

WORKSHOP-Global shifts in the Employment Structure

11 November 2021

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Changes in Occupations and their Task Content. Implications for Employment and Inequality in Argentina, 2003-19*

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* WIDER Working Paper 2021/15. Project “The changing nature of work and inequality “ UNU-WIDER.

Objectives

- Analyze the **patterns of changes in occupations, earnings and their task content** in Argentina during the new millennium.
- Assess the extent to which these changes resulted in a **polarizing pattern**.
- Evaluate the **role of structural changes in occupation and task in explaining distributional changes**, taking into account institutional (MW) and other country-specific factors in Argentina.

Source of information and methodology

- ▶ Microdata from the “*Encuesta Permanente de Hogares*”. 2003-2019. Urban workers aged 15-64.
- ▶ Occupational coding. Two matchings: (1) Five-digit CNO-01 with two-digit ISCO. (2) ISCO with job task content. O*NET and CS-task content (Lewandowski et al, 2019, 2020).
- ▶ Routine task intensity measure (O*NET and CS-RTI)

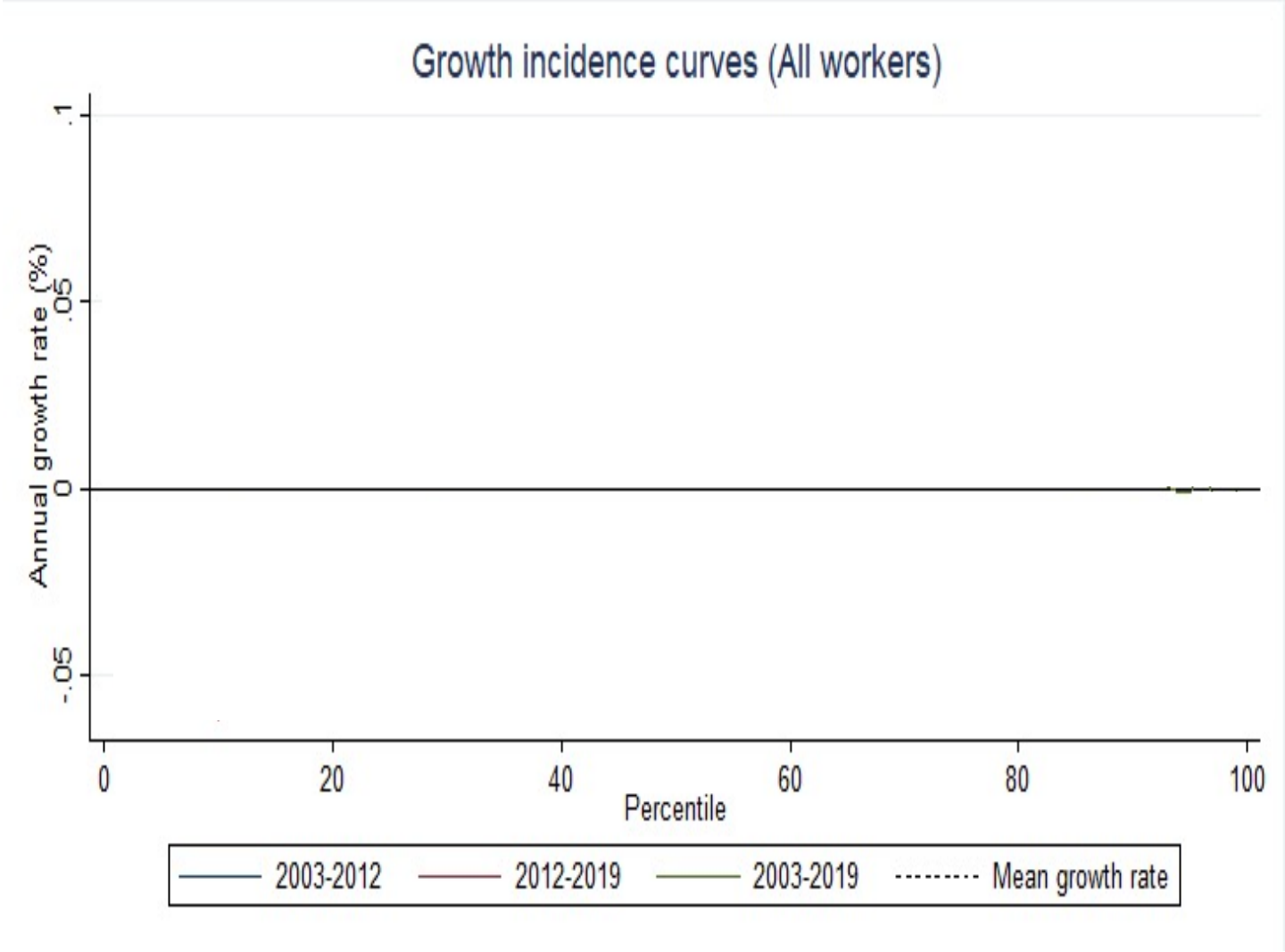
$$RTI = \ln\left(\frac{r_{cognitive} + r_{manual}}{2}\right) - \ln\left(\frac{nr_{analytical} + nr_{personal}}{2}\right)$$

- ▶ **Polarization test (Goos and Manning, 2007):** A polarization pattern involves a negative first (linear) coefficient followed by a positive quadratic coefficient.

$$\Delta \log E_{i,t} = \beta_0 + \beta_1 \log(w_{j,t-1}) + \beta_2 \log(w_{j,t-1})^2$$

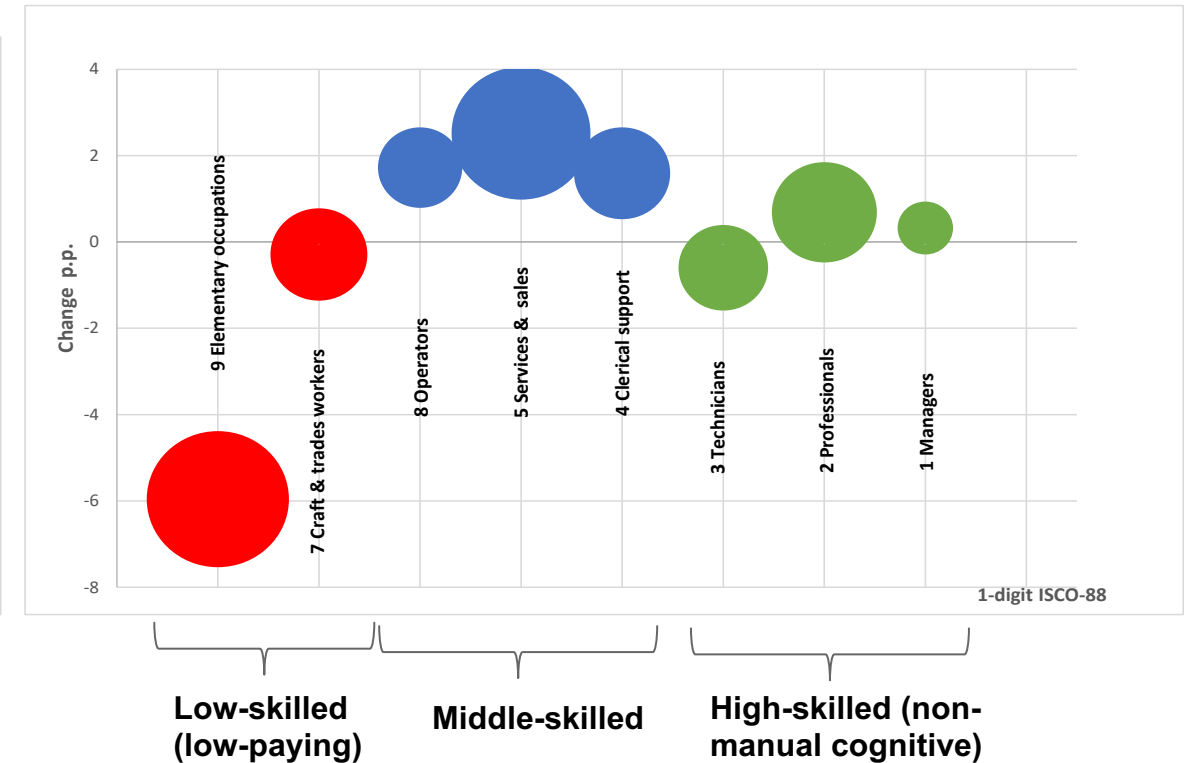
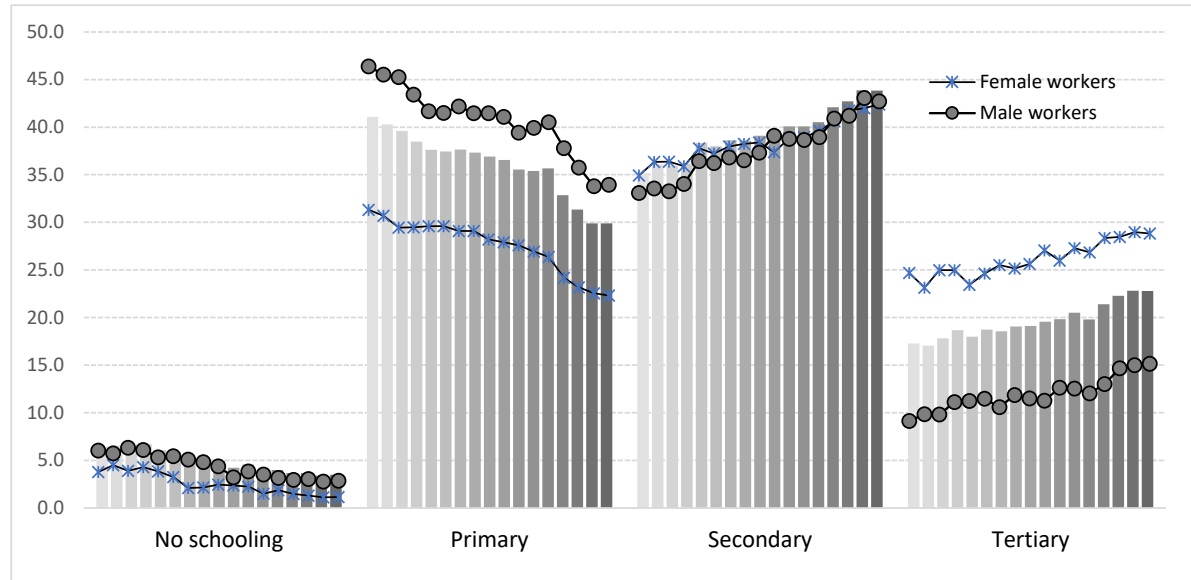
where $\Delta \log E$ is the change in the log employment share of occupation i between $t-1$ and t and $\log(w_{j,t-1})$ is the (log) mean earnings in $t-1$.

Period characterised by a falling trend in inequality. **Two contrasting subperiods: equalizing process during 2003-2012, distributive worsening during 2012-2019.**



Source: authors' elaboration based on EPH

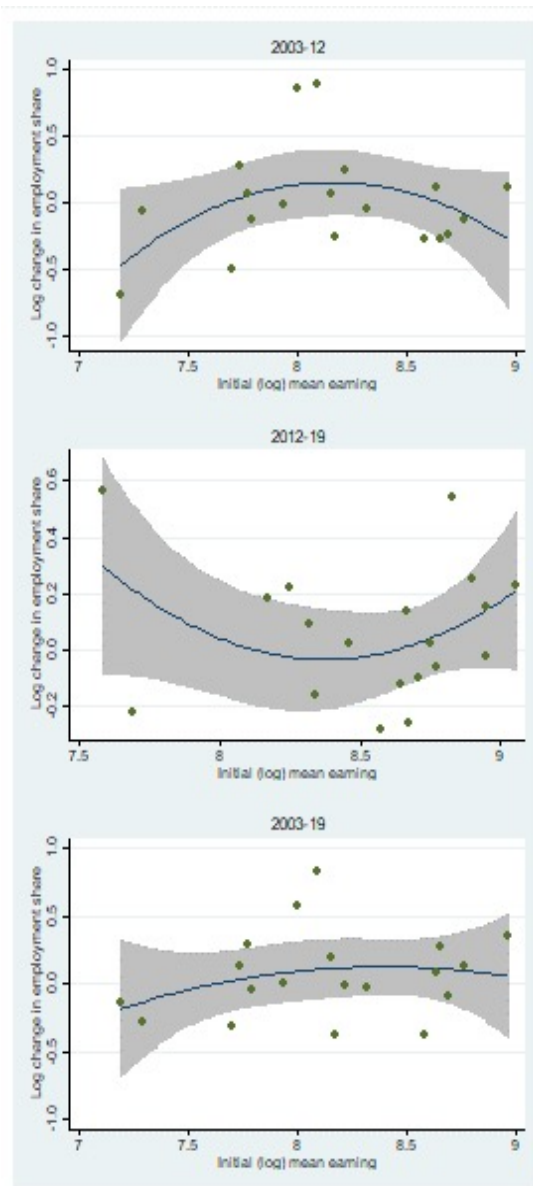
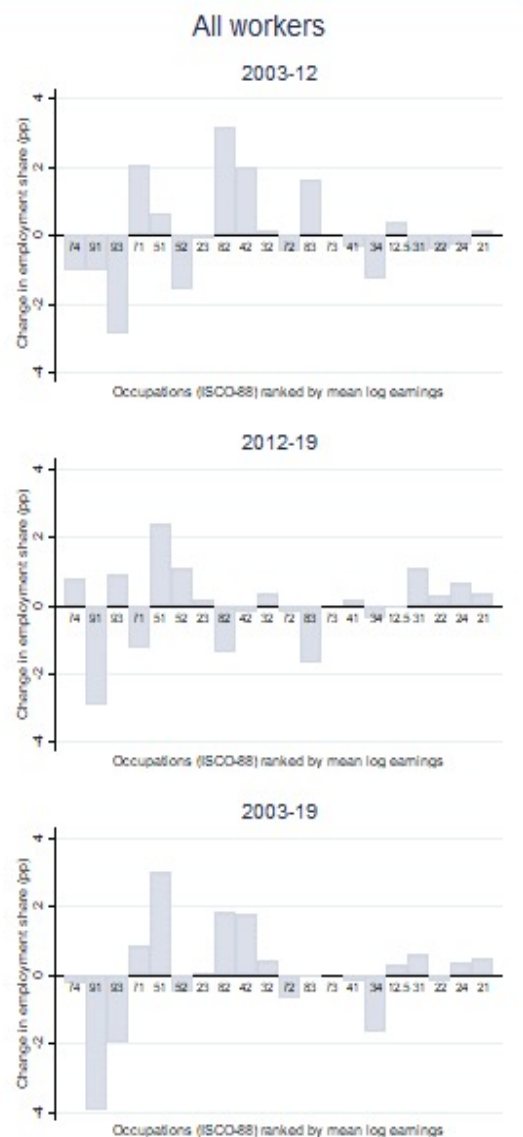
Employment growth by education level and type of occupation (ISCO-88, one digit)



The workforce became more skilled: increase in secondary and tertiary education and a fall in workers with none or primary education.

Relocation from low and –to a lesser extent- high to middle-skilled jobs. **More consistent with an inverted U-shaped pattern than with a polarizing pattern.**

Employment growth by type of occupation (ISCO-88, two digit)



Relocation of workers from low-paid to middle-paid jobs (1st subperiod). High-skilled jobs remained fairly stable or slightly increased over time.

Covariates	Log change in employment share		
	2003 - 2012	2012 - 2019	2003 - 2019
(log) mean hourly wage (t-1)	5.386 (3.386)	-1.499 (3.823)	4.681 (3.043)
Sq. (log) mean hourly wage (t-1)	-0.339 (0.214)	0.099 (0.231)	-0.284 (0.194)
Constant	-21.395 (13.304)	5.587 (15.734)	-19.287 (11.882)
Observations	19	19	19
R-squared	0.073	0.092	0.098
Adj. R-squared	-0.0426	-0.0214	-0.0149
F test	0.296	0.256	0.0384

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

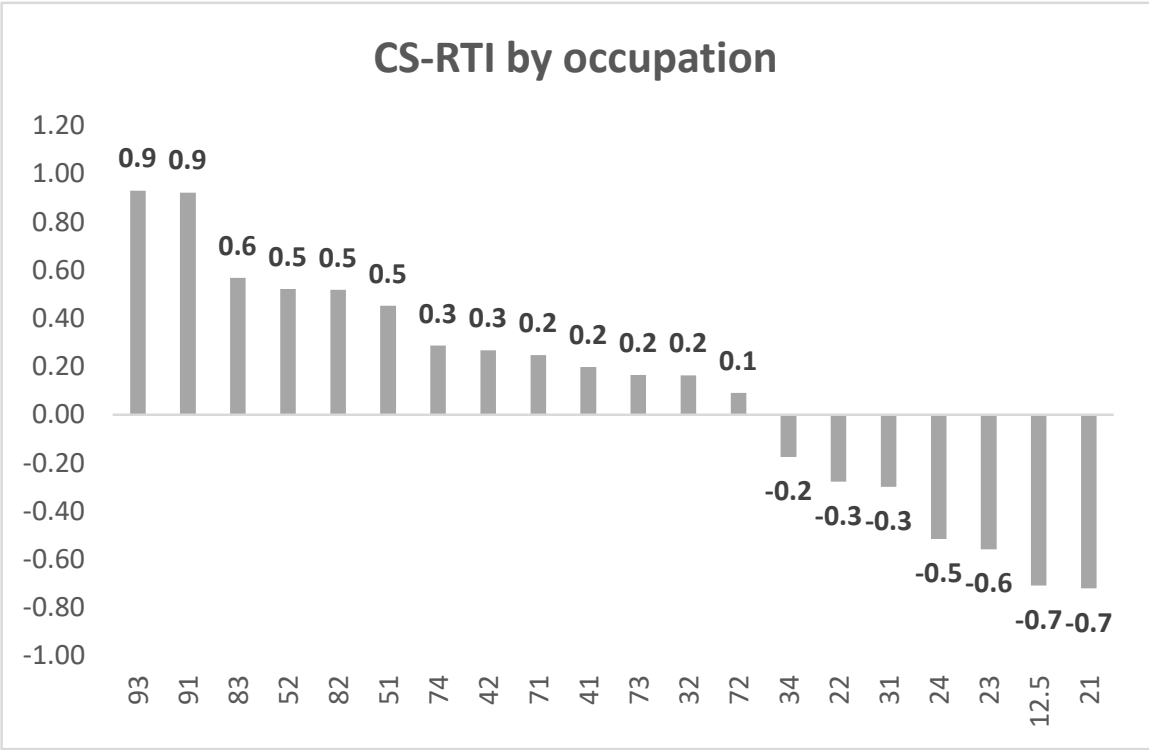
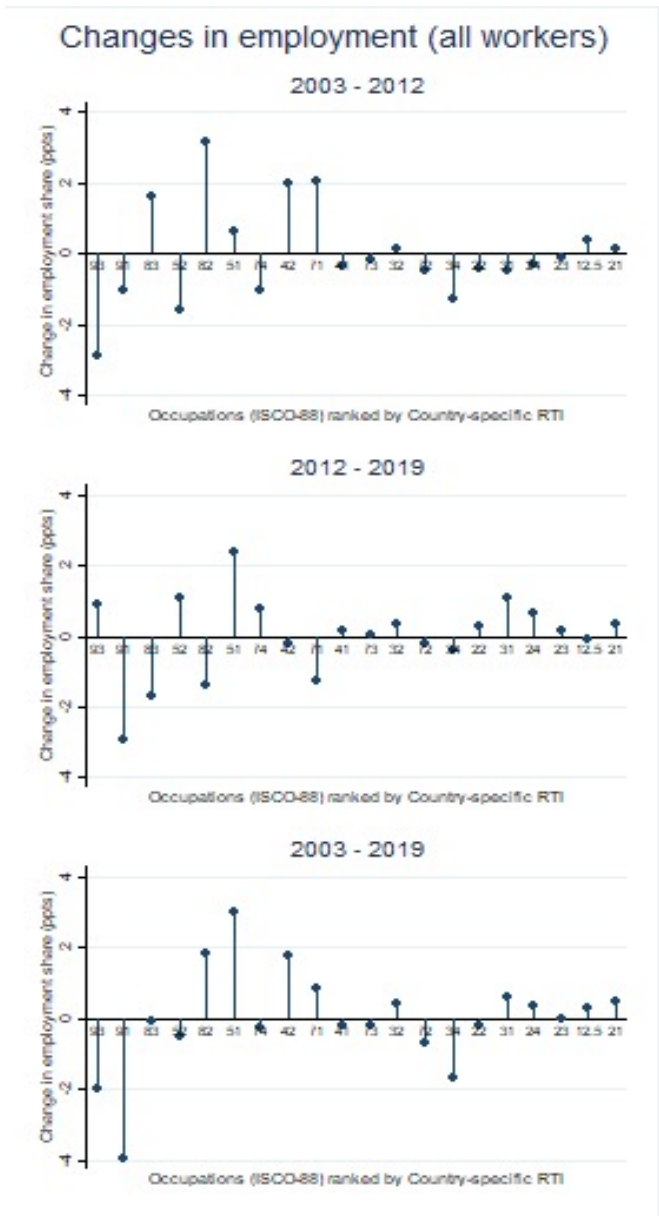
Source: Authors' elaboration based on EPH

Non-significant changes in employment (neither polarization nor inverted-U)

Employment composition by job task content. Two Routine Task Intensity: CS-RTI

(Lewandowski et al., 2019, 2020)

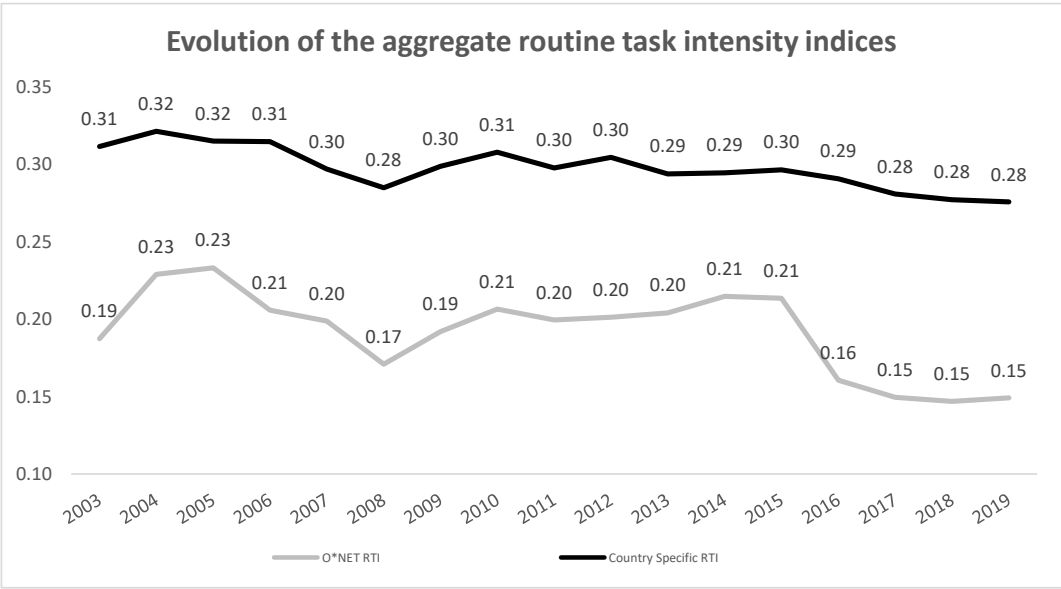
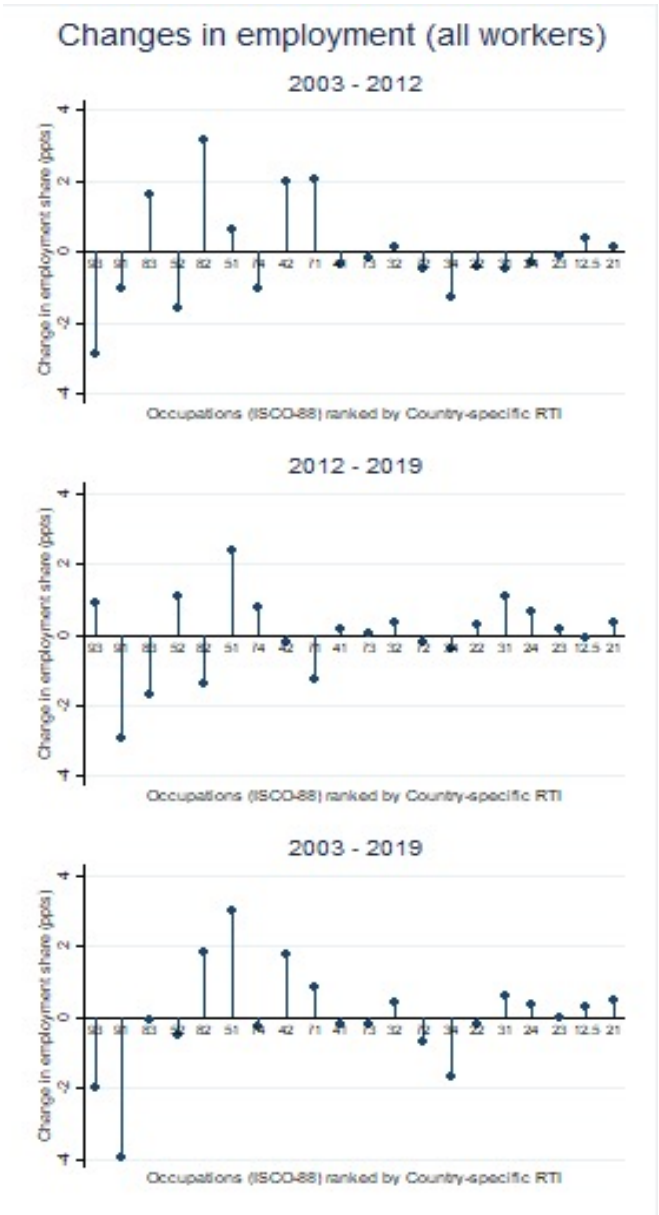
A loss of the share of occupations with high RTI, and less intense reduction (or some slight increase) with low RTI. Similar to the profile when jobs are ranked by mean earnings.



Employment composition by job task content. Two RTI: O*NET RTI and CS-RTI

A loss of the share of occupations with high RTI, and less intense reduction (or some slight increase) with low RTI. Similar to the profile when jobs are ranked by mean earnings.

Decline in average RTI regardless of the measure used. It is, partly, associated with the reduction in the share of elementary occupations



Test of earning polarization

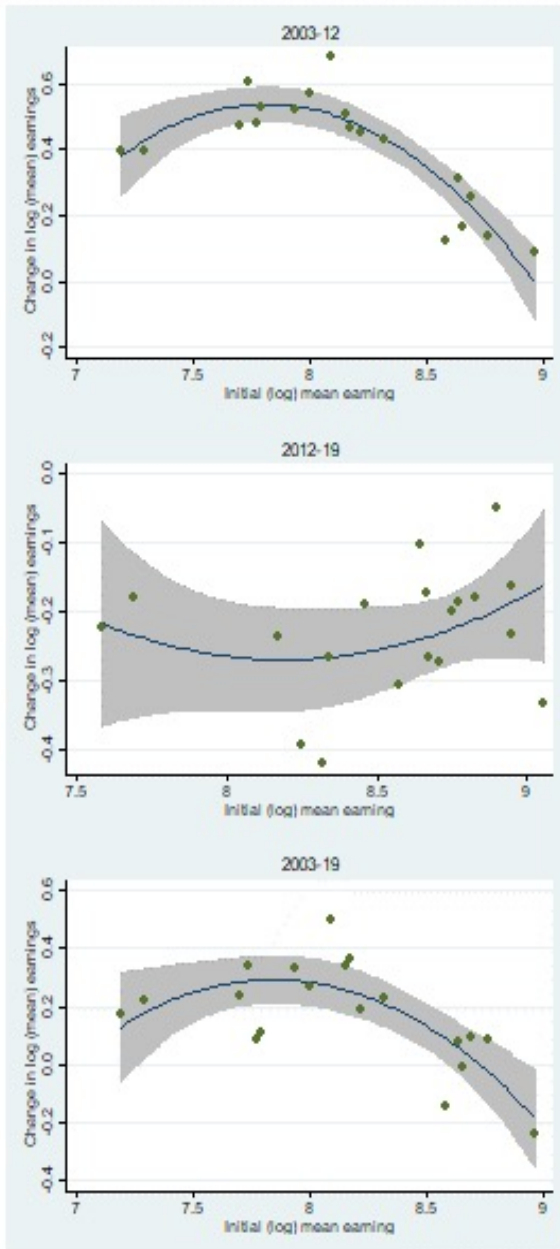
$$\Delta \log(w_{j,t}) = \beta_0 + \beta_1 \log(w_{j,t-1}) + \beta_2 \log(w_{j,t-1})^2$$

	2003-2012	2012-2019	2003-2019
(log) mean hourly wage (t-1)	6.703*** (0.765)	-5.773** (2.263)	3.668** (1.675)
Sq. (log) mean hourly wage (t-1)	-0.429*** (0.049)	0.349** (0.138)	-0.237** (0.106)
Constant	-25.666*** (2.962)	23.553** (9.265)	-13.941** (6.574)
Observations	20	20	20
R-squared	0.750	0.362	0.314
Adj. R-squared	0.721	0.287	0.234
F test	0.000	0.036	0.043

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' elaboration based on EPH



Significant changes in earnings: an inverted U-shaped growth in the first period, characterized by a decreasing trend in inequality. On the contrary, a polarization pattern in the second period. Generalized fall of real earnings and rising inequality, the greatest reductions among middle-paid jobs.

Final remarks and discussion

- We found a “third outcome”: **non-significant changes in employment but significant changes in earnings**. Earnings grew in low-paying occupations while employment shares fell for these jobs.
- These findings imply that **forces other than labour demand and technology may also have had an impact on employment and distribution**.
 - ❖ These changes could be the result of an automation process but also of other domestic and external factors
 - ❖ The speed and type of technology adoption: Ongoing process which full realization calls for a longer period of time
 - ❖ Macroeconomic instability and strong changes in relative prices (real exchange rate)
- **Distributive impacts of these changes**. Whether or not technological change and offshoring result in a polarizing pattern depends on several factors:
 - ❖ The initial position of different jobs with different RTI in wage distribution
 - ❖ The role of other country-specific factors (e.g., labour institutions, formality)

Current research (as part of 2021 Labour Overview)

- Analysis of changes in the composition of employment by type of occupation in 8 LACs: Argentina, Brazil, Chile, Costa Rica, Ecuador, Mexico, Peru and Uruguay.
 - Source of information: regular employment surveys.
 - Period: 2003-2010/2011-19. 2020-2021 (COVID19 pandemic)
 - Unit of analysis: jobs. ISCO-08 one-digit / two-digit level
 - Variable to rank jobs: initial mean wages / initial mean years of education
 - Dimensions included in the analysis: gender, education, formality, etc.
- Assessment of jobs task content in 4 LACs: Chile, Ecuador, Mexico and Peru.
 - Source of information: PIACC. RTI index.
 - Years: Chile (2014), Ecuador, Mexico and Peru (2017). Merge the task content into regular household surveys.
 - Unit of analysis: jobs. ISCO-08 one-digit / two-digit level
 - Variable to rank jobs: initial mean wages / initial mean years of education
 - Dimensions included in the analysis: gender, education, formality, etc.
- Analysis of labour transitions between occupations in some LACs.