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Implications of the changing nature of work for employment and inequality in Ghana

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Data

- **Ghana Living Standards Survey** (GLSS), Ghana Statistical Service (GSS).
  - Main data source for monitoring progress on poverty reduction strategies in the country.
  - Rounds 5-7: **2005/06**, **2012/13**, and **2016/17**.
  - Sample:
    - Employment: All workers (dropping domestic workers, apprentices, and non-specified)
    - Weekly real earnings: Excluding farm self-employed.
      - Sample was reweighted to account for large number of missing earnings among SE.
- **RTI** measures:
  - O*NET
  - Skills Toward Employment and Productivity (STEP) Survey, World Bank and local partners.

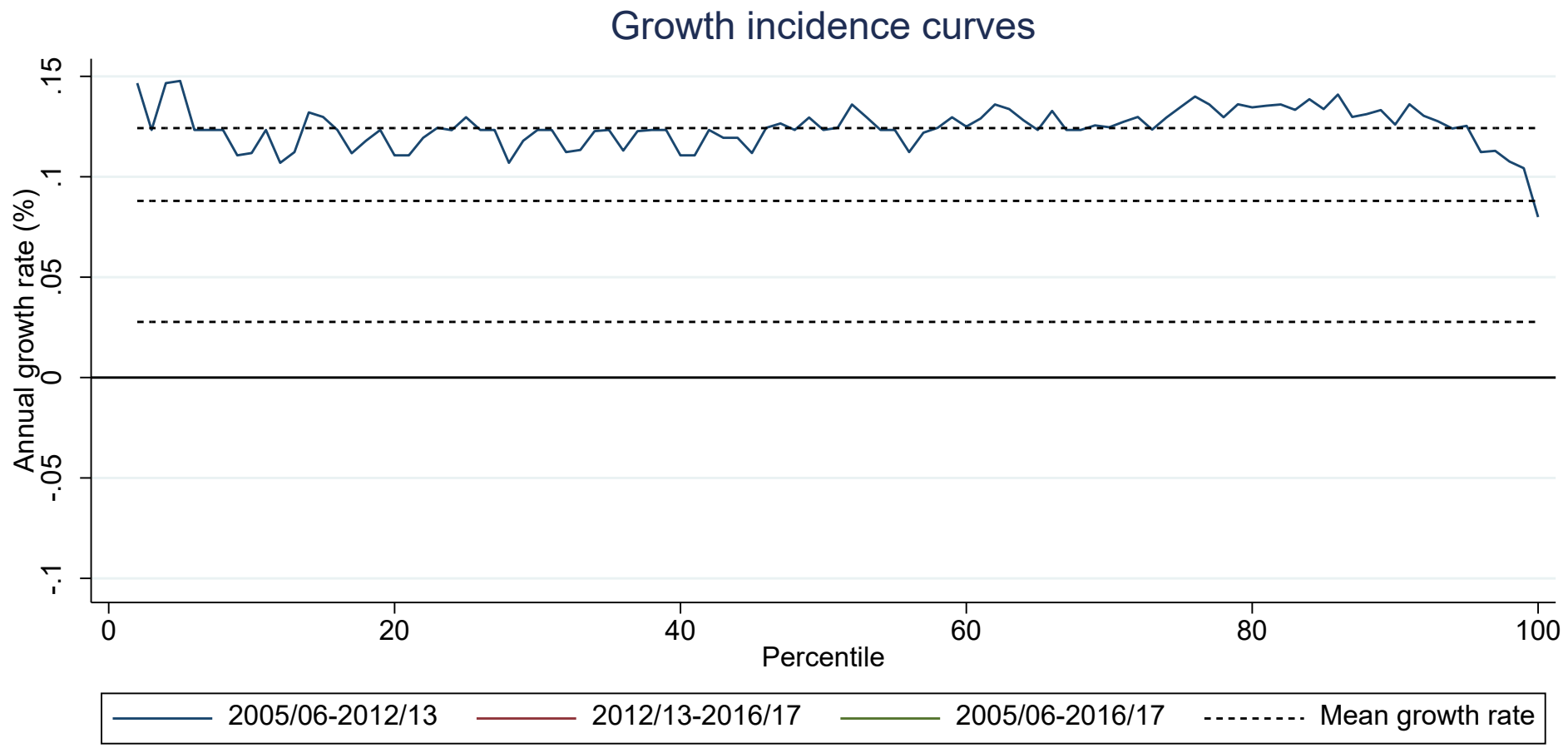
Country context

Economic context

- One of the 'most notable success stories' in SSA (McKay et al. 2016: 85): Peaceful democratic transition, democratic stability, strong and robust economic growth, lower-middle-income status since 2007.
- Growth largely attributable to the discovery of oil and gas, adding to main exports of gold and cocoa. Macroeconomic conditions worsened after 2013 in reaction to a fall in oil prices, weaker fiscal and monetary policies, and electricity rationing (GSS 2018) → slowed GDP growth to 3 % (2014-2016), picking up in 2017.
- Shift away from agriculture to services (largest share to national output). But agriculture remains major source of employment, followed by low-value service activities in informal sector → Largest proportion of newly created jobs over the past decades (Aryeetey and Baah-Boateng 2016).
- Significant reduction in consumption poverty, and modest decline in inequality (from 57.1 in 2005/06 to 56.6 in 2016/17), but with striking differences by subperiod.
  - 2005/06 to 2012/13: Substantial decline in Gini index (ca. 3 points), with strongest relative growth in earnings at the bottom.
  - 2012/13 to 2016/17: Economy kept growing but at a slower pace, with a clear pro-rich pattern, resulting in a rise in inequality.

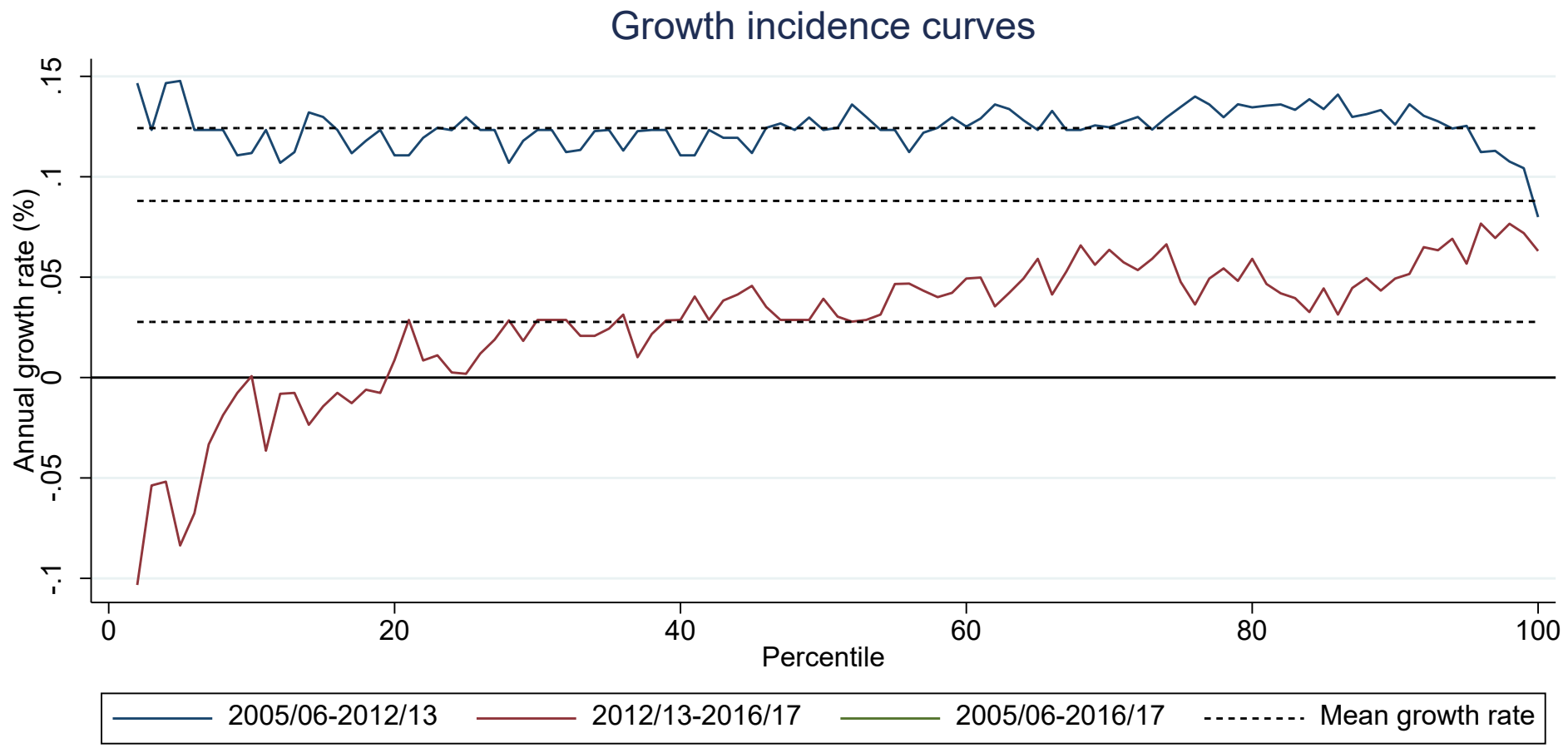
Growth incidence curves

From ‘pro-poor’



Growth incidence curves

From ‘pro-poor’ to ‘pro-rich’ growth pattern



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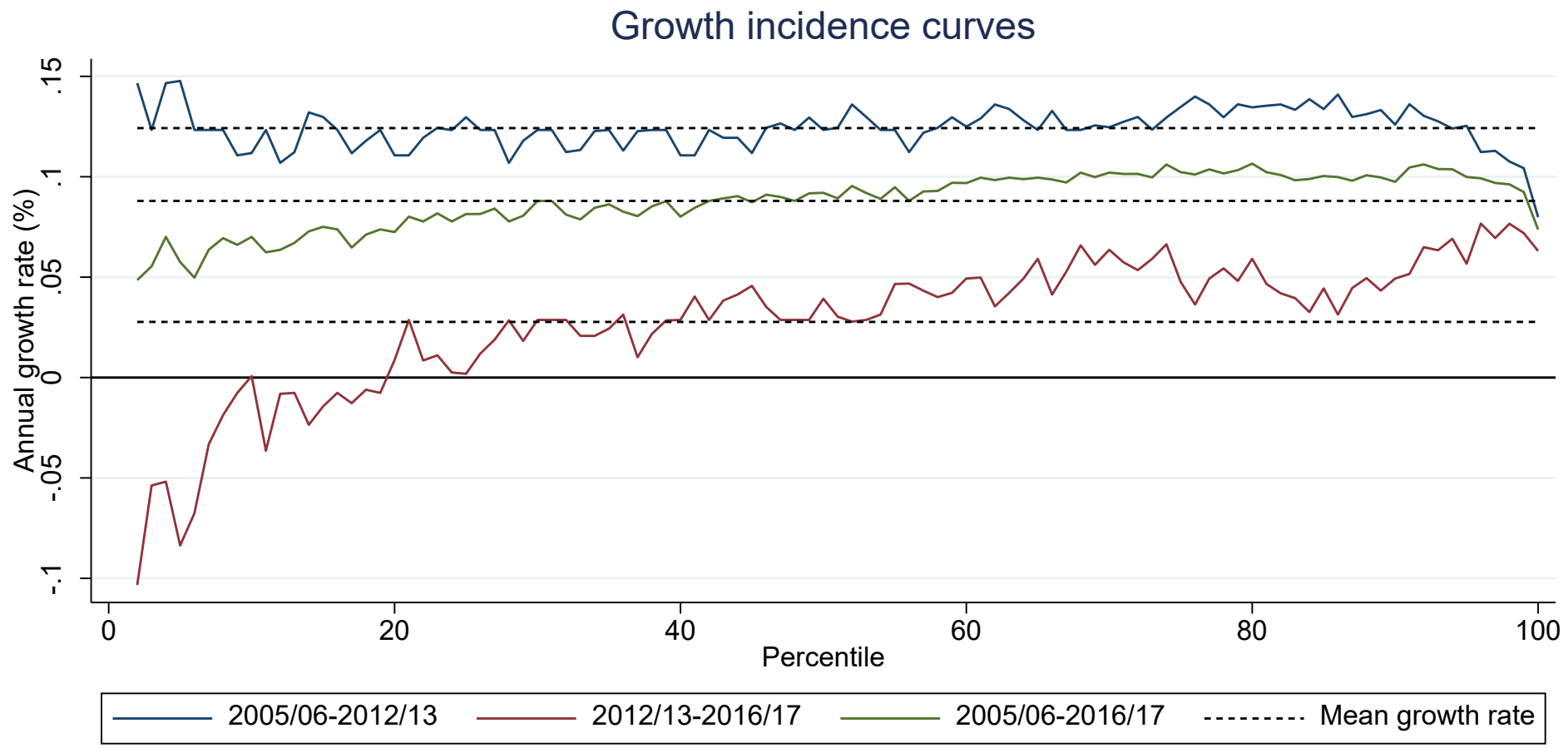
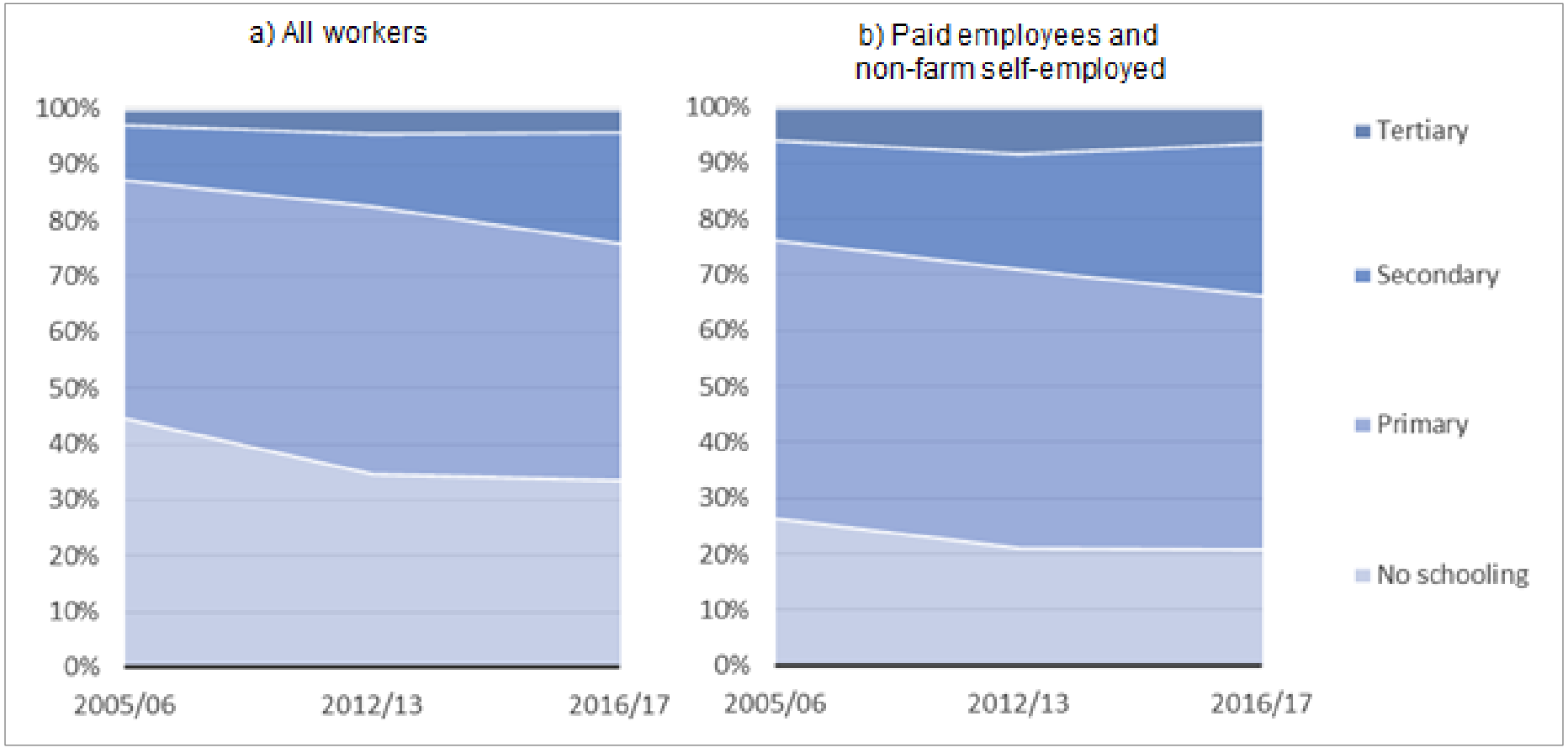


What drives inequality?
The usual suspect: The education premium

Inequality-reducing effect when increases in the **level of education** (secondary & tertiary) are not matched by demand, implying a fall in the **skill premium**.

Education levels

by gender and education level (ref. no schooling)



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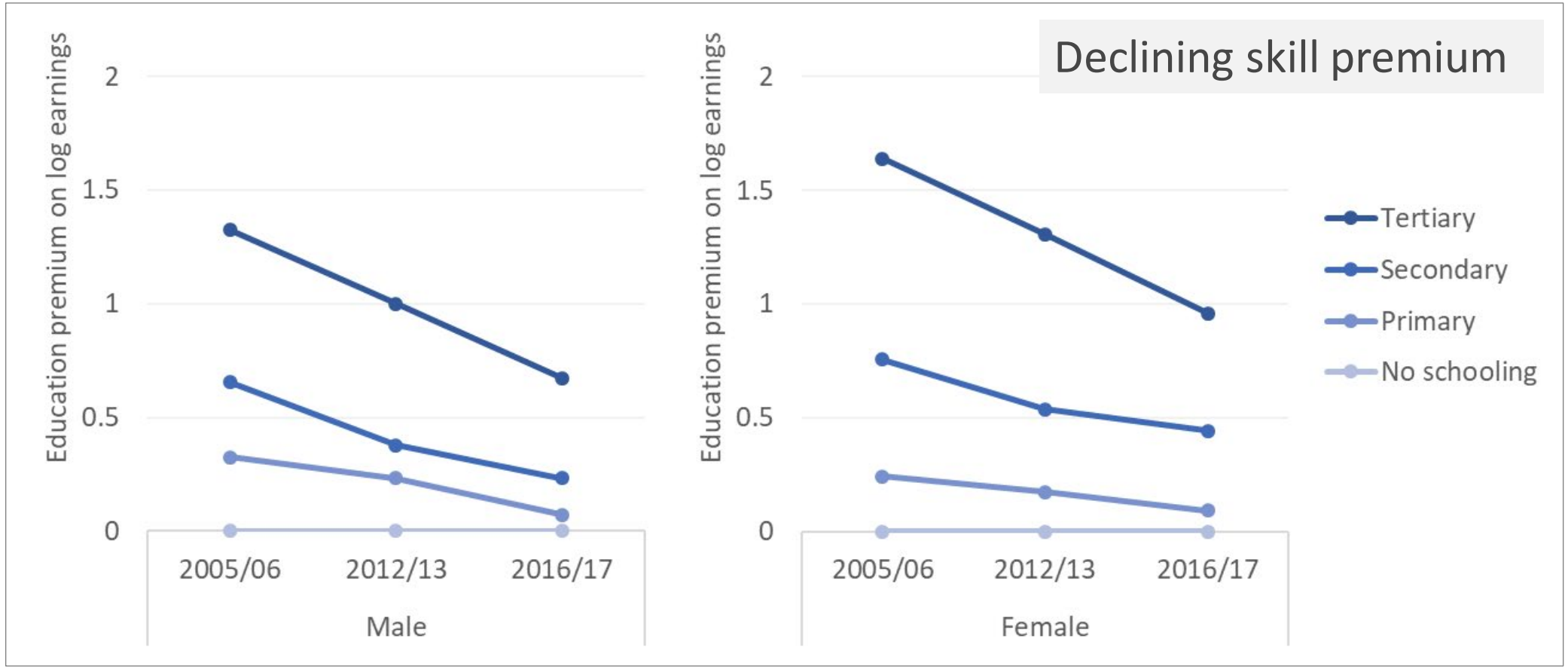
Including standard controls.

Education premium

by gender and education level (ref. no schooling)

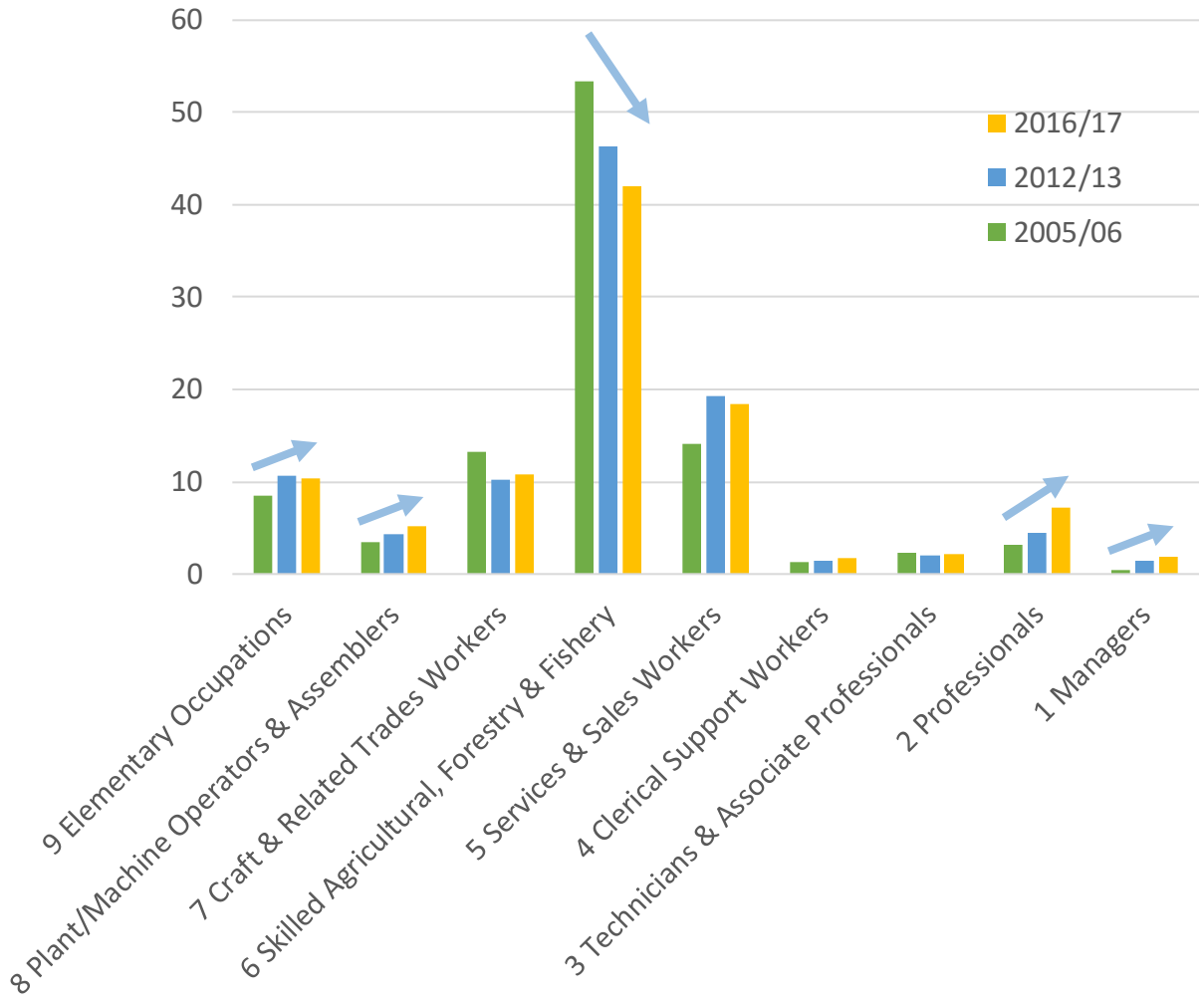


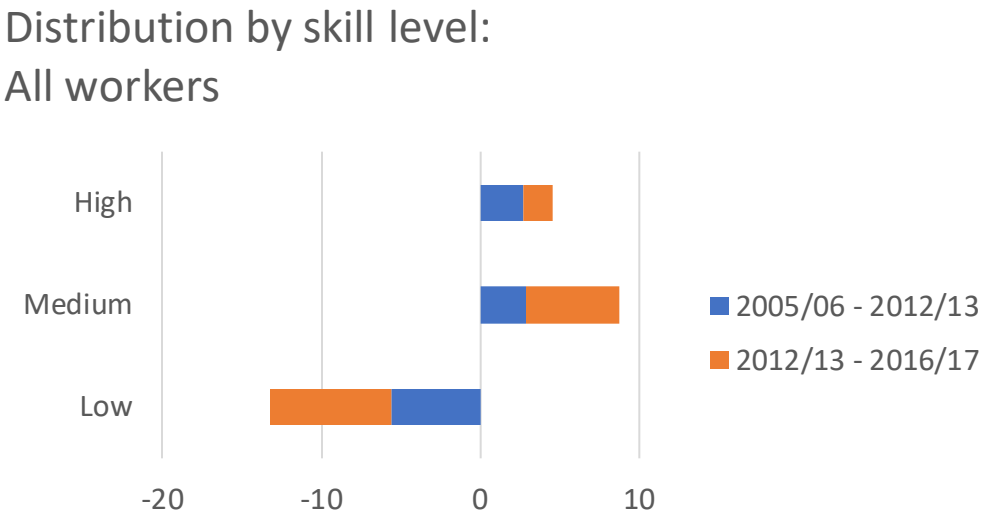
Including standard controls.

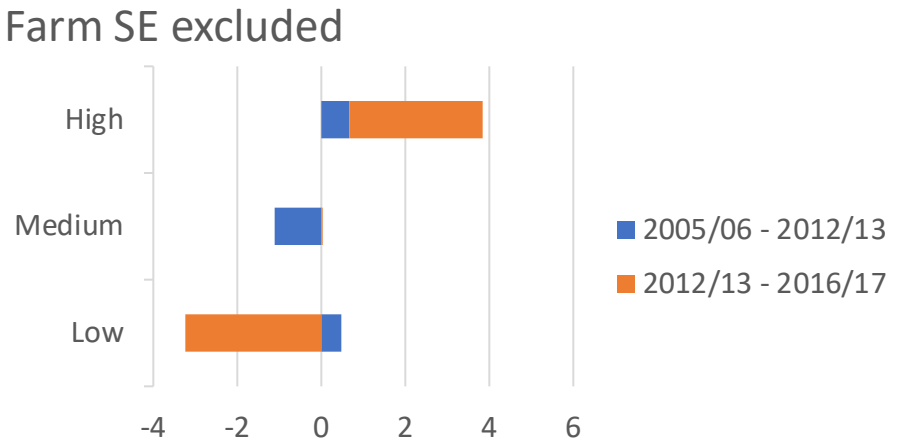
What drives inequality?
The new suspect: Occupational change

Inequality-enhancing effect when jobs and earnings decline in middle-income occupations but increase in low- and high-income occupations.

Structural changes in employment (occupation)







Simple test for job polarization

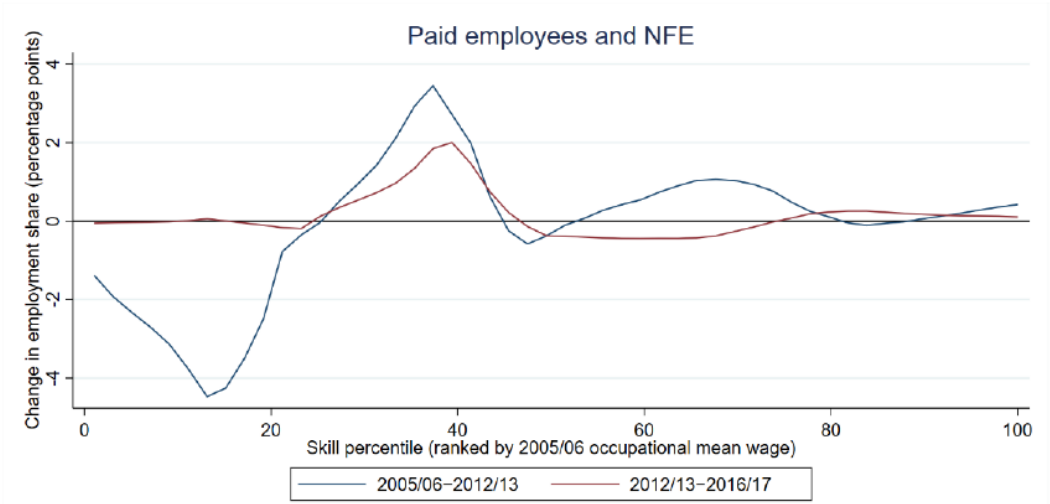
	Log change in employment share			Change in log mean earnings		
	2005/06 - 2012/13	2012/13 - 2016/17	2005/06 - 2016/17	2005/06 - 2012/13	2012/13 - 2016/17	2005/06 - 2016/17
(log) mean weekly earnings (t-1)	3.731*	−0.891	2.292	0.847**	−0.640	−0.424
	(2.227)	(0.909)	(2.131)	(0.370)	(0.971)	(0.591)
Sq. (log) mean weekly earnings (t-1)	−0.471	0.110	−0.260	−0.157***	0.043	−0.009
	(0.290)	(0.110)	(0.271)	(0.052)	(0.119)	(0.080)
Constant	−7.182*	1.728	−4.767	−0.369	1.905	2.219**
	(4.230)	(1.840)	(4.120)	(0.647)	(1.936)	(1.057)
Observations	104	97	97	104	97	97
Adj. R-squared	0.086	−0.014	0.075	0.175	0.198	0.331

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1st subperiod: **inverted-U-shape** (equalizing), 2nd subperiod: **U-shape** (polarizing), but not statistically significant

Polarization in employment or earnings?

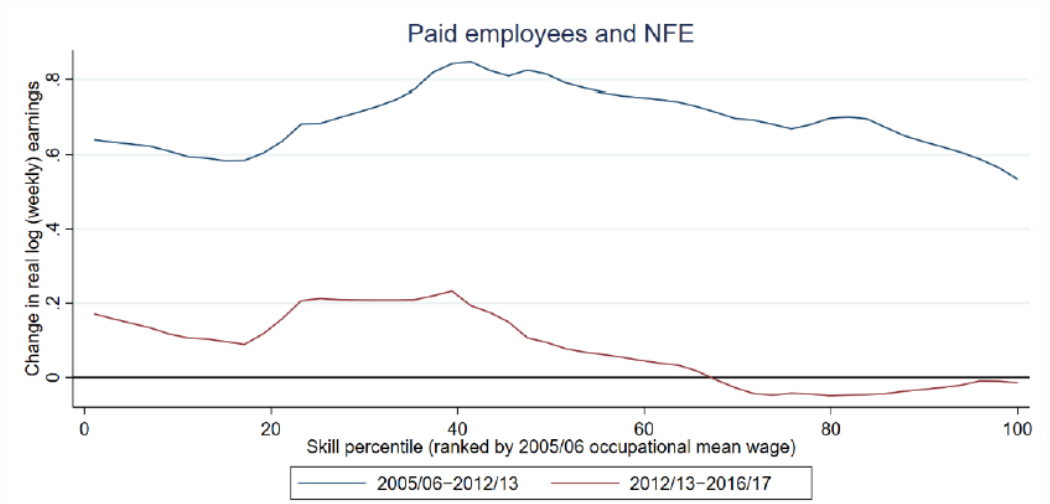
Figure 7: Changes in employment and earnings across skill percentiles



Employment

↗

↔



Earnings

∩

↔

What drives inequality?
The new suspect: The role of job RTI

Inequality-enhancing effect when workers move away from middle-income routine-intensive jobs towards less routine-intense jobs at the top/bottom.

Table 1: Task items in O*NET used to calculate task content measures

Non-routine cognitive analytical	Non-routine cognitive interpersonal	Routine cognitive	Routine manual
Analysing data/information Thinking creatively Interpreting information for others	Establishing and maintaining personal relationships Guiding, directing, and motivating subordinates Coaching/developing others	Importance of repeating the same tasks Importance of being exact or accurate Structured vs unstructured work (reverse)	Operating vehicles, mechanized devices, or equipment Spend time using hands to handle, control, or feel objects, tools, or controls Manual dexterity Spatial orientation

Source: authors' compilation based on Autor et al. (2003).

Following the previous literature (Autor and Dorn 2009, 2013; Goos et al. 2014), we combine the four constructed task measures into a composite RTI measure using the following formula:

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

O*NET
Country-specific
(survey-based / predicted)

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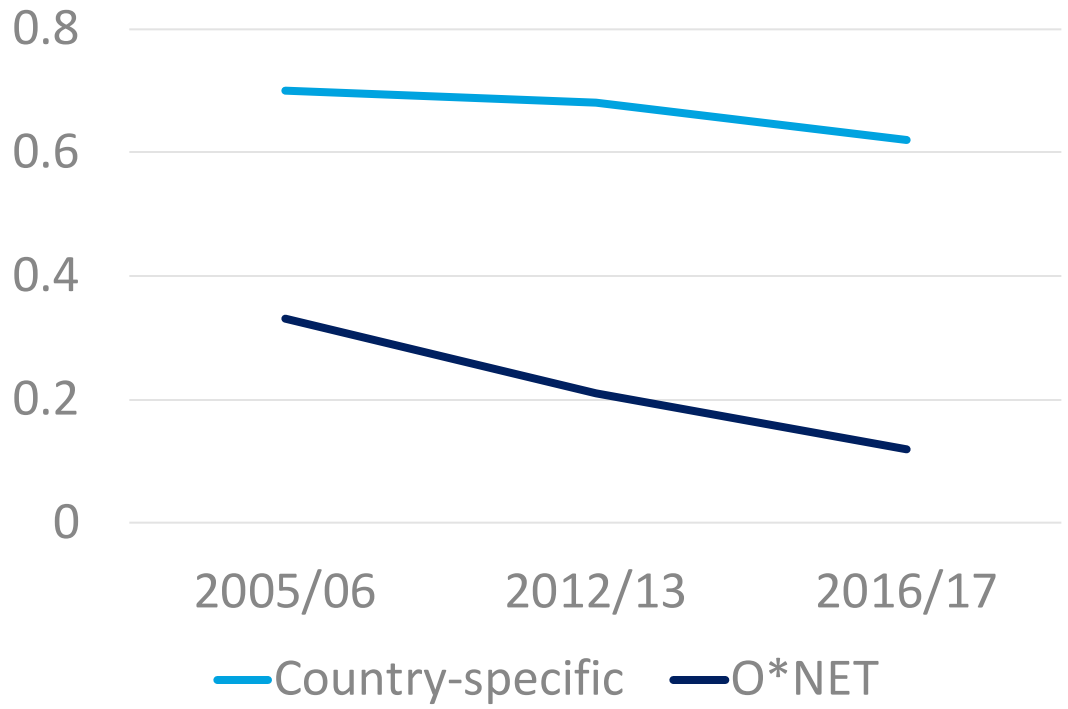
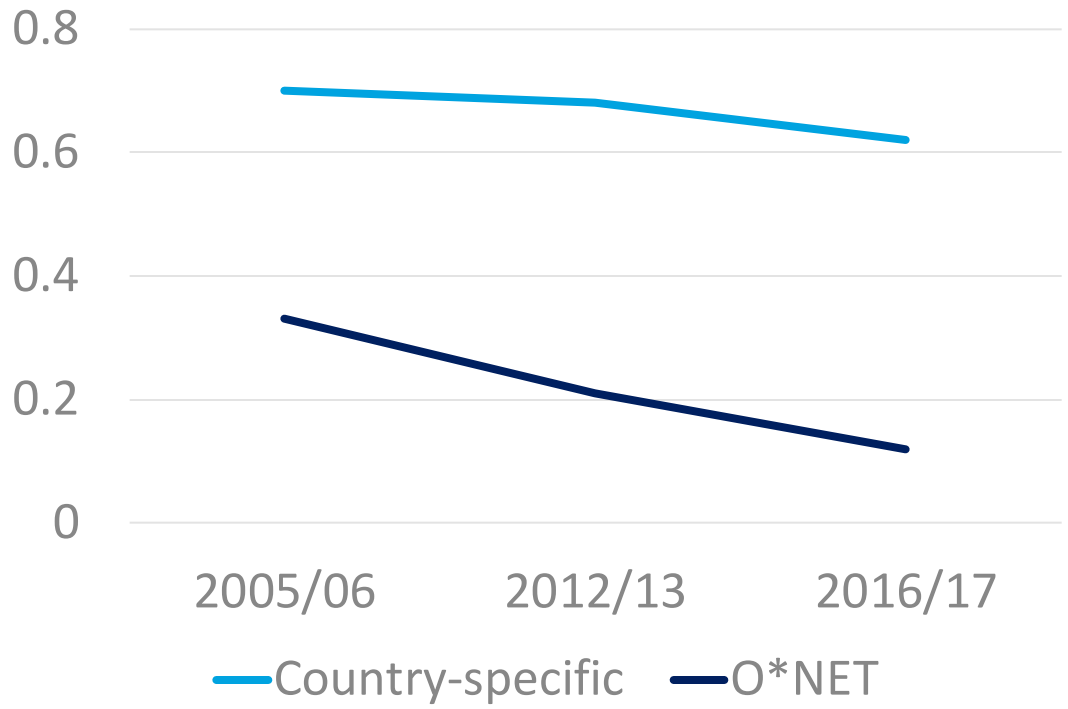
Lewandowski, Park, and Schotte (2021)

Average RTI

All workers



Farm SE excluded



Workers moving to … **less routine intensity** jobs (average RTIs)

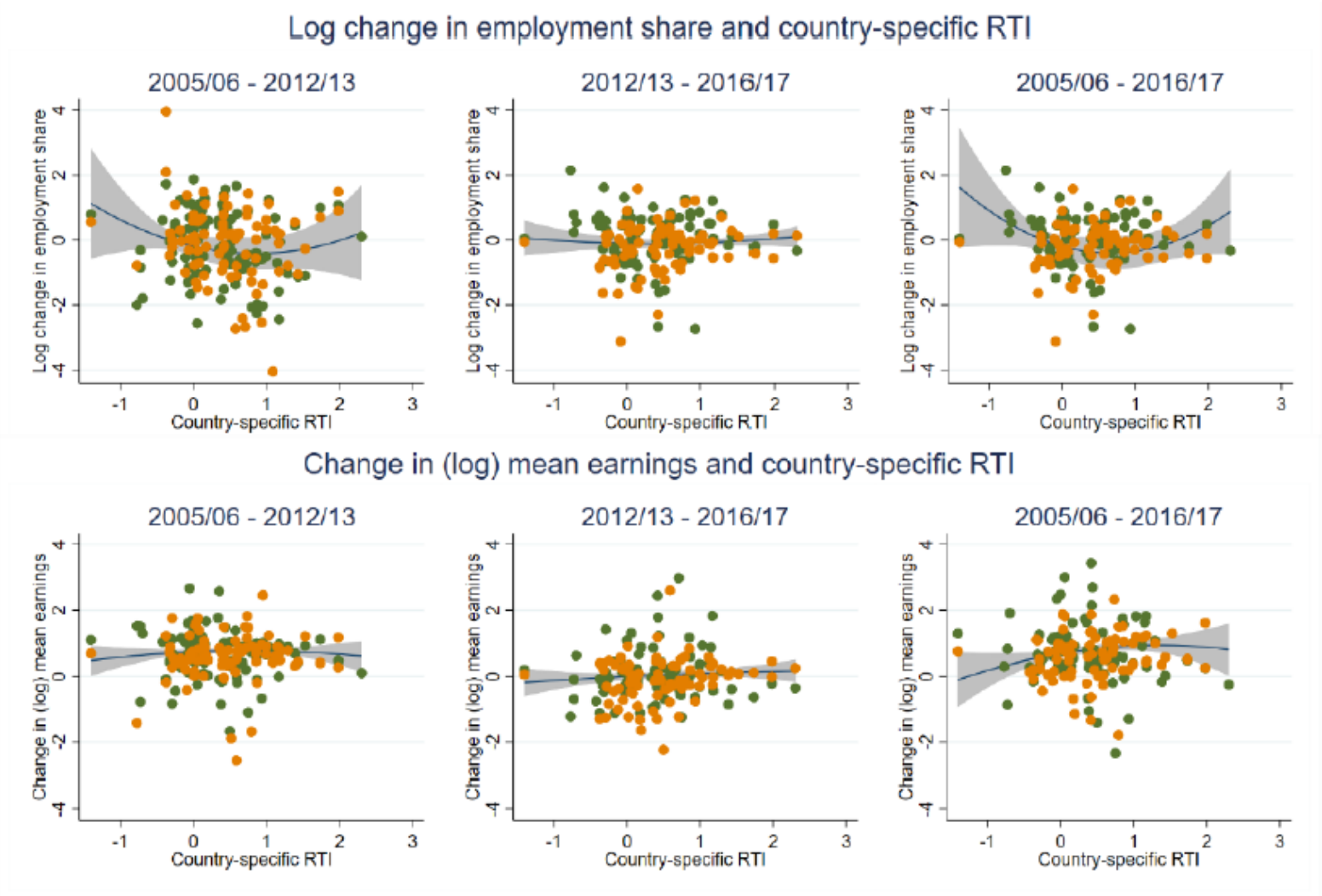
Regress changes on country-specific RTI

	Log change in employment share			Change in (log) mean earnings		
	2005/06 - 2012/13	2012/13 - 2016/17	2005/06 - 2016/17	2005/06 - 2012/13	2012/13 - 2016/17	2005/06 - 2016/17
Country-specific RTI (t-1)	−0.534	−0.072	−0.634	0.102	0.104	0.357*
	(0.414)	(0.095)	(0.426)	(0.093)	(0.103)	(0.186)
Sq. Country-specific RTI (t-1)	0.314	0.057	0.479	−0.065	−0.012	−0.137
	(0.297)	(0.055)	(0.294)	(0.081)	(0.059)	(0.149)
Constant	−0.168	−0.044	−0.176	0.700***	0.029	0.700***
	(0.175)	(0.064)	(0.189)	(0.044)	(0.059)	(0.073)
Observations	104	97	97	104	97	97
Adj. R-squared	0.007	−0.015	0.027	−0.007	0.011	0.074

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Weak U-shape relationship for employment.
RTI explains only a small share of the variance in changes in employment and earnings at the occupational level.

Relation to RTI?



Employment

Earnings

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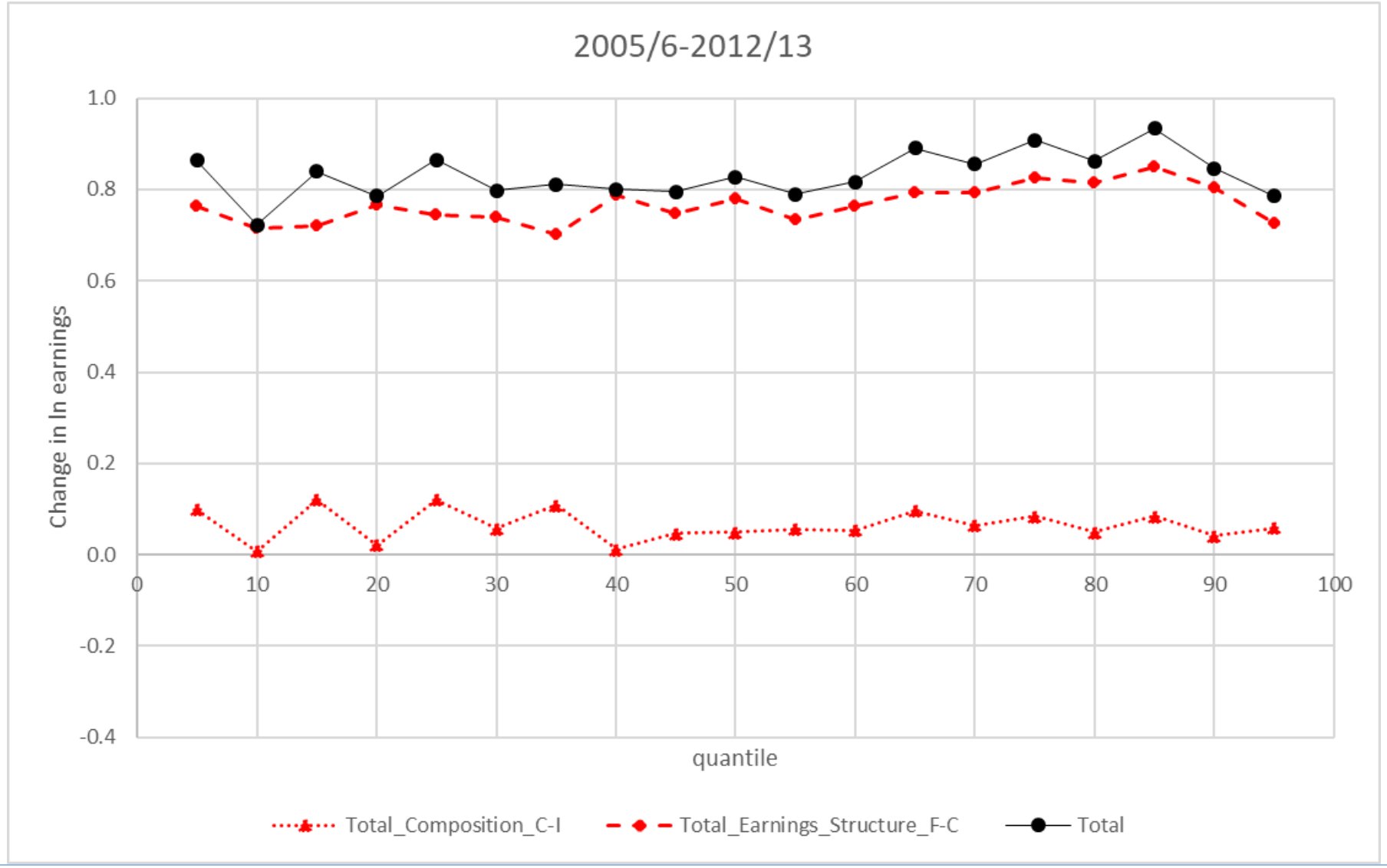
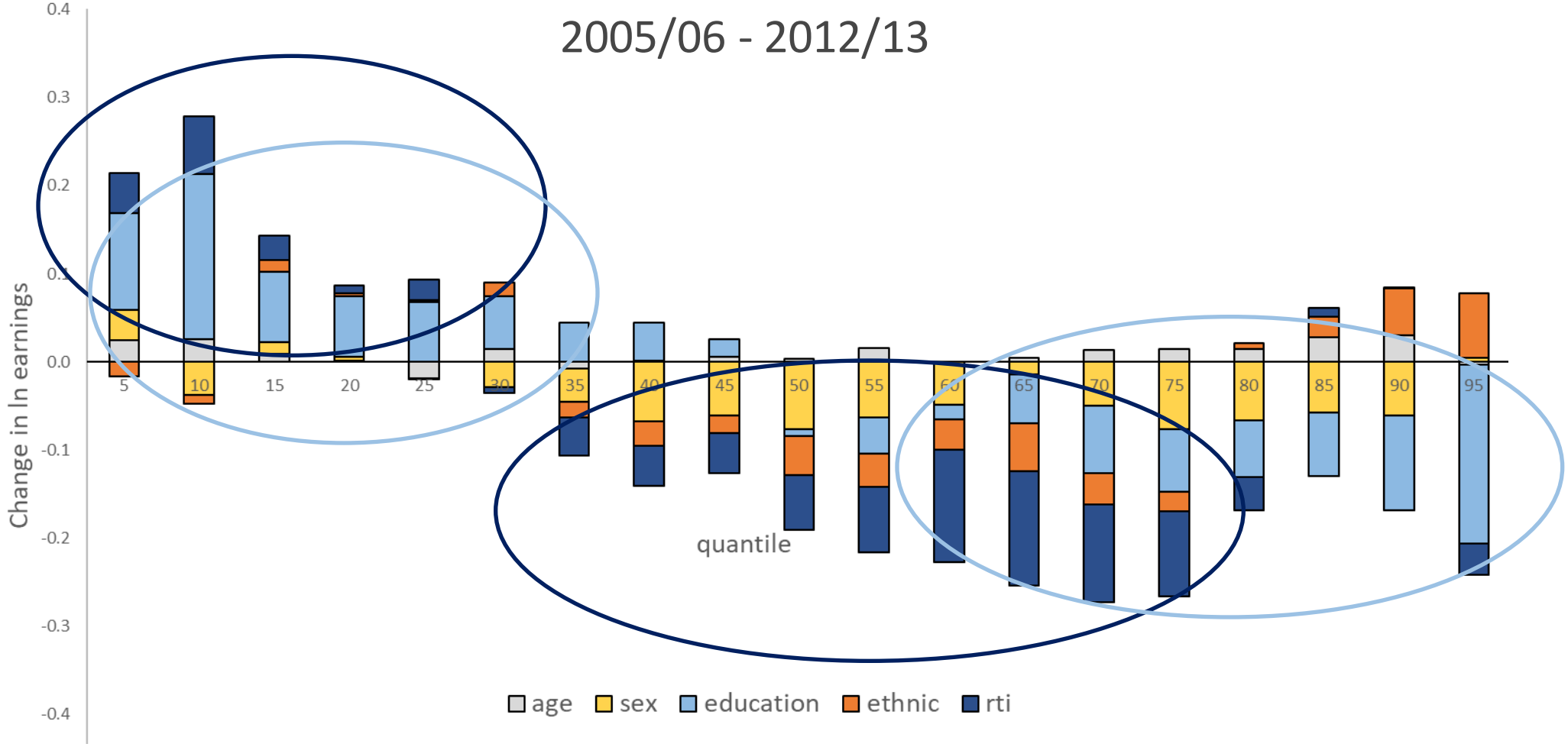
Note: scatter plot with fitted quadratic prediction and 95% confidence interval; yellow = informal, dark green = formal.

Quantile Change, aggregate decomposition (country-specific RTI)



Detailed RIF decomposition: Earnings structure effect by quantile

Note: Country-specific RTI.



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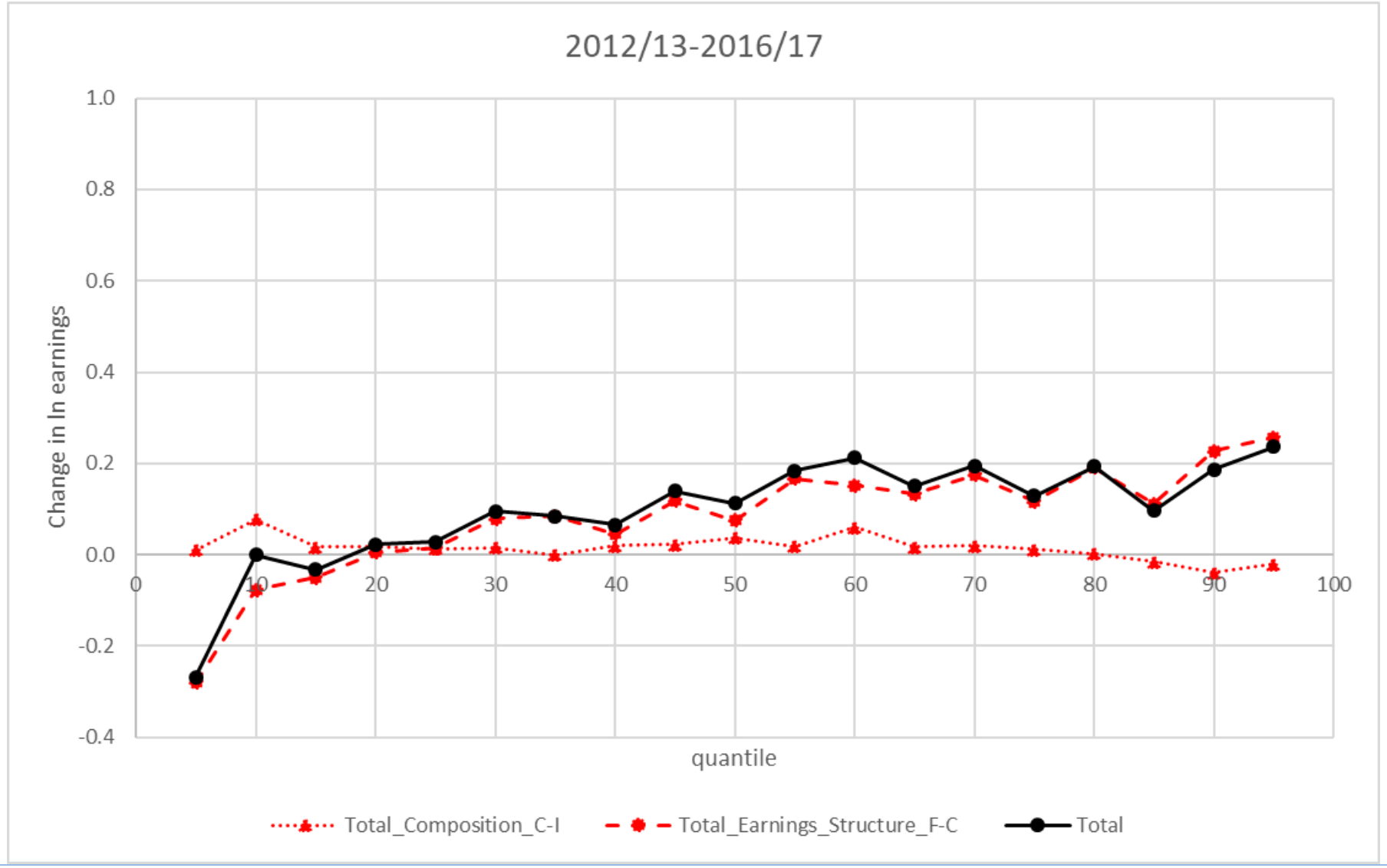

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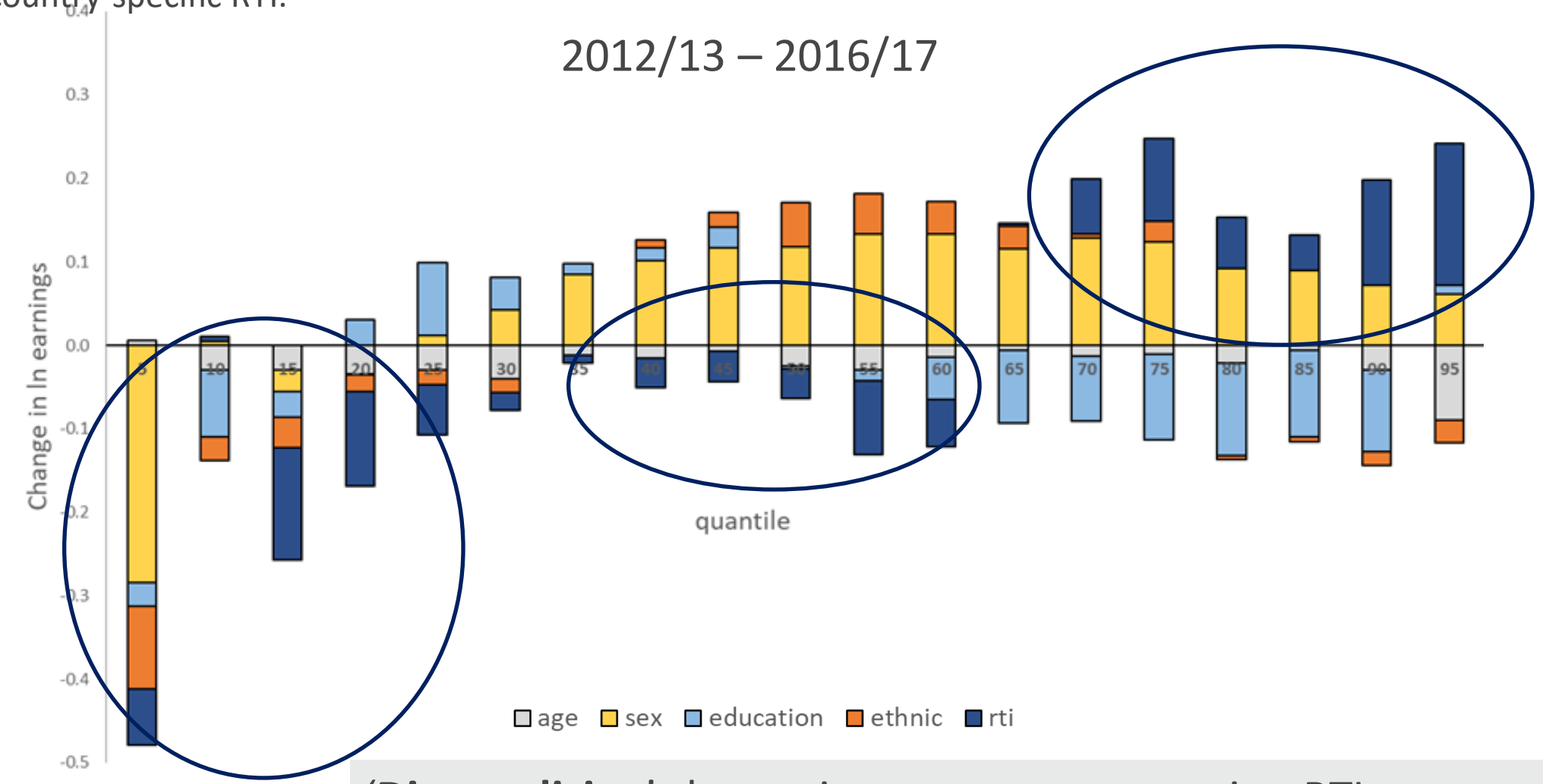
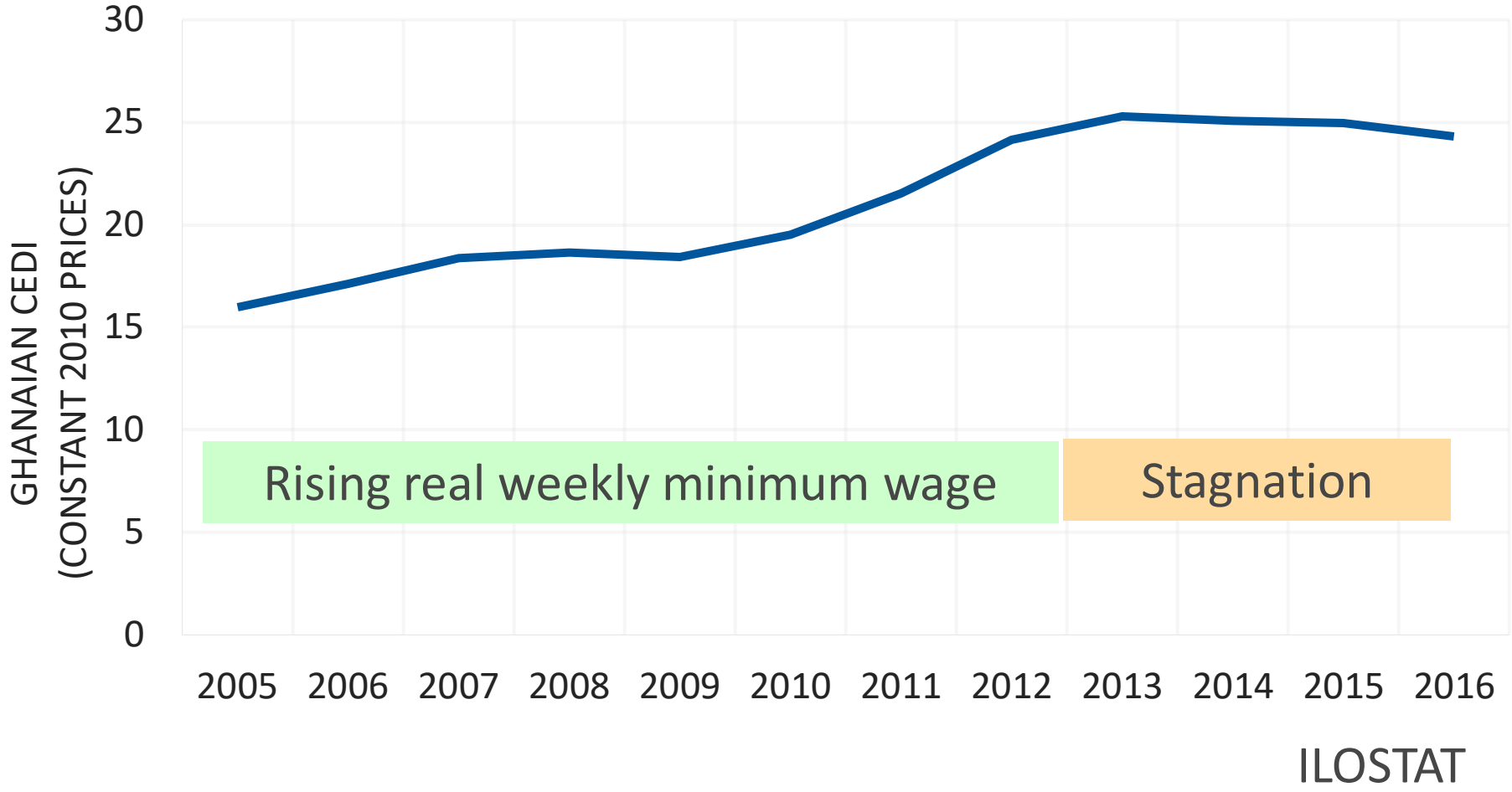


'**Disequalizing**' change in returns to occupation RTI.

Reducing earnings at the bottom, rising earnings at the top.

What drives inequality? Institutional factors

Minimum Wage



Conclusions

Main findings and implications

- Shift towards **jobs demanding higher skills and less routine tasks**: ↓ **average RTI**.
- Trend in inequality is **primarily explained by changes in the earnings structure**, while the **composition effect is small**.
  - 2005/06-12/13: **substantial decline in the education premium** (↑ level of education across workers) ↔ inequality declines.
  - 2012/13-16/17: **slow-down in decline of education premium** (smaller equalizing effect) + **disequalizing** effect of **changes in the remuneration of non-routine jobs** ↔ inequality increases.
- **Implications**: development process has not implied real structural transformation. Low productivity in routine jobs can be highly disequalizing and need to be addressed. Inequality could increase further if supply does not keep pace with future higher demand for skills.

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