



Journal of Geology, Geography and Geoecology

Journal home page: geology-dnu-dp.ua

ISSN 2617-2909 (print)
ISSN 2617-2119 (online)

Journ.Geol.Geograph.
Geoecology,
28(1), 39-50
doi:10.15421/111905

O.V. Dluhopolskyi, V.V. Koziuk, Y.P. Ivashuk
O.V. Panukhnyk, A.A. Virkovska

Journ.Geol.Geograph.Geoecology, 28(1), 39-50

Empirical evaluation of preferences by ecological factors of individual welfare of Ukrainians

O.V. Dluhopolskyi¹, V.V. Koziuk¹, Y.P. Ivashuk¹, O.V. Panukhnyk², A.A. Virkovska¹

¹Ternopil National Economic University, Ternopil, Ukraine, e-mail: dlugopolsky77@gmail.com, victorkozyuk@ukr.net, ivashuk@email.ua, aassya10@gmail.com

²Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine, e-mail: panukhnyk@gmail.com

Received 14.10.2018;

Received in revised form 28.11.2018;

Accepted 09.02.2019

Abstract. Based on polling of citizens of different age groups living in Kyiv, Ternopil, Donetsk, Sumy, Zaporizhia, Poltava and Volyn regions of Ukraine, we tested the hypothesis that there is a low demand for the public good « a clean environment». We found that 60% of citizens are not satisfied with the level of awareness about the ecological situation in their places of residence, and that the Internet is the main source of

information for respondents under 45 years old, while for the older generation its place is taken by TV. In general, young people are ready to engage in solving environmental problems and are well informed about the existence of international environmental organizations and movements. Up to 90% of the population is concerned about the threat of the global environmental crisis, and as the main threats they named transport and industry. Approximately 80% of citizens recognize ecology as a public good, but more than 90% are skeptical of the authorities' actions regarding the resolution of environmental problems, and more than 40% of citizens believe that the environmental situation in their places of residence has deteriorated in recent years. Up to 80% of the respondents consider it appropriate to invest in reducing greenhouse gas emissions, but only 9% of respondents are ready to make a significant personal contribution to this. The vast majority of the population is ready to make contributions of not more than 1% of income to ensure a high quality environment, and only 35% of respondents are trying to buy environmentally friendly products. In general, the study confirms the hypothesis that there is a low level of demand among Ukrainian citizens for environmentally friendly products and a clean environment. We can explain this situation by the existence of numerous unsolved socio-economic problems of the domestic economy.

Keywords: greening, public good, quality, ecological crisis, evaluation.

Емпірична оцінка виявлених вподобань стосовно екологічних факторів індивідуального добробуту українців

О.В. Длугопольський¹, В.В. Козюк¹, Ю.П. Івашук¹, О.В. Панухник², А.А. Вірковська¹

¹Тернопільський національний економічний університет, Тернопіль, Україна, e-mail: dlugopolsky77@gmail.com, victorkozyuk@ukr.net, ivashuk@email.ua, aassya10@gmail.com

²Тернопільський національний технічний університет імені Івана Пулюя, Тернопіль, Україна, e-mail: panukhnyk@gmail.com

Анотація. В статті на основі проведених опитувань громадян різних вікових груп, що проживають в Київській, Тернопільській, Донецькій, Сумській, Запорізькій, Полтавській, Волинській областях України, протестована гіпотеза стосовно низького попиту населення на суспільне благо «хороша екологія». Виявлено, що 60% громадян не задоволені рівнем поінформованості про стан екологічної ситуації в місцях їх проживання, а Інтернет є головним джерелом отримання інформації для респондентів віком до 45 років, тоді як у більш старшому віці його місце займає телебачення. Загалом молодь готова долучитися до розв'язання екологічних проблем і достатньо поінформована щодо існування міжнародних екологічних організацій і рухів. До 90% населення стурбована загрозою світової екологічної кризи, а головними забруднювачами вважає транспорт та промисловість. Приблизно 80% громадян визнають екологію суспільним благом, однак понад 90% скептично сприймають дії влади стосовно розв'язання екологічних проблем, а понад 40% громадян вважає, що ситуація із екологією в місцях їх проживання за останні роки погіршилась. До 80% населення вважають за доцільне інвестування у зниження викидів парникових газів, але здійснювати значний персональний внесок у це готові лише 9% респондентів. Переважна більшість населення якщо і готова здійснювати внески для забезпечення якісного довкілля, то не більше 1% від доходів, і лише 35% респондентів намагаються купувати екологічно чисті продукти. Загалом,

проведене дослідження підтверджує гіпотезу про низький попит громадян України на екологічно чисті продукти та якісне довкілля, зважаючи на низку невирішених соціально-економічних проблем вітчизняної економіки.

Ключові слова: екологізація, суспільне благо, якість, екологічна криза, оцінювання.

Relevance of research. The ecological approach is becoming a major trend in the development of welfare states at the beginning of the 21st century, when the global environmental crisis is intensifying and the negative effects of global warming are predicted. This approach links economic efficiency with environmental policy, and the main idea is to identify and implement measures that would make production both more efficient and environmentally friendly. Particular attention should be paid to the attitude of people towards ecology as a public good and the desire to invest in environmental safety resources on a long-term basis.

Problem formulation. Ukraine belongs to a group of countries with a problematic environment, which is confirmed by its position in the Environmental Performance Index (EPI) – 109th out of 180 with 52.87 points (The Environmental Performance Index, 2018). This position in the EPI shows both the unbalanced use and erosion of natural resources as well as environmental pollution by industrial activity.

Until recently, Ukraine had practically not implemented a single, consistent state policy on ecologisation of the economy, which involves the introduction and implementation of principles of rational nature management and minimization of the negative impact on ecological objects of anthropogenic activities. However, on December 7, 2016, the Concept for the Implementation of State Policy in the Field of Climate Change until 2030 was approved (Concept, 2016). The urgent issues in the context of further improvement of the policy of adaptation to climate change are the disclosure of the role of human and social capital in the perception by Ukrainian citizens of ecological factors of individual welfare, the growing role of ecological culture, to which is the article devoted.

Analysis of recent research and publications. Problems of the impact of environmental factors on welfare are raised in numerous papers by foreign researchers (Grossman, Krueger, 1991; de Soto, 2001; Vornovytsky, Boyse, 2010; Mikhailishchev, Raskin, 2016; Koop, Tole, 2001; Ravallion, et. al., 2000; He, et. al., 2007; Galeotti, et. al., 2006; Pauli, 2010; Callan, Thomas, 2000).

Among domestic scientists, there are also many works that focus on the ecological trend of the international and national economic development (Environmental Protection and Ukrainian citizenship, 2018; Gaidutsky, 2014; Dlugopolsky, 2017; Sustainable Local

Development, 2013; Environmental Portrait of Ukrainian citizen, 2018; Koziuk, et. al., 2018). In the Law of Ukraine «On the Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the Period up to 2020» among the strategic goals of the national environmental policy, priority is given to raising the level of social ecological consciousness (On the Main Principles).

Selection of unexplored parts of the general problem. In many studies by foreign scientists, ecologisation is seen as an inclusive economic development factor (Haase, et. al., 2017; Carlin, 1990; Socolow, et. al., 1994). Scientists, evaluating the “ecological sentiments” of citizens, appeal to growing trends in consumption of food grown on ecologically clean or organic farms, living in environmentally friendly areas or cities, the use of environmentally friendly transport, etc. However, most of these studies are based on the experience of highly developed European states with a powerful middle class that is ready to pay for the public good “a clean environment” (the experience of Sweden, Norway, Germany, Finland, Denmark), which, in our opinion, significantly differs from the trends in low income countries. In this article, we put forward the hypothesis that the demand of citizens for a clean environment in Ukraine, given the poverty of the overwhelming majority of the population, is rather low, while a growth in demand for the public good “a clean environment” may only develop with the growth of GDP and real incomes of Ukrainian citizens (the logic of the Kuznets curve).

Setting objectives. The aim of the study is to identify the perception of environmental factors of individual welfare by different age groups of the population in Ukraine and to demonstrate the radically opposite trend in the demand for a high quality environment of Ukrainian citizens in comparison with European tendencies, thus confirming the hypothesis about the inverse relationship between the level of income and the demand for the benefit of “clean environment” without regard to the initial preferences for this good (in essence, the unwillingness to pay).

Research methodology. The authors conducted an inter-regional opinion poll survey of Ukrainian citizens among students of Ternopil National Economic University as part of the research topic “Ecologisation in the New Welfare State Paradigm” №0117U000412as well as among community residents in Kyiv, Ternopil, Donetsk,

Sumy, Zaporizhia, Poltava and Volynregions in the framework of the implementation of the IOM projects “Reconciliation Support and Community Development of the Conflict-Affected Communities of the Donbas” and “Supporting Recovery and Sustainable Solutions for Internally Displaced Persons and the Conflict-Affected Population in Ukraine” . It should be noted that respondents were both local residents and internally displaced persons (IDP) living in host communities. The sample covers 228 people, who are grouped into five age groups: 16-20 years old – 116 persons; 21-25 years old – 21 persons; 26-35 years old – 26 persons; 36-45years old – 20 persons; 46-65 years old – 45 persons.

Presenting the main material.The strengthening of so-called “green moods” in developed countries shows a shift towards a new interpretation of welfare and its components. Increasing environmental standards and the burden of environmental regulation are considered from the perspective of the formation of a new model of inclusive economy. Inclusiveness in such conditions is understood as the availability of abeneficial“clean environment” for all, since it not only possesses the property of producing positive externalities, but also significantly improves well-being at the individual level through the associated reduction in the cost of medical services, increase in life expectancy, reduction in the burden of occupational diseases etc. However, there are a number of significant issues. First, the fact of the externalities, which is inherent in the goodof the “clean environment”, actualizes the problem of the “free-rider”. The potential volume of publicly-funded environmental goods is becoming underfunded in comparison with public choice. Secondly, the level of income of taxpayers can have a significant effect on the difference between abstract preferences for the structure of the public good and the identified preferences in the form of willingness to bear the actual tax (or regulatory) burden as an individual contribution to the financing of the collective good. Thirdly, changes in the structure of citizens-voters can have a

significant impact on the redistribution of welfare in terms of preferences for consumption of public welfare and the actual tax paid. The probability of shifting the tax burden is high. Fourthly, an active debate on the issue of “green development” may asymmetrically affect the social choice by the individual groups, which makes it possible to distinguish between public requests for “environmental goods” and actual tax payments, and so on.

The presence of the above problems is extremely important for the Ukrainian economy, whose level of vulnerability to environmental dysfunctions is high, because occupational diseases are quite common, and income growth increases the potential pressure on the environment due to an increase in the number of vehicles. The analysis of social preferences for a“clean environment” is an important prerequisite for an adequate understanding of environmental policy design as an inclusive development factor, as well as identifying certain behavioral distortions under the influence of certain factors that need to be taken into account in the design of environmental policy tools. The results of the empirical analysis of this problem are summarized as follows.

Table 1 shows that only 1% of Ukrainian respondents are satisfied with the level of personal awareness about the state of the ecological situation, 24% – tend to the option “mostly yes”, 32% choose “no”, and 28% –“mostly no”. At the same time, 15% of respondents had difficulty answering the question. Also Table 1 allows us to see the answers of respondents in terms of age groups on this issue, from which it is evident that the group of 36-45 years old is the most dissatisfied with the level of awareness about the state of the ecological situation, while the most satisfied groups are 26-35 and 46-65 years old. Interestingly, it was precisely young people (age groups up to 20 and 21-25 years old) and the older generation (group 46-65 years old) who did not answer “yes”to the question about the level of awareness about the state of the ecological situation in Ukraine.

Table 1. Responses of respondents to the question “Are you satisfied with the level of personal awareness about the state of the ecological situation in the country?” by age groups (%)

Age group	Mostly yes	No	Mostly no	Yes	Difficult to answer
16-20	12	33	38	0	17
21-25	29	19	43	0	9
26-35	50	27	8	4	11
36-45	5	50	5	10	30
46-65	44	31	18	0	7
Total	24	32	28	1	15

*Made by the authors on the results of the poll

Table 2 shows that only 2% of the polled Ukrainians receive information on the state of the ecological situation in the country from newspapers and radio, 17% –fromTV, 19% – usetheir own

observations, and 57% – the Internet. At the same time, only 3% of respondents found it difficult to answer the question.

Table 2. Responses of the respondents to the question “What is your main source of information about the state of the ecological situation in the country?” by age groups (%)

Age groups	Internet	Own observation	Television	Radio	Newspapers	Difficult to answer
16-20	69	17	10	0	0	4
21-25	94	0	6	0	0	0
26-35	50	31	11	0	0	8
36-45	35	20	30	0	15	0
46-65	25	23	39	9	4	0
Total	57	19	17	2	2	3

*Made by the authors on the results of the poll

It is projected that the oldest generation polled (the age group of 46-65 years old) makes little use of the Internet to obtain the necessary information on the state of the ecological situation (25%), giving preference to television (39%). However, young people under the age of 20 prefer the Internet (69%) and their own observation (17%), while young people 21-25 years old obtain their information from the Internet (94%) and television (6%). Newspapers are most read by

people in the age group of 36-45 year olds, while they are practically not used to obtain information by people under 35 years old. Radio as the source of information is used only by the elderly in the age group of 46-65 year olds.

From Table 3 it is evident that 59% of the polled Ukrainians are ready to work on solving environmental problems, 8% answered no, and 33% of respondents had difficulty answering the question.

Table 3. Responses of respondents to the question “Are you ready to join inwork on solving environmental problems?” by age groups (%)

Age groups	Yes	No	Difficult to answer
16-20	54	10	36
21-25	81	0	19
26-35	58	4	38
36-45	65	5	30
46-65	60	11	29
Total	59	8	33

*Made by the authors on the results of the poll

According to the results of the poll by age groups, respondents aged 21-25 years old (81%) are the most active (at least in words) in contributing to solving environmental problems, while the age group of those up to 20 years old (54%) is the least

active. It is this group and the people 46-65 years old who express the least personal attachment to solving environmental problems (10 and 11% respectively).

Table 4. Responses of respondents to the question “Are you informed about the existence of international environmental organizations?” by age groups (%)

Age groups	I’ve ever heard something	Yes, and I can say something	Difficult to answer	No, I’ve heard about it for the first time
16-20	67	30	0	3
21-25	0	100	0	0
26-35	34	58	8	0
36-45	90	10	0	0
46-65	47	35	7	11
Total	60	34	2	4

*Made by the authors on the results of the poll

From Table 4 it is evident that 60% of the polled Ukrainians are informed about the existence of international environmental organizations; 34% – are informed and can say a little about it; only 4% of citizens heard about their existence for the first time; and 2% of respondents found it difficult to answer the question.

In terms of age groups, the situation is the following: the most knowledgeable about the activities of international environmental organizations is youth (67% of respondents under the age of 20 have heard something and 30% of this

group can say something about it - while 100% of respondents aged 21-25 years old can say something about these organisations), the group 46-65 years old are the least informed (only 47% have heard something and 35% can say something about international environmental organizations, while 11% have heard about them for the first time).

From Table 5, it is evident that 88% of the polled Ukrainians are convinced of the threat of a global environmental crisis; 4% do not believe in it; and 8% of respondents found it difficult to answer the question.

Table 5. Responses of respondents to the question “Do you think that today there is a threat of a global environmental crisis?” by age groups (%)

Age groups	Yes	No	Difficult to answer
16-20	89	5	6
21-25	90	10	0
26-35	92	4	4
36-45	70	0	30
46-65	91	0	9
Total	88	4	8

*Made by the authors on the results of the poll

In terms of age groups, the most worried about the threat of the global environmental crisis were age groups up to 20 years old (89%), 26-35 years old (90%), 26-35 years old (92%) and 46-65 years old (92%), while only 70% of the respondents aged 36-45 years old expressed fear of a global environmental crisis. Among them is the

highest proportion of those who find it difficult to answer the question (30%).

Table 6 shows that 41% of polled Ukrainians consider transport the greatest source of the global environmental crisis, 32% – industry, 14% – activities of financial and industrial groups, 5% – population growth and natural anomalies, and 3% – thermal power stations.

Table 6. Responses of respondents to the question “Identify the most significant factor of the global environmental crisis” by age group (%)

Age groups	Growth of the population	Influence of FIG on environmental policy	Thermal Stations	Transport	Industry	Growth of natural anomalies	Difficult to answer
16-20	4	3	3	46	39	5	0
21-25	9	10	0	57	24	0	0
26-35	12	16	0	44	24	4	0
36-45	5	40	5	10	35	0	5
46-65	0	31	5	33	20	11	0
Total	5	14	3	41	32	5	0

*Made by the authors on the results of the poll

It is interesting that transport as the main source of environmental pollution is highlighted most by respondents from the age group of 21-25 years old (57%), and the least by the age group of 36-45 year olds (10%), who blamed the activity of financial and industrial groups FIG (40%) for the poor state of ecology. Respondents of the age group of 46-65 year olds blame the global environmental

crisis on transport (33%) and the activities of financial and industrial groups (31%).

Table 7 shows that 57% of the polled Ukrainians believe that the measures taken by the authorities to improve the environmental situation in the country are not enough; only 1% – consider that that enough effort is being made; 1% – mostly yes; 36% – mostly no; and 5% of respondents

found it difficult to answer the question. The respondents of the oldest group (46-65 year olds) are the most critical of the actions of the authorities in the field of ecology, since 76% of them consider the authorities to be inadequate, and 22% gave the

answer mostly no. Only 3% of respondents below the age of 20 believed that the government's measures to improve the ecological situation in the country are sufficient, while in other groups there were no such optimists.

Table 7. Responses of respondents to the question "Are the measures currently taken by the authorities enough to improve the ecological situation in the country?" by age groups (%)

Age groups	Mostly yes	No	Mostly no	Yes	Difficult to answer
16-20	0	51	46	3	0
26-35	0	43	43	0	14
26-35	4	58	27	0	11
36-45	0	60	10	0	30
46-65	2	76	22	0	0
Total	1	57	36	1	5

*Made by the authors on the results of the poll

From Table 8 it is evident that 41% of the polled Ukrainians believe that the ecological situation at their place of residence has changed for the worse over the last 5 years, 39% believe that it

has remained unchanged, 15% - changed for the better, and 5% found it difficult to answer the question.

Table 8. Responses of respondents to the question "How has the ecological situation changed at your place of residence over the last five years?" by age group (%)

Age groups	Changed for the better	Changed for the worse	Unchanged	Difficult to answer
16-20	16	44	37	3
21-25	9	19	43	29
26-35	27	35	38	0
36-45	5	50	45	0
46-65	11	45	42	2
Total	15	41	39	5

*Made by the authors on the results of the poll

Respondents aged 26-35 years old (27%) are most optimistic about the ecological situation while the most pessimistic are respondents aged 36-45 (50%) and 46-65(45%).

Table 9 shows that 79% of the polled Ukrainians consider good ecology as a public good, 17% rather yes than no, and 2% of respondents found it difficult to answer .

Table 9. Responses of respondents to the question "Do you think that good ecology is a public good?" by age groups (%)

Age groups	Rather yes than no	Difficult to answer	Yes	No
16-20	23	0	74	3
21-25	19	0	81	0
26-35	0	4	88	8
36-45	0	15	85	0
46-65	16	0	82	2
Total	17	2	79	2

*Made by the authors on the results of the poll

In the context of age groups, the situation is the following: respondents from the age group of 26-35 year olds in 88% of cases clearly regard good ecology as a public good, but at the same time, this group has the largest number of respondents who do not think so (8%); respondents aged 36-45 years old in 85% of cases consider good ecology as a

public good, and 15% of respondents have difficulty answering this question; only 74% of young people under 20 years old recognize good ecology as a public good, and 23% – rather yes than no.

Table 10 shows that 46% of polled Ukrainians believe that the ecological situation

significantly affects the level of individual well-being, and 51% – the level of well-being of the country, while 53% and 47% claimed that it affects

the wellbeing of the individual and the country to some extent.

Table 10. Responses of respondents to the question “Do you think that the ecological situation affects the well-being of the individual or of the country as a whole?” by age groups (%)

Age groups	Yes, somehow it affects		Yes, and very significantly affects		No, does not affect	
	individual	countries	individual	countries	individual	countries
16-20	53	53	47	44	0	3
21-25	52	24	48	76	0	0
26-35	58	42	38	54	4	4
36-45	40	30	60	70	0	0
46-65	60	51	40	49	0	0
Total	53	47	46	51	1	2

*Made by the authors on the results of the poll

Respondents of the age group of 36-45 year olds in 60% of cases consider that the environmental situation has a very significant effect on individual well-being, while respondents from the age group of 46-65 year olds– only in 40% of cases. Only 4% of respondents of the age group of 26-35 years olds do not link the state of the ecological situation with the level of individual well-being and welfare of the country, while in other groups of respondents there were no such answers, except for the group of those up to 20 years old, which in 3% of cases claimed that the

ecological situation was not related to the level of welfare of the country.

From Table 11 it can be seen that only 2% of respondents do not believe that the ecological situation affects the quality of life, while 72% of respondents consider that it very significantly affects the quality of life, and 26% that it affects it to some extent. Regarding longevity, 83% of respondents clearly recognize the significant impact of ecology, 14% consider that life expectancy and ecology are somehow related, and 3% do not see a connection between them.

Table 11. Responses of respondents to the question “Do you think that the ecological situation affects quality of life and life expectancy?” by age groups (%)

Age groups	Yes, somehow it affects		Yes, and very significantly affects		No, does not affect	
	quality of life	life expectancy	quality of life	life expectancy	quality of life	life expectancy
16-20	21	9	74	87	5	4
21-25	43	38	57	62	0	0
26-35	19	15	81	81	0	4
36-45	30	30	70	70	0	0
46-65	31	9	69	91	0	0
Total	26	14	72	83	2	3

*Made by the authors on the results of the poll

In terms of age groups, the situation is the following: respondents from the age group of 26-35 year olds in 81% of cases consider that the environmental situation significantly affects both quality of life and life expectancy, while only 57% and 62% respectively of the group of 21-25 year olds respondents consider this to be true; 91% of respondents of the age group of 46-65 years old consider the quality of the environment significantly affects life expectancy; young people under age 20 years old in 5% and 4% of cases do

not see the impact of ecology on quality of life and life expectancy respectively.

From Table 12, it is evident that 47% of respondents consider it appropriate to invest in reducing greenhouse gas emissions, 32% – rather yes than no, 19% – difficult to answer, and only 2% – no.

Both younger and older age groups in 51% of cases clearly indicate the appropriateness of environmental investment, while among respondents of the age group of 26-35 years old the proportion is only 31%, while 54% consider rather

yes than no. One third of the age group of 21-25 years old considered such an investment years old found it difficult to answer this question and 5% of respondents of the age group of 36-45 and 5% of respondents of the age group of 36-45 inexpedient.

Table 12. Responses of respondents to the question “Is it worthwhile to invest in reducing greenhouse gas emissions?” by age groups (%)

Age groups	No	Rather yes, than no	Yes	Difficult to answer
16-20	2	31	51	16
21-25	0	19	48	33
26-35	0	54	31	15
36-45	5	30	40	25
46-65	2	27	51	20
Total	2	32	47	19

*Made by the authors on the results of the poll

Table 13 shows that 7% of respondents do not want to bear the costs of improving the environmental situation, 76% are ready, but not significantly, 9% are ready to do so significantly, and 8% found it difficult to answer.

Table 13. Responses of respondents to the question “Are you ready to bear certain expenses for improvement of the ecological situation?” by age groups (%)

Age groups	Yes, but insignificantly	Yes, and even quite significantly	No	Difficult to answer
16-20	76	11	3	10
21-25	81	14	0	5
26-35	69	12	0	19
36-45	90	10	0	0
46-65	71	0	24	5
Total	76	9	7	8

*Made by the authors on the results of the poll

The least interested in investing in improving the environmental situation are respondents of the age group of 46-65 years old (24%), while 71% indicate the possibility of paying insignificant contributions. 90% of the age group of 36-45 and 81% of the 21-25 year old group agree to bear insignificant costs for improving the environmental situation. 19% of the respondents of the age group

of 26-35 years old found it difficult to answer the question

From Table 14, it is evident that 45% of respondents are ready to bear the cost for improving the ecology from their salary, 16% – from dividends, 22% – from private savings, and 17% from other sources.

Table 14. Responses of respondents to the question “Identify the source of funds from which the contribution is expected?” by age groups (%)

Age groups	Dividends from assets	Private savings	Salary (pension, scholarship)	Other
16-20	17	28	31	24
21-25	38	19	29	14
26-35	17	8	63	12
36-45	0	20	80	0
46-65	9	11	69	11
Total	16	22	45	17

*Made by the authors on the results of the poll

It is natural that young people under 25 years old do not prefer to contribute to the improvement of the environmental situation from a scholarship or salary, which at their stage of professional development may not be too high, while persons

aged 26-35 and 36-45 years old in 63% and 80% of cases, respectively, are ready to do it from their salary. Respondents of the age group of 46-65 years old in 69% of cases are ready to finance measures to improve the environmental situation from

salaries and pensions. Persons aged 21-25 years old (38%) declare they are ready to contribute from dividends and assets for this purpose.

From Table 15 it is evident that 35% of respondents are ready to pay contributions to

improve the environmental situation once a year, 28% – quarterly, 18% – monthly, and 19% – difficult to answer.

Table 15. Responses of respondents to the question “How often are you willing to contribute to the improvement of the ecological situation?” by age groups (%)

Age group	Once a year	Quarterly	Monthly	Difficult to answer
16-20	21	34	28	17
21-25	52	43	5	0
26-35	58	7	8	27
36-45	55	15	20	10
46-65	34	26	3	37
Total	35	28	18	19

*Made by the authors on the results of the poll

Respondents of the youngest age group (up to 20 years old) in 34% of cases are willing to pay a contribution to improving the environmental situation on a quarterly basis, in 28% of cases – on a monthly basis and 21% of cases annually. Respondents of the age group of 21-25 years old in 52% of cases are willing to pay such contributions annually, and only 43% – quarterly. Respondents of the age group of 26-35 years old agree to pay such contributions annually in 58% of cases, and 27% of them are unable to answer the question. Respondents of the age group of 36-45 years old, in

55% of cases, are ready to pay contributions to improve the environmental situation annually, and only 20% – on a monthly basis. Among respondents of the age group of 46-65 years old, 37% found it difficult to answer the question, 34% are willing to pay annually and 26% – quarterly.

Table 16 shows the results for environmental contributions: 32% of respondents declare they can contribute 5%, less than 10% suggest an optimal contribution of 10% or more, while 46% are ready to contribute 1% or less.

Table 16. Responses of the respondents to the question “What percentage of your annual income should be the total amount of annual contribution to the improvement of the environmental situation?” by age groups (%)

Age groups	0.25%	0.5%	1%	1.5%	2%	3%	5%	10%	15%	20%
16-20	3	3	6	2	7	14	40	20	3	2
21-25	0	0	24	0	5	0	62	0	5	4
26-35	41	14	9	0	5	14	9	8	0	0
36-45	21	11	42	0	0	10	15	0	0	0
46-65	3	15	47	3	3	3	26	0	0	0
Total	13	8	25	1	4	8	32	6	2	1

*Made by the authors on the results of the poll

Only among the age group up to 20 years old are 20% ready to pay 10% of their income as ecological contributions, 40% are willing to pay 5%, and 12% – approximately 1%. Among the respondents from the age group of 21-25 years old, the situation is slightly different: 24% are ready to pay 1%, 62% to pay 5%, and only 9% are ready to give more than 15% of their income to improve the environmental situation. The senior age groups agree to give up only 1% of their income. Thus, in the age group of 26-35 years old such persons are 64%, 36-45 years old – 74%, 46-65 years old – 65%. Respondents in the age groups of 36-45 and 46-65 years old do not want to pay more than 5% of

their income for the improvement of the environmental situation.

From Table 17 it is evident that 6% of respondents are ready to pay a higher price for products made using environmentally friendly technologies, 68% – yes, but slightly higher, 15% – yes, even considerably higher, 2% – no and 9% difficult to answer question.

Among all age groups, respondents under the age of 20 years old (20%) claim to be ready to pay the highest price for environmentally friendly products while 90% of respondents aged 21-25 years old are willing to pay a slightly higher price. 20% of respondents of the age group of 36-45 years old found it difficult to answer.

Table 17. Responses of respondents to the question “Are you ready to pay a higher price for products made using environmentally friendly technologies?” by age groups (%)

Age groups	No	Yes	Yes, but slightly higher	Yes, even considerably higher	Difficult to answer
16-20	0	2	72	20	6
21-25	0	0	90	10	0
26-35	8	19	62	0	11
36-45	0	0	65	15	20
46-65	7	14	53	14	12
Totally	2	6	68	15	9

*Made by the authors on the results of the poll

Table 18 shows that 35% of respondents of all age groups are trying to buy environmentally friendly products, and 25% do soon a regular basis. The groups which find it the most difficult

financially to purchase environmentally friendly products are those aged 46-65 (18%) and 36-45 years old (15%). 29% of the age group of 21-25 years old found it difficult to answer this question .

Table 18. Responses of respondents to the question “Which statement the most reflects your consumer position regarding environmentally friendly products?” by age groups (%)

Age groups	Difficult to answer	Buy on regular basis	I do not emphasize the environmental friendliness of the product	I have an opportunity and I am trying to buy an ecologically friendly product	I do not have an opportunity to buy
16-20	9	21	27	40	3
21-25	29	14	14	43	0
26-35	19	19	8	46	8
36-45	5	45	5	30	15
46-65	21	35	12	14	18
Totally	14	25	19	35	7

*Made by the authors on the results of the poll

Analysis of the presented data allows us to see the confirmation of a certain set of hypotheses regarding the social choice for the public good “a clean environment”, which is important for understanding the design of environmental policy tools. In particular, the results showing the conditionality of preferences for a “clean environment” on income level are unambiguous. In the case of Ukraine, this pattern creates a certain problem, taking into account the level of economic development and the nature of income distribution. Underestimation of the value of a “clean environment” due to “chronic poverty” indicates potentially weak public pressure on the formation model of economic policy, consistent with modern understanding of economic development. In the light of European integration processes, this raises the problem of functional asymmetry with the structure of preferences in the EU. Another pattern demonstrates a significant gap in relation to the environment, sources of environmental pollution and readiness to pay for environmental goods in terms of age groups. The

middle age generation shows the least interest in paying for the benefit of a “clean environment” even though the overall attitude to this good does not differ significantly in terms of age groups. This means that actual taxpayers are not ready to pay for this public good. Preferences regarding this good, found in the younger and older age groups, demonstrates that those who are least able to contribute to the payment of social good are those most willing to pay. It also means that the middle aged group shows the highest level of distrust in public policy, which is primarily extrapolated to environmental goods. The nature of access to information is important. The younger generation demonstrates the highest commitment to the “environmental goods”, indicating that their value orientations may be subject to corrective behaviour policy, although corrective power may be weakened by the factor of actual tax burdens and benefits of this good.

Conclusion. The conducted questionnaire for identifying preferences of domestic respondents regarding the environmental factors of individual

well-being makes it possible to draw some important conclusions.

Firstly, consumers in the context of crony capitalism, corruption and poverty in the economic system are not only unable to invest in environmental funds, but also to exert political pressure on regulators in order to increase liability for violations of environmental protection legislation and to give it more rigour.

Secondly, for the Ukrainian economy, the hypothesis about the conditionality of the attitude towards environmental goods on people's level of income is confirmed. This raises the problem of the gap between the declared European aspirations for which there is an inherent preference for ecology and the willingness to identify a tax-supported demand for environmental goods. In other words, the gap in income levels raises the problem for functional convergence, based on the fact of the commonality of preferences.

Thirdly, the claimed preferences and the tax-supported demand for environmental goods in Ukraine are diverging. Actual taxpayers are less willing to pay for it, compared with social groups that do not bear the main tax burden.

Fourthly, the greater commitment of the younger generation to environmental goods clearly indicates the importance of value factors in the formation of preferences for the public good of a "clean environment".

For Ukraine, enhancing inclusiveness towards environmental development must inevitably be accompanied by an increase in the value of environmental goods, but the gap in attitudes towards it among tax-payers raises the question of general trust in the efficiency of the functioning of the public sector. Increasing the motivation to actual participation in the payment for environmental goodwill be possible if there is not only an increase in the share of environmental costs, but also an overall increase in the efficiency of governance.

References

- Callan, S.J., Thomas, J.M., 2000. Environmental Economics and Management: Theory, Policy, and Applications. London: The Dryden Press. 708 p.
- Carlin, A., 1990. Environmental investments: the cost of a clean environment: a summary. EPA report, EPA-230-12-90-084.
- de Soto, H., 2001. The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. London: Black Swan.
- Dluhopolskyi, O.V., 2017. Ekologichna komponenta stalogo rozvitku: vid teorij do implementacii. Svitfinansiv, Vol.4. [Dluhopolskyi, O.V., 2017.

- Ecological component of sustainable development: from the theory to implementation. World of Finance, Vol.4] (in Ukrainian)
- Ekologichnyi portret gromadyanyna Ukrainy: porivnyanna z ES ta rekomendacii. Analytychnyj dokument. RAZ «Suspilstvo i dovkillia», 2018. [Ecological portrait of Ukrainian citizens: comparative analysis with EU and recommendations. Analytical document. RAZ «Society and Ecology», 2018] (in Ukrainian)
- Ekologichnyi portret gromadyanyna Ukrainy: porivnyanna z ES ta rekomendacii. Analytychnyj dokument. RAZ «Suspilstvo i dovkillia», 2018. [Ecological portrait of Ukrainian citizens: comparative analysis with EU and recommendations. Analytical document. RAZ «Society and Ecology», 2018] (in Ukrainian)
- Gajdutskyi, I.P., 2014. Investuvanna nizkovugletsevoji ekonomiki: teorija, metodologia, praktika: monographia. K., 374 s. [Gajdutskyi, I.P., 2014. Investment of low carbon economy: theory, methodology and practice: monograph. K., 374 p.] (in Ukrainian)
- Galeotti, M., Lanza, A., Pauli, F., 2006. Reassessing the Environmental Kuznetz Curve for CO₂ Emissions: a Robustness Exercise. Ecological Economics, Vol.57, 152-163.
- Grossman, G.M., Krueger, A.B., 1991. Environmental impact of a North American Free Trade Agreement. NBER Working Paper, Vol.3914.
- Haase, D., Kabisch, S., Wolff, M., Haase, A., 2017. Greening cities – to be socially inclusive? About the alleged paradox of society and ecology in cities. Habitat International, Vol.64, 41-48.
- He, J., Makdissi, P., Wodon, Q., 2007. Corruption, Inequality and Environmental Regulation. Working Paper, Vol.7(13).
- Koop, G., Tole, L., 2001. Deforestation, Distribution and Development. Global Environmental Change, Vol.11, 193-202.
- Koziuk, V.V., Dluhopolskyi, O.V., Farion, A.I., Dluhopolska, T.I., 2018. Crony sectors as a barrier to economic well-being and ecologization (case of Ukraine). Economics and Sociology, Vol.11(3), 113-132.
- Mikhailishev, S.G., Raskina, Y.V., 2016. Ekologicheskaja krivaja Kusnetsa: sluchaj Rossii. Financi i biznes, №1, 17-39. [Mikhailishev, S.G., Raskina, Y.V., 2016. Ecological Kuznetz curve: case of Russia. Finance and Business, №1, 17-39] (in Russian)
- Ohorona dovkillia ta gromadyany Ukrainy. Doslidzenna praktik, zinnostey ta sudzen. RAZ «Suspilstvo i dovkillia», 2018. [Ecology protection and citizens of Ukraine. Research of practice, values and thinking. RAZ «Society and Ecology», 2018] (in Ukrainian)
- On the Main Principles (Strategy) of the National Environmental Policy of Ukraine for the Period until 2020: Law of Ukraine. <http://kga.gov.ua/dp.kga.gov.ua>. (in Ukrainian)

- Pauli, H., 2010. Synaekonomika. 10 rokiv, 100 innovasij, 100 milioniv robochih misz. K.: Risk Reduction Foundation. 320 s. [Pauli, H., 2010. Blue economy. 10 years, 100 innovations, 100 million of working places. K.: Risk Reduction Foundation. 320 p.] (in Ukrainian)
- Ravallion, M., Heil, M., Jyotsna, J., 2000. Carbon Emission and Income Inequality. Oxford Economic Papers, Vol.52(4), 651-669.
- Socolow, R., Andrews, C., Berkhout, F., Thomas, V., 1994. Industrial Ecology and Global Change. Cambridge: Cambridge University Press.
- Stalij miszevij rozvitok: Zbirka sytuazijnyh vprav dla formuvanna systemy znan ta vmin szodorealizacii strategii stalogo misceвого rozvitku. K., 2013. [Sustainable local development. Collection of simulative tasks for formulation knowledge and competitiveness system to realization the sustainable development strategy of local development. K., 2013] (in Ukrainian)
- The 2018 Environmental Performance Index (EPI). Retrieved from: <https://epi.envirocenter.yale.edu/2018-epi-report>.
- Vornovytsky, M., Boyse, J., 2010. Economic Inequality and Environmental Quality: Evidence of Pollution Shifting in Russia. Working Paper Series, Vol. 217.