

Change in Russian job structure: where does it lead to?

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Workshop - Global Shifts in the Employment Structure

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Motivation

- How the job structure evolves and what are the implications
- SBTC?
- RBTC- polarization?
- Anything else? Concentration in the middle?
- Implications
- Why important?
 - Technological change
 - Wage growth and inequality
 - Demand for skills – non/routine, cognitive, manual

Questions

- In what direction does the Russian job structure evolve?
 - Is it upgrading, polarising, or anything else?
 - What drives this change? Which groups are involved in the reallocation and contribute to this change?
 - By sub-periods?
 - What are conditional probabilities for being in low/high quintiles?
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- This is a continuation of Gimpelson, Kapeliushnikov (2015)

What did we see in our previous paper?

- Methodology from Fernandez-Macias et al.
- In our 2015 paper, we explored structural change in the Russian Economy in 2000-2012 and considered two scenarios – jobs upgrading or polarization
- Jobs were defined as occupation # industry cells, quality of which was measured by using wage and education criteria.
- Combining microdata from a few surveys, we ranked all job cells and divided them into quintiles. Then we examined changes in composition of the quintiles
- Main conclusion: there was a consequent upgrading in job structure and we saw no signs of polarization. This was especially so for 2000-2008 subperiod when the economic growth was rapid

However:

Short post-recession period (2008-2012)

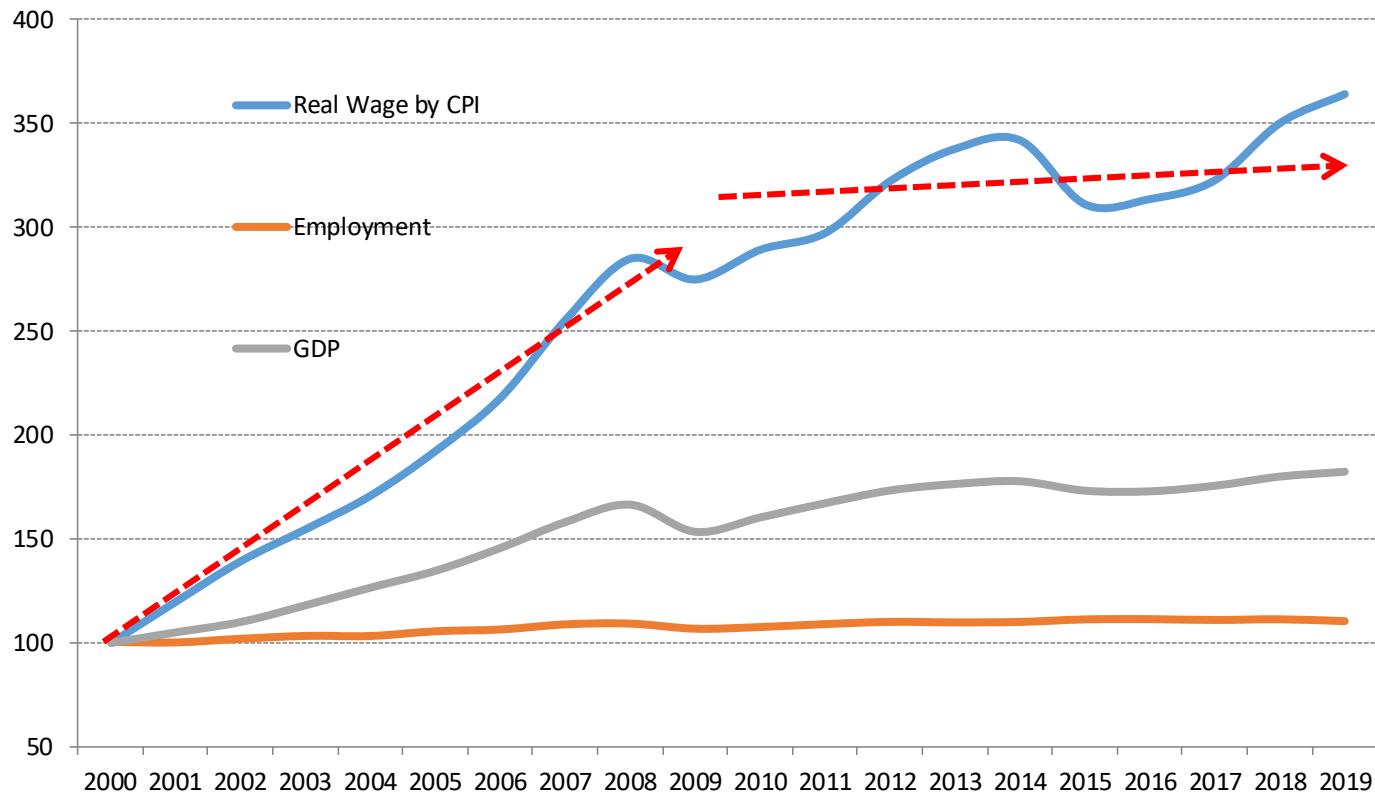
Monthly wage for workers covered by October Wage Survey, for others – imputations based on assumptions and RLMS data

Logic in this paper

- The key concept is «job» defined as a place where a worker is employed and in what occupation. Job as our primary analytical unit is the cell formed by intersecting 2d industry and 2d occupation.
- For each job, we can calculate measures that allow ranking these cells. E.g., mean or median wage. Ordered cells make a continuum from the worst to the best jobs. It can be divided by quintiles.
- Looking on the composition of job cells (or job quintiles) over time we can see how the employment structure changes and which groups drive this change. Moving from lower quintiles to higher ones means mobility in better paid industries/occupations, or potential income growth. Moving in the opposite direction is associated with income loss.

Two sub-periods: 2000-2008-2019

From boom to stagnation



Source: Rosstat

	2008 (2000=100%)	2019 (2008=100)
Real GDP	166	110
Real wage (CPI deflated)	285	127
Employment	109	101

Labor demand and supply: main changes in 2000-2008-2019

- Structural change: industries and occupations
 - De-agrarisation (contraction in routine manual work)
 - De-industrialisation (contraction in routine manual work)
 - Expansion in service jobs (with routine cognitive tasks)
- Population growth in the first sub-period
- Expansion in higher education
 - Increase in supply of cognitive labor

Data

- LFS 2000, 2008 and 2019
- HH income survey 2016
- Different versions of NACE and ISCO at 2d level - harmonization
- Designing job sells
- Imputing wages and ranking cells
- New data set: year, quintile, sex, age, education, urban/rural, region, sampling weight, industry and occupation

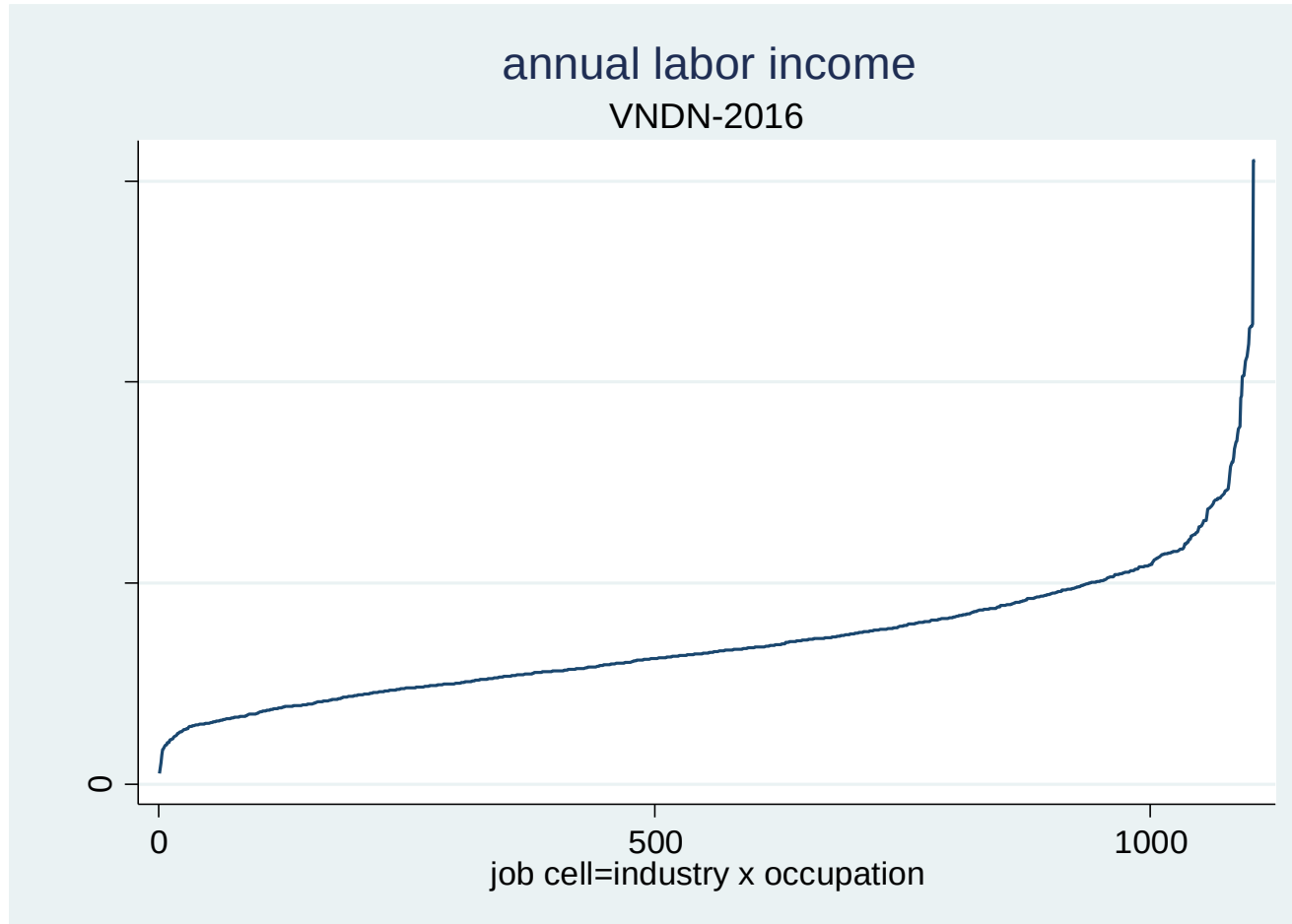
Designing job cells

- HH Income study -2016
- Industries – 2d NACE
- Occupations – 2d ISCO
- Crossing industries and occupations
- Around 1100 cells
- Mean wage in cells
- Dividing by quintiles
- LFS 2000, 2008 и 2019
- Designing similar cells
- Imputing wages and quintiles in 2000 LFS
- Looking at change over time (2008 & 2019)

Data

	Indust classific	Occup classific	# obs
LFS 2000	NACE 1	ISCO88	149,881
LFS 2008	NACE 1	ISCO88	169,314
LFS 2019	NACE 2	ISCO08	507,511
HH Income Study 2016	NACE 2	ISCO08	141,133

Wage by job cells

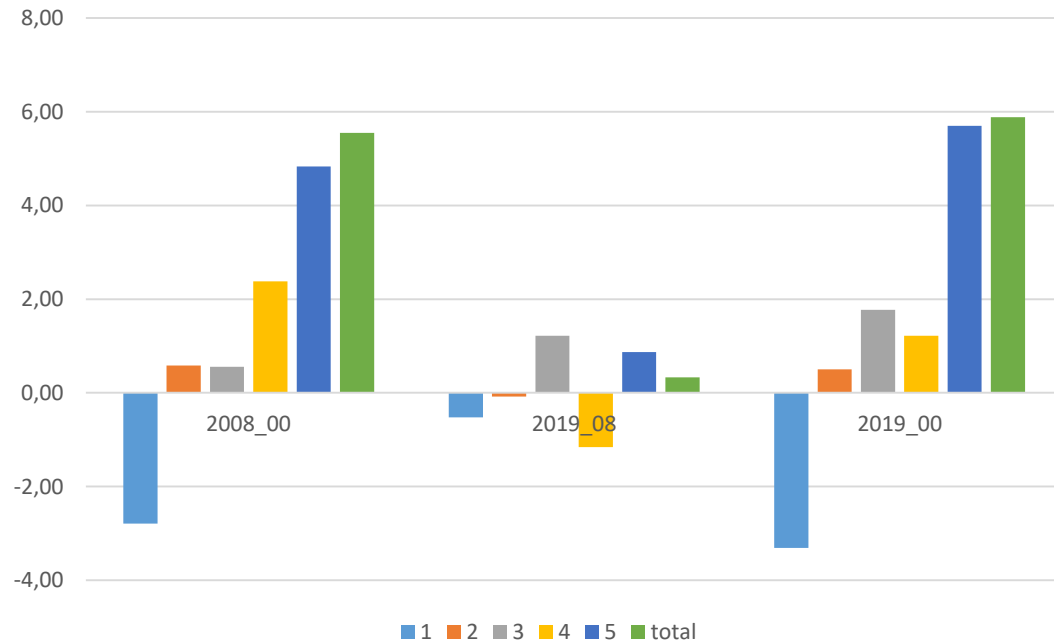


A few well paid job cells contribute highly to wage inequality

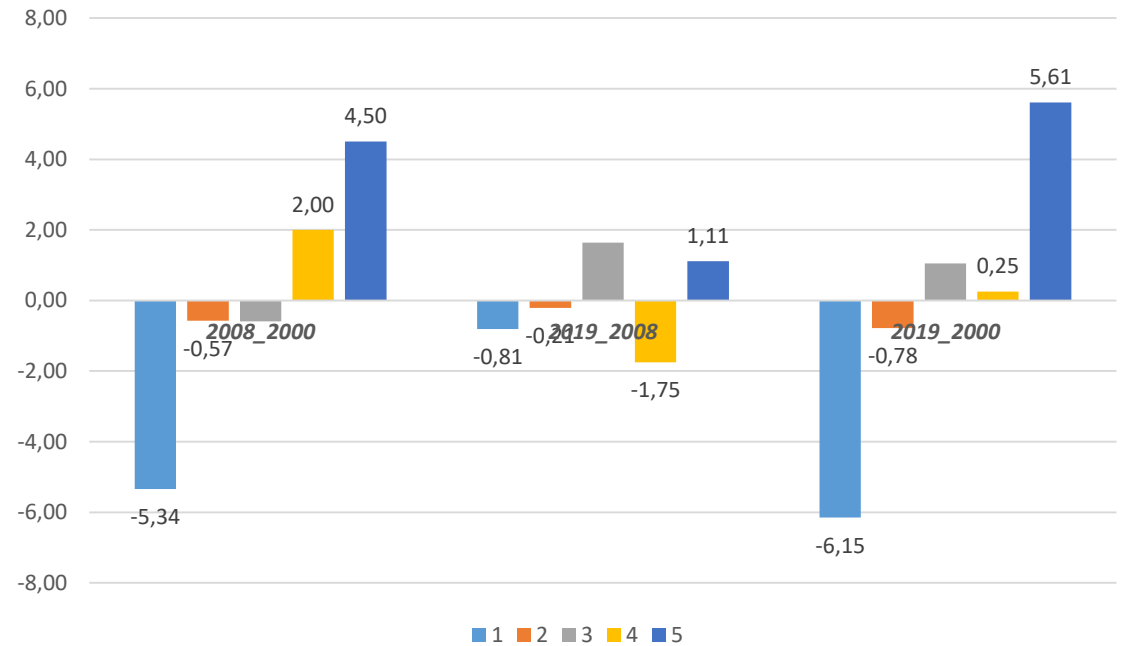
LOOK AT OCCUP/INDUSTRIES OF THE HIGHLY PAID J

Absolute and relative changes

Employment change by quintiles, million



Employment change by sub-periods, pp



Absolute changes in millions

	Quintiles				
	1	2	3	4	5
2000-2008					
Women	-1.00	0.69	0.74	0.75	2.02
Men	-1.79	-0.10	-0.19	1.63	2.82
Up to 30 yo	-1.02	-0.04	0.28	0.93	1.83
30_49	-1.78	-0.40	-0.44	0.41	1.61
50+	0.00	1.02	0.71	1.05	1.40
Higher ed	0.04	0.10	0.54	1.20	3.31
Some college	-0.70	-0.38	-0.54	-0.12	0.48
High school	-1.98	1.05	0.78	1.53	1.21
Rural	-2.70	0.56	0.59	1.07	0.94
Urban	-0.09	0.02	-0.04	1.31	3.89
2008-2019					
Women	0	0.071	1.508	-1.411	0.087
Men	-0.522	-0.15	-0.288	0.253	0.783
Up to 30 yo	-0.668	-1.033	-0.657	-1.202	-0.892
30_49	-0.358	0.263	0.993	-0.045	1.409
50+	0.504	0.692	0.885	0.088	0.355
Higher ed	0.302	0.79	1.236	1.089	1.912
Some college	0.022	-0.058	0.678	-1.126	-0.239
High school	-0.755	-0.58	-0.466	-0.848	-0.494
Rural	-1.162	-0.298	0.249	-0.076	0.252
Urban	0.64	0.22	0.97	-1.081	0.618

Major change in Q1 and Q5
In the 1st sub-period

Little change in the 2-nd
sub-period

	OLS				OPROBIT			
	1	2	3	4	5	6	7	8
Sex	0.405*** (28.28)	0.566*** (34.70)	0.721*** (42.62)	0.631*** (44.60)	0.335*** (27.40)	0.475*** (38.85)	0.615*** (49.28)	0.532*** (51.19)
2.age	0.140*** (14.07)	0.0130 (1.26)	0.0270*** (3.58)	0.0479*** (8.20)	0.123*** (14.07)	0.00887 (0.95)	0.0233*** (3.36)	0.0403*** (7.55)
3.age	0.0423** (3.07)	-0.0821*** (-6.16)	-0.124*** (-11.29)	-0.0825*** (-8.52)	0.0179 (1.28)	-0.0793*** (-6.30)	-0.115*** (-11.20)	-0.0805*** (-8.60)
2.educ	-0.812*** (-43.92)	-0.798*** (-57.06)	-0.847*** (-61.95)	-0.824*** (-81.25)	-0.717*** (-30.79)	-0.723*** (-30.84)	-0.748*** (-52.51)	-0.726*** (-44.49)
3.educ	-1.308*** (-63.72)	-1.301*** (-99.71)	-1.318*** (-105.69)	-1.314*** (-127.49)	-1.166*** (-55.34)	-1.162*** (-55.36)	-1.172*** (-68.10)	-1.163*** (-72.67)
Urban	0.903*** (26.59)	0.598*** (24.02)	0.419*** (22.84)	0.548*** (26.76)	0.826*** (24.19)	0.531*** (24.29)	0.379*** (23.49)	0.493*** (27.01)
2008.god				0.220*** (19.15)			0.203*** (18.90)	
2019.god				0.140*** (9.01)			0.136*** (9.31)	
Territ	X	X	X	X	X	X	X	X
_cons	3.069*** (88.43)	3.602*** (129.07)	3.649*** (174.19)	3.392*** (138.52)	0.918*** (25.47)	0.388*** (15.97)	0.361*** (20.70)	0.600*** (27.15)
N	143866	164461	475709	784036	143866	164461	475709	784036
r2_a	0.300	0.259	0.268	0.268				
Ps. R2								

= Базовые группы: возраст до 30 лет, высшее образование, сельское население, год 2000.
 = Стандартные ошибки кластеризованы по регионам.
 = *, **, *** обозначают конвенциональные уровни значимости.

Simulations based on oprobit estimates

- Conditional probabilities for being in quintiles 1-5
- For mean values for all vars in X
- For particular values in X

Additional issues to be explored

- Much remains to be done
- Leaders and outsiders by occupations, including change over time
- Expanding and shrinking jobs
- (De)routinization?

Preliminary conclusions

- No signs for polarization
- Fast improvement but the partial rollback then
- Cohorts!
- Combination of the economic growth and increasing supply of young
- Between-industry variation