SOCIOLOGICAL SURVEYS =

Inequality of Opportunity: Unobserved Factors in Empirical Research

Z. F. Ibragimova^{*a*,} * and M. V. Frants^{*b*}

^a Bashkir State University, Ufa, Russia
 ^b Ufa State Aviation Technical University, Ufa, Russia
 *e-mail: badertdinova@mail.ru
 Received September 16, 2021; revised November 8, 2021; accepted December 7, 2021

Abstract—The information base of empirical research in the field of inequality of opportunity is discussed. It is shown that the information base is incomplete since many circumstances and efforts remain unobserved, creating an underestimation. The role of family background is studied, including such factors as the integrity of the parental family, the number of siblings, and the psychological atmosphere in the parental family. It is found that the factor of family integrity has a significant impact on estimates for inequality of opportunity.

Keywords: inequality of opportunity, effort factors, circumstance factors, family background, family policy **DOI:** 10.1134/S1075700722030030

Introduction. The problem of deepening social and economic inequality is becoming ever more urgent worldwide, including amid the aggravating social and economic issues provoked by the coronavirus pandemic.

An original view on inequality is proposed by the theory of equal opportunity, which evolved as a development of egalitarian theories of social justice [1-5] as a result of criticizing welfare egalitarianism, which interprets a just society as a society whose members have the same level of welfare. In this case, welfare is understood as either the level of enjoyment of an individual with his or her life (hedonistic welfare) or the degree of satisfaction of individual preferences, i.e., the degree to which the individual's life is close to that which he or she sees as perfect.

Advocates of the theory of equal opportunity criticize the goal of equalizing welfare in order to achieve justice. Their arguments boil down to an assertion that individual welfare takes shape under the influence of two groups of factors, which are fundamentally different in the context of justice debates, namely, circumstances and efforts. The circumstances are factors whose individual values are generated "by chance," and the individuals themselves cannot control the probability of attaining a certain value. Unlike the circumstances, the efforts are factors largely in the control of the individual. The theory of equal opportunity believes that welfare disparities caused by circumstance factors are unfair and are subject to compensation in a just society. On the contrary, welfare disparities arising from differences in effort are ethically acceptable and should be maintained, shaping the rewards of effort and incentivizing individuals to fulfill their potential. Thus, the theory of equal opportunity

vidual while the others are the result of his or her own decisions and actions. The task is to compensate with payments only the damage caused by uncontrollable

The 21st century saw an increase in interest in the ideas put forth by the theory of equal opportunity. Over the years, authoritative international organizations such as the World Bank [9], the European Bank for Reconstruction and Development [10], and the RAND Corporation [11] have published reports on this topic. The theory of equal opportunity brought a new idea into the economic discussion around the relationship between inequality and economic growth. In [12], we provided a review of empirical studies on assessments of this relationship, which shows that the

shifts the object of equalization aimed to achieve jus-

tice from equalizing welfare to equalizing opportunity.

almost immediately attracted the attention of econo-

mists. In [6, 7], they proposed mathematical models

for a fair redistribution of individual incomes through taxation in view of the fact that primary incomes

depend on "relevant" and "irrelevant" individual

characteristics. The relevant characteristics are under-

stood as characteristics in the domain of personal

responsibility, i.e., efforts; the irrelevant ones are those beyond the control of the individual, i.e., cir-

cumstances. The goal of the redistribution is to elimi-

nate the effects of the irrelevant characteristics while

maintaining the role of the relevant ones. In [8], the

ideas of the theory of equal opportunity are applied to determine fair payments by insurance companies

upon the occurrence of an insured event. The authors

consider damage as an indicator influenced by a set of

factors some of which are not controlled by the indi-

When the theory of equal opportunity emerged, it

factors.

results are often contradictory and give no convincing evidence to support any point of view. Based on the theory of equal opportunity, we hypothesize that the observed contradictions in the results may be due to the fact that different components of inequality have different effects on economic growth. Inequality generated by inequality of opportunity has a negative impact on economic growth since the resulting barriers cause underfulfilment of individual potential. On the other hand, inequality generated by inequality of effort promotes economic growth by providing rewards for effort and incentivizing individuals to fulfill their potential. Empirical verification of this hypothesis is currently in its initial stage (see [13, 14]).

Methods for measuring inequality of opportunity, as well as their testing on empirical material, have been developed vigorously since the beginning of the 21st century. One of the little-studied aspects in this field is the problem of unobservability of the many individual characteristics that can be interpreted as circumstances or efforts. Some of them defy measurement in principle, e.g., genetically determined cognitive and noncognitive abilities of individuals. Other characteristics can be obtained within a conventional sociological survey; however, since estimates for inequality of opportunity are based on ready-made data sets collected as a result of large-scale sociological surveys, not customized for assessing inequality of opportunity, analytical studies include only those factors for which the necessary amounts of data are available.

The consequences of overlooking the unobservable circumstance factors are discussed in [15]. The authors argue that estimates obtained using both parametric and nonparametric approaches based on an ex ante definition of equality of opportunity should be interpreted as a lower boundary on the theoretical level of inequality of opportunity (i.e., the level of inequality of opportunity that would be obtained if all the factors were included in the analysis) rather than as a level of inequality of opportunity generated by the circumstance factors included in the analysis. The reason for this interpretation is that the omitted circumstance factors may correlate with the included ones; therefore, the regression coefficients at the included factors cannot be interpreted through the lens of cause and effect. Inequality of opportunity due to unobserved circumstances is partly accounted for in the inequality-of-opportunity estimates derived from observable factors, to the extent that unobserved circumstances are correlated with those included in the analysis. The authors also argue that the addition of new circumstance factors can only increase both absolute and relative estimates for inequality of opportunity.

We conducted a metaanalysis on measuring inequality of opportunity in relation of individual income [16] to find that these studies most often include the following circumstance factors: parental education and professional status, place of birth, gender. Other factors are included much less frequently. A set of papers aimed at measuring inequality of opportunity in Sweden give a unique chance to conduct a comparative analysis and find out the extent of underestimation of inequality of opportunity due to the omission of unobservable circumstance factors. The reason is that apart from reviews with a traditional set of circumstances, we can consider the works [17, 18], which use unique factors that are usually overlooked in other studies. These works are based on a unique dataset generated from four Swedish administrative registers. The comparative analysis of the results is given in Table 1.

It follows from Table 1 that the estimates for inequality of opportunity increase with the increasing number of circumstance factors included in the study, but not as significantly as one might expect. The contribution of inequality of opportunity to income inequality remains small, less than 20%. It is difficult to identify what causes this situation. Perhaps, the extended set of circumstances used in the last two works is redundant; therefore, additional factors do not create a considerable increase in the estimate. Moreover, it is not at all clear to what extent the results for Sweden, a country with high social standards and low income inequality, can be applied to other countries.

Some insight into the extent to which the contribution of circumstance factors to inequality of opportunity varies across countries can be obtained by reviewing the literature. In this review, we confine ourselves to works that provide, in addition to inequality-ofopportunity estimates as such, a ranking of circumstance factors by their contribution to the resulting estimate. In [15], the authors studied inequality of opportunity with respect to income in Latin America and the role of the following circumstance factors: father's education; mother's education; father's professional status; the nationality or race, region of birth, and gender of the individual. Their calculations show that the contribution of inequality of opportunity to income inequality varies from 23.2% (Colombia) to 33.5% (Guatemala). Mother's education makes the largest contribution to income inequality in all the six countries, followed by father's education. The significance of other factors varies by country.

In [22], inequality of opportunity is studied with respect to labor income in Egypt. The authors use the following circumstance factors: parental education, profession, father's employment (type and area), place of birth, and gender. Father's education and the place of birth are shown to be the two most significant circumstance factors. Father's profession and employment (type and area) play a much smaller role. Such factors as mother's education and the gender of the individual make the minimal contribution to inequality of opportunity.

In [23], we used the RLMS-HSE Wave-20 data to investigate the inequality of opportunity in relation to

2022

Study	Database	Circumstance factors included in the analysis	Income indicator	Contribution of inequality of opportunity to income inequality*
Brzeziński, 2015 [19]	EU-SILC, 2004, 2010	Education (father and mother), profes- sional status (father), country of birth	Equivalent personal income	2% (2010) 4% (2004)
Marrero, Rodrigez, 2012 [20]	EU-SILC, 2005	Education and professional status (both parents), country of birth, economic welfare of the family	Equivalent personal income	7.95%
Checchi, 2010 [21]	EU-SILC, 2005	Education (both parents), professional status (both parents), gender, nationality, type of place of residence	Individual labor income after tax	11.1%
Björklund, 2012 [17]	Data array on male respondents, com- piled from several state registers	Parental income, parental education, family integrity, number of siblings, IQ, body mass index at 18	Average total income at an age of 32–38	10.0–17.4% depend- ing on age cohort
Hederos, 2017 [18]	Data array com- piled from several state registries	Parental income, parental education, family integrity, number of siblings, IQ, noncognitive abilities at 18	Average total mar- ket income at an age of 37–43	12.9–17.9% for men; 9.3% for women; 19.9% for both sexes

Table 1. Results of measuring the inequality of opportunity in Sweden

* When using GE(0) as a measure of inequality.

wages and personal income in Russia. Our analysis comprised the following circumstance factors: parental education and professional status; age, gender, nationality, and place of birth of the individual. We found that gender makes the greatest contribution to inequality of opportunity, followed by (in descending order of importance): the place of birth of the individual, mother's professional status, parental education, father's professional status, and the age of the respondent. Nationality plays almost no role.

In the abovementioned study [18] on Sweden, the most significant factors were the IQ and noncognitive abilities of the individual and parental income. Parental education and family integrity were less significant.

In [24], inequality of opportunity is studied in China. The analysis comprises two periods (1989– 1997 and 2000–2006) and the following circumstance factors: the income level of the parental family, the gender and place of birth of the individual (coastal or inland region; urban or rural area), parental education and professional status, and parental family size. The greatest contribution to inequality of opportunity comes from parental family income and the professional status of the father and mother, followed by father's education. Other factors are less significant.

It is evident from the above review that the factor rankings by contributions to inequality of opportunity turn out to be different in different countries. Apparently, this is due to cultural, economic, social, and other differences between countries. This means, firstly, that the results for Sweden can hardly be generalized to other countries. Secondly, it makes one wary of international comparisons relating to inequality of opportunity. Even if calculations are based on the same set of observed circumstance factors, the included and omitted circumstances may have different significance for each country. This consideration is important because empirical studies aimed at international comparisons of inequality of opportunity have become quite popular in recent years (see, e.g., [10, 19]).

The purpose of this paper is to explore the extent to which incomplete consideration of family background factors can create an underestimation of inequality of opportunity.

This paper is based on the data of a sociological survey conducted with the involvement of students from two universities: Ufa State Aviation Technical University (USATU) and Bashkir State University (BashSU). Within the courses on statistics and econometrics, the students were asked to choose two adults in their environment, preferably working individuals, and interview them according to a given questionnaire. The survey questionnaire, which was designed on the basis of the theoretical models proposed by us in [25], can be found in [26]. The total number of observations was 291.

In our calculations, we used four baseline circumstance factors: gender, type of settlement (place of birth of the individual), the maximum level of education and the maximum professional status of the parents.

Moreover, our analysis also comprised the following family background factors: parental family composition, including its integrity and the number of children, and the psychological atmosphere in the parental family.

From the perspective of integrity of the parental family, we identified three types of family upbringing: the individual grew up in a family with both biological parents; the individual grew up in a family with one biological parent and one stepparent (mother and stepfather or father and stepmother); or the individual grew up in a single-parent family with one biological parent (only mother or only father). In addition, we considered the number of children in the parental family: the respondent was an only child; the respondent grew up in a family with two or three children; or the respondent grew up in a family with four or more children.

Parental professional status was described in the questionnaire in seven categories: (1) head of organization, deputy head, or head of a major organizational unit; (2) head of department, group, service, or project; (3) specialist without managerial functions; (4) employee without specialized education engaged mainly in mental tasks; (5) employee/worker engaged mainly in physical labor; (6) other; (7) no employment; (8) "cannot say." The maximum professional status of the parents was calculated from the primary data. Categories 3 and 4 were combined into one group to ensure more or less uniform numbers in each of the categories.

The psychological atmosphere in the parental family was assessed by the individual on a 10-point scale: from 1 (negative) to 10 (completely positive and harmonious). As follows from the descriptive statistics (Table 2), the respondents generally rated the psychological atmosphere highly, the average score being 8.27. For further calculations, the initial variable was discretized into three levels: low (6 points or less), medium (7–8 points), and high (9–10 points).

Individual achievement was measured by two indicators: personal income and wage of the individual. If the respondent indicated two wages, i.e., the main job and extra one, they were summed up.

The descriptive statistics for all the variables used in the study are given in Tables 2 and 3.

In order to measure inequality of opportunity, we applied one of the most widely used techniques based on an ex ante definition of equality of opportunity and a parametric approach. This technique is highly popular among researchers (see, e.g., the works [19, 20, 24, 27], which apply this estimation technique).

The technique includes the following steps:

(1) Estimating the regression of the individual attainment on the circumstance factors. Studies measuring inequality of opportunity in relation to income use a semilogarithmic form of Eq. (1).

In this equation, w_i is the income of the individual; C_i is a vector composed of the values of the circumstance factors; φ is a vector of the regression coefficients; and ε_i is a stochastic error.

$$\ln\left(w_{i}\right) = C_{i}\varphi + \varepsilon_{i}.$$
(1)

(2) Model (1) is used to calculate the forecasting

values of $\widehat{w_i}$, which are the conventional mean values of the individual incomes at a given fixed set of values

of the circumstance factors; any variations in $\widehat{w_i}$ depend on variations in the circumstance factors only. According to the ex ante definition, there are no variations in $\widehat{w_i}$ in the equal opportunity case. Therefore, the inequality index calculated from the distribution of $\widehat{w_i}$ is in fact an absolute measure of inequality of opportunity. To estimate the contribution of inequality of opportunity to income inequality, we calculate a relative measure of inequality of opportunity by the formula $\theta = I(\widehat{w_i})/I(w_i)$. In our work, we used the Theil-L index as the most popular inequality measure in studies on inequality of opportunity.

(3) A separate problem in studies on inequality of opportunity is to estimate the contribution of individual factors. This problem is solved using the Shapley decomposition, which is discussed in detail in [28].

Since we sought to identify the key additional family background factors, we first added them to the baseline set one at a time, and then included them all together.

Results and discussion. In the context of this study, it makes sense to discuss the question of correlations between the factors included in the analysis. Since the factors under consideration are categorial, their independence was estimated in a pairwise manner by the X^2 criterion. The results are shown in Table 4.

As follows from Table 4, gender is a relatively independent indicator. Family integrity, too, is not associated strongly with anything other than the number of children. Psychological atmosphere is associated with only one factor, i.e., parental education. Parental education, parental professional status, the individual's place of birth, and the number of siblings are related to each other.

The results of the regression analysis show that the signs at the regression coefficients almost always agree with the expectations. Other things being equal, men have a significantly higher income compared to women; people living in towns or villages have significantly lower incomes compared to those living in a metropolis. Interestingly, children who grew up alone, other things being equal, have a lower personal income compared to those who grew up in a family with two or three children. Individuals who grew up in a family with both biological parents have significantly higher incomes.

The assessment results for inequality of opportunity with respect to personal income and the contribu-

2022

Table 2.I	Descriptive	statistics	for the	categorial	variables
-----------	-------------	------------	---------	------------	-----------

Indicator	Absolute rate	%
Gender	288	100.00
— male	112	38.89
— female	176	61.11
Education	287	100.00
- primary vocational education, secondary general education, or lower	22	7.67
- secondary specialized education or unfinished higher education	73	25.44
- higher education	192	66.90
Type of settlement (place of birth)	291	100.00
— big city (million-plus city) or regional capital city	82	28.18
— town	86	29.55
— urban-type settlement	29	9.97
— rural settlement	94	32.30
Parents' education	263	100.00
- primary education or unfinished secondary education	23	8.75
- secondary general or primary vocational education	50	19.01
- secondary vocational education	92	34.98
- higher education, or postgraduate education	98	37.26
Parental family composition: integrity	287	100.00
— two biological parents	237	82.58
— single biological parent	37	12.89
— one biological parent and one stepparent	13	4.53
Parental family composition: number of children	291	100.00
— the respondent is the only child	42	14.43
-2-3 children including the respondent	203	69.76
- 4 or more children including the respondent	46	15.81
Parental professional status	285	100.00
- head of organization, deputy head, or head of a major unit	36	14.34
- head of department, group, service, or project	66	24.26
- specialist without managerial functions or employee engaged mainly in mental tasks	80	29.41
- employee/worker engaged mainly in physical labor	87	31.99
Psychological atmosphere in the family	286	100.00
 less than 6 points 	40	13.99
-7-8 points	97	33.92
— 9–10 points	149	52.10

Source. Calculated by the authors.

Indicator	Ν	Q1	Me	Q3	М	SD
Age	288	23	40	49	37.29	13.82
Psychological atmosphere in the family	286	8	9	10	8.27	1.93
Wage	244	22000	30 000	50000	41798	38895
Personal income	272	22500	30 000	50000	41660	37 126

Table 3. Descriptive statistics for the continuous variables*

* N, number of observations; Q1 and Q3, lower and upper quartiles, respectively; Me, median; M, mean value; SD, standard deviation. Source. Calculated by the authors.

	PE	Gen	PB	PS	Kids	FC	PA
PE		$X^2 = 0.63$ p = 0.889	$X^2 = 33.55$ p < 0.001	$X^2 = 108.55$ p < 0.001	$X^2 = 48.82$ p < 0.001	$X^2 = 7.64$ p = 0.266	$X^2 = 13.06$ p = 0.042
Gen	$X^2 = 0.63$ $p = 0.889$		$X^2 = 0.95$ $p = 0.812$	$X^2 = 1.73$ p = 0.943	$X^2 = 0.35$ p = 0.836	$X^2 = 3.92$ p = 0.140	$X^2 = 0.09$ p = 0.956
РВ	$X^2 = 33.55$ p < 0.001	$X^2 = 0.95$ p = 0.812		$X^2 = 39.21$ p = 0.003	$X^2 = 38.02$ p < 0.001	$X^2 = 6.91$ p = 0.329	$X^2 = 9.25$ p = 0.160
PS	$X^2 = 108.55$ p < 0.001	$X^2 = 1.73$ p = 0.943	$X^2 = 39.21$ p = 0.003		$X^2 = 32.55$ p = 0.001	$X^2 = 8.25$ p = 0.765	$X^2 = 20.92$ p = 0.052
Kids	$X^2 = 48.82$ p < 0.001	$X^2 = 0.35$ p = 0.836	$X^2 = 38.02$ p < 0.001	$X^2 = 32.55$ p = 0.001		$X^2 = 37.09$ p < 0.001	$X^2 = 7.16$ p = 0.128
FC	$X^2 = 7.64$ p = 0.266	$X^2 = 3.92$ p = 0.140	$X^2 = 6.91$ p = 0.329	$X^2 = 8.25$ p = 0.765	$X^2 = 37.09$ p < 0.001		$X^2 = 0.88$ p = 0.927
PA	$X^2 = 13.06$ p = 0.042	$X^2 = 0.09$ p = 0.956	$X^2 = 9.25$ p = 0.160	$X^2 = 7.16$ p = 0.128	$X^2 = 7.16$ p = 0.128	$X^2 = 0.88$ p = 0.927	

Table 4. Results of testing the independence of the categorial factors*

* PE, parental education; Gen, gender of the individual; PB, place of birth; PS, parental professional status; Kids, number of children in the parental family; FI, integrity of the parental family; PA, psychological atmosphere. Source: calculated by the authors.

Table 5. Estimates for inequality of opportunity with respect to personal income and the contributions of individual factors

Indicator	Baseline	Model 1	Model 2	Model 3	Model 4
$I\left(\widehat{w_i}\right)$	0.000215	0.000259	0.000318	0.000234	0.000358
$\theta,\%$	9.72%	11.66%	14.33%	10.55%	16.15%
Factor contributions:					
parental education	19.25%	15.81%	14.97%	16.96%	12.59%
gender	52.95%	45.17%	33.81%	48.42%	30.41%
place of birth	17.50%	16.51%	13.17%	17.48%	13.69%
parental prof. status	10.30%	9.27%	7.58%	8.76%	6.58%
number of children		13.25%			6.52%
family integrity			30.46%		24.09%
atmosphere				8.38%	6.13%

Source. Calculated by the authors.

Tables 5 and 6: The baseline model includes four basic circumstance factors: gender, type of settlement (place of birth of the individual), and maximum level of education and professional status of the parents. Model 1 includes all the basic factors and the number of children in the parental family. Model 2 includes all the basic factors and the integrity of the parental family. Model 3 includes all the basic factors and the psychological atmosphere in the parental family. Model 4 includes all the basic factors.

tions of individual circumstance factors are given in Tables 5 and 6.

As can be seen from Tables 5 and 6, the overall picture is the same as in Sweden. An increase in the number of the circumstance factors taken into account increases inequality of opportunity but does so modestly. Of the three additional factors, one factor, namely, the integrity of the parental family, turned out to be truly valuable. Firstly, it is independent of the other factors, and secondly, it yields a noticeable increase in the estimates for inequality of opportunity. Thirdly, in terms of the relative importance of the contribution to inequality of opportunity, this factor consistently ranks high, second only to gender. Fourthly, data on this factor can be easily collected as part of a regular sociological survey. The role of family integrity was also studied in the above-described works on Sweden; however, this factor did not reach so high values in those studies.

Indicator	Baseline	Model 1	Model 2	Model 3	Model 4
$I\left(\widehat{w_i}\right)$	0.000227	0.000241	0.000295	0.000242	0.000316
θ, %	12.02	12.81	15.63	12.84	16.76
Factor contributions:					
parental education	19.38	18.11	16.72	17.79	15.08
gender	58.51	55.57	43.26	54.09	40.18
place of birth	16.48	16.12	13.62	16.39	13.75
parental prof. status	5.36	5.34	4.85	4.92	4.20
number of children		4.86			2.75
family integrity			21.55		18.81
atmosphere				6.81	5.13

Table 6. Estimates for inequality of opportunity with respect to wages and the contributions of individual factors

Source. Calculated by the authors.

The fact that the integrity of the parental family turns out to be a crucial factor in inequality of opportunity with respect to income compels one to look at family policy in a new way. The existing trends towards an increase in the number of divorces, giving birth to children out of wedlock, and the weakening role of family in value orientations, which are observed by many Russian researchers (see, e.g., [20]), should be treated as factors that will worsen individual achievement in the next generation.

The factor of the psychological atmosphere in the parental family did not appear to be strongly associated with the other factors either. However, its inclusion produces a very small increase in inequality of opportunity. Furthermore, its adequacy is doubtful as we used a subjective assessment of psychological atmosphere, and the descriptive statistics showed that this assessment turned out to be very high. More than half of the respondents chose 9 to 10 points on a 10point scale. A possible reason is that most people tend to idealize the childhood period as the years go by, and their subjective assessments may be very far from reality. We are not aware of any works that include this factor; therefore, it is not possible to perform any comparative analysis.

The number of siblings was found to be a factor associated with such baseline factors as parental education level, parental professional status, and place of birth. Presumably, this is why adding this factor to the baseline set adds little to the estimate for inequality of opportunity. In the studies on Sweden, which take this factor into account, its role was also insignificant.

The resulting ranking of the factors by their contribution to inequality of opportunity is generally consonant with what we obtained in our calculations based on the RLMS HSE Wave-20 data. The gender factor is confidently in the lead; parental education, parental professional status, and place of birth are of lesser yet considerable importance.

Conclusions. The problem of unobservability of the many factors that contribute to the formation and reproduction of income inequality creates serious limitations in the field of inequality-of-opportunity measurements, creating an underestimation. However, due to correlations between the observable and unobservable factors, this underestimation may be not very significant. Of the three additional factors pertaining to family background, a noticeable increase in the estimates was observed in one case only, i.e., for the factor of integrity of the parental family. It is important to search for additional circumstance factors that are relatively independent of the traditional ones and make a significant contribution to the resulting estimates because this way we get a deeper insight into inequality of opportunity, especially in terms of obtaining correct (i.e., less underestimated) values for its level and understanding the role of the various circumstance factors.

In terms of improving the information base of research on inequality of opportunity, we find the approach taken by the Swedish researchers very attractive. The researchers collected data from several public registers, and this way, firstly, they were able to obtain really "big" data as the calculations were carried out on an array containing about 300000 observations: secondly, they managed to include genetically predetermined health factors as well as cognitive and noncognitive abilities (these factors are almost always overlooked in sociological surveys); thirdly, they used income data averaged over several years in a certain age range, which made it possible to smooth out random fluctuations and work with income data associated with a certain stage in a person's life cycle. To date, Russia has achieved a sufficient level of digitalization as many departments and services have been keeping records in electronic form for years, but there are almost no possibilities for aggregating and utilizing these data for research purposes.

The ideas of the theory of equal opportunity appear to be very productive in the study of many topical economic problems, such as ensuring sustainable development, combating poverty and inequality, forecasting migration flows, or assessing the effectiveness of state social and economic programs and reforms. All these issues are of great importance for Russia; therefore, empirical research on Russian material from the perspective of the theory of equal opportunity can contribute to a better understanding and forecasting of social and economic processes in our country.

Funding. This work was supported by the Russian Foundation for Basic Research, project no. 19-410-020017 p_a "Inequality of Opportunity in the Republic of Bashkortostan: Microdata-Based Analysis and Measurements."

REFERENCES

- 1. J. A. Rawls, *Theory of Justice* (Harvard University Press, Cambridge, MA, 1971).
- G. Cohen, "On the currency of egalitarian justice," Ethics 99 (4), 906–944 (1989).
- 3. R. Dworkin, "What is equality? Part 1: Equality of welfare," Philos. Publ. Affairs **10** (3), 185–246 (1981a).
- R. Dworkin, "What is equality? Part 2: Equality of resources," Philos. Publ. Affairs 10 (4), 283–345 (1981b).
- R. J. Arneson, "Equality and Equal Opportunity for Welfare," Philos. Stud. 56 (1), 77–93 (1989).
- W. Bossert, "Redistribution mechanisms based on individual characteristics," Math. Soc. Sci. 29, 1–17 (1995).
- W. Bossert and M. Fleurbaey, "Redistribution and Compensation," Soc. Choice Welfare 13, 343–355 (1996).
- 8. E. Schokkaert, G. Dhaene, and C. Van de Voorde, "Risk adjustment and the trade-off between efficiency and risk selection: an application of the theory of fair compensation," Health Econ. 7, 465-480 (1998).
- 9. World Development Report 2006: Equity and Development. World Bank (World Bank, Washington, DC, 2005).
- Transition report 2016-17, European Bank for Reconstruction and Development. http://2016.tr-ebrd.com/inequality-of-opportunity/. Cited November 3, 2021.
- F. Perez-Arce, E. F. Amaral, H. C. Huang, and C. C. Price, *Inequality and Opportunity: The Relationship between Income Inequality and Intergenerational Transmission of Income* (RAND Corporation, Santa Monica, CA, 2016).
- Z. F. Ibragimova and M. V. Frants, "Inequality of opportunity: interpretation, methods and problems of evaluation," Vestn. S.-Peterb. Univ. Ekon., No. 36 (4), 624–652 (2021).
- 13. G. Marrero and J. Rodriguez, Macroeconomic determinants of inequality of opportunity and effort in the

US: 1970–2009, Society for the Study of Economic Inequality, ECINEQ Working Paper, No. 249, 2012

- 14. F. H. G. Ferreira, C. Lakner, M. A. Lugo, and B. Özler, "Inequality of opportunity and economic growth: how much can cross? Country regressions really tell us?," Rev. Income Wealth 64 (4), 800–827 (2018).
- 15. F. Ferreira and J. Gignoux, "The measurement of inequality of opportunity: theory and an application to Latin America," Rev. Income Wealth **57** (4), 622–657 (2011).
- 16. Z. F. Ibragimova and M. V. Frants, "Measuring inequality of opportunity *in income*: a structured review and meta-analysis," Prikl. Ekonometr.**61**, 89–109 (2021).
- A. Björklund, M. Jäntti, and J. Roemer, "Equality of opportunity and the distribution of long-run income in Sweden," Soc. Choice Welfare, No. **39**, 675–696 (2012).
- K. Hederos, M. Jantti, and L. Lindahl, "Gender and inequality of opportunity in Sweden," Soc. Choice Welfare 49 (3–4), 605–635 (2017).
- M. Brzenzin'ski, Inequality of Opportunity in Europe Before and After the Great Recession, University of Warsaw Working Paper, No. 150, 2015.
- G. A. Marrero and J. G. Rodriguez, "Inequality of opportunity in Europe," Rev. Income Wealth 58 (4), 597–621 (2012).
- 21. D. Checchi and V. Peragine, "Inequality of opportunity in Italy," J. Econ.c Inequality, No. 8, 429–450 (2010).
- H. El Enbaby and R. Galal, Inequality of Opportunity in Individuals' Wages and Households' Assets in Egypt, Working Paper, No. 942, Economic Research Forum, Cairo, 2015.
- Z. F. Ibragimova and M. V. Frants, "Inequality of opportunity in the Russian Federation: factor analysis," Ekon. Upravl., No. 5(149), 10–15 (2019).
- 24. Y. Zhang and T. Eriksson, "Inequality of opportunity and income inequality in nine Chinese provinces, 1989–2006," China Econ. Rev. **21** (4), 607–616 (2010).
- 25. Z. F. Ibragimova and M. V. Frants, "Information support for research on inequality of opportunity: critical review and theoretical substantiation," Vestn. Altai. Akad.Ekon. Prava **11** (1), 70–76 (2019).
- 26. L. Ya. Bukharbaeva, Yu. V. Egorova, Z. F. Ibragimova, R. N. Komleva, K. V. Chursina, and M. V. Frants, Assessing Inequality of Opportunities in the Republic of Bashkortostan: Research Agenda (Aeterna, Ufa, 2019) [in Russian].
- 27. N. Hassine, "Inequality of opportunity in Egypt," World Bank Econ. Rev. 26 (2), 265–295 (2012).
- A. F. Shorrocks, "Decomposition procedures for distributional analysis: a unified framework based on the Shapley value," J. Econ. Inequality 11 (1), 99–126 (2012).

Translated by A. Kobkova

STUDIES ON RUSSIAN ECONOMIC DEVELOPMENT Vol. 33 No. 3 2022