

**CDSSES 2020****IV International Scientific Conference "Competitiveness and the development of socio-economic systems" dedicated to the memory of Alexander Tatarkin****INNOVATIVE MODELS OF HUMAN RESOURCES  
REPRODUCTION**

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**Abstract**

Human resources are the basis for the competitiveness of national economies and individual companies. Despite the different interpretations of the concept definition, including "labor resources" and "human capital", the scholars are unanimous in assessing human resources' importance for economic development. The reproduction is exacerbated by increasing workload and the aging population. The problem of searching and developing models that stimulate the expanded reproduction of the future labor force is becoming more and more urgent. The paper presents the innovative models' organization for the reproduction of human resources to identify the possibility of combining innovative forms of human reproduction. The developed typology of innovative models identifies a new paradigm in public consciousness and confirms it with its socio-economic development strategies. The presented methodological approach to identifying three innovative human resources reproduction models identifies the most effective and practically acceptable organizational forms of the reproductive process. Based on the analysis of experience in supporting reproduction, the authors provide the necessity and expediency of additional reorientation of the business entities' activities from the material elements production processes and profit receiving to an innovative orientation in human resources reproduction. The authors prove the developed principles of reproductive and gender transformations in goal-setting and economic activity of business entities and propose adaptive to modern digitalization requirements and digital-life mechanisms and tools for the implementation of gender functions of workers with family.

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*Keywords:* Employed in parental labour, human resources, parental labour, remote workplaces, social assistance

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## 1. Introduction

The system of labour relations changed significantly in the late 20th and early 21st century. Influenced by globalization, computerization, and digital technologies, the issue of labour force effectiveness becomes topical (Varnavskii, 2020). Human capital is the basis for sustainable economic development (Kolmykova & Merzlyakova, 2019). Reproduction and accumulation of human capital need to be considered a strategic resource (Grinenko et al., 2017; Zakharov et al., 2020). Economic development, productivity growth, innovation-based growth, and creation of workforce capacity are provided by human capital as a key factor in competitiveness for every enterprise. (Omelchuk et al., 2020).

Post-industrial economy irrevocably divided labour market activities into two categories. The first category includes paid, legally authorized and monitored labour. The second category includes "invisible for the economy", unpaid, and not institutionalized parental labour (O'Connor & Kmec, 2020). Level of human resources reproduction support, provided by the government, and business community, remains insufficient (Anopchenko et al., 2018). Business and government get involved in the reproduction process only at a late stage as consumers of human capital. As a result, the labour of parents remains unpaid, which negatively affect the whole reproductive sector.

The primary responsibility for the care and upbringing of children rests with women, while men are responsible for the financial support of the family (Trzebiatowski & Triana, 2020). Additional family responsibilities, along with everyday duties at work, cause emotional exhaustion of human resources (Kim, 2020). Enterprises should contribute to the creation of enabling environment for workers with families (Petrongolo & Ronchi, 2020).

## 2. Problem Statement

In order to carry out its mandated strategic tasks, including population growth, the Russian government needs to form evidence-based, innovative models for human resources reproduction (Kapkaev & Nurmukhametov, 2020). The necessity of new methods is caused by (Epshteyn et al., 2016):

- unfortunate trend of vitality coefficient with a narrowed birth rate of 1,8;
- growth of workload along with population ageing (number of people above working age increased by 3,000,000 reaching 23,1% of the population over the past decade);
- unfavorable children per family indicator (68% - 1 child, 26% - 2 children, 6% - 3 and more children);
- a sharp decline in living standards of families with children; many families live below the poverty line.

The main task of the Russian government is to overcome current negative tendencies. The authors propose the creation of innovative models integrating parental labour in the national economy. New models include all the driving forces, such as workers with family responsibilities, federal authorities, local authorities, and business-community (Blau & Kahn, 2017).

### 3. Research Questions

- Scientific and methodological substantiation of the development of innovative models of reproduction of human resources
- Identification of the main methodological principles of reproductive and gender transformations in the activities of the main subjects of the reproductive process such as government, business community and local government, family.
- Determination of the subject-species classification of forms of social support for reproductive workers.

### 4. Purpose of the Study

The study aims to the development of methods for effective human resources reproduction: to make a case for innovative models of human resources reproduction, to propose models, integrating reproductive labour into the national economy, and to formulate recommendations for business-community, federal and local authorities, aimed to support reproductive labour.

### 5. Research Methods

New models are studied as a set of mechanisms and instruments, providing stimulation of paid reproductive labour, and its integration into the national financial system (Angelov et al., 2016). Current model, used throughout the world, includes social assistance for families and single persons raising children of pre-school age (Lavrentieva et al., 2018). Three innovative models, integrating parental labour into the real sector of the economy, are presented below. They cover early childhood and pre-school age:

1) a model of total inclusion; reproductive labour is fully integrated into the economy; parents raising pre-school children receive financial compensation of their reproductive costs, in other words, reproductive labour becomes a paid job with salary;

2) a model of partial inclusion; within this model, a parent is provided by well-equipped workplace with the computer, so she or he could continue education or work at home while raising children;

3) a model of extended social assistance; workers with children and family responsibilities are given priority in professional development, retraining, career development, and housing improvement.

Combinations of different innovative models could be used as basis for national, regional, and local strategies of reproduction.

#### A. Model of total inclusion of reproductive labour into economy.

This model (Model A) implies incorporating of parental labour into economy through a new developed mechanism. Parenthood, including child-rearing, becomes paid labour activity. As an example of Model A implementation, we can consider Public Joint Stock Company "Mining and Metallurgical Company "Norilsk Nickel", one of the most significant industrial enterprises in Russia. Model A was successfully used by the enterprise at the end of the '90s and the beginning of the 2000s. It was a unique case for Russia during the transition period, as well as for all industrial countries. Social program "Mother's right" was enshrined in the strategy of company's development until 2015. All the workers

with families were provided with compensations and social support. Workers with minor children received additional corporate benefits.

#### B. Model with partial integration of reproductive labour into economic system.

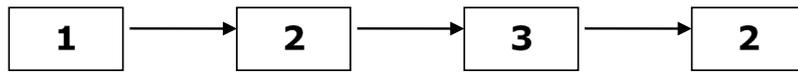
Fast development of technologies provide future for Model B. Workers or students with minor children could effectively use home work stations in order to perform their duties or continue education remotely with a high level of productivity. Integration of child-rearing into the economic system requires certain changes. First of all, enterprises need to expand their essential strategies. Apart from imprescriptible objectives, such as production and profit, companies should move towards the reproduction of human resources as one of the basic goals. Implementation of a new concept demands a paradigm shift. Childbearing and rearing is no longer the sole responsibility of parents; it becomes the joint responsibility of family, government, and enterprise. After public consciousness adopts this concept, demographic, and economic effects will be very significant. It is the enterprise that becomes a much more critical aspect of the new paradigm.

Fundamentals of changes in enterprise results framework towards reproductive sector:

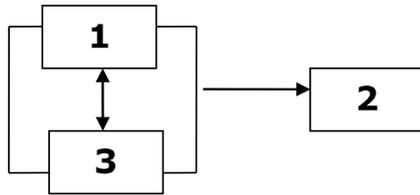
- consistency of three interrelated functions carried out by parents: reproductive, productive (at work), and career development;
- child-rearing becomes socially useful activity within economic production; it is measurable, monitored, and the results are reflected in the accounts of enterprises;
- social assistance for families raising children is majorly replaced by salaries for reproductive labour, paid from new reproductive funds;
- creation of a supportive environment for men and women in order to provide the fulfilment of reproductive, and productive (work) functions;
- combination of functions mentioned above is presented majorly by sequential or parallel-sequential schemes of implementation;
- effectiveness evaluation of current or future reproductive changes is conducted based on socio-demographic and economic indicators.

In order to avoid apparent contradictions, all the changes need to be provided with comprehensive support of society, government, and business community. With this support efficiency of sequential and parallel-sequential implementation schemes will be on a high level (figure1). Scheme I demonstrates the sequential implementation of different functions. On every stage of the scheme, a parent is 100% concentrated on fulfilment of one concrete function. As a result, too much time passes before she or he returns to the fulfilment of productive function, which consequently diminishes the efficiency of the scheme. For instance, a woman with three children will return to the fulfilment of productive function at the age of 35.

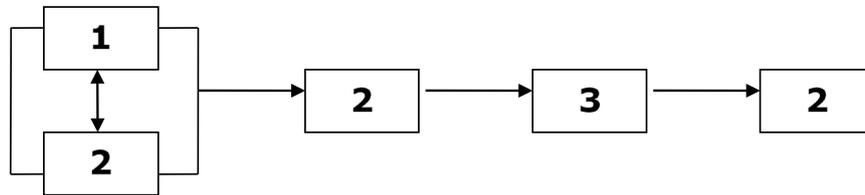
Scheme I: sequential fulfilment of functions 1, 2, 3



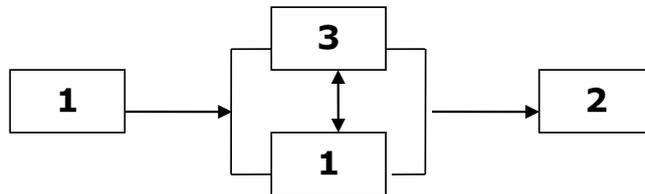
Scheme II: parallel fulfilment of functions 1, 3 with sequential fulfilment of function 2



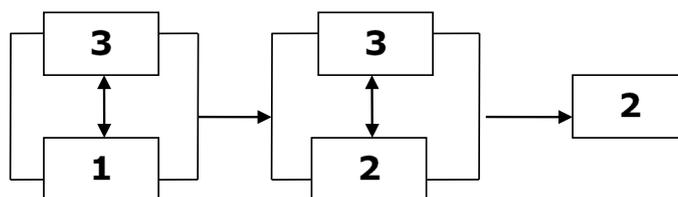
Scheme III: parallel fulfilment of functions 1, 2 with sequential fulfilment of functions 2, 3



Scheme IV: sequential fulfilment of functions 1, 2 with parallel fulfilment of functions 3, 1



Scheme V: parallel fulfilment of functions 3-1, 3-2 with sequential fulfilment of function 2



Basic gender functions

**1:** higher education, skills enhancement and career development

**2:** productive

**3:** reproductive

**Figure 1.** Sequential and parallel-sequential schemes of gender functions fulfilment

Although the idea of being “locked up with children” is majorly unacceptable among women of fertile age, it should be noted that from 10 to 15 percent of respondents in the Urals Federal District prefer to focus on fulfilment of one function – child-rearing. Scheme I can be realized successfully only in wealthy families.

Scheme II in Figure 1 demonstrates the reconciliation of child-rearing and higher education. However, in practice, this scheme works properly if most of the child-rearing functions are performed by other people (relatives or babysitters). Only in this case, young parents can receive a quality education.

Scheme II also requires a certain level of living conditions along with loyalty of close relatives in order to let a young mother or father focus on education. Realization of the scheme needs a paradigm shift towards priority of employed in parental labour along with the formation of the middle class. With these transformations application of Scheme II in Russia could see extended use in future.

Transition to a new paradigm must be supported by managers at all levels (business executives, top managers, regional leaders), and by society. Combining of child-rearing and higher education can be productive and effective only in this case. Financial support must be provided through special scholarships for studying parents. Formation of scholarships from three funds (State scholarships, scholarships from united reproductive funds of regions and enterprises, and municipal scholarships) allow double or triple the size of scholarships.

Scheme III displays advantageous reconciliation of education and professional activity; however, frequently necessity to start working is caused by lack of financial resources. Negative aspects of the scheme are: insufficient fundamental education and start of reproductive work later in life.

According to Scheme IV, childbirth shortly after higher education does not affect skills enhancement. Modern computer technologies allow young mothers and fathers to combine child-rearing and extra education at home effectively. As a result, by middle childhood, a parent will be fully qualified to become a productive and effective worker.

The efficiency of child-rearing and skills enhancement at home is basically determined by reimbursement for remote education costs (provided by united reproductive funds of regions and enterprises), and financial background of the family.

Scheme V could be considered as the most effective because, for more than 12 years (example for the family with three children) of child-rearing, a parent does not stop working, career development continues. A key factor to the effectiveness of the scheme is remote workplaces when a mother or a father can perform all productive functions and be in touch with management via the Internet.

Working remotely at home, a parent generally earns less; however, in some cases, the salary of a remote worker can be relatively high. Duration of staying within the reproductive sector and remote work depends on parent's salary, total family income, opportunities to start working in the real sector, and health of children.

All the schemes mentioned above cover aspects of reproductive function and its reconciliation with higher education, skills enhancement, and career development. The common feature of all schemes is partial integration of child-rearing in the real sector of the economy. These combinations are applicable in practice, and, importantly, widespread in society.

C. Model of extended social assistance for employed in parental labour

Within this model, we separate the terms "social help", and "social assistance". Moreover, we identify the critical category "employed in parental labour".

Parents with professional skills, allowing them to fulfil functions of child-rearing, educating children of pre-school age, and early socialization of natural and adopted children as a primary activity are defined as employed in parental labour. In addition to primary education, they definitely must have the necessary medical and pedagogical skills in order to perform listed functions correctly.

Among other things, employed in parental labour represent an essential part of the workforce (men and women with underage children), essential to cope with depopulation. Russia has been suffering prolonged population crisis since the 1990s. The solution to this problem requires groundbreaking measures, innovative methods, and significant reforms in the current circumstances. Accordingly, along with necessary social help, our government needs to put in place an enabling environment for workers with family responsibilities in the labour market.

The current situation in the labour market is not in favour of employed in parental labour. Stereotypes and fears of employers cause discrimination of young men and women, willing to perform their functions in the real sector along with the reproductive sector. For instance, in some companies, young women are obliged to refrain from childbearing; employers avoid mothers with children of pre-school age in hiring; men with family responsibilities have no privileges in hiring or promotion.

## 6. Findings

Analysis of data obtained, together with recent experience, lead us to certain conclusions, and practically applicable recommendations.

- 1) employed in parental labour need to receive social assistance on an equal basis with other socially vulnerable categories;
- 2) fathers with underage children must be considered as employed in parental labour, together with mothers;
- 3) monitoring of employed in parental labour must be included in the list of critical indicators for Employment Service. Indicators could contain an average number of Employment Service applications among employed in parental labour, percentage of newly employed parents, and share of employed in parental labour registered in Employment Service in the total number of employed in parental labour;
- 4) it is necessary to create an institutional and legal basis for Employment Services in order to start working with a new category of citizens - employed in parental labour;
- 5) Social Services Departments need to start active work with the newly introduced category;
- 6) terms "child", "parenthood", "motherhood", "fatherhood", "having many children", and "parental labour" need to be promoted in mass media as positive and valuable;
- 7) local authorities must grant preferential treatment for enterprises actively supporting employed in parental labour.

According to the authors, social assistance for employed in parental labour takes precedence over other methods and stimulates the growth of human capital in quantitative and qualitative aspects. Following advantages can explain the efficiency of this method on regional and enterprise level:

- in contrast with other methods of stimulation, social assistance for employed in parental labour does not require additional financing; for example, in 6 years PJSC “Norilsk Nickel” invested 178,7 million rubles in the experimental program, integrating reproductive labour into production (2,700 women received financial assistance, but total sum is significant for "Norilsk Nickel");
- positive economic impact of social assistance is reflected in productivity growth among promoted workers with family responsibilities;
- addressed social assistance, especially compared with social help for all categories, achieves much more outstanding results in the growth of human capital, because employed in parental labour receive appropriate conditions.

Cooperation between enterprises and regional authorities maximizes the efficiency of social assistance for employed in parental labour. Different types of cooperation could be classified by beneficiaries, forms of support, and subjects of support.

Enterprises support employed in parental labour directly (cash transfers, benefits, and subsidies) or indirectly (priorities for employed in parental labour in hiring, remote workplaces, flexible working hours).

Enterprises and regional authorities (hereinafter territories) are two main subjects, providing social assistance for employed in parental labour. There is also a dual source of support: enterprise « territory. Classification by subjects and forms of social assistance for employed in parental labour is an essential aspect for strategies of human resources reproduction. This classification is aimed to improve the reproductive process within the enterprise, as well as within the region (Figure 2). Summary of every type is presented below.

1.1. Reconciliation of work and reproduction. Enterprises provide employed in parental labour with flexible hours, part-time work, and remote workplaces, thus employed in parental labour could work effectively, while performing the reproductive function. This type does not require extra spending.

1.2. Well-paid jobs for employers with underage children. Higher wages will let the family maintain its standards of living, which is crucial for many families (worsening of living standards is primary reason why many people are afraid to have children).

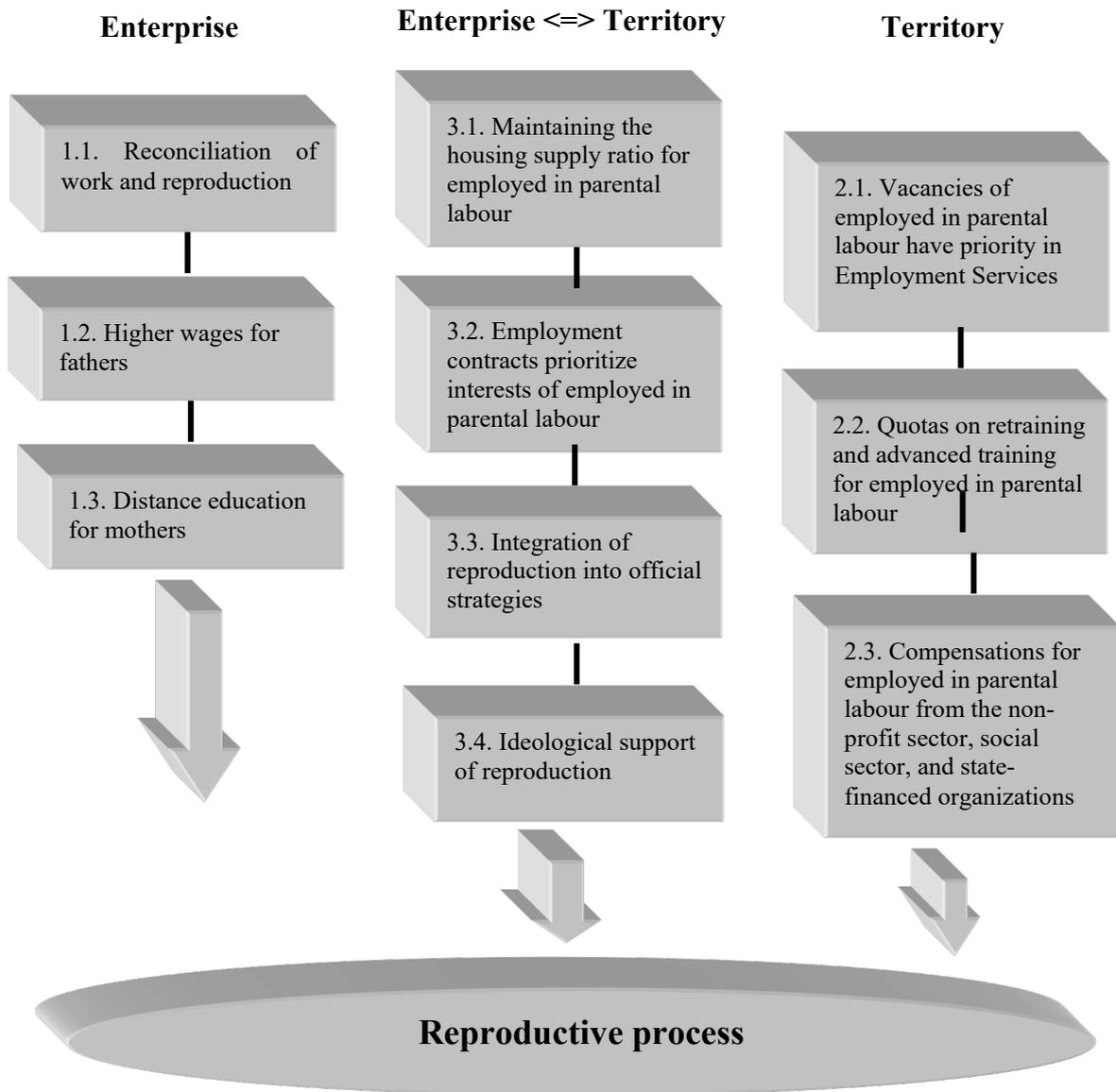
1.3. Distance education for mothers and fathers with underage children. Classic forms of education become unacceptable for young parents. Enterprises must provide employers with family responsibilities with necessary equipment and software. Thus they can receive a quality education and care for small children.

2.1. Vacancies of employed in parental labour have priority in Employment Services. They are employed in parental labour, who lost their jobs or looking for another job in order to improve standards of living, receive job offers before everyone else.

2.2. Quotas on retraining and advanced training for parents with underage children. Employment Services provide unemployed or searching for better job parents with free retraining on a quota basis.

2.3. Compensations for employed in parental labour from the non-profit sector, social sector, and state-financed organizations. Employed in parental labour receive cash transfers, if standards of living for

their families sharply decline after childbirth, and their employer is unable to provide an appropriate level of income through natural attrition.



**Figure 2.** Classification of social assistance for employed in parental labour by types and subjects of support

3.1. Maintaining the housing supply ratio for employed in parental labour. According to the latest sociological research, deterioration of housing conditions after childbearing is the main reason why many families cannot realize their reproductive plans. International standards of the housing supply ratio (number of rooms in an apartment must be equal to the number of family members plus one) will remain unattainable in Russia for decades. Constant depopulation nevertheless has a positive effect on the housing supply ratio.

Creation of housing stock exchange on a regional level or within large-scale enterprises is regarded as an effective measure in the current circumstances. This stock is aimed to maintain achieved housing conditions for families with reproductive plans. When the number of family members increases after childbirth, housing stock provides this family with a bigger apartment in exchange for the old one.

3.2. Employment contracts prioritize interests of employed in parental labour. All types of employment contracts within enterprises, on local and regional level, must include clauses, supporting employed in parental labour. These clauses guarantee that: working conditions, salary, and rank of employed in parental labour will not worsen after childbirth; parents of pre-school children will be provided with kindergarten places; by quotas, children of employed in parental labour will receive scholarships from enterprises; workers with family responsibilities receive skills enhancement, training and retraining.

3.3. Reproduction becomes an integral part of development strategies on every level. The efficiency of reproductive processes needs to be included in all official concepts and strategies of social and economic development within enterprises and regions. Particular paragraphs must contain qualitative and quantitative indicators.

3.4. Ideological support of employed in parental labour. High status and societal value of employed in parental labour must be promoted as an essential part of primary institutions (family, marriage, motherhood and fatherhood) not only via mass media campaigns. Development of sports sections, artistic circles, and science clubs for children; contests and competitions among talented children – all these measures will have an essential bearing on the public perception of employed in parental labour.

## 7. Conclusion

Analysis of social assistance for employed in parental labour indicates that all types of support are aimed to address the root causes of reproductive postponement. Successful enterprises, providing high-wage jobs for employers with family responsibilities, offer a partial solution to this problem. Most of the issues (for example, maintaining the housing supply ratio for employed in parental labour) require collective efforts of enterprises and territories. It is the interaction between top-managers and territories that define the efficiency of reproductive processes. Growth of human capital is also accompanied by qualitative changes, which has a positive impact on economic indicators among enterprises and on the regional level.

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