

**INTERGENERATIONAL PRIVATE TRANSFERS
IN THE SYSTEM OF FACTORS OF POPULATION'S
MIGRATION ACTIVITY**

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INTRODUCTION

Interaction between generations is one of the most important preconditions of successful society development, the mean to secure sustainability of demographic processes and an essential factor of migration activity of a country's population. Accord and level of harmony in intergenerational links serve as the major indicators of social relations' humanization [Postnikova 2011]. The urgency of intergenerational relations' problems is strengthened by international organizations' increasing attention to them. Thus, in 1999 UNESCO initiated the range of international programs related to large-scale research of intergenerational relations [Hatton-Yeo and Ohsako 2000]. The United Nations Organization elaborated the concept of building the society of all ages. Solidarity between generations is among its founding principles. Therefore, strengthening of solidarity between generations based on the principle of justice and mutual assistance is an important aspect of UN policy on ageing [UN 2017]. Intergenerational transfers are one of the major ways of interactions between generations.

The problem of intergenerational transfers is deeply studied by Western scientists. In particular, Canadian scientist D. Cheal researched what transfers prevail, money or transfer of goods and services, and what it depends on. The works of American scientists K. Coach, M. Dali, D. Wolf are devoted to the problem of children's caring for their parents. Foreign scientists pay increased attention to the factors and reasons of private transfers, including the place the altruistic motives take in intergenerational transfers [Cox 1987, Halvorsen and Thoresen 2007]. In this context, the two models of transfers' motives are the most widespread: exchange (J. Andreoni, B. Bernheim, D. Cox) and altruism (G. Becker, P. Menchik, O. Stark).

Moreover, Russian researchers have been studying the intensity, nature and directions of private (including intergenerational) transfers since the beginning of 90th, mostly through network, descriptive and qualitative analysis [Gradosel'skaya 2004, Kozachenko 2010]. The results of empirical studies devoted to intergenerational transfers are outlined by S. Yu. Barsukova, Ye. V. Gladnikova, M. B. Denysenko, O. Ye. Krasnova, O. V. Lylova, etc. Thus, based on the data of the research Parents and children, men and women in family and society conducted under the international program "Generation and Gender Survey", Ye. V. Gladnikova concluded that the system of intergenerational assistance is peculiar to Russia, when mostly older generation transfers financial assistance to the younger one. This assistance is of selective nature: it is most often provided to most needing recipients, who live in a city, have no partner, etc. The reverse connection from children to parents is much rarer and hardly depends on financial needs of accepting party [Gladnikova 2012]. It is worth mentioning an interesting approach of H. V. Hradoselska, who has applied the theory of social networks to analyze the intergenerational relations. Social networks in the approach are seen as the aggregate of links, by which various resources are transferred. The following transfers by the type of resources are usually defined: money, labor, food and items, information and connections [Gradosel'skaya 2004].

The problems that are the part of intergenerational transfers or are related to them rather than the very intergenerational transfers are the subject of research in Ukraine. For example, the works of A. P. Haidutskyi, O. A. Malynovska, Ya. M. Pylynskyi, V. O. Shevchuk are devoted to the issues of migrants' money transfers. Peculiarities of multigenerational families and intergenerational relations in the context of structural approach are examined by T. M. Yablonska. The group of scientists of the Institute of Demography and Social Research of the NAS of Ukraine led by E. M. Libanova carries out studies in the field of urgent issues of family and family relations development in Ukraine. In particular, they pay substantial attention to family values and modern forms of family relations of parents and grandparents generations. Therefore, the Ukrainian scientists' research of intergenerational private transfers is of sporadic and fragmented nature.

AIM AND METHOD

The paper aims to develop certain theoretical and methodological aspects of research of intergenerational private transfers, to reveal the specifics of their functioning in Ukraine and to assess possible impact on migration activity of population. For this purpose a wide range of theoretical basis and background research papers were analyzed. The general scientific methods were used: generalization, systematic and integrated approach, logical analysis and modeling. We also tried to study the problem of intergenerational private transfers in the process of monitoring survey of unemployed in Lviv, Ukraine (2013–2016). The survey was carried out among unemployed job seekers addressing the Lviv City Employment Center in autumn 2013, 2014, 2015, 2016 and 2018. On the basis of stratified sample 500 questionnaires were distributed annually. Major features of stratification were the socio-demographic features of population, which considerably influence its migration potential, namely: age, gender and education. Taking into consideration the level of questionnaires' return and their screening by completion correctness, 360 ques-

tionnaires were analyzed in 2013, 400 – in 2014, 350 – in 2015, 345 – in 2016 and 338 – in 2018. Socio-demographic features of respondents didn't differ much in the examined years and remained to be approximately in the following ratio: 38% – males, 62% – females. Majority of unemployed had basic or completed higher education (81%), 13% – technical and vocational and only 6% – complete secondary education. More than the half of respondents are young people up to 35 years old (54%), the rest are mostly persons aged 36–60. Thus, the respondents were asked: which of the following types of assistance do you regularly receive from your relatives?. The question had 8 response options.

RESEARCH RESULTS

Intergenerational private transfers are understood as the transfers of benefits and services from one generation to another on a voluntary non-reimbursable basis. If the transfer process takes place from the representatives of older generation to the representatives of the younger one, we can talk about downward transfers. The upwards transfers are from the younger generation to the older. Each participant of transfer relations can be both the entity (donor) and the object (acceptor) of transfers [Mironova 2012]. Therefore, the households, where individuals provide transfers, are the donors and those accepting them – the acceptors. It is worth mentioning that we use benefit in its extended meaning in order to encompass all the variety of resources, services, information and even liabilities transferred between the representatives of different generations.

The model of human living cycle largely defines the intensity, specifics and direction of transfers between the generations. During one's life an individual accumulates resources, therefore, one's capacities as a donor also increase and the resources are distributed in such a way that each previous generation assists the next one, excluding certain cases (disability, bad health, etc), when the transfers' direction can change [Gladnikova 2012]. Empirical scientific research shows that financial transfers are often transmitted from older to younger generations regardless the income of the older, which serves as a partial confirmation of the model. It is obvious that young and single-parent families as well as families consisting of elder of ill persons require assistance the most.

Multigenerational family plays an important role in preserving of intergenerational relations, including the intergenerational transfers. In concerns both real and nominal (poly-local) extended family, which is the community of relatives belonging to different generations, living in different places and managing different households, but providing each other with social and economic assistance and feeling psychological affection to each other, i.e. they are included in the system of intra-family solidarity [Kozachenko 2010].

In Ukraine, a family and intergenerational intra-family assistance remain to be the major and in many cases the only way for people to survive. International research shows that Ukrainians provide assistance and support in everyday life to grown children and grandchildren more often than Europeans do. At the same time, they receive more support from children and grandchildren [Holovakha and Horbachyk 2009]. It can be partially explained by difficult social and economic condition of population, on one hand, and inefficiency of state social policy and underdeveloped system of family support, on the other hand. Moreover, the situation can serve as an indicator of preserving of moral val-

ues and long-lasting traditions of family relations, peculiar to Ukrainian society. Sociological surveys confirm this statement and show that modernization of value orientations of Ukrainian population does not weaken the importance of family values [Ministry of Ukraine..., 2010].

In general, co-residence of parents and grown children (or grown children with elderly parents, grandparents) can be seen as special type of assistance to children (parents). If several generations live together in one family, they have a very close emotional, financial and labor intergenerational exchange. Therefore, multigenerational family can be seen as special type of intergenerational transfers and should be researched in more detail in this context.

It is well known that it is customary that grown children live apart from their parents, even if children haven't created their families. For example, in neighboring Poland almost 17% of adults live with their parents [Piotrowska and Kośny 2017]. Unfortunately, in Ukraine information about the structure of households includes only the children under 18 years old. However, sociological surveys confirm that the share of co-residence of parents and children is much higher than in average in Europe.

It is obvious that co-residence of grown children and parents or living apart mostly depends on housing and level of family income. Among the reasons of separate residence of grown children and parents, the scientists of the M. V. Ptuha Institute of Demography and Social Research of the NAS of Ukraine mention the availability of children in their own families as the major one [Libanova and Aks'onova 2009]. The second reason of separate residence of grown children and parents by importance is education. In our point of view, the reasons of co-residence and separate residence of families of various generations require more profound examination. In particular, it is worth studying what place the traditions, cultural peculiarities and family values take in the structure of the motives of joint (separate) residence of parents, grandparents and their grown children.

Analysis of the most recent publications on the problems of intergenerational private transfers shows that by the type of transferred resources the transfers are most often divided into material and non-material. Money and food transfers are examined as the material transfers and non-material transfers are divided into labor and informational. We suggest the expanded and more detailed classification of intergenerational private transfers (Table 1), which contributes to their more complete and multidimensional research in further empirical studies of this problem.

The first block of material transfers consists of money, bank accounts, financial commitments, securities transferred from older generation to the younger or vice versa. We deem that unpaid utility bills or debts the children must pay for their parents or vice versa should also be included here. The second block includes transfer of food and medicine from representatives of one generation to the other. Empirical research conducted in Russia testifies to the fact that most often the parents residing in villages help their children, who reside in cities, with food. Instead, children help parents mostly with labor, and rarely – with money [Gladnikova 2012]. The next subtype of material transfers comprises clothes, furniture and other items, which can be transferred between generations as the form of permanent assistance or as holiday gifts. Exchange of gifts

between the representatives of various generations is rather common but completely understudied type of material transfers not only in Ukraine, but also abroad. Transfer of property rights to land, housing or other assets, most often by inheritance, is another significant type of material transfers.

TABLE 1. Classification of intergenerational private transfers by the type of provided/received benefits (resources – products – services)*

Intergenerational transfers	Types of transfers
Material	money, money commitments food, medicine clothes, furniture, other items real estate
Non-material	Instrumental – domestic issues – work in the backyard, repair works – care for family members – care for domestic animals, pets Socio-humanitarian – communication, psychological and moral support – information, social connections – upbringing, translation of values, norms, traditions – socio-economic status

Source: the Author.

Representative sociological surveys in Ukraine show that almost half of population, who have adult children, constantly provide them with material assistance (55.6% of respondents). Almost, fifth part of respondents helps their children sometimes and the same part does not help at all. Regarding the material assistance to parents from their grown children and the need for such assistance, 46% of respondents constantly receiving material assistance from children do need such help and 48.7% don't [Libanova and Aks'onova 2009]. The results of this research do not contribute to further analysis of what types of material assistance parents of grown children provide and receive.

It is worth mentioning that currently neither statistical yearbooks nor random sociological surveys provide necessary information on what part of household income is formed by intergenerational material transfers. However, random surveys of statistical offices on labor migration in Ukraine have the data on the sources of material assistance to households from abroad. It provides at least an approximate idea about the structure of this type of intergenerational material transfers (Table 2).

As we have mentioned earlier, material transfers both in Ukraine and in many other countries mostly are of downward nature: benefits are transferred from older generation to the younger. However, in case if the material assistance comes from abroad, situation looks somewhat different. Thus, the results of surveys carried out by State Statistical Service of Ukraine show that almost third part of material assistance received by Ukrainian households from abroad comes from children and another third part – from one of

TABLE 2. Households by the source of material assistance from abroad (%)

Financial assistance from:	Year		
	2007	2011	2016
Husband, wife	30.6	28.4	33.7
Children	21.9	31.4	30.7
Parents	17.5	14.0	15.1
Other relatives	25.5	28.2	20.1
Friends and others	4.5	5.4	5.7

Several options were allowed.

Sources: [State Committee of Statistics of Ukraine 2009. International Labor Organization 2013, State Statistics Service of Ukraine 2017].

the spouses. Instead, the share of material benefits transferred from parents to children ranges from 17.5% (in 2007) to 15% (2016) of all revenues. It is in fact twice less than the amounts the children transfer to parents.

The results of this survey also revealed that households receive substantial assistance from other relatives. Thus, in 2007 the share of this assistance amounted to the quarter of all revenues, in 2011 – almost 30%, and in 2016 – the fifth part. However, from the survey it is impossible to find out what share of these transfers belongs to relatives that represent different generations (grandmothers, nephews, aunts, etc.). Despite the limited available information, still there are reasons to conclude that most of material assistance received by households from abroad belongs to intergenerational private transfers. Therefore, almost 40% of assistance is provided by representatives of one generation.

Regarding the non-material intergenerational private transfers, we suggest distinguishing instrumental and socio-humanitarian ones (see Table 1). Instrumental transfers are the assistance of representatives of older (younger) generation to younger (older) in everyday domestic issues, work in the backyard, care for children, elders or pets. The structure of socio-humanitarian transfers consists of communication between the representatives of different generations, their psychological or moral support; transfer of information, translation of values, norms and ethnical traditions that is the integral element of spiritual-informational mobility. Due to intergenerational transfers the knowledge, experience of past and contemporary become an important and necessary foundation for creation of future socio-economic development. Fundamental trinity “past-contemporary-future” creates ground for uninterrupted historical process, preserving of national identity of Ukrainian culture.

Non-material transfers, in particular the transfer of social information, knowledge, experience, cultural heritage, norms, spiritual values and traditions, play the key role in forming and upbringing of young generation and create spiritual-informational and national space favorable for comprehensive development of new generations. Moreover, transfer of information and spiritual values between generations boosts the forming of national conscience and patriotism, diminishing emigration attitudes of young generation and serving as the necessary motivating foundation for hard work on the native land.

In our point of view, socio-humanitarian type of transfers should comprise also the socio-economic status, the transfer of which is of both downward and upward nature. It means that not only children can inherit it from parents and grandparents, but also parents of famous and bright personalities also gain the new status thanks to their children. Although, sometimes it happens that a person from intelligent, rich family can degrade and lower one's status, or vice versa – a person from poorly educated, poor and sometimes troubled families gets a college degree and improves one's socio-economic status. However, the problems of the change of status inherited from parents are a subject of separate research that lies in the field of intergenerational mobility.

The problem of intergenerational private transfers was also rises up in the process of monitoring survey of unemployed in Lviv (2013–2016). Thus, the respondents were asked: which of the following types of assistance do you regularly receive from your relatives?. In this case, the participants of survey were the acceptors of transfers and the donors were parents, adult children, grandparents or grandchildren. As far as the latter groups of donors received insignificant number of choices (which is mostly explained by age structure of majority of respondents), the Table 3 shows only the structure of transfers from parents. The results of survey show that in average almost quarter of respondents resides with parents, therefore accepts all types of assistance from them (Table 3). In 2013, as much as 40% of respondents received financial transfers and 32% – spiritual. In 2014–2016, financial and spiritual assistance substantially reduced and was distributed almost equally (from 22 to 25%). In general, in 2018 the financial transfers reduced by half in comparison with 2013. Transfers in the form of services also reduced: if in 2013, 17% of respondents received them, in 2018 it was only 10%. It is significant that only the tiny share of respondents (within 1–4%) chose the option “I do not receive assistance because it doesn't work like that in our family (everyone is on one's own)”.

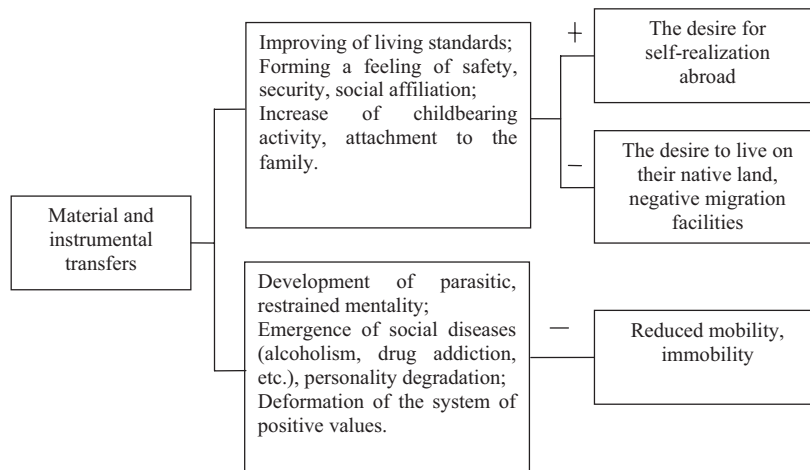
Currently the problem of intergenerational private transfers' impact on migration activity of certain person or group of persons is almost unexamined. In our point of view,

TABLE 3. Assistance regularly received by unemployed from their parents (including from the parents of wife/husband), overall number of respondents each year under research (%)

Types of assistance and other answers	2013	2014	2015	2016	2018
Financial	40.3	26.8	25.4	21.5	17.5
Services (care for family members, work in the garden, housework)	17.2	12.5	9.4	9.3	10.1
Spiritual, informational, moral	32.2	24.3	21.4	27.5	28.7
All kinds of help because we live together	29.2	23.0	23.7	22.3	15.1
I don't get any help because don't have such need	6.4	3.0	3.7	3.2	4.4
I don't get help because the specified family members do not have such possibilities	7.8	17.3	12.9	12.5	26.9
I don't receive assistance because it doesn't work like that in our family (everyone is on one's own)	1.1	4.3	3.1	3.2	5.9
I don't get help from these family members because of their absence	2.8	3.5	3.1	1.7	11.5

Source: the Author.

it is very hard to predict the nature of this impact, because it depends on the very content of transfers. We mean that not only material assistance, but also debts and poverty can be transferred; not only positive norms and values, but also destructive ones, etc. In this regard, we should differentiate positive and negative transfers. However, the same type of transfer can have different socio-economic impact and can both stimulate and restrain migration activity. In case of stimulation, the transfer is the positive catalyst of migration activity and boosts its growth. In the other case, it is the negative catalyst (inhibitor) and therefore leads to migration activity reduction. For example, we suggest the scheme of possible impact of material and instrumental transfers on their acceptors and forming of their migration attitudes (Fig.1).



+ shows that transfer strengthens the migration activity, – shows that transfer weakens the migration activity.

FIG. 1. The scheme of possible influence of positive material and instrumental transfers on migration activity of their acceptors

Source: The Author.

The figure shows that by its nature the transfer can have both positive and negative impact on its acceptors, leading to growth or reduction of their migration activity. Thus, material intergenerational assistance provides the redistribution of resources on voluntary basis, reducing the level of poverty, social tension and resentment. We can assume that receiving of money assistance by young family from their parents can positively influence the reproductive activity of this family. Therefore, it is logical to expect that a young family will more likely choose to give birth to the second and the third child if they have both material and work assistance from parents and grandparents rather than if there is no such assistance. In general, we can assume that material transfers cause the reduction of migration activity of acceptors. However, frequently the needs of the highest order (for example, personal professional and creative fulfillment) and obstacles on the way to their addressing within the residing country can push certain individuals towards leaving abroad, even if these individuals receive material and spiritual transfers. Therefore, in

our point of view, it is a mistake to insist that positive material and instrumental transfers clearly reduce the migration activity of population.

Moreover, it is important to take into account that even positive transfers by nature sometimes can have negative consequences. For example, constant substantial support of adult children by their parents can promote the development of dependent, parasitic attitudes and even degradation of personality. It mostly concerns adult children, whose parents have been living abroad for a long time and have been regularly sending them significant amounts of money. Presence of influential parents with broad social connections sometimes leads to deformation of their children's system of values (for example, lack of desire to study, work, or achieve something independently). And vice versa, negative transfers by their nature (debts, poverty, low socio-economic status) can positively influence the social capacity of a personality (mobilization of personal resources, activation of labor activity, etc.) and then his/her direct surrounding. However, mostly the need to pay debts or the lack of financial assistance from parents if it is needed urges young family to search for additional earnings abroad.

CONCLUSIONS

In general, in domestic economic science the problem of intergenerational private transfers is rather new and almost underdeveloped both in theoretical and practical aspects. The classification of transfers by the type of provided or received benefits, which we suggest, can serve as theoretical and methodological basis for further scientific research in this direction. Relying on information basis available to us, we can conclude that intensive flows of intergenerational private transfers are peculiar to Ukraine. Moreover, the downward transfers prevail, both material and non-material. Co-residence of grown children and parents is the feature of such transfers' translation in Ukraine. At the same time, the results of sociological research show that material transfers from abroad come to households from children twice more often than from parents.

The suggested scheme of possible influence of material and instrumental transfers on migration activity of their acceptors shows the complexity and ambiguity of this relation. After all, positive transfers by their nature can have both positive and negative influence on the personality receiving them and one's migration activity. Therefore, we find it reasonable to introduce the system of monitoring research of households receiving certain type of transfers and migration attitudes of their acceptors. Comparative analysis of migration attitudes and level of activity of persons receiving transfers with those, who do not receive any assistance, would contribute to evaluation of prevailing nature of the impact of intergenerational private transfers on forming of migration capacity of population and intensity of migratory movements.

REFERENCES

- COX D., 1987. Motives for Private Income Transfers, *Journal of Political Economy* 95, 508–546.
GLADNIKOVA E. V., 2012. Обзор подходов к исследованию частных межпоколенных трансфертов (Overview of approaches to the study of private intergenerational transfers)

- [in Russian], Demoscope Weekly 521–522, retrieved from: <http://demoscope.ru/weekly/2012/0521/analit01.php> [accessed: 25.10.2016].
- GRADOSEL'SKAYA G.V., 2004. Сетевые измерения в социологии: Учебное пособие (Network Measurements in Sociology: Tutorial) [in Russian], G. S. Batygina. M. (ed) Izdatel'skii dom "Novyi uchebник", Moscow, 248
- HALVORSEN E., THORESEN T.O., 2007. Overføringer mellom foreldre og barn. I hvor stor grad er foreldre styrt av altruisme (Transfers between parents and children. To what extent are parents guided by altruism) [in Norwegian], Økonomiske analyser 5, 12–18.
- HATTON-YEO A., OHSAKO T., 2000 (eds). Intergenerational Programmes: Public Policy and Research Implications. An International Perspective, retrieved from www.unesco.org/education/uiie/pdf/intergen.pdf [accessed: 16.10.2018].
- HOLOVAKHA YE., HORBACHYK A., 2009. Тенденції соціальних змін в Україні та Європі: за результатами "Європейського соціального дослідження 2005–2007" (Trends in social changes in Ukraine and Europe: the results of the "European Social Survey 2005–2007") [in Ukrainian], Institute of Sociology of the National Academy of Sciences of Ukraine, Kiev, 118.
- International Labour Organization, 2013. Звіт щодо методології, організації проведення та результатів модульного вибіркового обстеження з питань трудової міграції в Україні (Report on the methodology, organization and results of a modular sample survey on labor migration in Ukraine) [in Ukrainian], Decent Work Technical Support Team and Country Office for Central and Eastern Europe, Budapest, 96.
- KOZACHENKO O.O., 2010. Сучасна українська багатопокілінна сім'я: занепад чи розквіт? (Modern Ukrainian multi-generation family: decline or flowering?) [in Ukrainian], Bulletin of Lviv University. Series: Sociology 4, 246–253.
- LIBANOVA E.M., AKS'ONOVA S.YU., 2009. Сім'я та сімейні відносини в Україні: сучасний стан і тенденції розвитку (Family and family relations in Ukraine: the current situation and trends of development) [in Ukrainian], Institute of Demography and Social Studies of the National Academy of Sciences of Ukraine, Kiev, 248.
- Ministry of Ukraine for Family, Youth and Sports, 2010. Становище сімей в Україні (За підсумками 2000–2009 років). Щорічна державна доповідь Президентові України, Верховній Раді України, Кабінету Міністрів України про становище сімей та стан реалізації державної сімейної політики (The situation of families in Ukraine (2000–2009). Annual State Report to the President of Ukraine, the Verkhovna Rada of Ukraine, the Cabinet of Ministers of Ukraine on the situation of families and implementation of the state family policy) [in Ukrainian], Kiev, 226.
- MIRONOVA A., 2012. Внутрисемейные межпоколенные трансферты в России (Intrafamily intergenerational transfers in Russia) [in Russian], Demoscope Weekly 521–522, retrieved from <http://demoscope.ru/weekly/2012/0521/tema01.php> [accessed: 25.02.2013].
- PIOTROWSKA M., KOSNY M., 2017. Economic Transition and Intergenerational Mobility in Poland, *Economics and Sociology* 10(3), 59–71. DOI: 10.14254/2071-789X.2017/10-3/4.
- POSTNIKOVA M.I., 2011. Психология отношений между поколениями в современной России. Автореф. диссертации на соискание ученой степени доктора психологических наук (Psychology of intergenerational relations in modern Russia. Abstract of dissertation for the degree of Doctor of Psychology) [in Russian], организация - тарный Университет, St. Petersburg..

- State Committee of Statistics of Ukraine, 2009. Зовнішня трудова міграція населення України (External labor migration of the population of Ukraine) [in Ukrainian], Kiev, 118.
- State Statistics Service of Ukraine, 2017. Зовнішня трудова міграція населення (за результатами модульного вибіркового обстеження). Статистичний бюлетень (External labor migration of the population (according to the results of the modular sample survey) [in Ukrainian], Kiev, 36.
- UN 2017. UN and aging issues. Official site if the United Nations, retrieved from <http://www.un.org/russian/esa/social/ageing/child&youth.html> [accessed: 12.05.2014].

Summary. The paper develops certain theoretical and methodological foundations of the research of intergenerational private transfers. In particular, it provides extended and more complex classification of transfers, dividing transfers into instrumental and socio-humanitarian and outlining the content details for each group. Moreover, not only positive (e.g. money, material assets), but also negative transfers (e.g. debts) that can be transmitted from one generation to the other are suggested to be taken into account. The author has developed the scheme of possible impact of material and instrumental transfers on the acceptors, their situation and migration activities, which shows the ambiguity of such links. Conducting of representative sociological surveys will contribute to more distinct establishment of dominating impact of intergenerational private transfers on migration activity of population.

Key words: generation, family, parents, children, intergenerational links, intergenerational private transfers, migration activity, migration attitudes

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