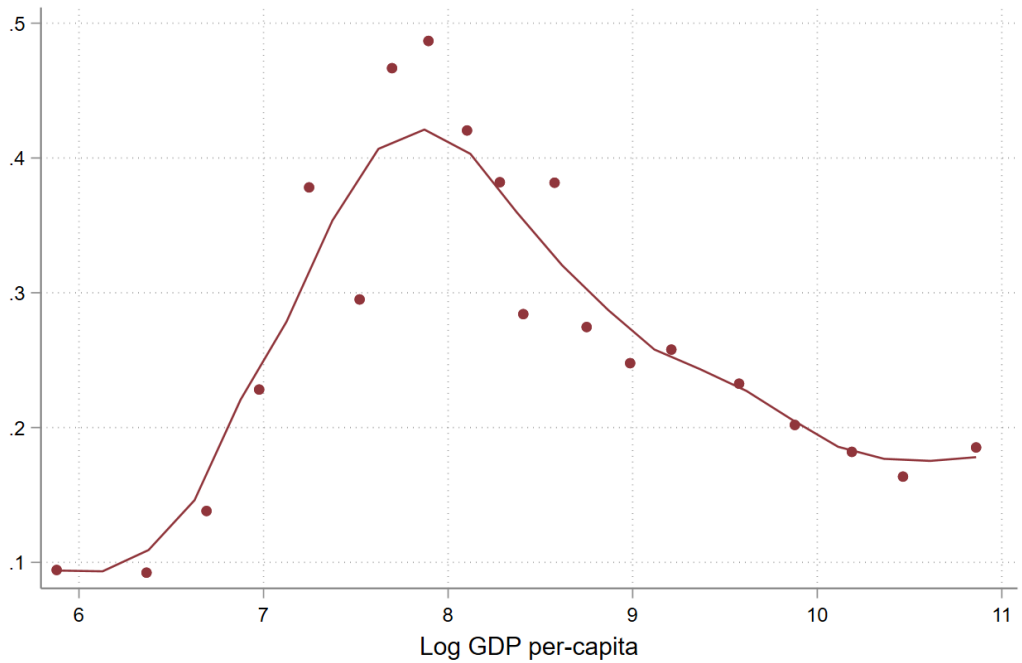

- LICs: agro-economies; high FLFP ⇒ low segregation
- MICs: men → {M,S}; women → {H,S} ⇒ more segregation
- HICs: men & women → S ⇒ lower segregation

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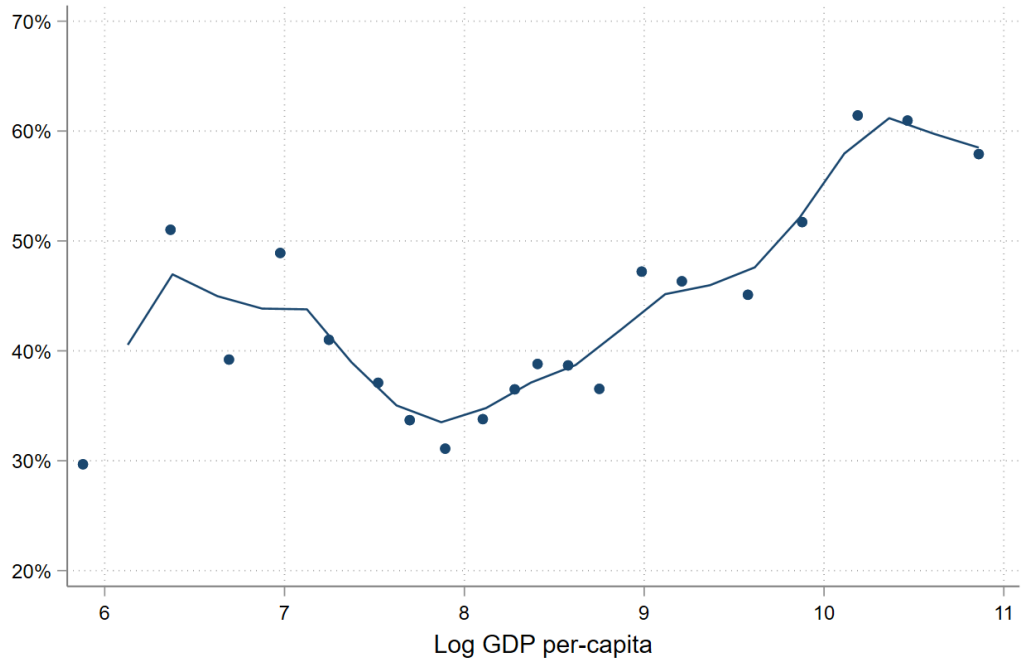

- LICs and MICs: 30-40% explained within sectors (across occs)
- HICs: $\approx$ 60% explained within sectors (across occs)

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- **Non-Economic Channels:**
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  - Gender norms/utility-costs of working in an occupation-sector
- Develop model of occupation-sector choice with these channels $\rightarrow$ quantify gender barriers + impact on agg. outcomes

Model

Setup of the Economy

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    (Herrendorf et al., 2013; Alder et al., 2022; Comin et al., 2021; Fan et al., 2021)
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- N_g individuals of gender g have ability $z \sim F_g(z)$:
  - ability dist.$\approx$ schooling dist; returns to ability κ_{ojg}
  - production: occupational mix (γ_{oj}); sectoral productivity (B_j)

Calibrating the Gender Barriers

1. Gender norms/utility-cost calibrated to occupation choice data:
   (normalizing $A_{home,g} = 0$)

$$\Pr(oj|g) \propto \left[\underbrace{V(I,p)}_{\text{Real Income}} - \underbrace{A_{ojg}}_{\text{LFP disutility}} \right]$$

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3. Model Calibration:
   $\rightarrow$ Minimal Restrictions: parameters at sector-occupation level, separately for each country-year
   $\rightarrow$ No apriori assumptions: "barriers" can be +ve, -ve or 0

Results

Gender Norms and Wage Discrimination

- **$\triangle A$ Across Countries** Across Countries
  - Large reductions in $\triangle A$, especially in services, professional occupations
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- **Plausibility of Estimates:**
  - corr. with occupational choices, wage gaps in data

  Bin scatter: A | Country-specific Fit: A | Bin scatter: τ | Country-specific Fit: τ

  - Women, Business & Law Indicators on workplace equality and gender norms across countries $\triangle A$ τ
  - sectoral expenditure shares across ctries & over time Model vs Data

How much do Gender Barriers Matter?

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- Aim is to help us understand which barriers are important + "mechanisms" at work, as opposed to "policies" per se

Changes in Aggregate Output (Real Value-Added)

	Sectoral Output			Aggregate
	Agri.	Manf.	Services	Output
	(1)	(2)	(3)	(4)
IND	0.14	0.05	0.04	0.04
IDN	0.09	0.07	0.20	0.17
BRA	0.27	0.23	0.34	0.29
MEX	0.13	0.19	0.28	0.24
CAN	0.12	0.23	0.28	0.30
USA	0.12	0.19	0.25	0.25
AVG	0.15	0.16	0.23	0.21

- Gender barriers explain on average 20-30% of growth in these countries over time; India being the notable exception
- Driven by changes in FLFP, employment in manufacturing and services, clerk and professional occupations

Concluding Thoughts

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- Document the gender side of structural transformation $\rightarrow$ large gender differences in occ-sector choices and wages
- Decompose these differences b/w economic and non-economic channels
- Policy simulations indicate that eliminating these barriers can meaningfully reallocate labor + explain 20-30% of economic growth experienced by these countries

Thank you!

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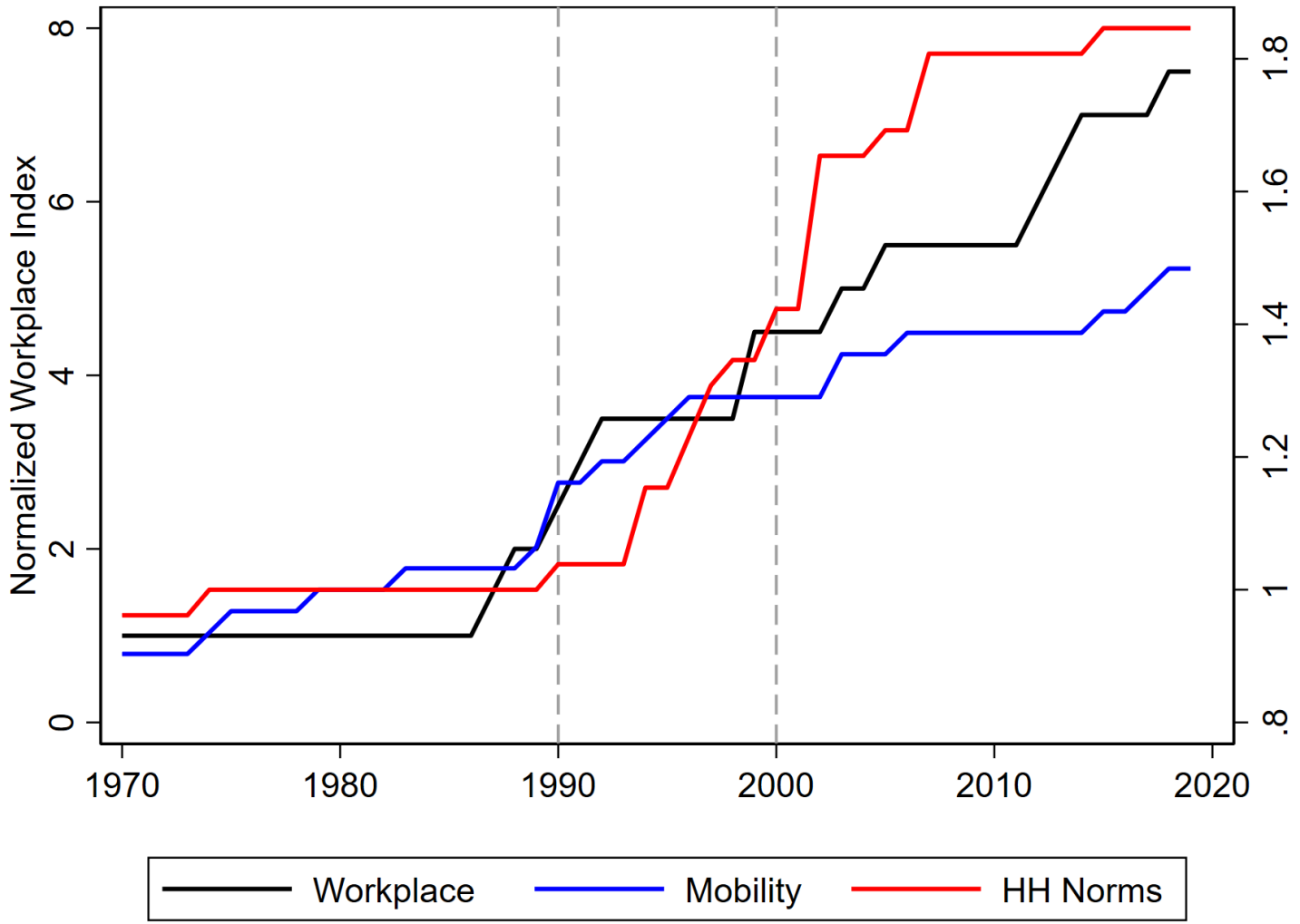
Appendix

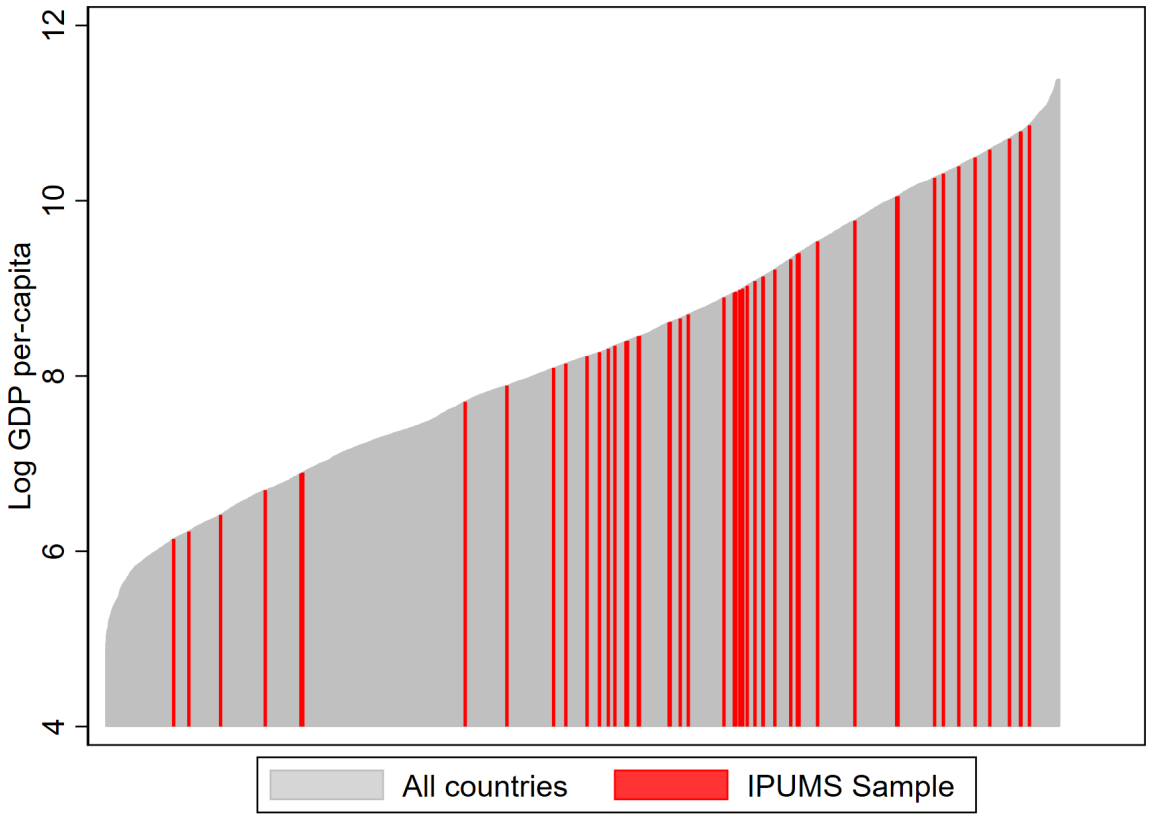
WBL changes

Motivation Results



Coverage

Back



Sample

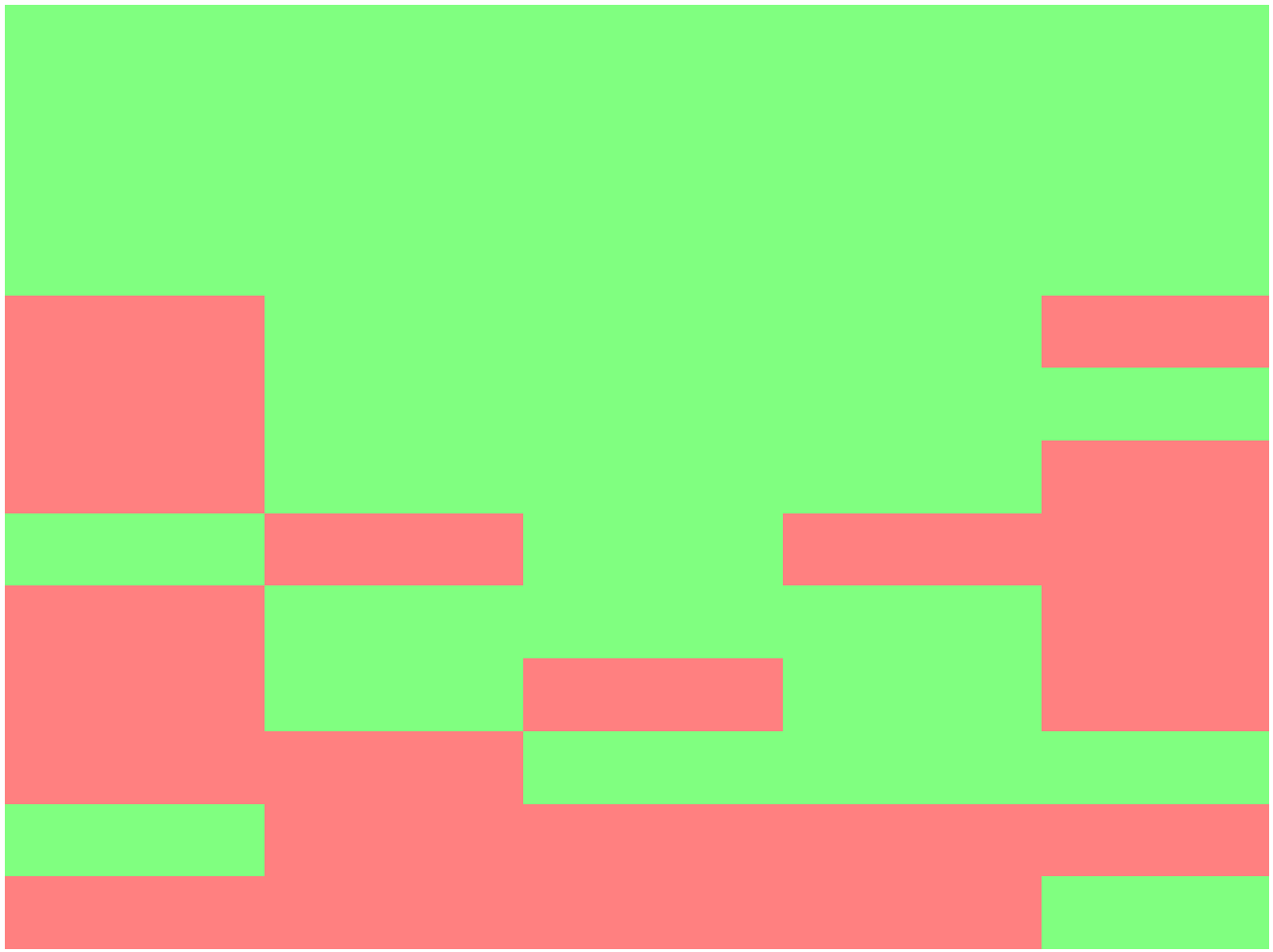
Back

Country	Years	GDP p.c. (2010 $)
India	1983, 1987, 1993, 1999, 2004	$1,357
Indonesia	1976, 1995	$3,122
Jamaica	1982, 1991, 2001	$4,704
Dom. Republic	1981, 2002	$5,555
Colombia	1973	$6,336
South Africa	1996, 2001, 2007	$7,328
Panama	1980, 1990, 2000,2010	$8,082
Mexico	1970, 1990, 1995, 2000, 2010, 2015	$9,271
Brazil	1970, 1980, 1991, 2000, 2010	$11,286
Uruguay	2006	$11,992
Venezuela	1981, 1990, 2001	$13,825
Canada	1971, 1981, 2001, 2011	$48,464
USA	1960, 1970, 1980, 1990, 2000-15	$48,467

Sample

Back

Country	1970-80	1980-89	1990-99	2000-09	>2010
Mexico					
Brazil					
Canada					
USA					
Venezuela					
Panama					
India					
Indonesia					
Jamaica					
Dom. Republic					
South Africa					
Colombia					
Uruguay					



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Hours worked:

- Use months, days and hours worked when available.
- Where individuals do not report them, take the *ojgct* average
- When survey does not ask for them, set equal to 40/week and 52 weeks/year

Coverage Across Countries

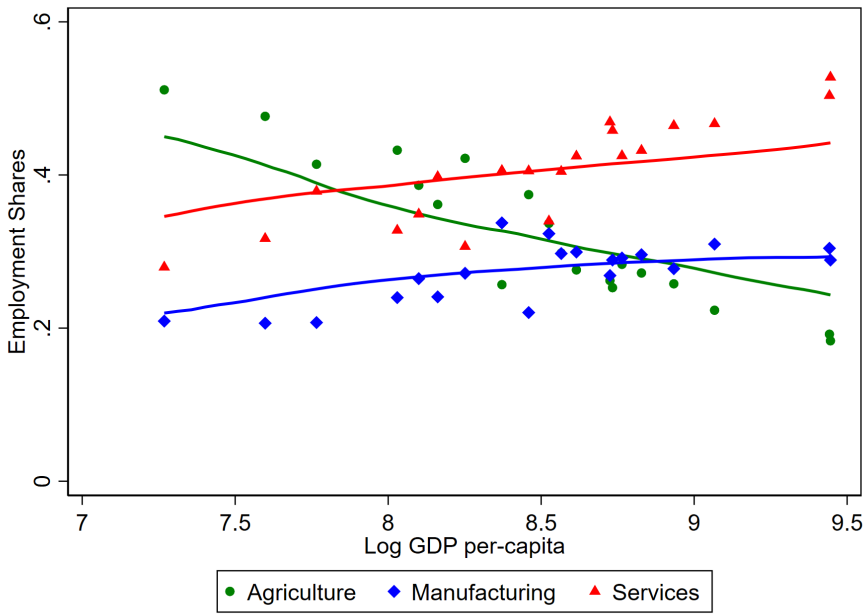
Back

Country	Years	Real GDP p.c. in 2005
India	1983, 1987, 1993, 1999, 2004, 2010, 2018	$947
Indonesia	1976, 1995, 2010, 2018	$2,174
Brazil	1970, 1980, 1991, 2000, 2010	$7,325
Mexico	1970, 1990, 1995, 2000, 2010, 2015	$8,925
Canada	1971, 1981, 1991, 2001, 2011	$40,989
USA	1970, 1980, 1990, 2000, 2005, 2010	$52,789

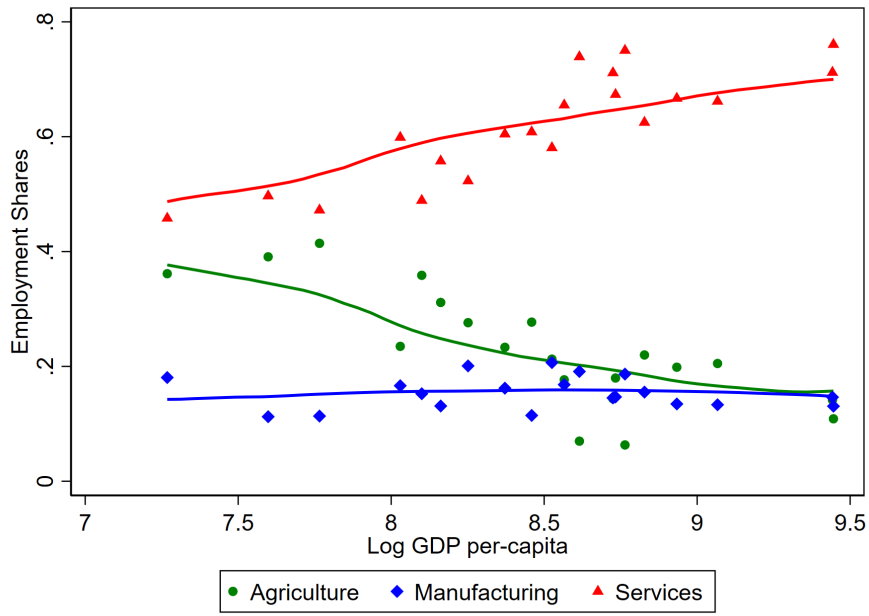
- Good coverage across stages of development
  - Rich countries (HICs): USA, Canada
  - Middle-income (MICs): Brazil, Mexico
  - Low-income (LICs): India, Indonesia
- Covers around a third of the world's population in 2010

#1 Struc. Trans. b/w Men and Women

Excluding home-work, i.e., conditional on LFP with Country FE



(a) Men

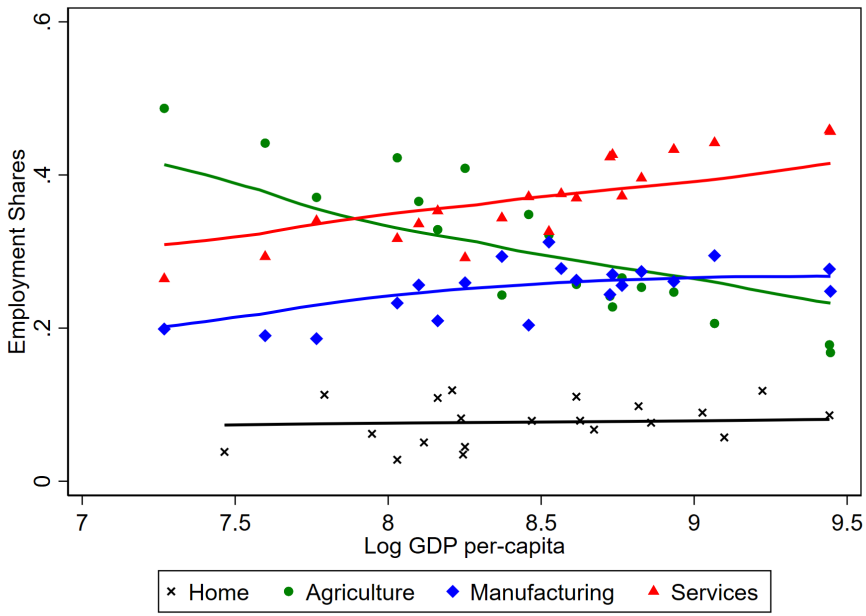


(b) Women

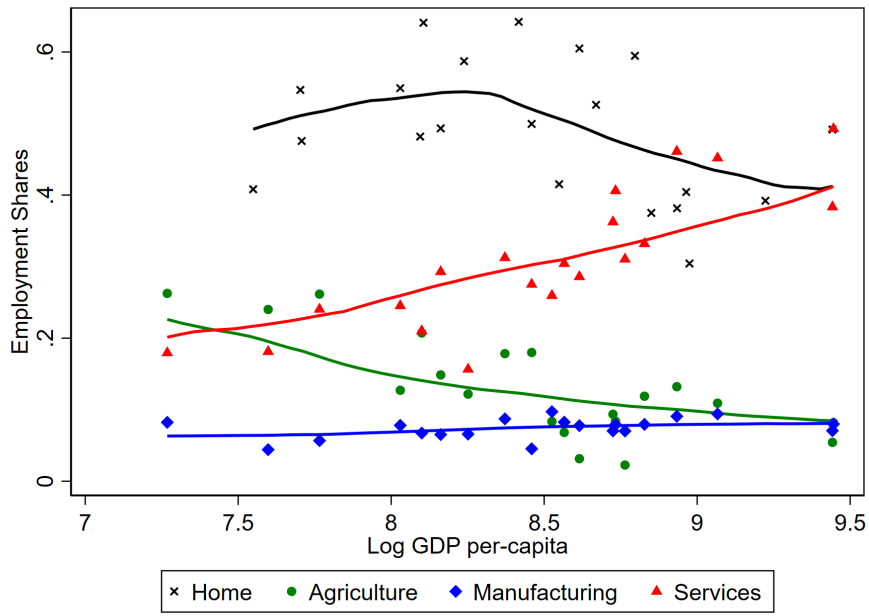
Back

#1 Struc. Trans. b/w Men and Women

Including home-work with Country FE



(a) Men

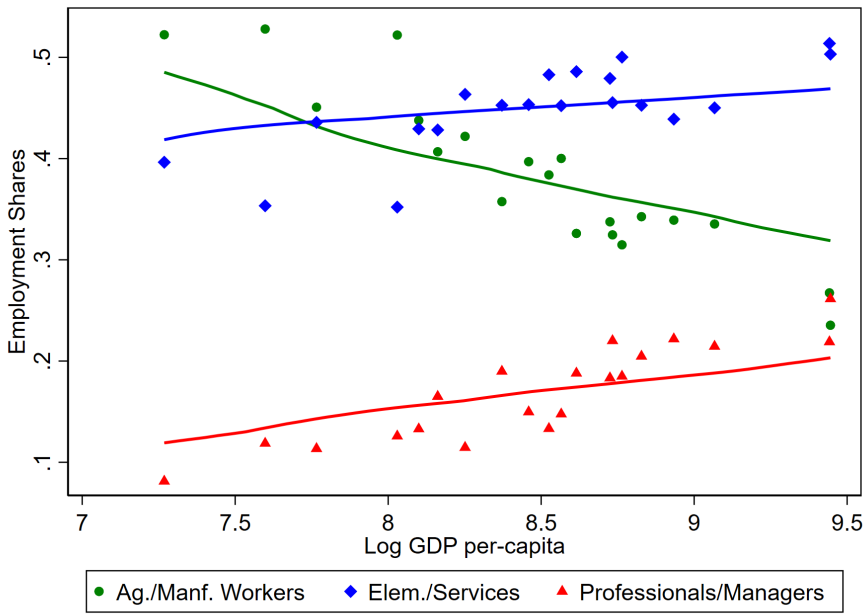


(b) Women

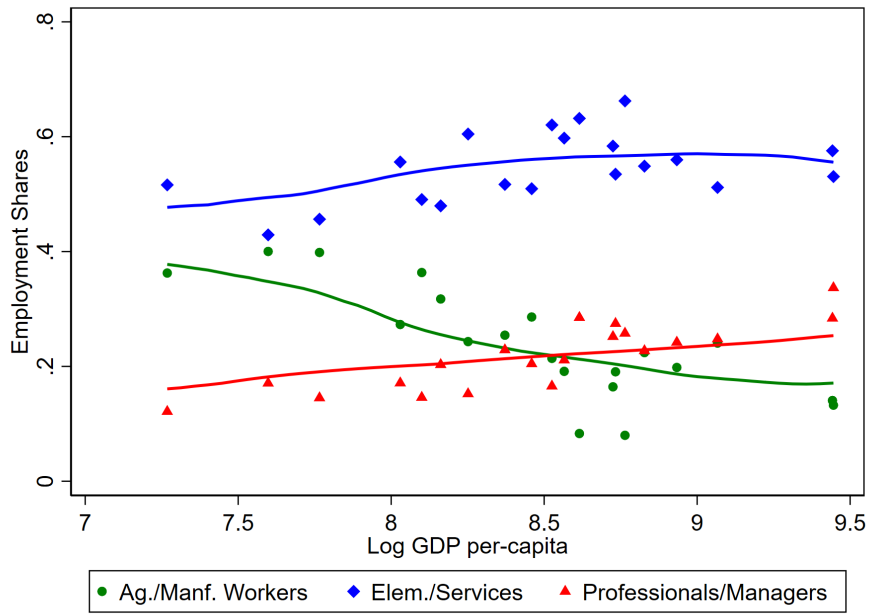
Back

#1 Occ. Trans. b/w Men and Women

Excluding home-work, i.e., conditional on LFP with Country FE



(a) Men

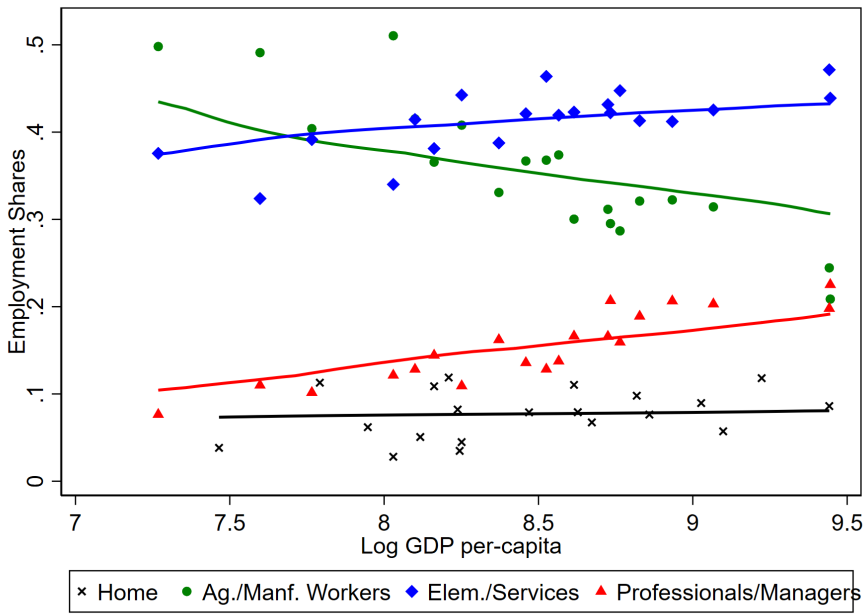


(b) Women

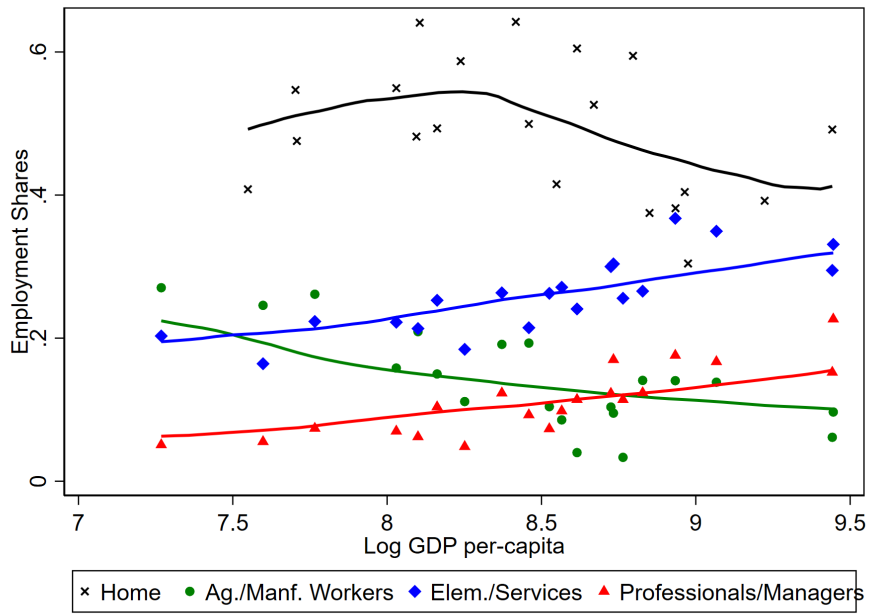
Back

#1 Occ. Trans. b/w Men and Women

Including home-work with Country FE



(a) Men

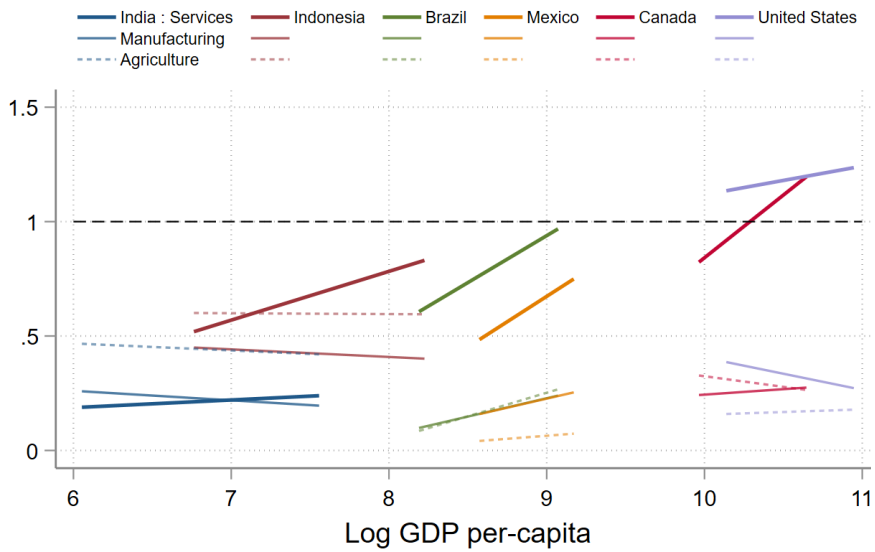


(b) Women

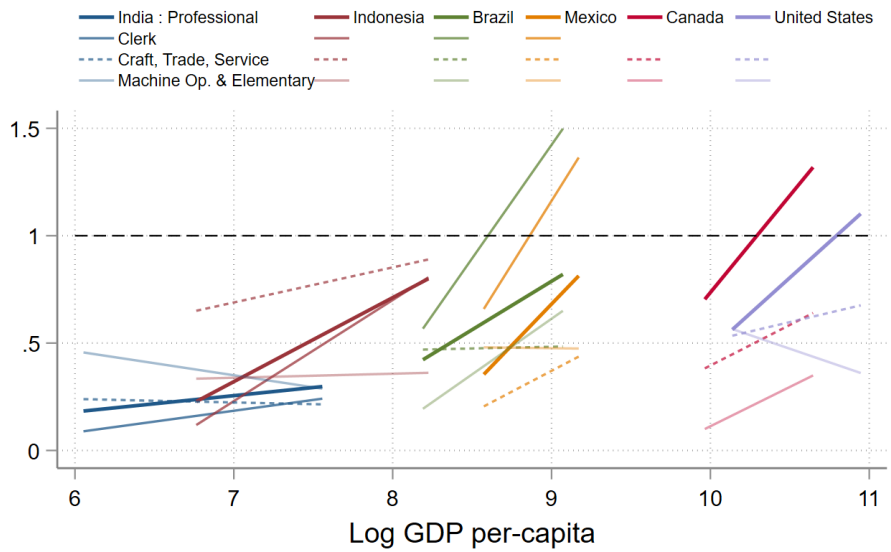
Back

#3 Gender Occupational Choice Gap Over Time

Calculate $R_{oj}^{2000-15} / R_{oj}^{1970-85} - 1$ Heat Map Across Countries Back



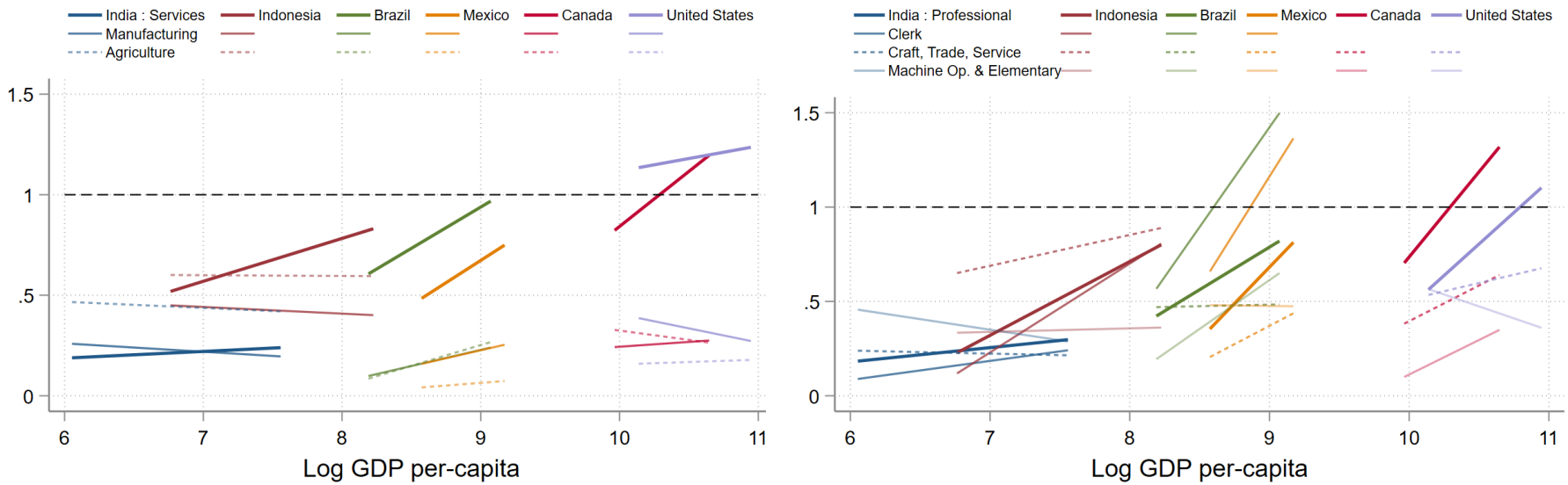
(a) Across Industries



(b) Across Occupations

#3 Gender Occupational Choice Gap Over Time

Calculate $R_{oj}^{2000-15} / R_{oj}^{1970-85} - 1$ Heat Map Across Countries Back



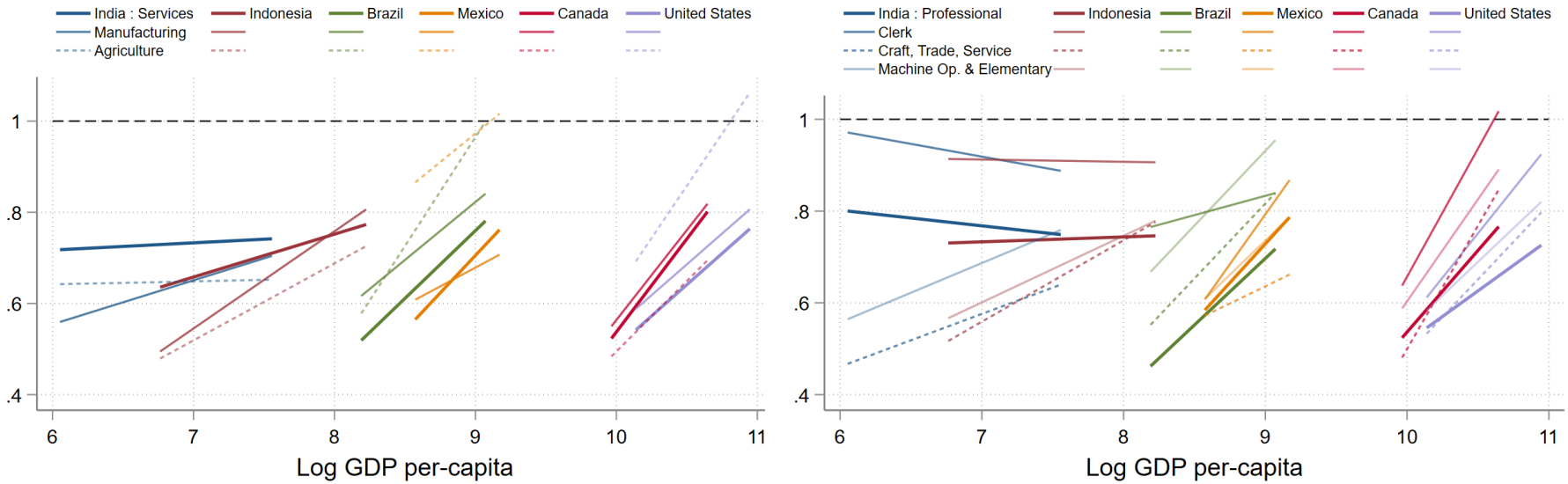
(a) Across Industries

(b) Across Occupations

- FLFP increase (esp. in IDN, MEX, BRA) $\Rightarrow$ across all ind-occ over time
- **Sectors:** Increase in services across countries; manf. in BRA and MEX
- **Occupations:** largest gains in Prof./Managerial jobs

#4 Gender Wage Gap Over Time

Calculate $R_{oj}^{2005-10}/R_{oj}^{1970-75} - 1$ Heat Map Across Countries Back



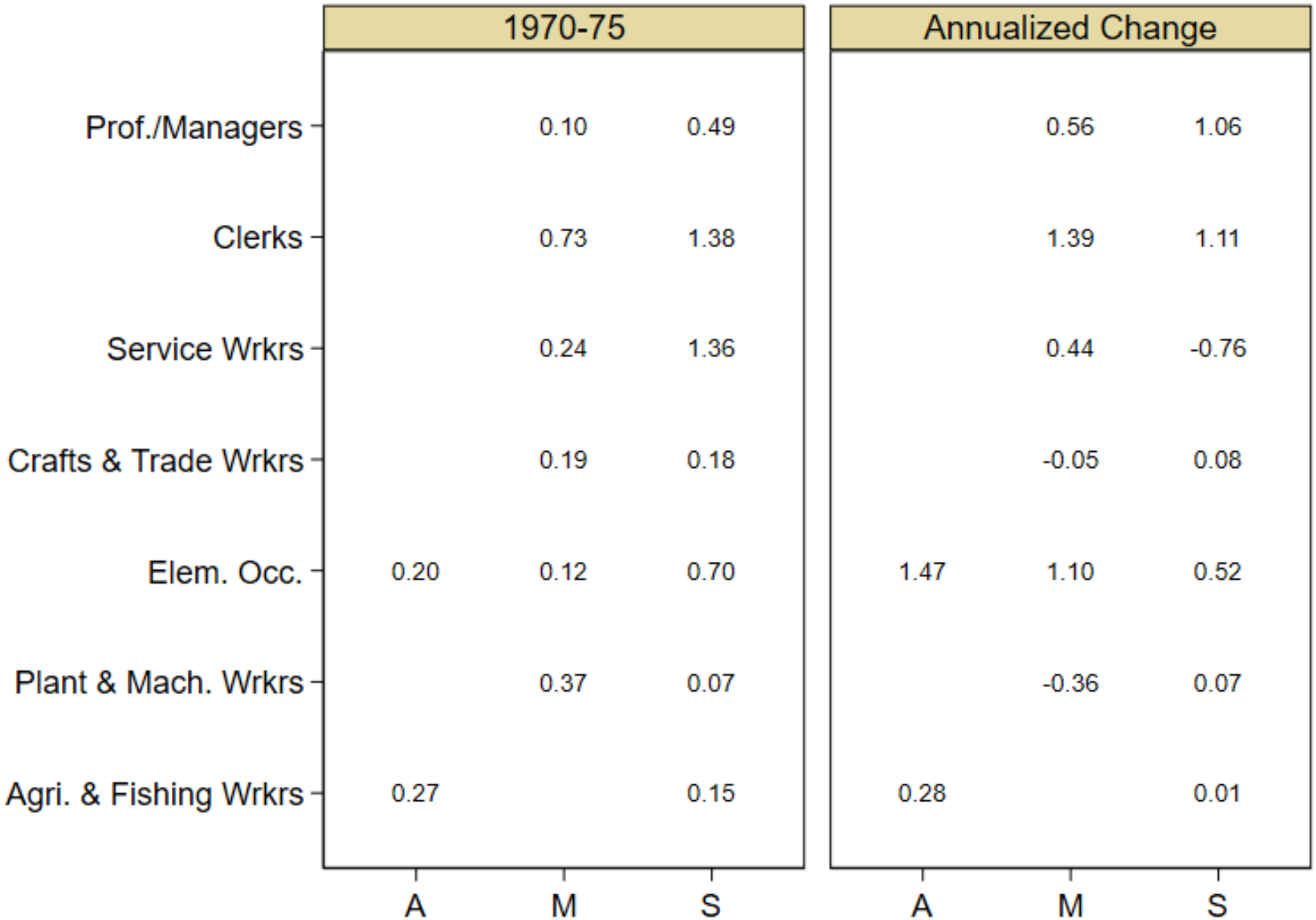
(a) Across Industries

(b) Across Occupations

- Wage gaps ↓ across all countries, except IND
- Gaps still persist in HICs (0.85-0.95)
- **Sectors:** gains across all sectors
- **Occupations:** gains across all; Prof/Mang. still with largest gaps

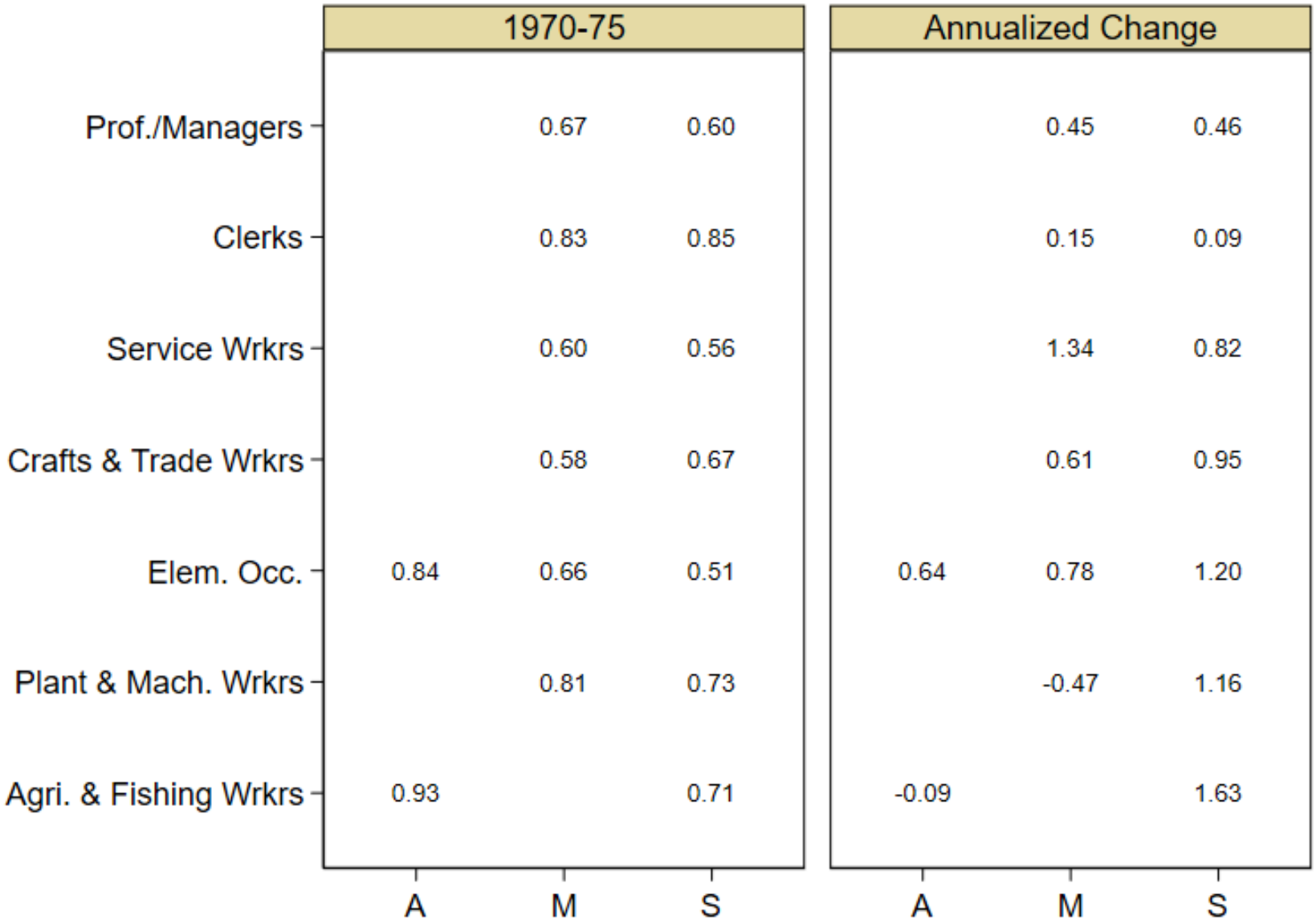
#2 Gender Occupational Choice Gap Over Time

Calculate $R_{oj}^{2000-15} / R_{oj}^{1970-75} - 1$ Back



#2 Gender Wage Choice Gap Over Time

Calculate $R_{oj}^{2000-15} / R_{oj}^{1970-75} - 1$ Back



#2 Gender Employment Gaps Across Countries

Back

	1970-75	2005-10	1970-75	2005-10	1970-75	2005-10	1970-75	2005-10
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sectors:	Home		Agriculture		Manf.		Services	
IND	13.61	12.87	0.47	0.63	0.26	0.28	0.20	0.23
IDN	15.22	6.53	0.60	0.55	0.53	0.37	0.59	0.74
BRA	22.88	1.99	0.09	0.42	0.10	0.22	1.16	1.22
MEX	52.43	8.72	0.04	0.07	0.15	0.28	0.60	0.89
CAN	5.47	1.56	0.35	0.38	0.31	0.35	1.15	1.34
USA	6.96	1.60	0.19	0.23	0.56	0.51	1.72	1.50
AVG	19.43	5.54	0.29	0.38	0.32	0.34	0.90	0.99
Occupations:			Ag./Manf.		Elem./Services		Prof./Mngr.	
IND			0.39	0.59	0.41	0.45	0.18	0.23
IDN			0.60	0.52	0.64	0.75	0.23	0.54
BRA			0.08	0.40	1.03	0.94	0.44	0.93
MEX			0.04	0.09	0.48	0.68	0.34	0.70
CAN			0.23	0.24	0.98	1.01	0.76	1.35
USA			0.54	0.34	1.79	1.41	0.62	1.09
AVG			0.31	0.36	0.89	0.87	0.43	0.81

#2 Gender Wage Gaps Across Countries

Back

	1970-75	2005-10	1970-75	2005-10	1970-75	2005-10
	(1)	(2)	(3)	(4)	(5)	(6)
Sectors:	Agriculture		Manf.		Services	
IND	0.65	0.49	0.42	0.51	0.66	0.66
IDN	0.48	0.76	0.44	0.69	0.60	0.71
BRA	0.58	0.99	0.64	0.87	0.51	0.84
MEX	1.06	0.90	0.56	0.70	0.55	0.95
CAN	0.50	0.67	0.57	0.88	0.53	0.87
USA	0.68	0.83	0.60	0.79	0.54	0.81
AVG	0.66	0.77	0.54	0.74	0.57	0.81
Occs:	Ag./Manf.		Elem./Services		Prof./Mngr.	
IND	0.63	0.44	0.57	0.58	0.79	0.70
IDN	0.48	0.77	0.52	0.63	0.73	0.84
BRA	0.60	0.98	0.56	0.89	0.46	0.72
MEX	0.96	0.89	0.57	0.85	0.60	0.80
CAN	0.59	0.76	0.53	0.90	0.52	0.77
USA	0.59	0.77	0.56	0.84	0.55	0.74
AVG	0.64	0.77	0.55	0.78	0.61	0.76

#2 Gender Wage Gaps Decrease Over Time and Dev.

Back

- Regress wage ratio on log of real GDP pc and fixed effects:

$$\text{wage-ratio}_{ojct} = \alpha + \beta_{HIC} HIC_c \times \text{Post}_t + \beta_{LMIC} LMIC_c \times \text{Post}_t + \text{FE} + \varepsilon_{ojct}$$

- Gender wage ratio increases in both LMIC and HIC ($\hat{\beta} > 0$):
  - Within countries over time (+ ctry FE)
  - Within occ-sector pairs (+ occ-sector FE)
  - Within country-occ-sector pairs (+ ctry-occ-sector FE)

- Results hold for different wage gap measures:
  1. Raw avg. wage ratio: $\beta^R_{ojct} = \ln \overline{\text{wage}}^f_{ojct} - \ln \overline{\text{wage}}^m_{ojct}$
  2. Unadjusted: $\ln w_{it} = \alpha_t + \alpha_{oj} + \beta^U_{oj} \mathbf{1}_{oj} \times Female_i + \delta X_i + \varepsilon_i$
  3. Adjusted: $\ln w_{it} = \alpha_t + \alpha_{oj} + \beta^A_{oj} \mathbf{1}_{oj} \times Female_i + \gamma School_i + \delta X_i + \varepsilon_i$

#2 Gender Wage Gaps Across Countries

Back

PIGL Preferences: Income Effects and Aggregation

Back

- Individual expenditure share on sector $j = \{A, M, S\}$:

$$\varphi_j(I_{ojg}(z), p) = \omega_j + \nu_j \left(\frac{I_{ojg}(z)}{P} \right)^{-\eta}$$

- if $\nu_j < 0$, $\varphi_j \uparrow$ in income (services); $\sum_j \nu_j = 0$; $\sum_j \omega_j = 1$

PIGL Preferences: Income Effects and Aggregation

Back

- Individual expenditure share on sector $j = \{A, M, S\}$:

$$\varphi_j(l_{ojg}(z), p) = \omega_j + \nu_j \left(\frac{l_{ojg}(z)}{P} \right)^{-\eta}$$

- if $\nu_j < 0$, $\varphi_j \uparrow$ in income (services); $\sum_j \nu_j = 0$; $\sum_j \omega_j = 1$

- Aggregate expenditure share on sector j:

$$\Phi_j = \omega_j + \nu_j \sum_{ojg} \phi_{ojg} g(z^{\kappa_{ojg}}) \times \left(\frac{\overline{l_{ojg}}}{P} \right)^{-\eta}$$

  - $\overline{l_{ojg}}$: average income of a 'representative worker' in ojg
  - $g(z^{\kappa_{ojg}})$: adjustment factor for sorting in ojg
  - ϕ_{ojg}: share of income earned by all workers in ojg

CES Preferences for "Home" and "Market" Services

- Home and Market Services are imperfect substitutes:

$$\min \sum_{j=\{hs,ms\}} p_j C_j$$

$$\text{s.t. } C_s = \left[\sum_{j=\{hs,ms\}} \alpha_j^{\frac{1}{\eta_s}} C_j^{\frac{\eta_s - 1}{\eta_s}} \right]^{\frac{\eta_s}{\eta_s - 1}}$$

- Expenditure share on $j = \{hs, ms\}$ given by:

$$\varphi_j = \frac{\alpha_j p_j^{1-\eta_s}}{P_s^{1-\eta_s}} \times \varphi_s$$

Back

Occupation and Sector Choice: Equations

- Indirect utility from consumption: $V(I_{ojg}, p)$ Back

$$V(I_{ojg}, p) = \frac{1}{\eta}\left(\frac{I_{ojgz}(z)}{P}\right)^{\eta} - D(p)$$

- Utility of workers with gender g and ability z who choose oj:

$$U^{i}_{ojg}(z) = V(I^{i}_{ojg}(z), p) + A_{ojg} + \varepsilon^{i}_{oj}$$

- Share of workers of gender g and ability z who choose oj:

$$\Pr(oj|g,z) = \frac{\exp\left[\frac{1}{\sigma_\varepsilon} V(I_{ojg}(z), p) + \frac{1}{\sigma_\varepsilon} A_{ojg}\right]}{\sum_{j'}\sum_{o'} \exp\left[\frac{1}{\sigma_\varepsilon} V(I_{o'j'g}(z), p) + \frac{1}{\sigma_\varepsilon} A_{o'j'g}\right]}$$

Back

Estimation Algorithm: Iteration over 3 Envelopes

Condition on: return to ability κ_{ojg}, preference and distributional params

- Guess PIGL parameters ω_j and ν_j (loop 1)
- Guess prices p_j (loop 2)
- Guess gender-specific wage rates w_{ojg} and amenities A_{ojg} (loop 3)
  - Solve for occupational choices, human capital, & income in model
  - Update w_{ojg} from avg wage data and model-implied avg HC by ojg
  - Update A_{ojg} from occ. choice data and model-implied utility $V(I, p)$
- Update prices p_j from good market clearing: $p_j^{new} = (\Phi_j \times I)/Y_j$
  - Compute sector demand and supply in model (given HC_{oj})
- Update PIGL params from relation btw demand shares and real inc.
  - Model implies: $\Phi_j = \omega_j + \nu_j \times g(I_{ojgz}, P, \Pr(oj|g, z))$
  - Update (ω_j, ν_j) for each sector j by regressing observed demand shares Φ_j across countries and time on an intercept (implies ω_j^{new}) and on model-implied "real income" $g(.)$ (implies ν_j^{new})

$\Rightarrow$ Iterate on all guesses until convergence Back

Gender Wage Discrimination (τ_{ojg}) and Wage Gaps

Back

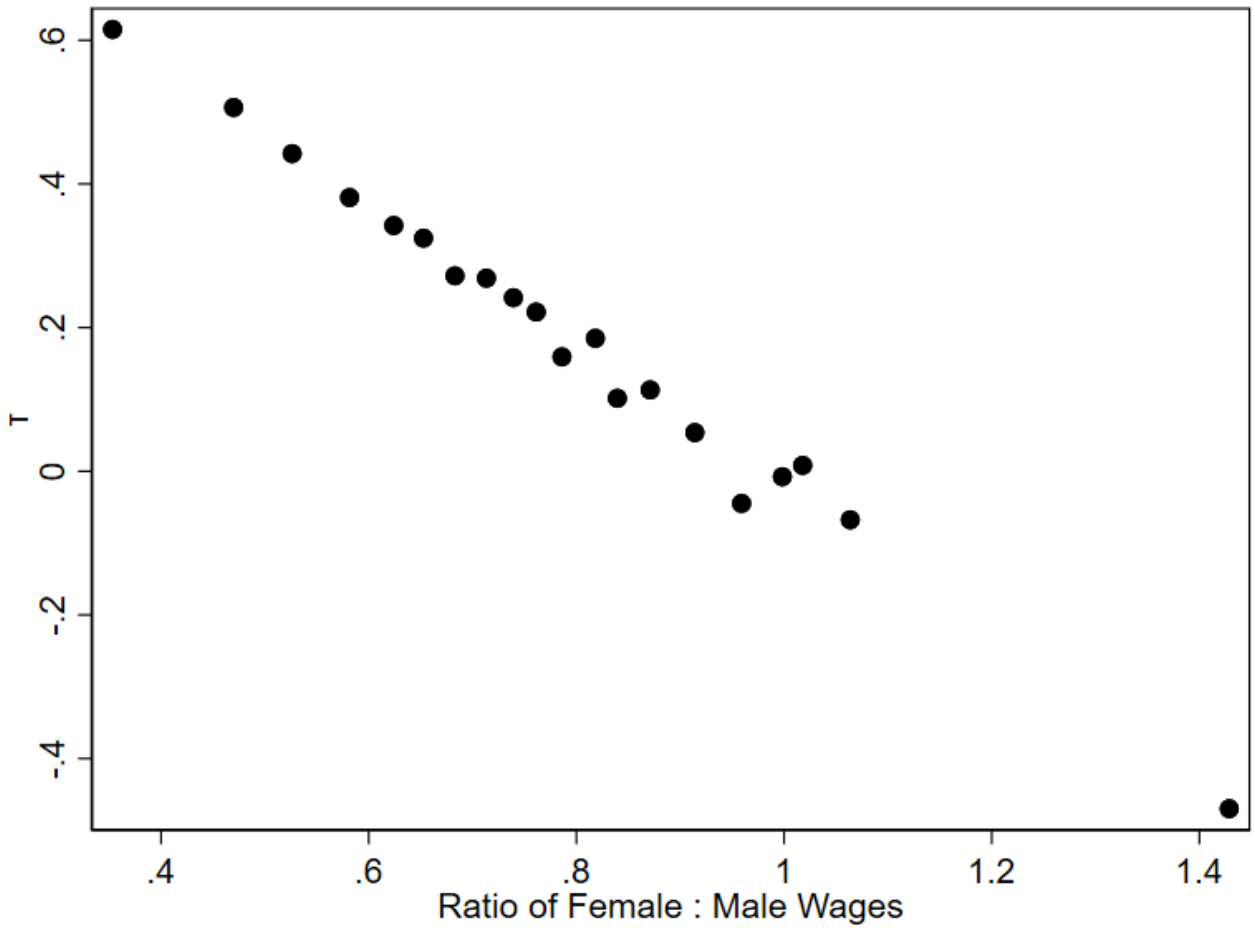


Figure: Corr. τ and wage ratios

Correlating Gender Wage Discrimination τ_{oj} with "World, Business, and the Law" Indicators

Back

Estimate: $\tau_{ojct} = \alpha_c + \alpha_t + \alpha_{oj} + \beta \text{WBL Measure}_{ct} + \gamma X_{ct} + \varepsilon_{ojct}$

	Coefficient	S.E.	p-value
	(1)	(2)	(3)
Panel A. Gender Equality in Mobility and LFP			
Index of Mobility/LFP	-0.07	(0.02)	0.08*
Can a woman get a job in the same way as a man?	-0.04	(0.04)	0.43
Can a woman work at night in the same way as a man?	-0.04	(0.02)	0.20
Can a woman work in a job deemed dangerous in the same way as a man?	-0.07	(0.01)	0.04**
Can a woman work in an industrial job in the same way as a man?	-0.07	(0.01)	0.04**
Panel B. Gender Equality at the Workplace			
Index of Workplace Equality	0.02	(0.03)	0.55
Does the law prohibit discrimination in employment based on gender?	0.01	(0.01)	0.55
Ln(1+Paid Maternity Days Leave)	-0.03	(0.01)	0.03**
Observations	510		

Correlation betw. Occupation Choices & Norms/LFP-Cost

Back

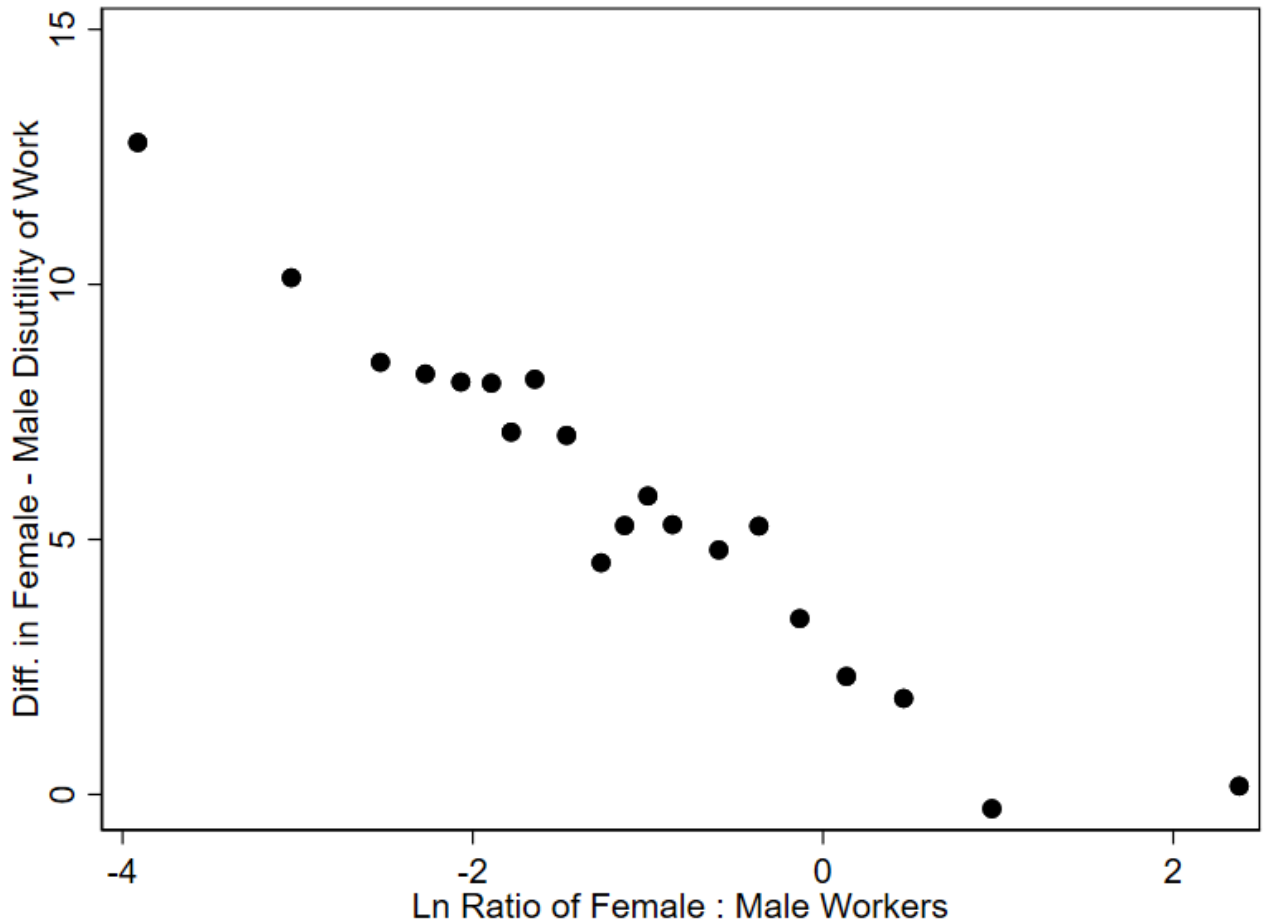


Figure: Corr. Gender Norms/LFP Cost A and Occupational Choices

Correlating Norms/LFP-cost A_{ojg} with "World, Business, and the Law" Indicators

Back

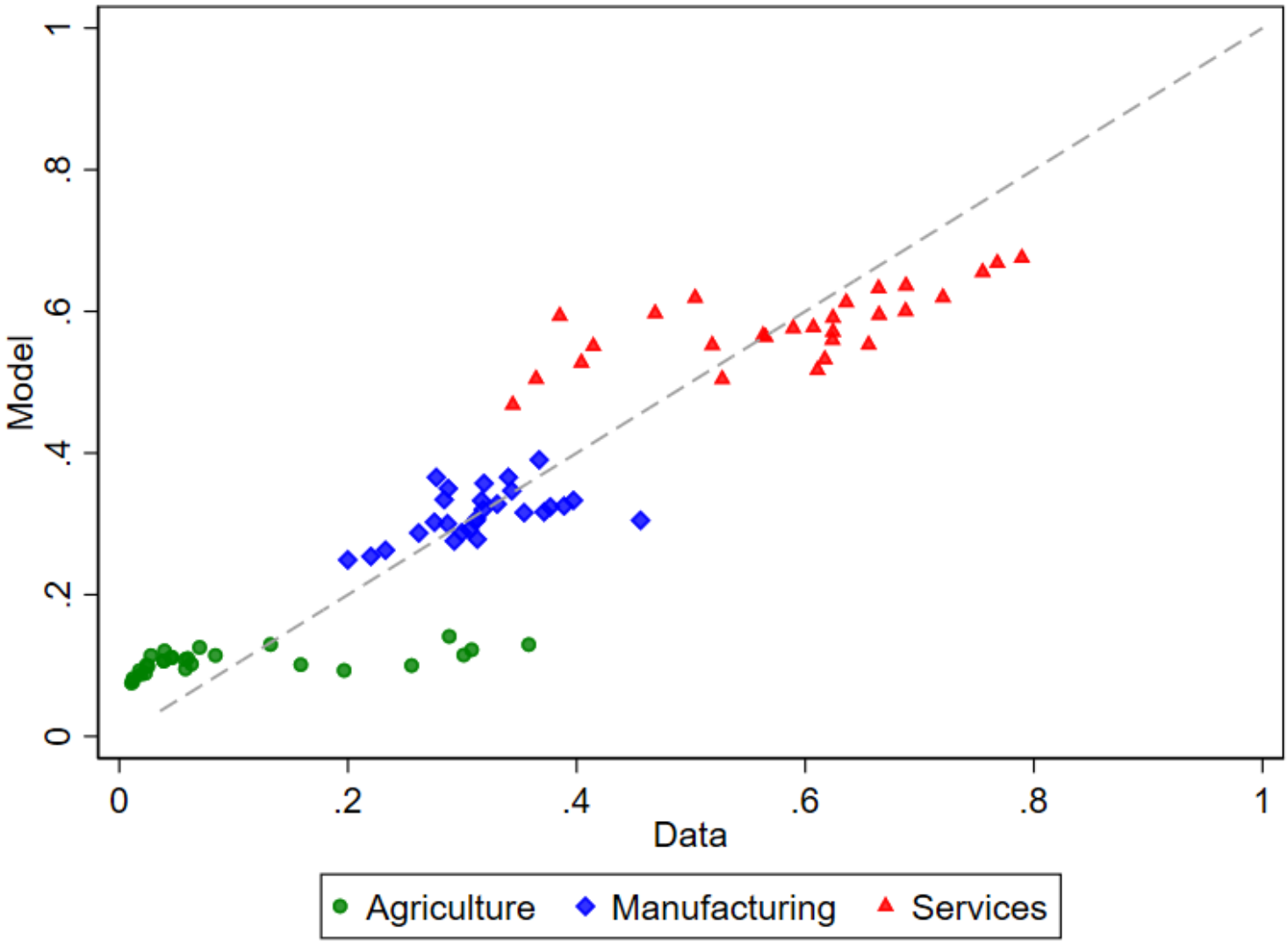
Define: $\triangle A_{ojct} = A_{ojfct} - A_{ojmct}$ and standardize to mean 0, std dev 1

Estimate: $\triangle \tilde{A}_{ojct} = \alpha_c + \alpha_t + \alpha_{oj} + \beta \text{WBL Measure}_{ct} + \gamma X_{ct} + \varepsilon_{ojct}$

	Coefficient	S.E.	p-value
	(1)	(2)	(3)
Panel A. Gender Equality in Mobility and LFP			
Index of Mobility/LFP	-1.15	(0.18)	0.02**
Can a woman get a job in the same way as a man?	-0.66	(0.27)	0.13
Can a woman work at night in the same way as a man?	-1.26	(0.05)	0.00***
Can a woman work in a job deemed dangerous in the same way as a man?	-0.96	(0.15)	0.02**
Can a woman work in an industrial job in the same way as a man?	-0.87	(0.22)	0.06*
Panel B. Household Norms			
Index of Household Norms	-0.65	(0.04)	0.00***
Can a woman be head of household in the same way as a man?	-1.01	(0.04)	0.00***
Is there legislation specifically addressing domestic violence?	0.34	(0.15)	0.15
Does a woman have the same rights to remarry as a man?	-0.11	(0.14)	0.51
Do men and women have equal ownership rights to immovable property?	-1.01	(0.04)	0.00***
Ln(1+Paid Maternity Days Leave)	-0.09	(0.07)	0.34
Observations	510		

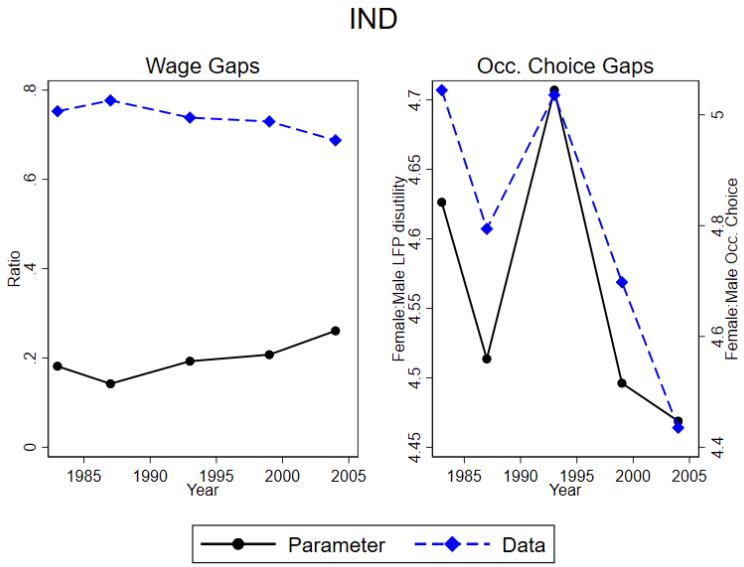
VA Shares Across Countries

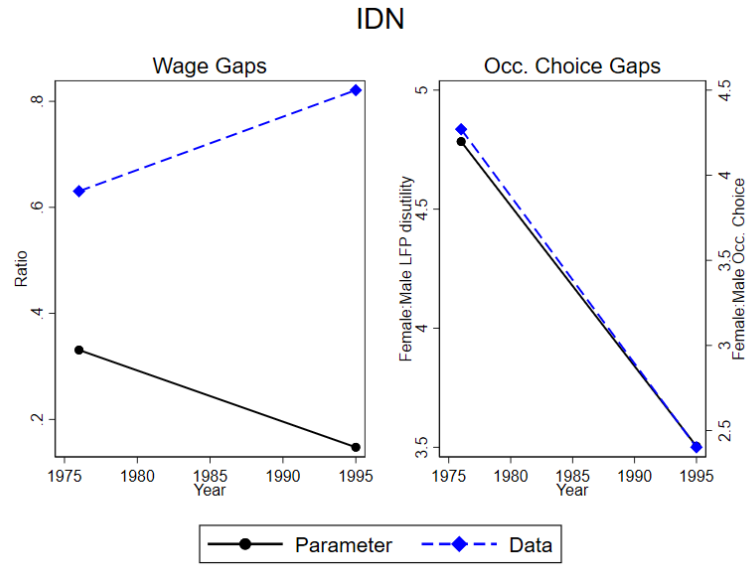
Back

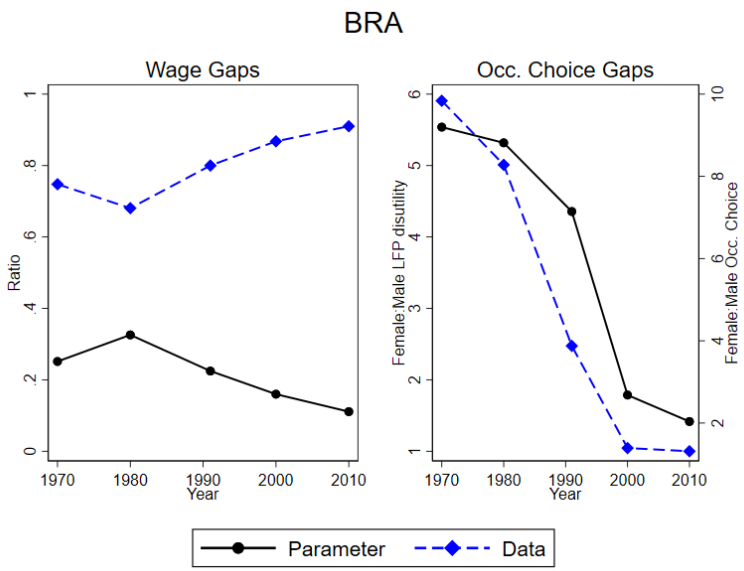


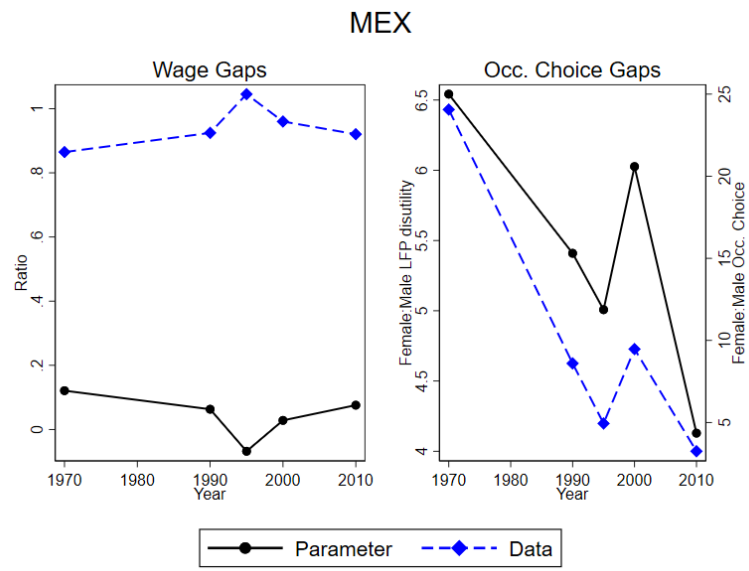
Co-Movements Across Specific Countries over Time

Back



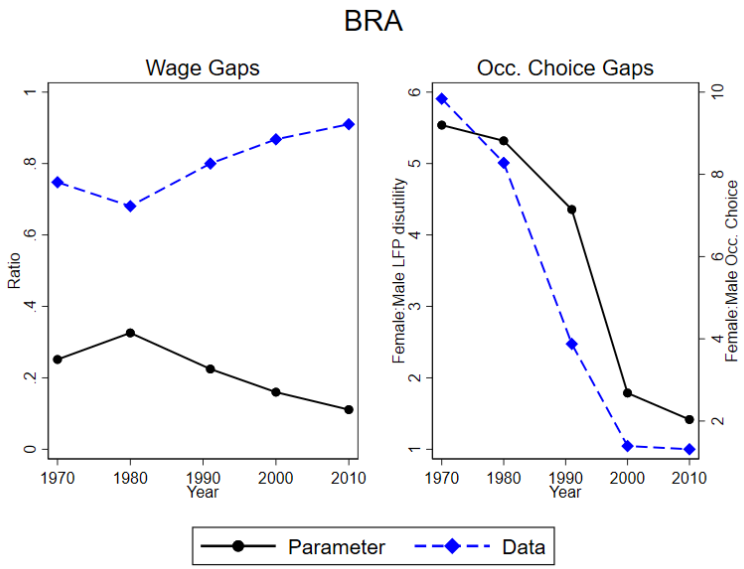


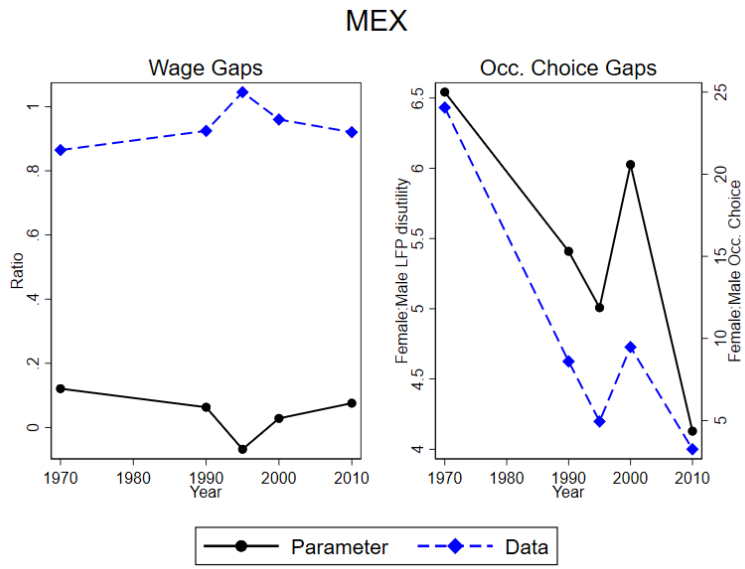


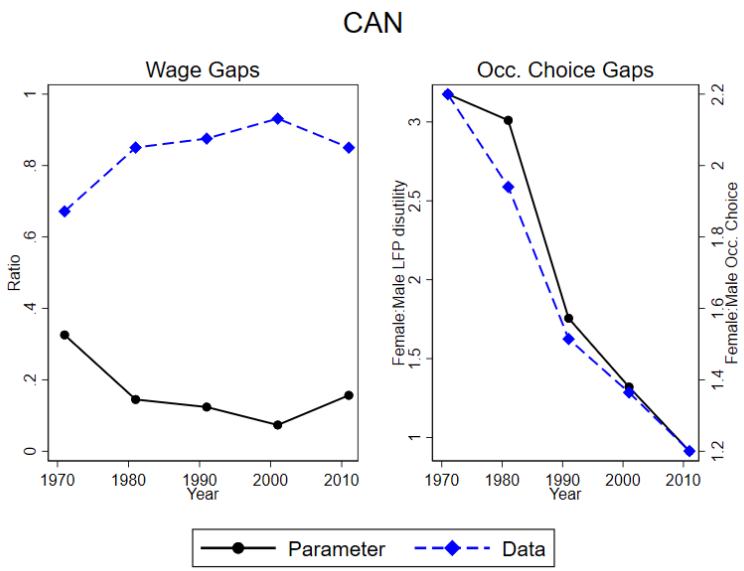


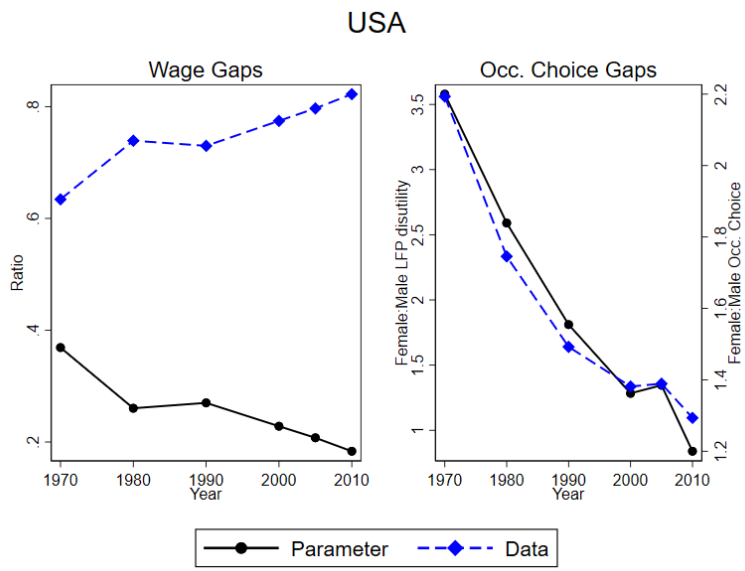
Co-Movements Across Specific Countries over Time

Back



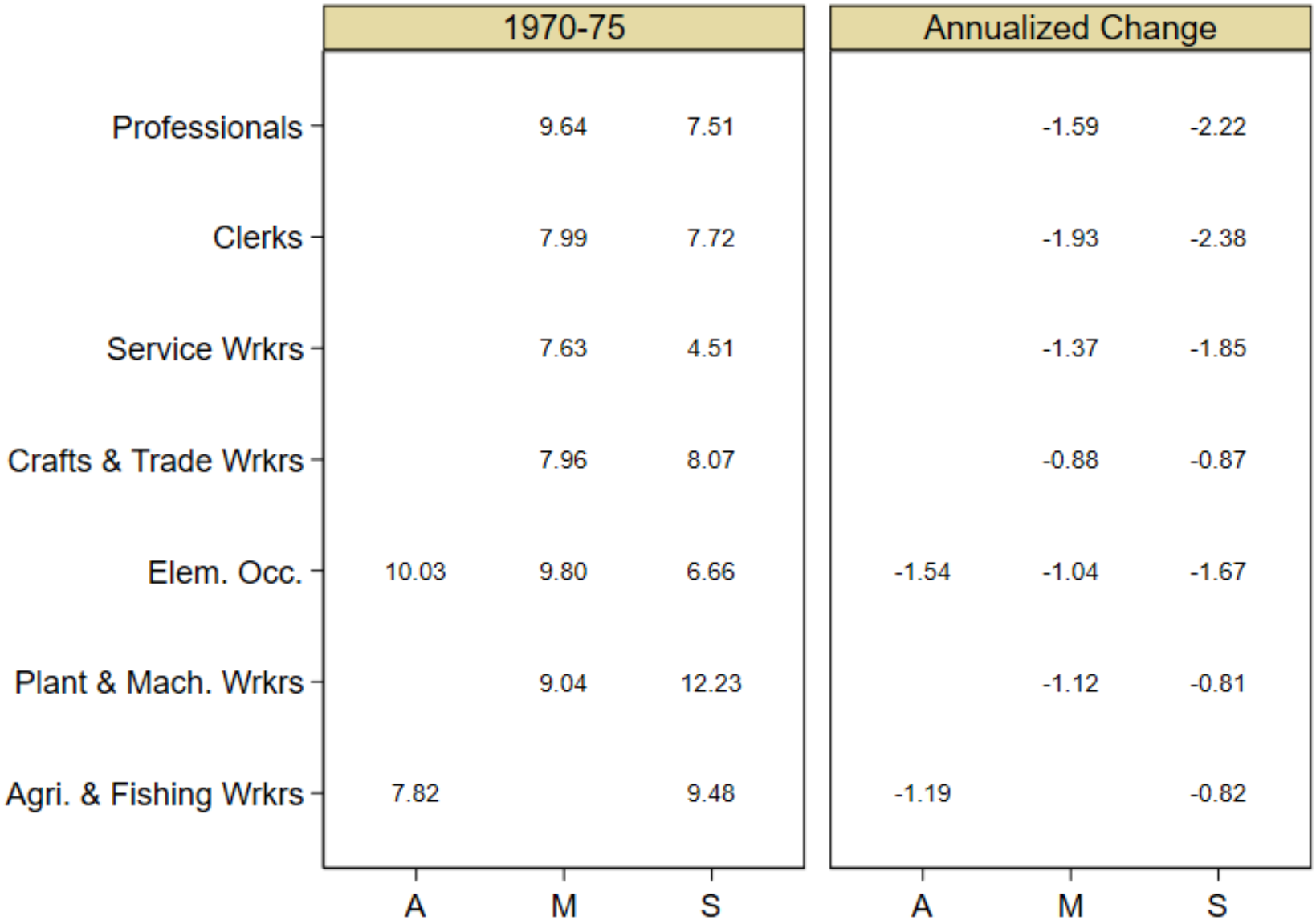






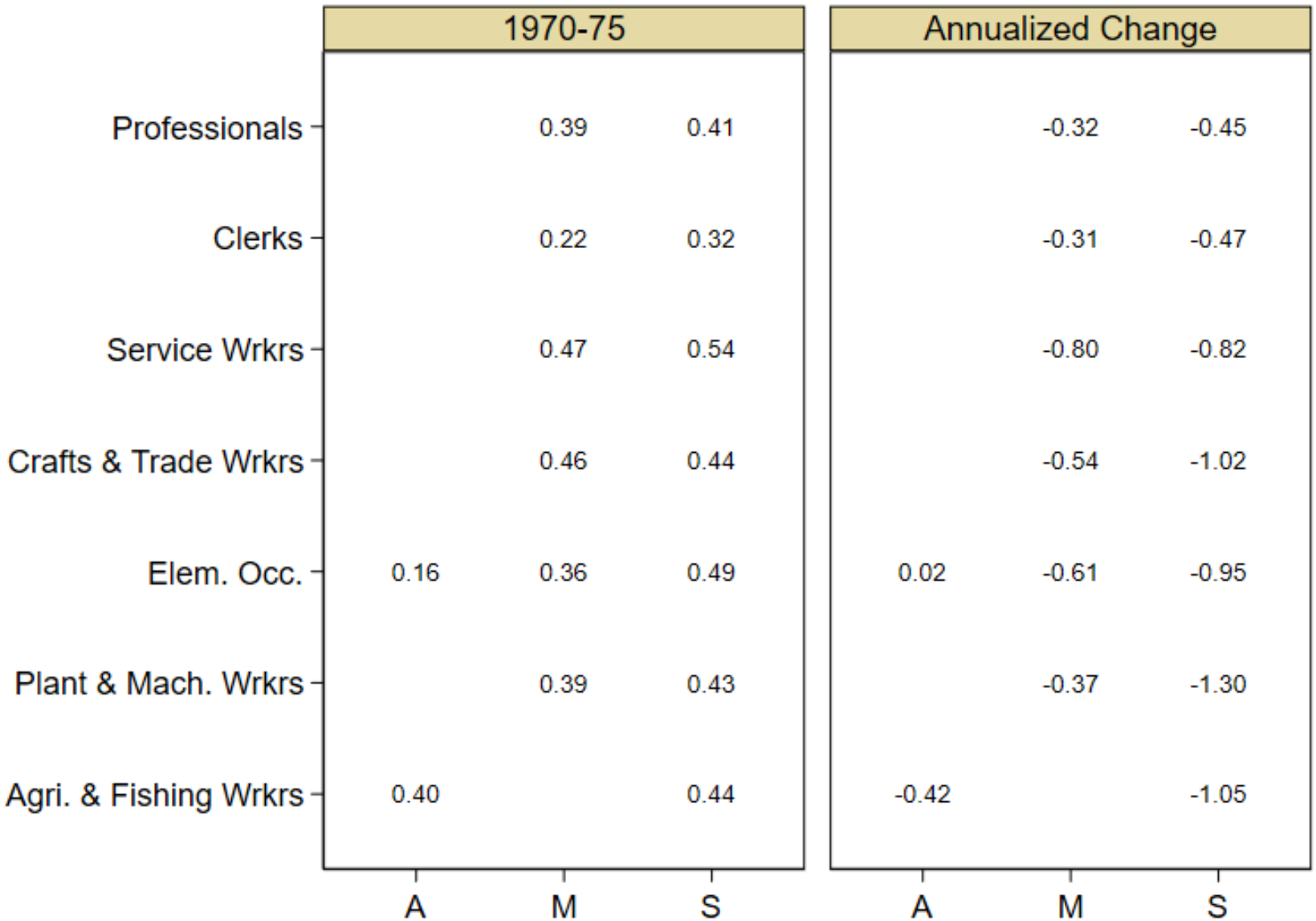
Changes in $\triangle A$

Back



τ Over Time

Back



$\triangle A$ Across Countries

Back

	1970-75	2005-10	1970-75	2005-10	1970-75	2005-10
	(1)	(2)	(3)	(4)	(5)	(6)
Sectors:	Agriculture		Manf.		Services	
IND	6.59	5.70	7.23	6.99	8.65	7.98
IDN	6.21	4.78	6.45	5.57	6.81	4.63
BRA	10.92	3.09	10.63	5.05	7.28	1.57
MEX	14.53	9.62	11.44	6.88	9.68	5.23
CAN	5.14	2.17	6.13	4.18	3.70	0.70
USA	7.38	3.38	5.98	3.17	3.20	0.41
AVG	8.46	4.79	7.98	5.31	6.55	3.42
Occs:	Ag./Manf.		Elem./Services		Prof./Mngr.	
IDN	6.35	5.11	6.14	4.03	8.16	4.73
BRA	11.21	3.34	8.06	2.98	7.52	1.24
MEX	14.31	9.52	10.17	5.72	9.88	4.91
CAN	7.39	3.25	4.24	2.04	3.76	0.11
USA	5.06	2.79	3.83	1.28	4.69	0.61
AVG	8.55	4.99	6.57	3.78	7.08	3.19

τ Across Countries

Back

	1970-75	2005-10	1970-75	2005-10	1970-75	2005-10
	(1)	(2)	(3)	(4)	(5)	(6)
Sectors:	Agriculture		Manf.		Services	
IND	0.30	0.47	0.47	0.42	0.08	0.19
IDN	0.49	0.20	0.50	0.27	0.31	0.24
BRA	0.42	0.05	0.36	0.16	0.48	0.19
MEX	-0.09	0.09	0.42	0.29	0.43	0.05
CAN	0.50	0.33	0.43	0.13	0.47	0.14
USA	0.33	0.17	0.41	0.22	0.46	0.20
AVG	0.33	0.22	0.43	0.25	0.37	0.17
Occs:	Ag./Manf.		Elem./Services		Prof./Mngr.	
IND	0.31	0.51	0.37	0.37	-0.25	0.06
IDN	0.48	0.19	0.41	0.32	0.14	0.11
BRA	0.40	0.06	0.44	0.14	0.53	0.32
MEX	0.01	0.10	0.41	0.14	0.36	0.19
CAN	0.40	0.25	0.47	0.10	0.47	0.24
USA	0.41	0.23	0.44	0.17	0.46	0.27
AVG	0.34	0.22	0.42	0.21	0.28	0.20

Changes in Gender Barriers in LMICs and HICs Over Time

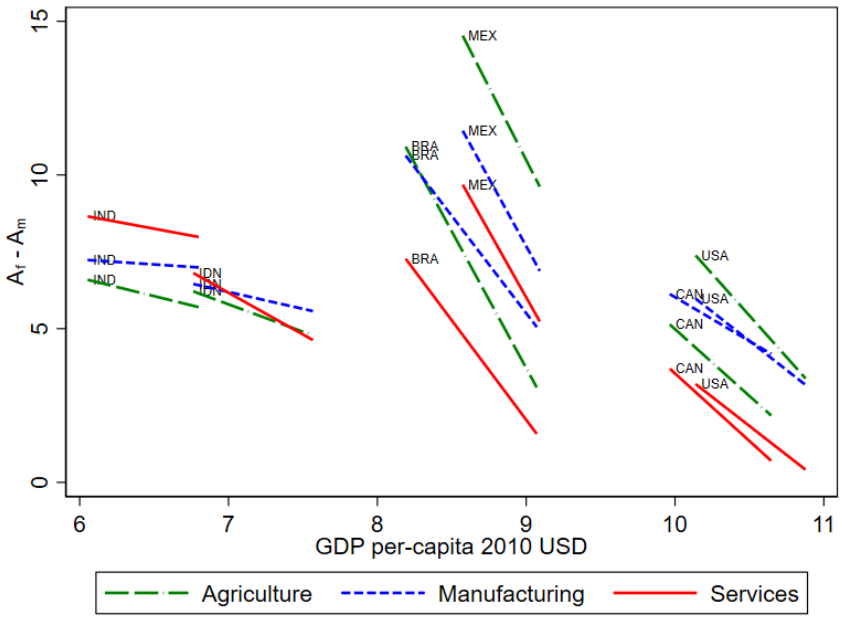
Discr. τ | Norms/Pref. A

$$Y_{ojct} = \alpha + \beta_{HIC}\text{Post}_t \times HIC_c + \beta_{LIC}\text{Post}_t \times LIC_c + \gamma HIC_c + \varepsilon_{ojct}$$

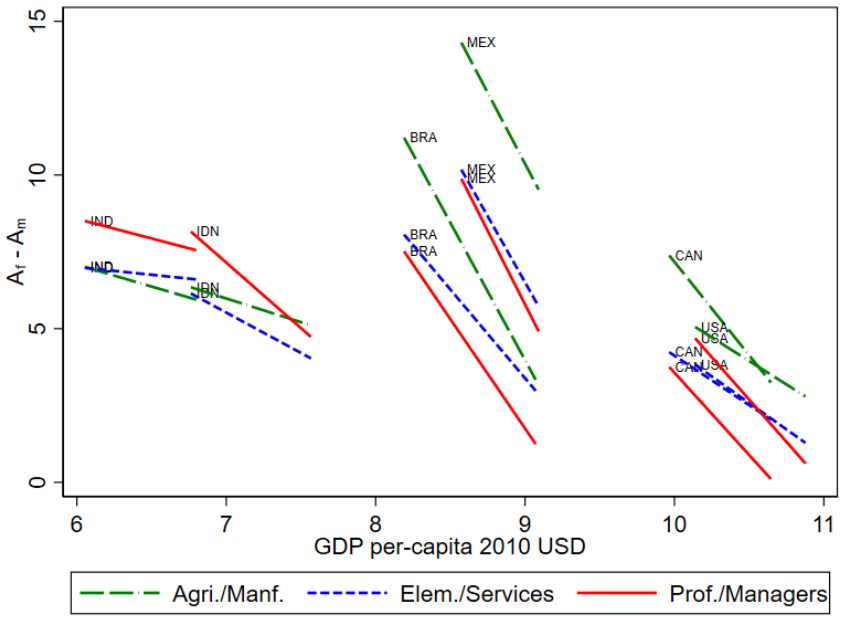
	τ_{oj}			Diff. LFP Costs		
	(1)	(2)	(3)	(4)	(5)	(6)
1(2000-15) × HIC	-0.179***	-0.179***	-0.179***	-3.982***	-3.982***	-3.982***
	(0.048)	(0.049)	(0.051)	(0.690)	(0.699)	(0.481)
1(2000-15) × LMIC	-0.025	-0.030	-0.030	-2.545***	-2.784***	-2.784***
	(0.033)	(0.036)	(0.033)	(0.430)	(0.404)	(0.303)
HIC Mean—Post=0	0.27	0.27	0.27	6.48	6.48	6.48
LMIC Mean—Post=0	0.17	0.17	0.17	8.25	8.25	8.25
p-val: $\beta_1 = \beta_2$	0.01	0.01	0.01	0.08	0.14	0.04
N	300	300	300	300	300	300
R^2	0.04	0.09	0.26	0.25	0.41	0.71
Country FE	No	Yes	Yes	No	Yes	Yes
Sector-Occ FE	No	No	Yes	No	No	Yes

$\triangle A$ Across Countries

Heat Map | Across Countries | Back



(a) Across Sectors

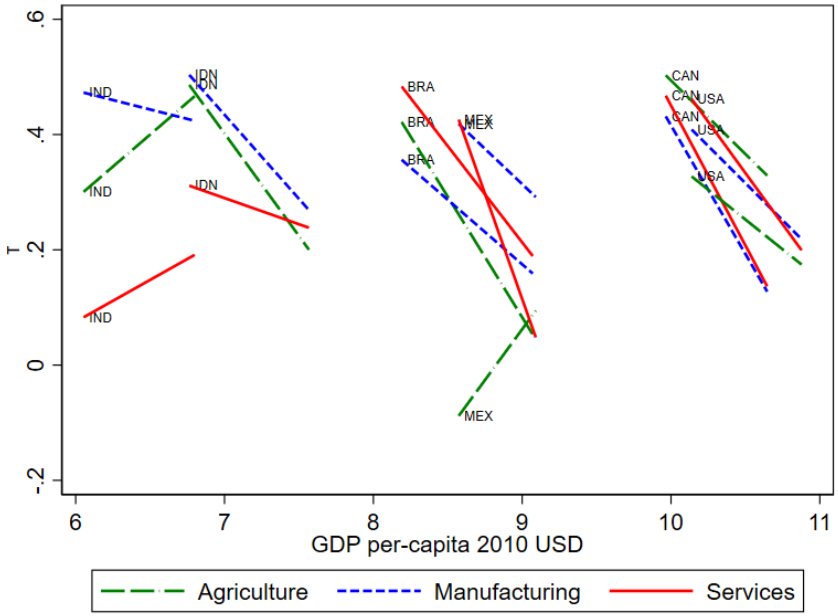


(b) Across Occupations

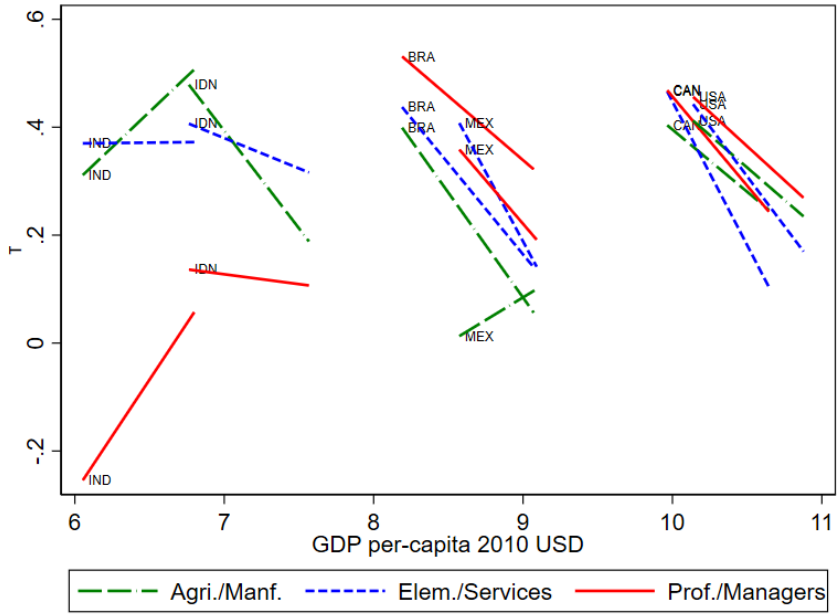
- Decrease across all countries and all sectors-occupations
- Largest changes in MICs and HICs
- Gaps still larger in LICs and MICs as compared to HICs

τ Across Countries

Heat Map | Across Countries | Back



(a) Across Sectors



(b) Across Occupations

- Decrease across all countries (except IND) and all sectors
- Largest reductions in MICs and HICs
- Gaps are similar in HICs and MICs, higher in LICs

$\triangle A$ and τ Over Time

	Gender Norms			Wage Penalty		
	1970-75	2005-10	Change	1970-75	2005-10	Ch
	(1)	(2)	(3)	(4)	(5)	
Agriculture	-103.68	-336.21	-551.78	2.28	0.48	-4
Manufacturing	-78.10	-56.94	52.88	2.19	1.03	-2
Services	-31.88	-15.43	40.16	0.92	0.58	-0
Professional	5.91	2.24	-8.96	0.29	0.27	-0
Clerk	5.22	1.88	-8.24	0.15	0.09	-0
Craft, Trade, Service	6.06	4.08	-4.74	0.46	0.24	-0
Agricultural	7.49	4.86	-6.36	0.35	0.14	-0
Machine Op. and Elem.	7.04	4.31	-6.73	0.38	0.17	-0

$\triangle A$ Across Countries | τ Across Countries

Gender Gap in Returns to Ability (κ_{ojg}) Back

Figures/Estimation/cdf_kappa.png

Figure: Ratio of $\kappa_{ojf}/\kappa_{ojm}$

- Significant improvements across decades, especially when $\kappa_{ojf}/\kappa_{ojm} < 1$.

Changes in WBL

Back

Figure: Changes in WBL

Changes in FLFPR and Employment Over Time

	Baseline	Fixed τ	Fixed $\triangle A$	Fix Both
	(1)	(2)	(3)	(4)
Panel A: Changes in Sectoral Employment				
LFPR	0.38	0.32	-0.39	-0.45
Agriculture	-0.13	-0.13	-0.26	-0.27
Manf.	0.04	0.03	-0.04	-0.05
Services	0.47	0.43	-0.09	-0.13
Panel B: Changes in Occupational Employment				
Ag./Manf. Workers	-0.14	-0.15	-0.28	-0.28
Elem. Workers.	0.19	0.15	-0.16	-0.20
Prof./Managers	0.33	0.32	0.04	0.03

Back

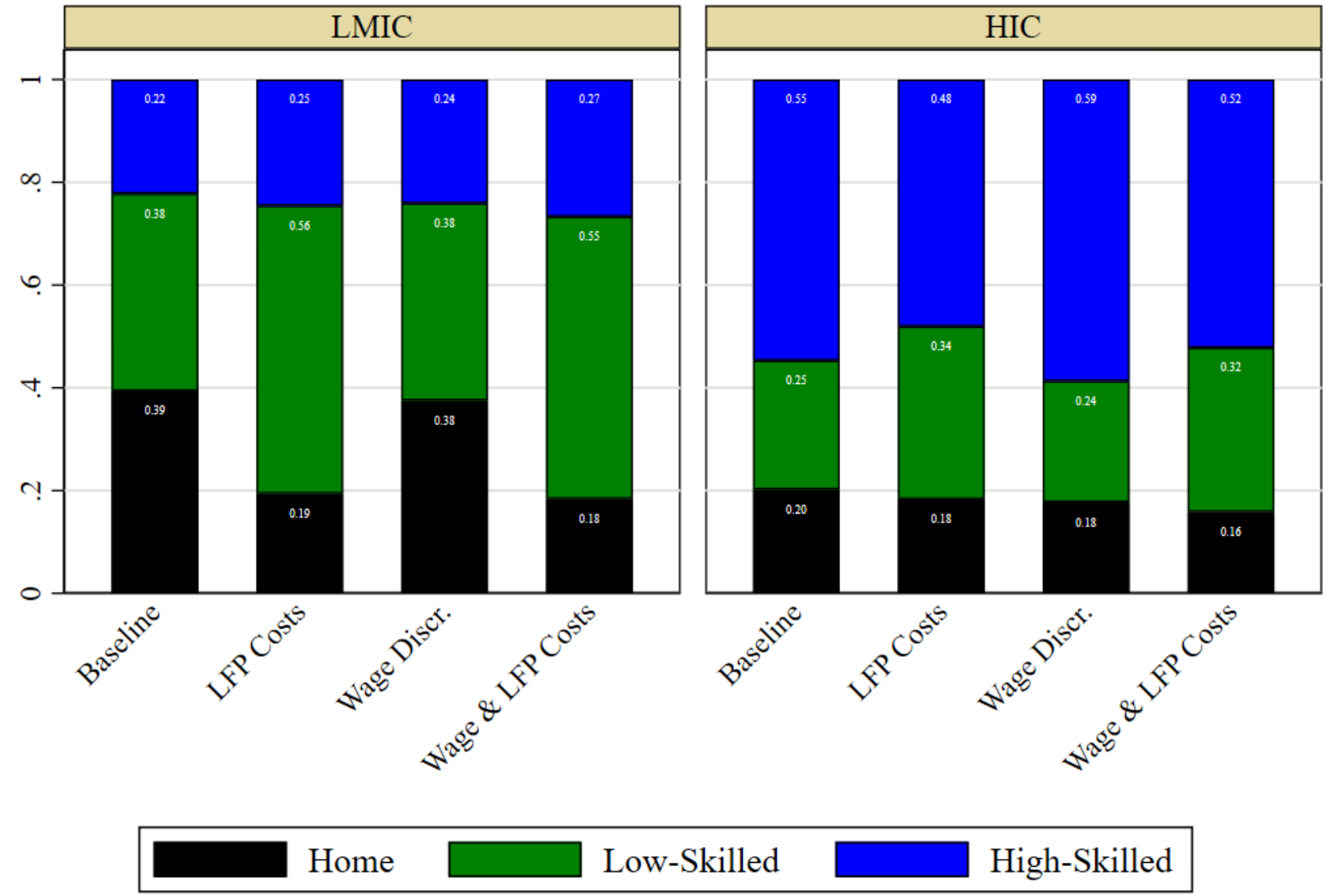
Changes in Male LFPR and Employment Over Time

	Baseline	Fixed τ	Fixed $\triangle A$	Fix Both
	(1)	(2)	(3)	(4)
Panel A: Changes in Sectoral Employment				
LFPR	-0.20	-0.19	-0.17	-0.16
Agriculture	-0.60	-0.60	-0.59	-0.59
Manf.	0.07	0.08	0.07	0.07
Services	0.33	0.33	0.36	0.36
Panel B: Changes in Occupational Employment				
Ag./Manf. Workers	-0.51	-0.51	-0.52	-0.52
Elem. Workers.	0.14	0.14	0.14	0.14
Prof./Managers	0.18	0.18	0.21	0.21

Back

Occupation Choices

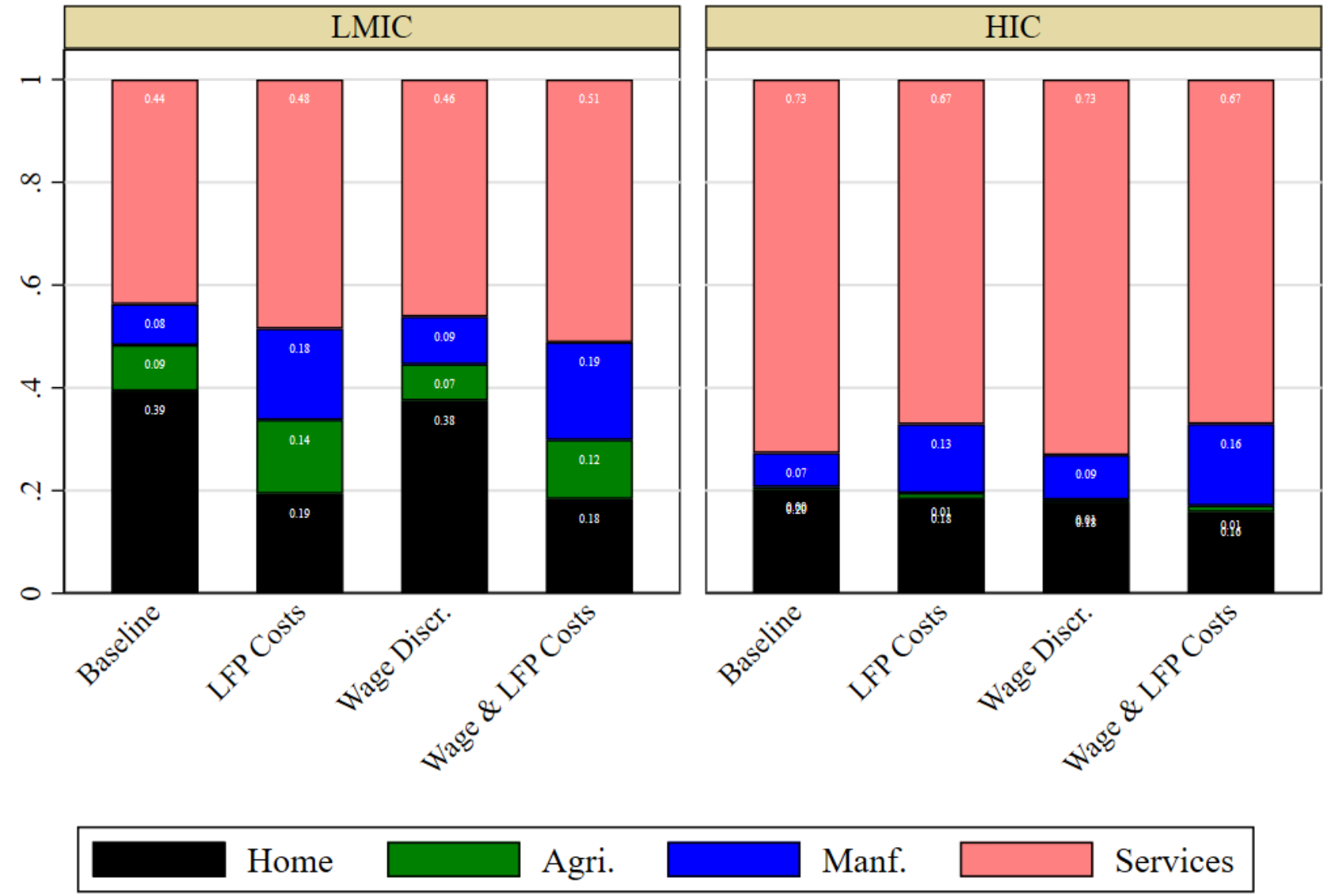
Back



Graphs by hic

Sectoral Choices

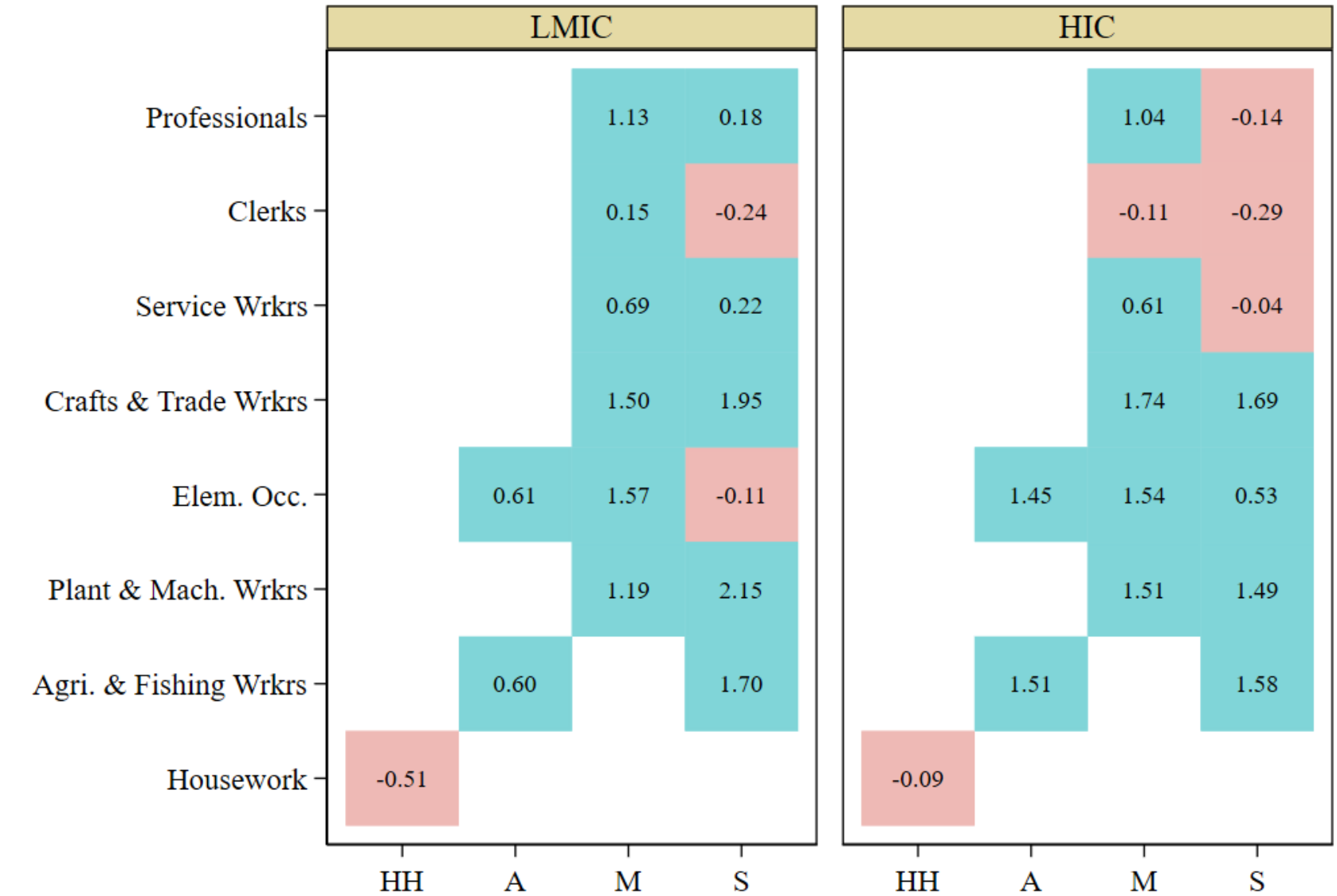
Back



Graphs by hic

Sectoral and Occupational Choices

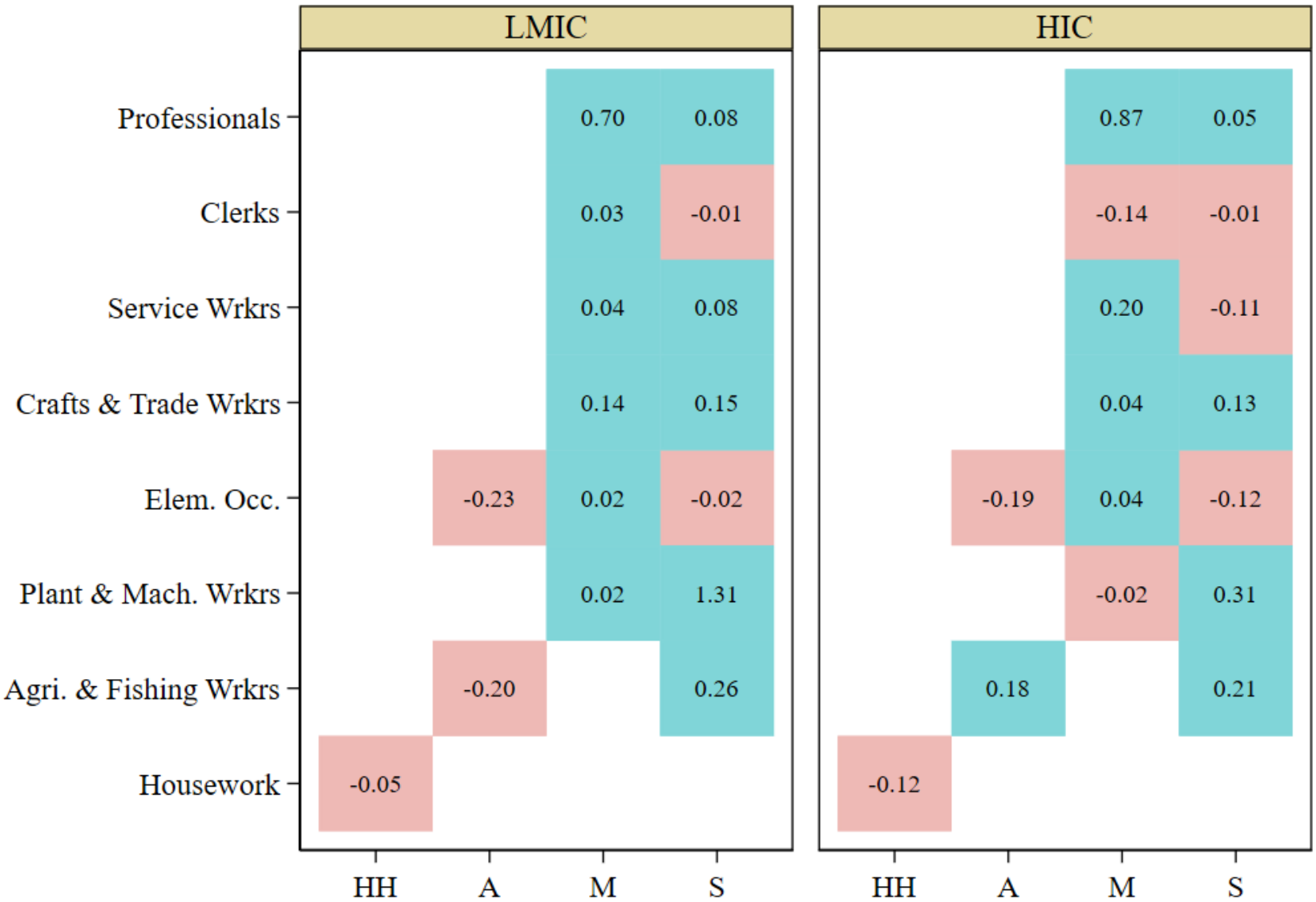
Back



Graphs by hic

Sectoral and Occupational Choices

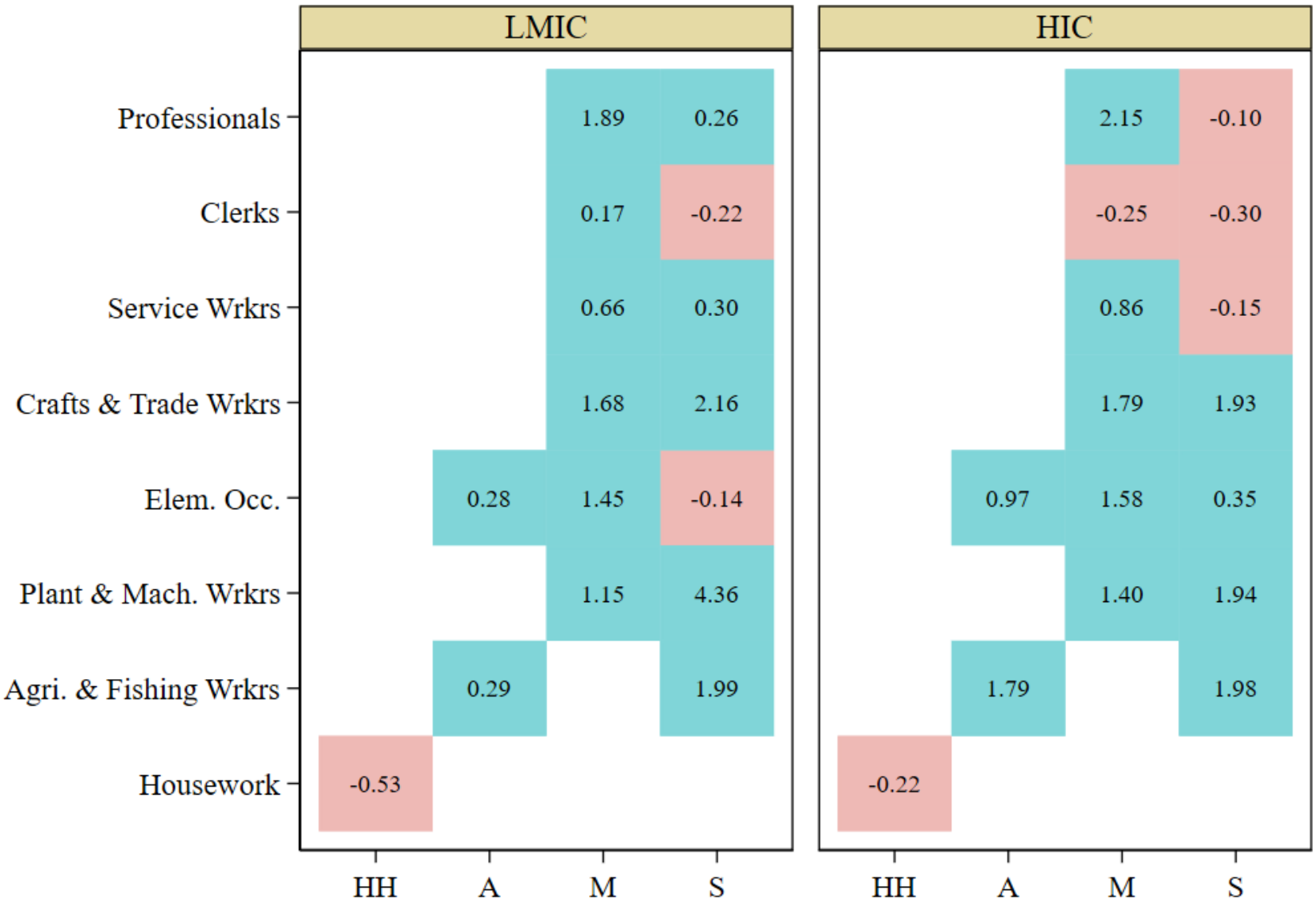
Back



Graphs by hic

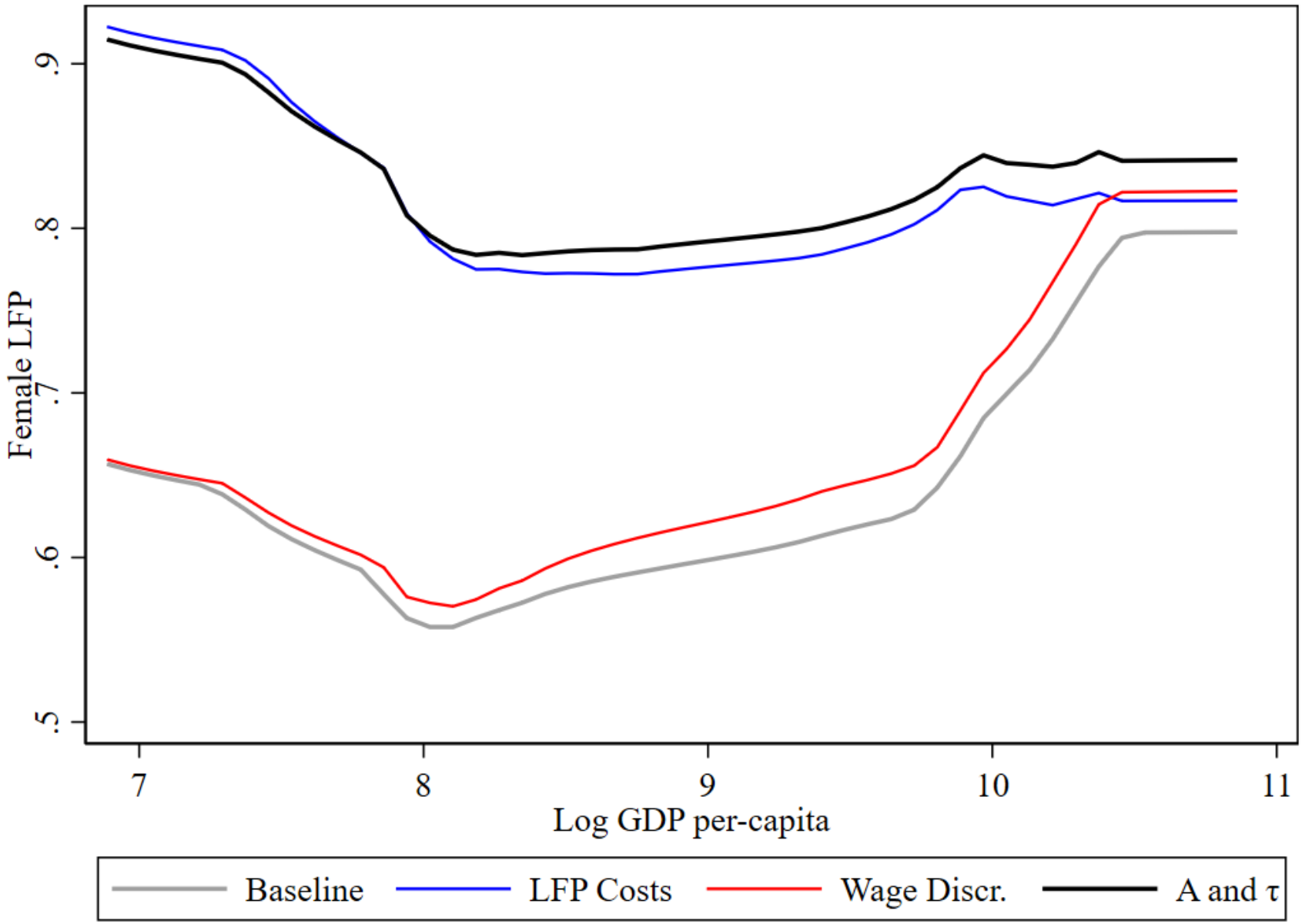
Sectoral and Occupational Choices

Back



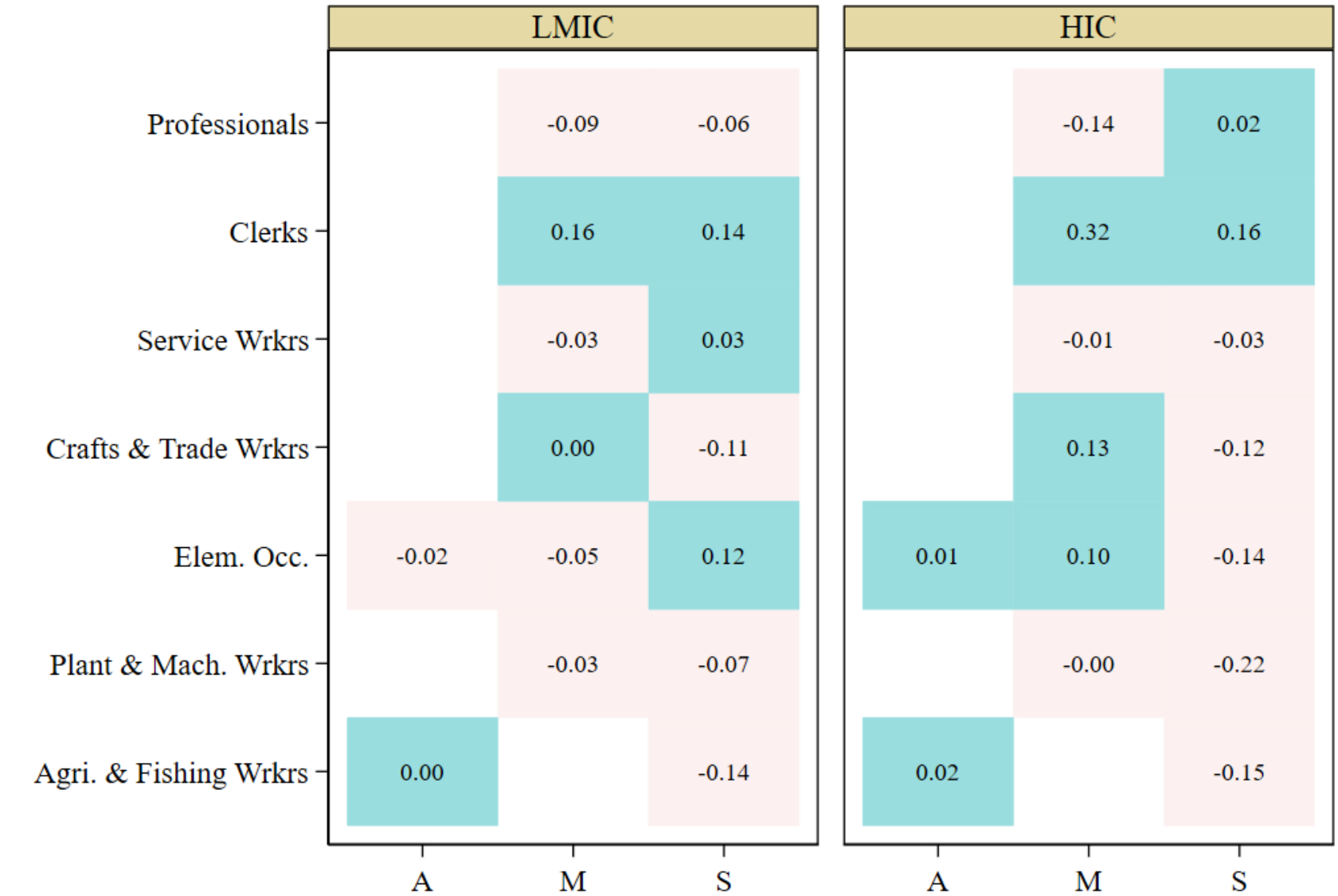
Sectoral and Occupational Choices

Back



Sectoral and Occupational Choices

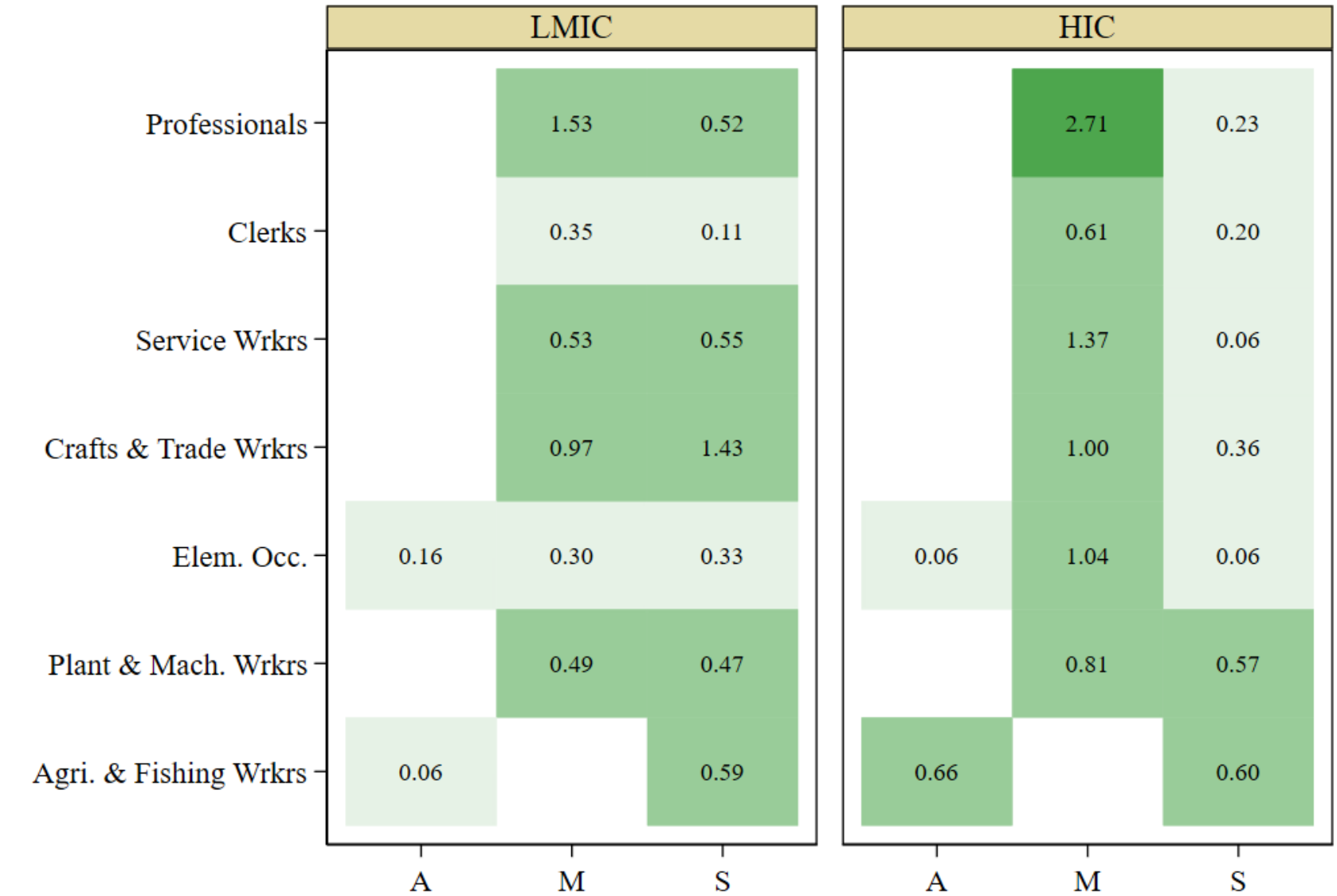
Back



Graphs by hic

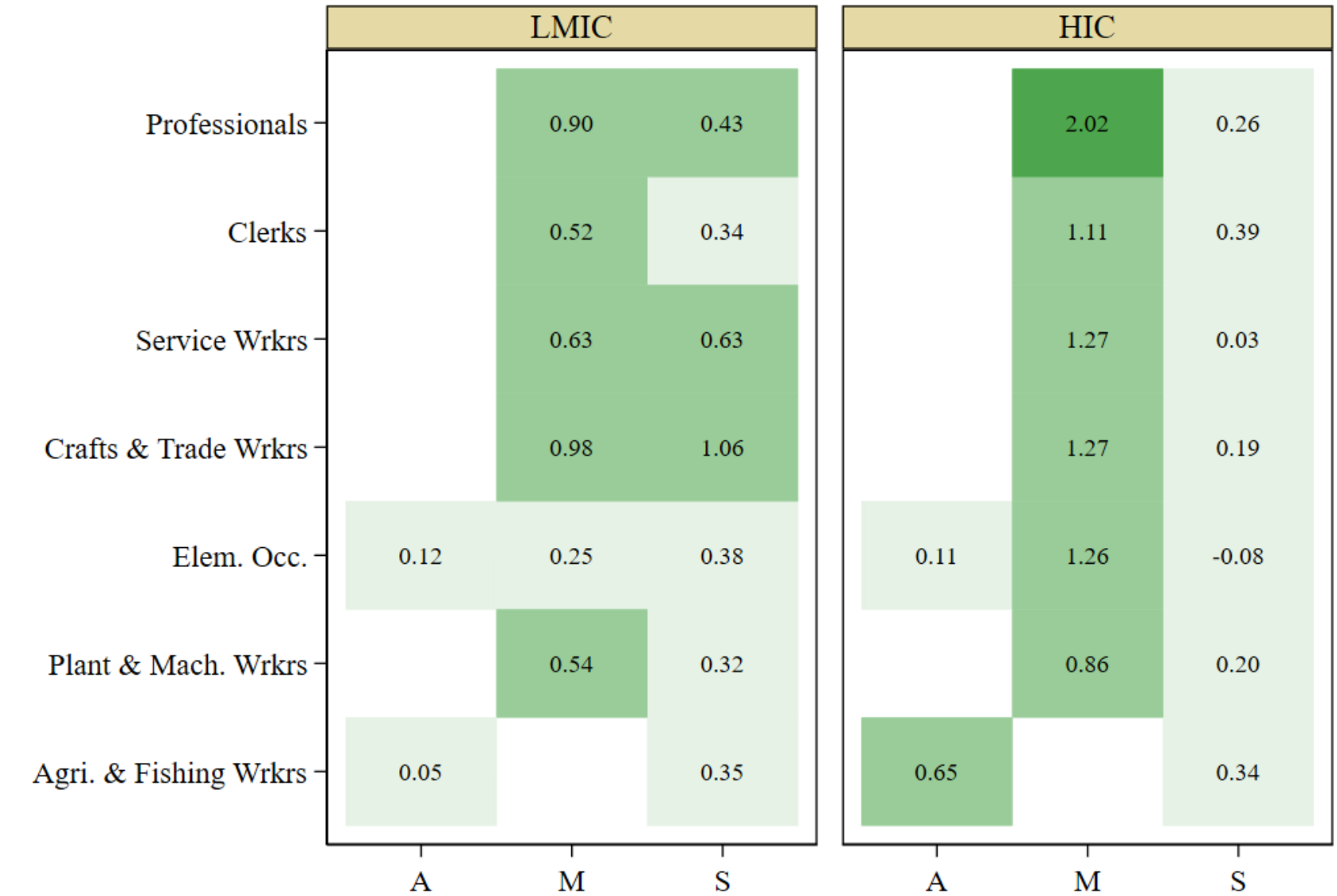
Sectoral and Occupational Choices

Back



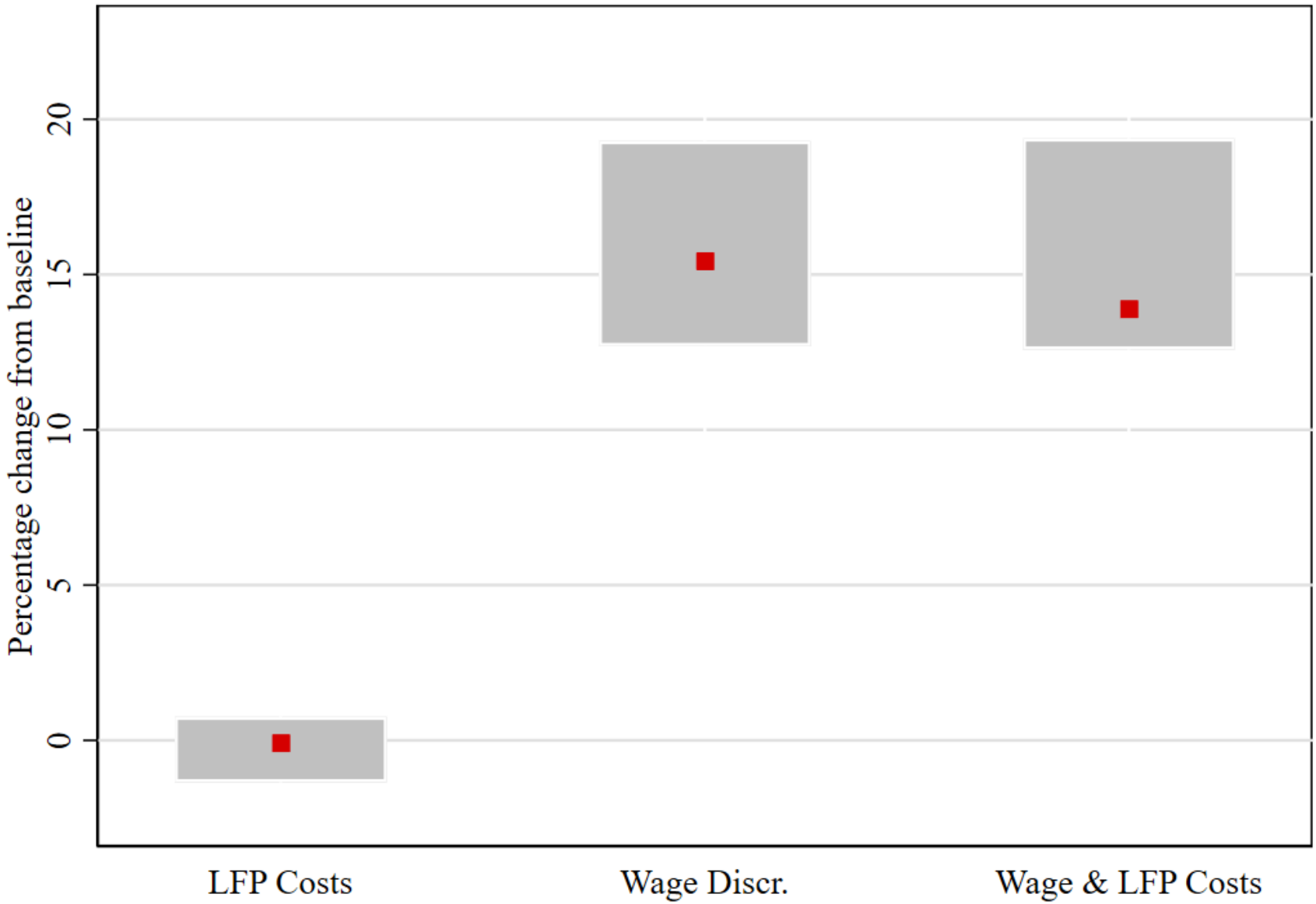
Sectoral and Occupational Choices

Back



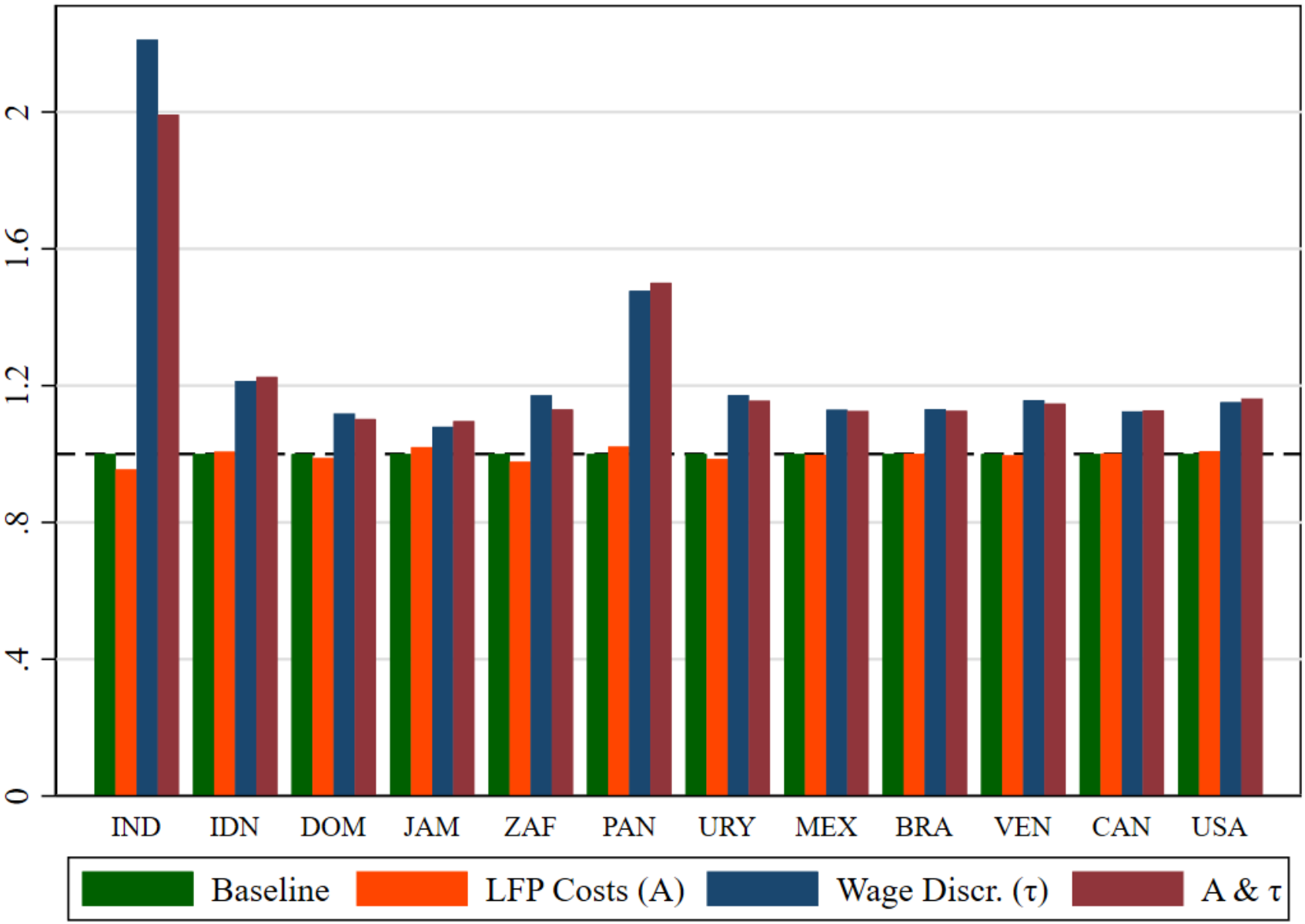
Changes in Aggregate Real Income

Back



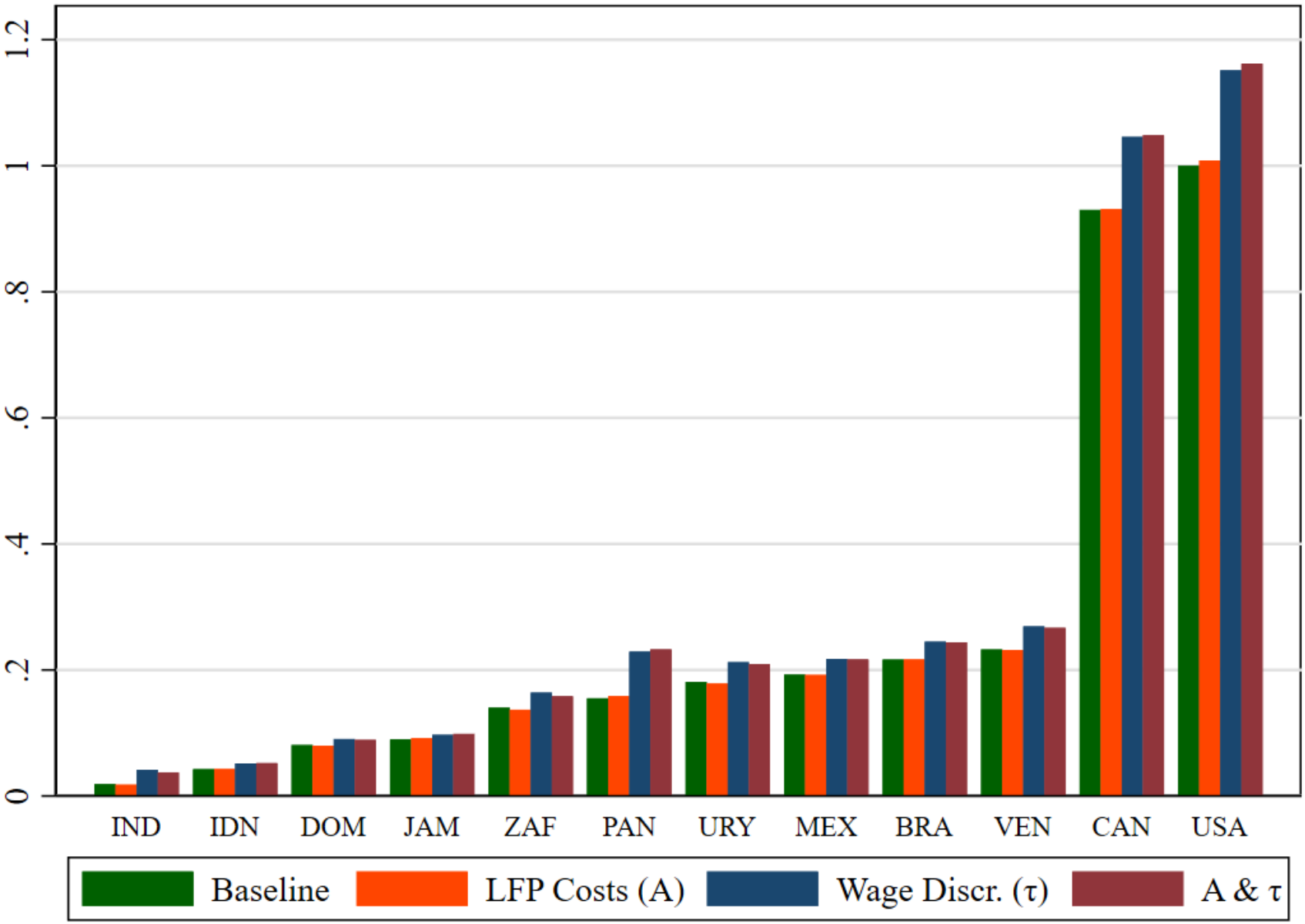
GDP changes

Back



GDP changes relative to US

Back



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