

FACTOR MODELING OF RUSSIAN WOMEN'S PERCEPTIONS OF COMBINING FAMILY AND CAREER

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ABSTRACT

Sociologists and demographers explain late childbearing by the transformation of the life values of modern women. This is considered as one of the reasons for the decline in the birth rate. Our study aims to reveal perceptions of the relationship between career and family in the life strategies of working Russian women by using factor analysis.

We collected data in a sociological survey of working women living in the Ural region. We asked respondents to rate 10 statements about work, family and children. We constructed 3-factors model of Russian women's perceptions of combining family and career. Then we used correlation analysis to assess the relationship between these factors and the social and demographic parameters of the respondents.

We concluded that the use of factor analysis made it possible to model a wide range of Russian women's perceptions of combining family and career.

Considering the results obtained may contribute to improving the regulation of interaction of two important societal spheres of professional and parental activities and create conditions for increasing the birth rate in Russia.

INTRODUCTION

The average age of a mother at childbirth has been increasing in several developed countries in recent decades. According to Eurostat, the average age at birth of the first child in Europe was 26 in 1980s, but it had increased to 30.8 by 2020 (Eurostat: Mean age of women at childbirth and at birth of first child). Russia follows the European trend. In 1990, the average age of a mother at childbirth was 25.3, but it had increased to 28.7 by 2018 (Rosstat: Average age of a mother at childbirth).

According to sociologists and demographers, late childbearing can be explained by the transformation of the life values of modern women, who focus on meeting personal needs for professional development, education and achieving a certain level of financial well-being (Savinov et al. 2020; Goldstein et al. 2009; Lesthaeghe,

2010). Many women prefer work to family when there are clear career prospects, the child in this case can be perceived as an obstacle for further professional self-realization (Betz 1993; Metz and Tharenou 2001; Procter 1998). Interestingly, employers still pay particular attention to candidate's family status. Those having children are often rejected (Doris and Oliver, 2019; Miller, 2019; Henle et al., 2020).

The work-family balance issue results in more stress, which mothers feel in a competitive labour market (Nair et al., 2019; McCanlies et al., 2019). Being involved in both professional and parental labour, women adjust their life strategies to mitigate the work-family conflict (Borgmann et al., 2019). When employed, women tend to take specific attitude to reproduction—they more often choose the smaller number of children (Greulich et al., 2017; Cools et al., 2017). However, some researchers note the positive impact of having children on the overall well-being of parents. In particular, children have a beneficial effect on the emotional state of mothers and help them cope with problems and psychological distress more easily (Rao 2020).

We used factor analysis to examine women's perceptions of the impact of having children on a career. It is often used in social sciences (for example, Popov et al. 2018; Bork and Moller 2018; Lifshits and Neklyudova 2018). We chose this statistical modeling method because we sought to use the answers to direct questions to identify those latent variables that may affect the reproductive decisions of Russian women. It allowed a wide variety of variables to be used during the initial measurement, and then it reduced the dimension of the problem by switching to latent variables. The purpose of our paper is to reveal perceptions of the relationship between career and family in the life strategies of working Russian women by using factor analysis.

DATA AND METHODS

1. We used data collected in a sociological survey of working women living in the Ural region. We surveyed them in February-April 2020. For our analysis we filtered the answers of women aged 18-45 with children - there were almost 200 such women among the respondents. The sample was calculated according to the data of the All-Russian Population Census and Regional Official Statistics.

2. To study the mothers' perceptions of the impact of having children on their careers and the children's place in the life strategies of women, we asked respondents to rate 10 statements about work, family and children on a five-point scale:

- V1 – Workers with children have a higher financial position than workers without children;
- V2 – It is easier to advance the career after having a child;
- V3 – Job seekers with children are in demand in the labor market;
- V4 – A worker with children is less likely to find a job than a worker without children;
- V5 – It is more difficult to advance the career after having a child;
- V6 – Workers with small children cannot expect high wages;
- V7 – It is more difficult for workers with children to fulfill themselves in life;
- V8 – Workers with children are more stressed than workers without children;
- V9 – A person must build a career first, then have a family and children;
- V10 – The most important thing in life is family and children, career is secondary.

3. To assess the suitability of variables for factor analysis, we used Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy. We used principal component analysis as the extraction method. We determined the number of factors using two methods: Kaiser Criterion and Scree Plot. The orthogonal rotation of the components was determined by the Varimax solution. We assessed the relationship between the obtained components and respondents' social and demographic characteristics by using the Spearman correlation, scatter plots and boxplots. We used SPSS 22.0.

RESULTS

1. Means, medians, mode and standard deviations pertaining to the ten variables of interest are presented in Table 1.

Table 1: Descriptive statistics

Variables	Mean	Median	Mode	Std. Deviation
V1	2.05	2	1	1.079
V2	2.07	2	1	1.046
V3	2.01	2	1	1.065
V4	3.35	3	5	1.414
V5	3.20	3	5	1.470
V6	2.69	3	1	1.447
V7	2.51	2	1	1.346
V8	2.98	3	3	1.355
V9	2.33	2	1	1.224
V10	3.92	4	5	1.188

2. The correlation matrix is presented in Table 2. It shows the relationship between the respondents' assessments which indicate the positive impact of having children on a career. For example, the share of women who believe that workers with children are in demand in the labor market among those who believe that it is easier to advance the career after having a child. On the other hand, we can see the strongest correlation between the assessments of statements that view children as a hindering factor in building a career. For example, the share of women who believe that it is more difficult to advance the career after the birth of a child is higher among those who believe that workers with small children cannot expect high wages. In addition, an idea that employees with children will not receive high remuneration is related to an opinion that children interfere with self-realisation.

Table 2: Correlation matrix of the respondents' opinions about family and career

	V1	V2	V3	V4	V5	V6	V7	V8	V9
V2	.38**	-							
V3	.32**	.42**	-						
V4	-.01	-.16**	-.19**	-					
V5	.03	-.09	-.10	.46**	-				
V6	.11*	.03	.00	.39**	.54**	-			
V7	.03	.01	.02	.39**	.54**	.49**	-		
V8	.07	-.06	.05	.30**	.37**	.24**	.35**	-	
V9	.05	.02	.02	.17**	.16**	.12*	.12*	.15**	-
V10	.11*	.07	.10	.06	.02	.12*	.03	.02	-.33**

*p<0.05. **p<0.01.

3. The possibility of using factor analysis for the ten indicated variables was confirmed by two statistical tests: Bartlett's Test of Sphericity, which is calculated from the sample data, is 477.022 (df = 45; $\alpha = 0.000$); Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.724. Table 3 presents an analysis of the communalities. There are no values close to zero, therefore, we included all variables in factor analysis.

Table 3: Communalities

Variables	Initial	Extraction
Workers with children have a higher financial position than workers without children	1.000	.577
It is easier to advance the career after having a child	1.000	.729
Job seekers with children are in demand in the labor market	1.000	.648
A worker with children is less likely to find a job than a worker without children	1.000	.552
It is more difficult to advance the career after having a child	1.000	.729

Workers with small children cannot expect high wages	1.000	.608
It is more difficult for workers with children to fulfill themselves in life	1.000	.629
Workers with children are more stressed than workers without children	1.000	.365
A person must build a career first, then have a family and children	1.000	.709
The most important thing in life is family and children, career is secondary	1.000	.749

Extraction Method: Principal Component Analysis.

4. Data from both Table 4 and Scree Plot (Figure 1) indicate the advisability of identifying three components.

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.956	29.561	29.561	2.956	29.561	29.561
2	2.034	20.340	49.901	2.034	20.340	49.901
3	1.305	13.053	62.954	1.305	13.053	62.954
4	.801	8.009	70.962			
5	.771	7.708	78.670			
6	.575	5.752	84.422			
7	.457	4.568	88.990			
8	.403	4.035	93.025			
9	.368	3.678	96.703			
10	.330	3.297	100.00			

Extraction Method: Principal Component Analysis.

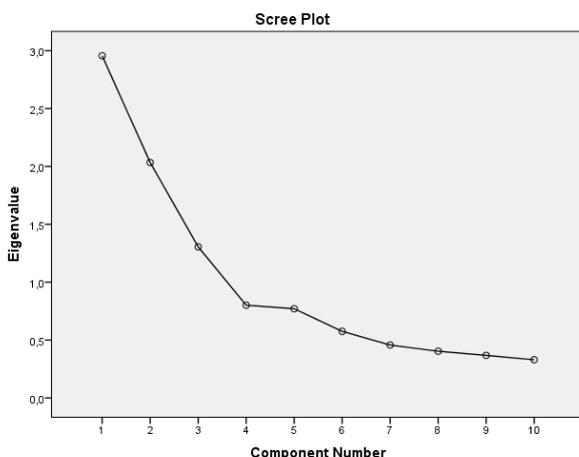


Figure 1: Scree Plot

5. Table 5 shows the loadings of all variables for three factors. Each variable is uniquely associated with only one of three factors.

Table 5: Rotated Component Matrix

	Component		
	1	2	3
Workers with children have a higher financial position than workers without children	.109	.745	-.099
It is easier to advance the career after having a child	-.103	.847	.027
Job seekers with children are in demand in the labor market	-.064	.802	.016
A worker with children is less likely to find a job than a worker without children	.724	-.169	.019
It is more difficult to advance the career after having a child	.850	-.056	.051
Workers with small children cannot expect high wages	.775	.084	-.032
It is more difficult for workers with children to fulfill themselves in life	.792	.042	.011
Workers with children are more stressed than workers without children	.596	.019	.100
A person must build a career first, then have a family and children	.248	.160	.789
The most important thing in life is family and children, career is secondary	.116	.212	-.831

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 5 iterations.

6. As a result of factor analysis, we obtained the following three components (Figure 2):

- Component 1: perception of a child as a factor hindering professional activity (29.6% from the total variance);
- Component 2: perception of a child as a factor motivating professional activity (20.3% from the total variance);
- Component 3: perception of a child's place in the life strategy of women (13.1% from the total variance).

7. We revealed significant correlation between the values of components and the social and demographic characteristics of the respondents (Table 6). Figure 3 presents diagrams showing the discovered relationships.

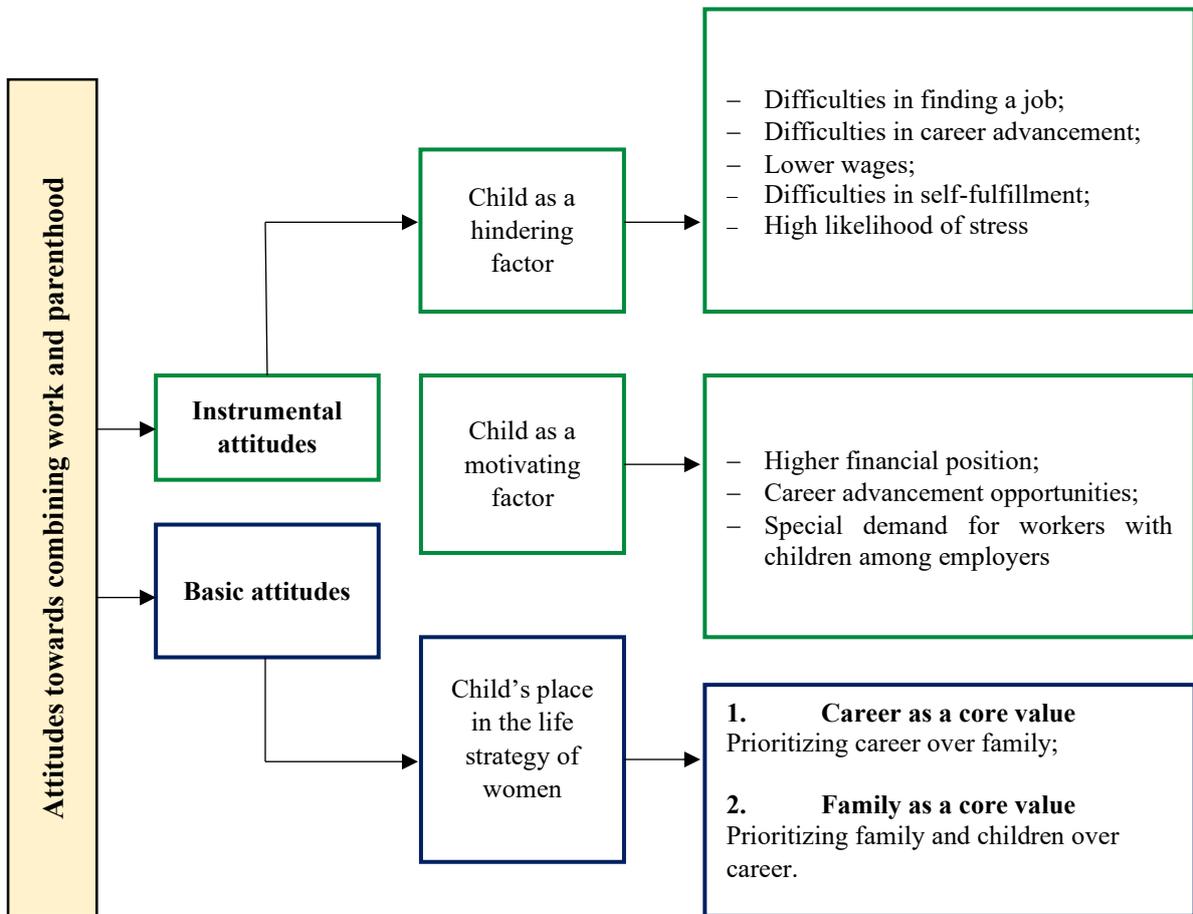


Figure 2: Factor analysis results

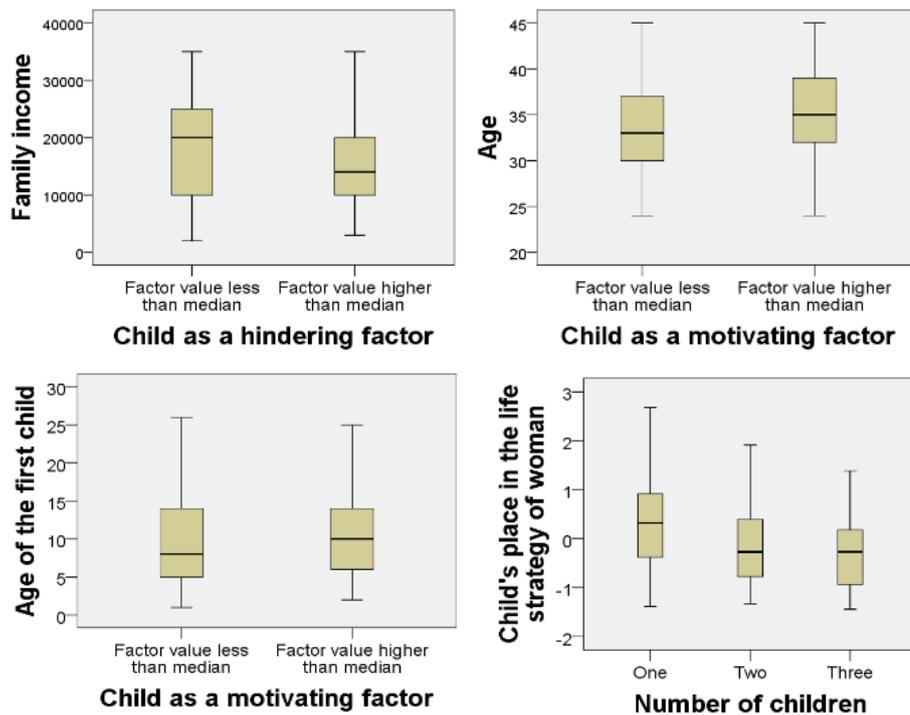


Figure 3: Diagrams showing the relationship between social and demographic characteristics of respondents and the values of factors

Table 6: Spearman's ρ between components and social and demographic characteristics of respondents

Components	Social and demographic characteristics of respondents			
	Income	Age of respondents	Age of first child	Number of children
Component 1: perception of a child as a hindering factor	-.270**			
Component 2: perception of a child as a motivating factor		.193**	.178*	
Component 3: perception of a child's place in the life strategy of women				-.197*

* $p < 0.05$. ** $p < 0.01$

DISCUSSIONS

The results allow us to establish the following influence of having children on women's life attitudes:

1. Women with low income are more likely to perceive children as a hindering factor. Most likely, this is due to the large material costs that are required to raise a child and provide him or her with all the necessary things. For parents with low income, having a child creates strong financial barriers and restrictions.
2. With age, women more often perceive children as a motivating factor for new achievements. Perhaps this is due to the transformation of the person's basic attitudes over time. A woman who has just had a child does not yet have the experience of life with children, therefore she cannot realize all the benefits of motherhood. As the child grows up, the mother gains parenting experience and reevaluates the opportunities that open up after having a child. Notably, we found a positive correlation between the Component 2 value and the age of the respondent's first child. This means that our hypothesis may be correct: as the child grows up, women are more likely to perceive children as a motivating factor.
3. The more children there are in the family, the more likely it is for women to prioritize family and parenting over professional growth. There are various causal relationships in this case. On the one hand, an increase in the number of children can change the person's life values. Perhaps when there are more than one or two children in a family, parents begin to perceive them as a source of their well-being. Mothers with one child, on the contrary, want to realize themselves not only in the family, but also in the professional sphere. As a result, they prefer a small number of children to be able to realize their career goals. On the other hand, a basic attitude of prioritizing family over career can lead

to reproductive decisions associated with having more children. Perhaps women who have a family as a basic life value initially plan to have more than two children, sharing the opinion that a happy family should have many children.

CONCLUSIONS

The main conclusions of our study are as follows:

1. The use of factor analysis made it possible to model a wide range of Russian women's perceptions of combining family and career. This analysis helped us to identify groups of opinions that indicate the multidirectional influence of having children on the mother's career. Further correlation analysis showed which social and demographic characteristics of women are associated with these different assessments.
2. The results of our analysis showed that it was mostly young parents who perceive children as a hindering factor of professional activity. With age, the attitude towards children and career changes – people prioritize family and parenting over professional self-realization. The implementation of this result is as follows: improving the regulation of interaction of two important societal spheres of professional and parental activities will create conditions for increasing the birth rate in Russia. This can be achieved through the realization of state and corporate demographic policies aimed at stimulating the employment of workers with children. We see the development of our research in: applying nonlinear factor analysis based on a neural network; analyzing the relationship between components and the strength of women's reproductive attitudes; seeking other factor models, which will help explain how children affect women's career; including working fathers in the study, as well as in the comparative analysis of the results of factor analysis of working mothers and fathers.

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