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Ukrainians and climate policies: What are Ukrainians' preferences for using carbon revenues?

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Keywords: climate change, climate mitigation, climate policy, carbon tax, public preferences, environmentally motivated tax preferences, survey

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Abstract

The paper presents the understanding of and attitudes towards climate change and climate policies in Ukraine, using a survey on a representative sample of more than 1 500 Ukrainians. The survey was carried out between October 2021 and February 2022 and presents the situation before Russia's large-scale invasion of Ukraine. The survey tests support for three main climate policies in detail: a green infrastructure programme, a carbon tax with cash transfers and a ban on combustion-engine cars. It shows that support for climate policies depends on three key factors: how people perceive the effectiveness of the policies in reducing emissions, how they perceive distributional impacts on lower-income households (inequality concerns), and if they think their household will gain or lose from the policy. The survey also shows that when citizens receive information that specifically addresses these concerns, they exhibit stronger support for the policy. How the policy is designed also matters: Ukrainians widely accept a carbon tax when its revenues finance green investments and/or compensate lower-income households. The paper highlights seven considerations for Ukraine policymakers to design measures that are effective and supported by citizens. Following Russia's war of aggression and once conditions are right, Ukrainian policymakers can also use the survey results to guide the reform of the environmental tax system- one of the goals in Ukraine's recovery and reform agenda.

The survey in Ukraine that the paper describes was conducted as part of a large-scale OECD international survey of attitudes toward climate policies carried out on over 40 000 respondents in twenty countries (see Dechezleprêtre, A., Fabre, A., Kruse, T., Planterose, B., Sanchez Chico, A. and S. Stantcheva (2022), "Fighting climate change: International attitudes toward climate policies", *OECD Economics Department Working Papers*, No. 1714, OECD Publishing, Paris, <https://doi.org/10.1787/3406f29a-en> and Dechezleprêtre, A., Fabre, A. and S. Stantcheva (2022), *Les Français et les politiques climatiques*, <https://www.cae-eco.fr/les-francais-et-les-politiques-climatiques>).

Keywords: climate change, climate mitigation, climate policy, carbon tax, public preferences, environmentally motivated tax preferences, survey

JEL codes: H23, Q54, Q58, D78, P48

Résumé

Ce document analyse la compréhension du changement climatique et des politiques climatiques ainsi que les attitudes à leur égard en Ukraine, sur la base des résultats d'une enquête menée auprès de plus de 1 500 personnes. Cette enquête a été réalisée entre octobre 2021 et février 2022 et reflète donc la situation d'avant l'invasion à grande échelle du pays par la Russie. Les personnes interrogées y ont été invitées à donner leur avis sur trois instruments de la politique climatique : un programme en faveur d'infrastructures vertes, une taxe carbone assortie de transferts en espèces et l'interdiction des voitures thermiques. L'enquête montre que l'adhésion à ces mesures dépend de trois facteurs principaux : l'efficacité perçue des mesures en termes de réduction des émissions, leur impact redistributif perçu sur les ménages à faible revenu (préoccupations liées aux inégalités) et l'effet qu'elles auront d'après les répondants sur leur propre ménage (sera-t-il gagnant ou perdant ?). Il apparaît en outre que les citoyens sont davantage favorables à ces mesures lorsqu'on leur communique des informations qui répondent précisément à ces préoccupations. La conception des mesures importe également : les Ukrainiennes et les Ukrainiens sont largement favorables à une taxe carbone dont le produit sert à financer des investissements verts et/ou à compenser le surcoût pour les ménages modestes. Ce document met en avant sept aspects que devraient prendre en considération les décideurs ukrainiens pour concevoir des mesures à la fois efficaces et approuvées par les citoyens. Lorsque la guerre d'agression russe sera terminée et que les conditions seront propices, les responsables de l'action gouvernementale pourront également utiliser les résultats de l'enquête pour guider la réforme de la fiscalité environnementale, qui est l'un des objectifs du programme de relèvement et de réforme de l'Ukraine.

L'enquête décrite dans le document s'inscrit dans le cadre d'une grande enquête internationale sur les attitudes à l'égard des politiques climatiques, que l'OCDE a menée auprès de plus de 40 000 répondants dans vingt pays (voir Dechezleprêtre, A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico et S. Stantcheva (2022), « Fighting climate change: International attitudes toward climate policies », Documents de travail du Département des affaires économiques de l'OCDE, n° 1714, Éditions OCDE, Paris, <https://doi.org/10.1787/3406f29a-en>; et Dechezleprêtre, A., A. Fabre et S. Stantcheva (2022), Les Français et les politiques climatiques, <https://www.cae-eco.fr/les-francais-et-les-politiques-climatiques>).

Mots clés: changement climatique, atténuation des changements climatiques, politique climatique, taxe carbone, préférences du public, écotaxe, enquête

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18

Acronyms

CO ₂	Carbon dioxide
EU	European Union
EUR	Euros
t	tonne
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the UN High Commissioner for Human Rights
UAH	Ukrainian Hryvna
USD	US Dollars

Executive Summary

Understanding public attitudes helps policy makers devise and implement effective strategies to realise climate action. This paper presents the results of a survey of the attitudes towards climate change and climate policies in Ukraine. The survey was conducted on a representative sample of more than 1 500 Ukrainians between October 2021 and February 2022, i.e. before Russia launched its war of aggression against Ukraine. The analysis in Ukraine was part of a large-scale survey on preferences for and understanding of climate policies carried out by the OECD Economics Department and the Social Economics Lab at Harvard University, covering 40 000 respondents in 20 countries, and allows to compare the results of Ukraine to both advanced and emerging market economies.

The survey tests support for three main climate change mitigation policies in detail: a green infrastructure programme, a carbon tax with cash transfers and a ban on combustion-engine cars. The results provide guidance to Ukraine decision-makers on how to design elements of environmental tax reform and options to prioritise the rebuilding of critical infrastructure. These suggestions aim to balance what can be done in the short-term with what needs to be done in the medium- and longer-term of post-war recovery, also considering the processes of alignment with the European Union and the OECD.

A key finding of the survey is that about 90% of Ukrainians agree that climate change is an important problem and that their country should take measures to fight it. The survey also shows that the most popular measures to address climate challenges are public investments in green infrastructure, mandatory and subsidised insulation of buildings and a ban on polluting cars in city centres. Other measures are more contentious such as doubling prices of beef, a ban of intensive cattle farming or taxing fossil fuels at USD 45/tCO₂.

Three key beliefs determine whether people in Ukraine support a specific climate policy measure: i) whether they believe the policy to be effective, ii) whether they believe that the policy has distributional impacts on lower-income households, and iii) whether they believe the policy might impact themselves. The survey shows that when citizens receive information about how the specific climate policy measure works and what its distributional implications are, they exhibit stronger support for it. How the policy is designed also matters: Ukrainians widely accept a carbon tax when its revenues finance green investments and/or compensate lower-income households.

The results provide guidance to Ukrainian policy makers on how to design effective climate policy instruments that are supported by citizens. First, it suggests providing citizens in Ukraine with more information, preferably through an independent institution, about how specific climate policies work and their effects. Second, the shorter-term focus should lie on strengthening programmes that offer each household alternatives to fossil fuel consumption. Third, Ukraine policymakers should consider increasing financial support to lower-income households through energy efficiency improvements of buildings and investments in electric vehicles, and more public investments in low-carbon infrastructure (public transport, railways etc.). This will help Ukrainians prepare for an economy that puts a higher price on carbon, is energy secure and protects especially vulnerable households against increases in energy prices as Ukraine rebuilds. And finally, subsequent and regular surveys would allow tracking and understanding concerns of Ukrainian citizens and allow policymakers to adequately respond to these concerns.

Key findings and policy messages

Support for climate policies

- In Ukraine, the most popular policies to address climate impacts are subsidies for low-carbon technologies and public investments in green infrastructure, such as renewable energy, public transport or investment in thermal renovations of buildings. This is in line with results in other countries covered in the survey.
- A majority of Ukrainians also support mandatory thermal renovation with subsidized retrofits and bans of polluting vehicles in city centres. This is also in line with results in other countries.
- Support for carbon pricing measures is significantly higher when revenues are used to compensate vulnerable households or to finance green investments.
- Providing information about how a policy works that addresses people's concerns (most Ukrainians were concerned about the impacts of the policies on inequality and on their own budget) increases support for the policy. In Ukraine, watching a video on the impact of a carbon tax with cash transfers and its distributional effects led to a significant increase in support for a carbon tax. This was the case in all countries studied, but the effect was greatest in Ukraine, where support almost doubled after watching the video.

Willingness to change behaviour and awareness of climate change

- Ukrainians are aware of the potentially disastrous consequences of climate change and recognise the necessity to halt it, both through individual and collective action.
- In Ukraine, the majority is willing to have a fuel-efficient car or electric vehicle. This share is higher compared to high-income countries, but lower than the average in middle-income countries covered in the survey.
- The majority of respondents is only moderately willing to limit their beef consumption and car use. This is in line with results in other countries in the survey, even if willingness to restrict car use is among the lowest in Ukraine.
- The majority is also unwilling to reduce heating or cooling their homes in order to lower their individual carbon footprint. The proportion of respondents willing to reduce the heating or cooling of their homes is by far the lowest in Ukraine compared to all other countries in the survey.

Key policy recommendations

- Better inform citizens about how climate policies work and who they affect, in particular addressing equity concerns of Ukrainians. Have an independent institution disseminate the information.

- Scale up existing support schemes for energy retrofits of buildings, particularly for vulnerable and low-income households. This will be important as Ukraine rebuilds damaged housing once it is safe to do so. In Western Ukraine energy efficiency improvements can be implemented sooner.
- Prioritize public investment in low-emission mobility infrastructure: public transport, railways, bicycle lanes, charging stations for electric vehicles.
- Sequence the implementation of climate policies: promote the diffusion of low-carbon alternatives first to protect households from price increases before possible increases in the price of carbon.
- Commit to allocating an important share of revenues from any new environmental taxes, or increases in revenues from existing environmental taxes, to finance a just energy transition.
- Redistribute some or all of the revenues from carbon pricing and fossil fuel taxes to compensate vulnerable households in the form of lump sum transfers.
- Conduct regular surveys of households' constraints, understanding and acceptance of climate measures, and appropriately integrate citizens' expectations and concerns into policymaking.

1 Introduction

Need for action to achieve net-zero

In line with international commitments under the 2015 Paris Agreement, limiting average temperature increases to well below 2 degrees Celsius above pre-industrial levels requires global emissions to be cut to net zero by around mid-century (IPCC, 2021^[1]). Looking at long-term commitments, governments appear to be taking this scientific imperative very seriously: over 100 countries, representing more than 80% of the world economy, have announced targets of carbon neutrality by around mid-century. Ukraine is one of them, setting itself the target of carbon neutrality by 2060 (Ukraine, 2021^[2]). However, while climate mitigation ambitions are being ramped up, actual policy measures to achieve them are still lagging. With the currently implemented policies, average temperatures are still expected to rise to about 2.7°C by 2100, increasing the likelihood of catastrophic impacts for societies and economies (IPCC, 2022^[3]; Climate Action Tracker, 2021^[4]).

Climate policies and how they are designed have a crucial role to play here. Not only are they key tools with which Ukraine will achieve the climate and energy targets it has set itself, but- appropriately designed and implemented- they will also help Ukraine become a more resilient and more modern nation aligned with the European Union (EU). In general, strong carbon prices alongside complementary policies have proven to be effective climate policy instruments: they can reduce emissions at scale while offering the opportunity to reduce costs for lower-income households (Dietz et al., 2019^[5]). A price on emissions creates an incentive for producers to cut pollution and for consumers to buy fewer polluting goods and services (Dietz et al., 2019^[5]).

To be effective, climate policies must address several challenges, including structural impediment such as barriers to innovation, financing and the adoption of low-carbon technologies, as well as barriers related to political economy and public acceptability of climate policies (D’Arcangelo et al., 2022^[6]; OECD, 2021^[7]). Climate policies have often been difficult to pass because even when the objective of limiting global warming is broadly accepted it is difficult to translate it into tangible support for specific climate policies. Relative to other policy areas, public acceptability of measures to fight climate change is further complicated by the public good and global nature of the problem, the uncertainties about future impacts, and the long time-horizon. At the same time, however, for policy-makers to implement climate policy in the first place and make it endure, it must be publicly acceptable in a way that does not provoke strong opposition (Rhodes, Axsen and Jaccard, 2017^[8]; Nilsson et al., 2016^[9]). Understanding the *conditions* of public acceptability is key for addressing citizens’ concerns and potential misconceptions, and to design successful climate policies (Dechezleprêtre et al., 2022^[10]).

Climate policies in Ukraine and Russia’s aggression

Russia launched its unprovoked, unjustifiable and illegal war of aggression against Ukraine on 24th February 2022. More than a year later Ukrainians continue to bear the burden of a war that has no end in sight. Many communities have suffered tremendous loss of lives and destruction of critical infrastructure

such as housing, transportation and energy. The number of those who have died or have been injured runs into the tens of thousands and the Office of the UN High Commissioner for Human Rights (OHCHR) reports new civilian casualties every week (OHCHR, 2023^[11]). Russian airstrikes have devastated entire neighbourhoods. The scale of the destruction is so large that it can now be seen from space (Dias, 2023^[12]). Post-war reconstruction will be a monumental task.

At the same time, Ukrainians have shown remarkable resilience. While some communities have been destroyed, others have provided homes and support to those who have lost their livelihoods in the war (OECD, 2022^[13]). While many large industrial facilities have been bombed, many factories in Russian-occupied areas were relocated to the west of Ukraine where they continue their production (Alderman, 2023^[14]). Ukraine's government administration has remained active, not only helping adapt the country to wartime conditions, but making decisions on a wide range of policy domains including anti-corruption, tax and environmental policy.

While Ukraine remains focussed on winning the war and managing its effects, it has already started to plan for the post-war recovery. One key aspect is to rebuild critical infrastructure. While this is an immediate need in light of the destruction and damage of the war, it also offers opportunities: new infrastructure, including housing, can be built in a way that makes Ukraine independent from energy imports and lowers energy consumption. Facilities can be equipped with innovative technologies and modern, low-carbon solutions. Ukraine is already working towards decentralising its energy supply and increasing its use of renewable energy technologies (Communications Department of the Secretariat of the CMU, 2023^[15]) (Ministry of Energy of Ukraine, 2023^[16]).

In 2019, Ukraine implemented a more than twenty-fold increase of its CO₂ tax. In 2020 (latest available data) revenues from the tax amounted to more than UAH 900 million (EUR 30 million), making up more than a quarter of all environmental tax revenues (State Treasury Service of Ukraine, 2021^[17]). Different proposals were put forward whether and how revenues from the CO₂ tax could be used to finance environmental protection. In 2021, amendments to the Tax Code allow using part of the carbon tax revenue for decarbonisation measures.

In May 2023, a law was passed to establish the State Fund for Decarbonization and Energy-Efficient Transformation which will use revenues from the carbon tax from 2024 onwards (Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2023^[18]). The Ministry of Environmental Protection and Natural Resources of Ukraine has asked the OECD Secretariat for support in setting up an environmental fund that could use some or all of the revenue and channel it into environmental projects. In response, the OECD Secretariat undertook the following study as well as a review of the landscape of environmental taxes and expenditure in Ukraine (Neuweg et al., forthcoming^[19]). The recommendations from the results of the following survey can help decision-makers in the design of the newly created fund.

In order to better understand citizens' concerns about climate policies, the OECD and the Social Economics Lab at Harvard University conducted an international survey¹, of which Ukraine was part. The following survey² tested people's support for a carbon tax, and other climate policy instruments. It looks at how elements of a carbon tax can be designed to make it more acceptable to Ukrainians. 1 564 Ukrainian citizens participated in the survey by filling in a questionnaire of around 25 minutes between October 2021 and February 2022. A subgroup of randomly selected respondents watched short videos explaining either

¹ The 20 countries covered in the survey are: Australia, Canada, Denmark, France, Germany, Italy, Japan, South Korea, Spain, United Kingdom and the United States (high-income); and Brazil, China, India, Indonesia, Mexico, South Africa, Turkey and Ukraine (middle-income).

² The full questionnaire for Ukraine is available at: https://lse.eu.qualtrics.com/jfe/form/SV_3gdsY6iHVO6IKNg?Q_Language=UK (Ukrainian) https://lse.eu.qualtrics.com/jfe/form/SV_3gdsY6iHVO6IKNg?Q_Language=RU (Russian)

the impacts of climate change or how climate policies work. Subsequent statistical methods and econometrics provided detailed insights into what shapes people's support for specific climate policy measures.

This paper presents the results for Ukraine in more detail.

2 Knowledge of and attitudes towards climate change

The results of the survey in Ukraine show that climate change is an important problem for nine in ten respondents. The following section describes respondent's knowledge and understanding of climate change as well as their attitudes. Most Ukrainians believe that climate change is anthropogenic: 76% of respondents believe that human activity causes "a lot" or "most" of climate change. Less than one-tenth of people outright deny the existence of climate change. Most respondents correctly assess some of the consequences of unabated climate change, such as severe sea-level rise (78% of respondents) or droughts and heatwaves (86% of respondents). At the same time, most also believe that climate change will entail more frequent volcanic eruptions, which is not in line with climate science.

Respondents are also too optimistic about the scale of decarbonisation needed to halt dangerous climate change. Slightly less than 50% of respondents in Ukraine correctly believe that cutting GHG emissions by half would not suffice to stop global warming. Respondents are relatively well aware of the factors that cause climate change: 77% correctly recognize that CO₂ is a greenhouse gas, 49% that methane is one, and 64% that particulate matter is not. Most of the classifications for different types of food and power generation in terms of their GHG footprint are also correct except that a non-trivial share of respondents believe that cars, trains or buses have a higher footprint than airplanes.

Expectations about climate change

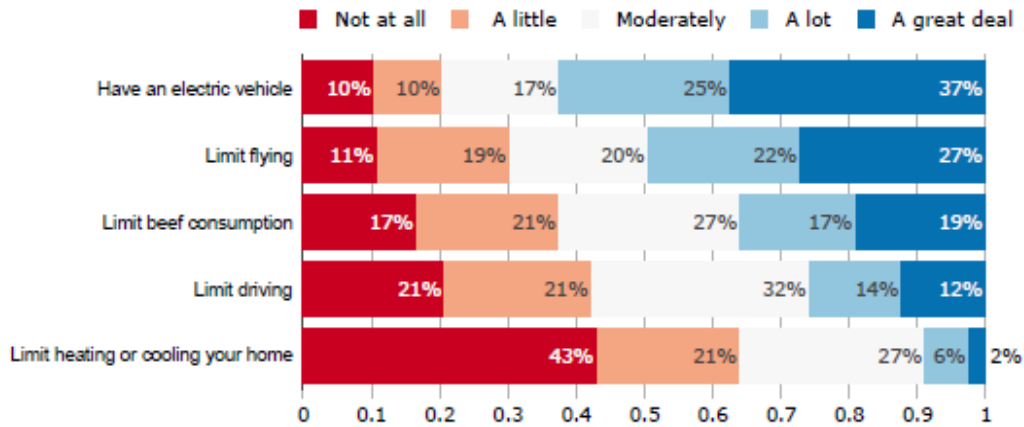
Overall, expectations about the future are mixed in Ukraine. More than 60% of respondents think that it is technically feasible to stop GHG emissions by the end of the century while maintaining satisfactory living standards, but at the same time, only 35% think it likely that humans will halt climate change by the end of the century. Less than one-fourth of respondents in Ukraine think that the world will be more prosperous than today in a hundred years. A substantial share of respondents, 71%, think that climate change, if nothing is done to limit it, can cause the extinction of humankind. And three-fourth of respondents are worried that climate change will affect their own life negatively.

Willingness to adopt climate-friendly behaviour in Ukraine

The survey has its focus on people's understanding of and support for climate policies. However, climate action can also take the form of individual behaviour changes, which are conceptually different. In addition to understanding people's attitudes towards climate change, the survey therefore included questions to comprehend how these attitudes translate into willingness to adopt individual behavioural changes. It is interesting to compare and contrast respondents' willingness to adopt climate-friendly behaviours with their support of public policies. More than 60% of the respondents say they are willing to have a fuel-efficient car or electric vehicle. Only around 50% of respondents are willing to limit flying. Less than 40% of respondents are willing to limit their beef consumption. Respondents are also generally unwilling to limit driving: only one fourth of respondents are willing to limit driving. Few are willing to limit heating or cooling

their homes by a lot. Compared to other countries in the survey (which includes countries with similar climates such as Poland), willingness to limit heating or cooling homes is lowest in Ukraine.

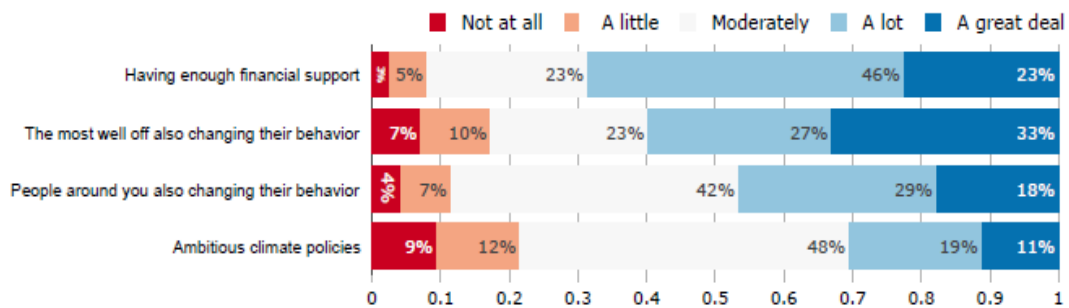
Figure 2.1. Willingness to adopt behaviours that help reduce greenhouse gas emissions in Ukraine



Source: (Dechezleprêtre, Fabre and Stantcheva, 2022^[20]); (Dechezleprêtre et al., 2022^[10])

The survey also explored willingness to adopt these behaviours under different circumstances. It is important to people that they receive enough financial support to make these changes and that others, especially the most well-off, also change their behaviours.

Figure 2.2. Factors that can encourage people to adopt sustainable behaviours in Ukraine



Source: (Dechezleprêtre, Fabre and Stantcheva, 2022^[20]); (Dechezleprêtre et al., 2022^[10])

In sum, in Ukraine, the majority is only moderately willing to limit their beef consumption and their driving. The majority is also unwilling to reduce heating or cooling their homes in order to lower their individual carbon footprint (Figure 2.1). Therefore, calling for voluntary behavioural changes will not be enough to reach the goal of net zero emissions by mid-century. At the same time, the people surveyed are aware of the potentially disastrous consequences of climate change and recognise the necessity to halt it, both through individual and collective action.

3 Support for different policy options

The survey explores support for different climate policies in Ukraine. In Ukraine, the most popular policies are subsidies for low-carbon technologies, as well as public investments in green infrastructure, such as renewable energy, public transport or investment in thermal renovations of buildings. The following sections lay out how Ukrainians responded regarding main climate policy options. These climate policies form key pillars of the European Commission's decarbonisation plans (Green Deal). Ukraine's climate strategy also contained elements of them before Russia's aggression against Ukraine. Ukraine's new post-war recovery plan puts forward ambitious decarbonisation plans. This and the fact that Ukraine is now an EU candidate country means that these climate policies will continue to play a role in ongoing policy-discussions in Ukraine.

Before going into the substance, it is important to remember that investigating support for policies is tricky. One factor is that support for a policy bundle is complicated to study because there are many different combinations on how that policy is implemented (e.g. revenues from a carbon tax used to fund low carbon technologies) (Dechezleprêtre et al., 2022^[10]). While it would be convenient to think of the tax side as separate from the revenue side, respondents' views on tax-based policies depend on the use of the revenue (Dechezleprêtre et al., 2022^[10]). Vice-versa, for each policy requiring funding, the funding source matters. The survey addresses this in the following way. First, respondents receive evidence on several key policies. Second, it explains the possible uses of revenue in the case of carbon taxes, the sources of funding for the green infrastructure program, and policy bundles in the case of combustion-engine car bans. Lastly, it explores the fundamental factors shaping support for policies.

Support for three main climate policies

The survey tests support for three main climate policies in detail: a green infrastructure programme, a carbon tax with cash transfers and a ban on combustion-engine cars. The following paragraph describes the three policies. The survey also explores support for a number of other policies, see further below. This analysis can provide guidance for the evaluation and prediction of support for other combinations and types of policies.

A green infrastructure programme provides large-scale investments into low-carbon technologies (electricity generation from renewables, public transport, energy-efficient building renovations, sustainable agriculture) through public debt. An increase of the carbon tax with cash transfers puts a price of EUR 45/tCO₂ across all sectors of the economy (the survey explains to respondents that gasoline prices would increase by 10 eurocents (UAH 3) per litre). To compensate households for the price increases, the revenues from the carbon tax would be redistributed to all households, regardless of their income. A ban on combustion-engine cars requires car-manufacturers to produce cars that emit less CO₂ per mile of the cars they sell. By lowering the emission limit every year they can sell only electric or hydrogen vehicles after a certain year; the survey uses the year 2030.

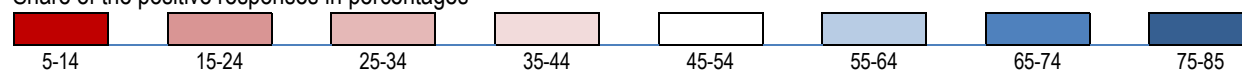
The table below (Table 3.1) shows the results for the perceptions of these climate policy measures in Ukraine and other countries in the survey. The survey shows that around 70% of respondents in Ukraine support the green infrastructure programme and around 60% support a ban on combustion-engine cars.

Compared to the other two measures, Ukrainians are much less in favour of a carbon tax with cash transfers. Around 40% of Ukrainians support the carbon tax with cash transfers. The next paragraphs explain the results shown in Table 3.1 in more detail, comparing the results in Ukraine with those in other countries covered in the survey.

Table 3.1. Perceptions of main climate policies in Ukraine and other countries in the survey

	Green infrastructure programme			Carbon tax with cash transfers			Combustion-engine car bans		
	Ukraine	Middle-income	High-income	Ukraine	Middle-income	High-income	Ukraine	Middle-income	High-income
Impact of policy									
- Would reduce air pollution	76	83	76	74	80	68	83	84	79
- Would reduce GHG emissions/ CO ₂ emissions from cars	-	-	-	65	75	64	76	78	73
- Would make electricity production greener	73	78	70	-	-	-	-	-	-
- Would encourage building insulation	-	-	-	73	69	64	-	-	-
- Would change mobility patterns	61	71	60	51	69	51	-	-	-
- Negative effect on economy and employment	36	42	37	40	46	31	52	50	35
- Costly way to fight climate change	51	61	51	58	62	52	56	62	54
Redistributive impacts ("Believes that would benefit...")									
- Own household	16	50	23	14	41	20	12	36	15
- Rural or suburban	22	50	25	17	43	21	13	36	16
- High-income earners	42	51	39	32	41	33	37	49	40
- Middle class	26	49	22	18	40	21	15	35	15
- Low-income people	18	48	21	17	42	22	15	35	12
Perceived fairness and support									
- The measure would be fair	56	72	51	41	55	35	51	59	39
- In favour of the measure	69	78	57	39	59	37	57	65	43

Share of the positive responses in percentages



Note: Depicted is the share of respondents who answer "Somewhat agree" or "Strongly agree." For the exact phrasing of each question, see the Questionnaire in Appendix A-5 of Dechezleprêtre et al., 2022^[4], p.90ff.

The 20 countries covered in the survey are: Australia, Canada, Denmark, France, Germany, Italy, Japan, South Korea, Spain, United Kingdom and the United States (high-income); and Brazil, China, India, Indonesia, Mexico, South Africa, Turkey and Ukraine (middle-income).

Source: (Dechezleprêtre, Fabre and Stantcheva, 2022^[20]); (Dechezleprêtre et al., 2022^[10])

Perceived environmental benefits

Ukrainians largely acknowledge the environmental benefits of climate policies. A majority of respondents agree that the three policies would reduce air pollution and GHG emissions. Respondents in Ukraine are less optimistic about the behavioural effects of the policies, such as driving less or using more public transportation, compared to other middle-income countries. Here results in Ukraine compare more closely with those in high-income countries and contrast with results from other middle-income countries where more respondents tend to believe in these effects. For instance, while Ukrainians agree that a green investment programme would encourage less driving or using more public transportation, they are divided about whether a carbon tax with cash transfers would have the same effect.

Perceived economic effects

Few respondents think that climate policies will have positive impacts on the economy and employment, although this share is somewhat higher in middle-income countries compared to high-income countries. In fact, around half of the respondents in Ukraine think that a ban on combustion-engine cars will have a negative impact on the economy and employment. Opinions about the impacts of the carbon tax and the green infrastructure programme on the economy are not as negative, but 40% of respondents still think that the carbon tax and 36% think that the infrastructure programme will negatively impact the economy and employment in Ukraine. When asked about whether each of the policies is a cost-effective versus costly way to fight climate change, Ukrainians rank the carbon tax as the costliest policy, followed closely by the ban on combustion-engine cars. Opinions are more divided about the costs of the green infrastructure programme: around half of respondents think it is a costly way to fight climate change.

Perceived distributional impacts

Ukrainians consider the three main policies as mostly regressive. In Ukraine, at most one-fifth of respondents believe that low-income earners, the middle class, and those living in rural areas would gain from a green infrastructure program. The largest perceived losses relate to the ban on combustion-engine cars: in Ukraine, only about 14% of the respondents think that each of these groups will win. In contrast, around 40% of the respondents believe that high-income earners will be net positive from these two policies. Ukrainians perceive these effects less strongly for the carbon tax with cash transfers: around 30% believe high-income earners will win and almost one-fourth of respondents believe that it would benefit low-income earners, the middle class, and those living in rural areas. Again, Ukrainians are more aligned with high-income countries for these results. In middle-income countries, respondents perceive the distributional impacts of the green infrastructure program significantly more positively, although they are still wary of the possible effects of the carbon tax and combustion-engine bans on low-income, rural and middle-class households.

Perceived impacts on one's own household

Overall, respondents are similarly or even more pessimistic about the financial effects of the three policies on their own household as they are about their effects on middle-class or rural households. Less than one fifth of respondents in Ukraine think their household would financially gain from these policies. This contrasts with results from other middle-income countries where respondents are somewhat more optimistic about the effects on their household. In fact, Ukrainians are the most pessimistic about the financial effects for all three policies amongst middle-income countries. Also compared to high-income countries, Ukrainians rank among the more pessimistic about the financial effects on their own household of all three policies.

To sum up, many respondents in Ukraine see these three key policies as environmentally effective but regressive and against their own financial interest.

Three factors explain policy support: effectiveness, distributional impacts and impacts on own household

What reasoning underlies support for climate policies? The survey identifies key factors that have a significant impact on support for climate policies across the 20 countries studied, including Ukraine, via regression analysis, controlling for a rich set of individual-level characteristics and country specificities. Three key beliefs are major predictors of whether people support a given climate policy, explaining a substantial share of the variation in policy views across people across the countries studied in the survey:

- *Self-interest*: People support policies less when they perceive them to impose costs on their own household.
- *Policy effectiveness*: People support policies more when they perceive them to be effective at reducing emissions.
- *Inequality concerns*: People support policies less when they perceive them to impose higher burdens on lower-income households.

The perceived distributional impacts of climate policies are strongly correlated with policy support in Ukraine (as well as in the other countries in the survey). First comes self-interest: Ukrainians who think they will themselves lose from a given policy are much less likely to support it. This belief alone explains 16% of the variation in policy views. Given that the belief that one will suffer from climate change also relates to self-interest, one could expect that this helps explain policy support as well. In Ukraine, however, the belief that one will suffer from climate change accounts for only around 2% of differences in policy support. Expectations about the perceived losses from a climate policy are therefore a much stronger predictor for policy support than worries about the impacts of climate change.

Second, the perceived effectiveness of a policy is also strongly correlated with support for it, especially the belief that it will reduce emissions and pollution. Beliefs in the effectiveness of policies to reduce emissions and pollution account for around 24% of differences in policy support amongst Ukrainians.

Third, the perceived progressivity of a policy matters substantially: respondents who believe that low-income earners will lose are less supportive of the policy. In Ukraine the belief that high-income earners will lose is actually positively associated with support for it (the same holds true for France, India, Indonesia, Spain and Turkey). The belief that poor people will lose from climate policies accounts for around 7% of the variation in policy views. Besides, the belief that a policy is fair and support for this policy are highly correlated, as the next section explains.

Broader perceived economic effects or concerns about the impacts of climate change overall are not as strongly correlated with policy support. The belief that the policy would have positive effects on the economy accounts for around 5% of variation in policy views amongst Ukrainians. Knowledge about climate change is a weak predictor of favouring climate policies, although there is a small significant effect of the belief that climate change is human made.

Explaining how policies work increases support

Video treatments across all 20 countries studied, including Ukraine, confirm the importance of the three core beliefs outlined in the previous section. A random set of respondents from the survey watched informational and pedagogical videos explaining climate impacts and climate policies. This allowed testing the causal impact that information has on people's support: it helps explain what *drives* people's support rather than just showing the factors that the support is correlated with.

Respondents who saw a video on the impacts of climate change did not significantly change their views on climate policies. Respondents who saw a video that explains how the three main policies *work* and what their distributional implications are, however, exhibited stronger support for the climate policies. Thus, information and explanations work, but only if they address the main concerns people have. The following section explains how the survey tested this and shows the results in more detail.

In order to measure the effect of information on support for climate action, randomly selected respondents watched a video about the effects of climate change in Ukraine³. Another randomly selected group watched a video explaining the operation and effects of the three main climate policies (the *climate policies video*).

³ For more details about the informational and pedagogical video experiments see Dechezleprêtre et al. (2022_[10]).

The videos consisted of graphic animations accompanied by a voice presenting nuanced and unbiased information in an educational manner. A third group watched both videos.

Watching the climate impacts treatment has the smallest effects on support for each of the policies (and is not statistically significant). The effects of the videos that explain how the three climate policies work and their effects are much stronger. The treatment effects are largest for the carbon tax with cash transfers. Watching the climate policies video also has significant and large effects on the perceived fairness of the three policies.

The previous section showed that support for the carbon tax with cash transfers was lowest (only around 40% were in favour of the measure, whereas almost 70% of Ukrainians supported the green infrastructure programme). Seeing the *climate policies video* increases support for the carbon tax with cash transfers significantly. The magnitudes of the climate policies video treatment correspond to around 50% of the control group mean in Ukraine. That means that after watching the climate policies video, support for a carbon tax with cash transfers increases by almost 50% compared to the control group that did not watch any video.

Thus, the treatments have a larger effect on policies that start with a lower support and that have more room for improving support. This also shows that providing information on the effects of a carbon tax with cash transfers and its distributional impacts increases support for it. The treatment effect in Ukraine is larger than the average treatment effect across all other countries in the survey (ranging from 11% in China to 50% in Germany (Dechezleprêtre et al., 2022^[10])).

One key message from the climate policies video treatment is that providing information on policies that are complex and therefore more difficult to understand can significantly increase support for them. This may also hold true for policies that are new or susceptible to people's biases and fears around taxes. Another key message is that the type of information matters: information on effectiveness and distributional impacts of the policy matters more to people than other types of information.

Varying levels of support across measures

Support for a ban on combustion-engine cars

In addition to the main climate policies in the previous section, the survey tested people's support for other climate policies and variations of how the policies would be implemented. The results are shown in Figure 3.1. As Table 3.1 showed, a majority of Ukrainians supports the banning of combustion-engine cars. In a variation of the policy where public transport is provided, support for the ban increases by 5%. Although this is not a very high increase, it still shows that the availability of alternatives to fossil fuels can make a difference in the support of certain measures. A large majority of Ukrainians, almost 70%, also support a ban of polluting vehicles in city-centres. In other countries in the survey banning polluting vehicles in city-centres was a popular measure as well.

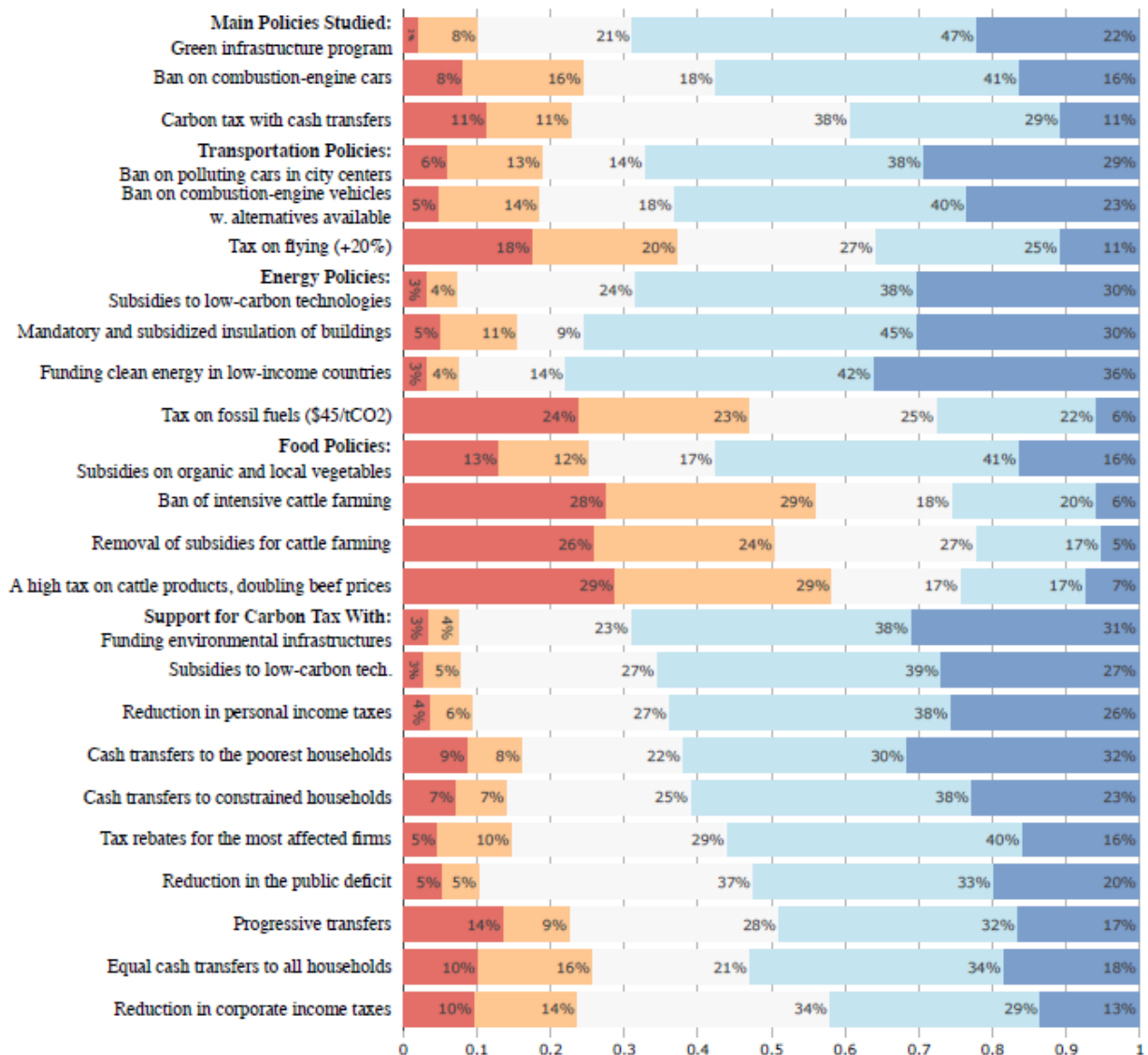
Support for subsidised thermal retrofits of buildings

Several other measures also receive an absolute majority of support. One of the most popular measures is the obligation to thermally renovate buildings by 2040, combined with public subsidies covering half the costs. In Ukraine, 75% of respondents support it. Given that three-fourth of Ukrainians are in favour of mandatory insulation of buildings, one can assume that demand for such a measure is high. Ukraine already has several policy measures in place to improve the energy efficiency of buildings, such as the Energy Efficiency Fund and the Warm Loans programme (Energy Efficiency Fund, 2019^[21]; IEA, 2021^[22]). These two programs are seen as success stories in Ukraine. Several other policy measures have been implemented as well. The survey underlines that Ukrainians are familiar with thermal insulation of buildings

and support for it is high. Several policy templates for successful energy efficiency renovation programmes exist already, so Ukraine policymakers should consider how to scale these up. The survey indicates that this would receive widespread approval from the public.

This will be important as Ukraine starts rebuilding damaged housing once it is safe to do so. Around 1.5 million residential units have been destroyed or damaged as of March 2023 (World Bank, Government of Ukraine, European Union, United Nations, 2023^[23]). Reconstruction will be a monumental task. In areas that are being bombed or shelled, the focus will lie on short-term emergency response i.e. ensuring basic living conditions. In the longer-term, reconstruction of buildings can be done with energy efficiency improvements. Those buildings that are heavily damaged can be reconstructed in line with EU standards for new buildings, i.e. making them houses that use very little energy. Buildings that are moderately or little damaged can be renovated in energy-efficient ways. Support to lower-income households should be a priority. Multifamily buildings in Ukraine use 30-50% more energy than the EU average (BPIE; Dixie Group, 2023^[24]). Reconstruction and renovations after the conflict present an opportunity to incorporate energy efficiency improvements as a cornerstone of the nation's recovery strategy, which will lower Ukraine's energy consumption and provide better homes to Ukrainians.

Figure 3.1. Share of respondents in Ukraine who support or oppose climate change policies



Note: The figure shows the distribution of support to each policy, based on answers from respondents in the control group only (who did not see any pedagogical videos). For the exact phrasing of each question, see Appendix A-5 of Dechezleprêtre et al., 2022[4], p.90ff.

Source: (Dechezleprêtre, Fabre and Stantcheva, 2022_[20])

Support for a carbon tax with cash transfer

At first glance, carbon taxes and especially taxes on fossil fuels appear to be among the least popular policies. A carbon tax which funds equal transfers to everyone only generate 40% support in Ukraine. And only 28% of respondents in Ukraine are in favour of a tax on fossil fuels that would increase the price of gasoline by 10 percent (which would be the case if a carbon price of EUR 45/tCO₂ would be applied across all sectors of the economy). However, the use of revenue matters substantially. Ukrainian respondents clearly support a carbon tax when its revenues are used to finance green infrastructure projects (with 69% supporting the measure).

An absolute majority of Ukrainians also supports other variations of the policy such as using revenues for subsidies for low-carbon technologies, lowering the income tax, a transfer to low-income households,

compensation of fossil fuel-dependent households, tax credits for the most affected companies or reducing the public deficit. All of these variants get more support than using the revenues for a payment to all Ukrainian people independent of their income (i.e., the modality that corresponds to the main carbon tax policy that was presented above). The two variants that receive less support are progressive transfers and a reduction in corporate income taxes. A key message here is that support for carbon pricing measures is significantly higher when revenues are used to compensate vulnerable households or finance green investments.

Support for other energy, transport, and food policies

Other measures that receive an absolute majority of support are subsidies for low-carbon technologies (with 68% of support), a contribution to a global fund to finance clean energy in low-income countries (78%) and subsidies for organic and local fruits and vegetables (with 57% of support). A tax on air travel that would increase ticket prices by 20% is divisive: it is supported by 36% and opposed by 38% of Ukrainians.

An outright majority of Ukrainians opposes two measures to reduce the consumption of beef products: a tax that would double the price of beef, and a ban of intensive cattle farming. 50% of Ukrainians are against the elimination of subsidies for cattle farming. This is in line with results from other countries in the survey. Policies that aim to reduce cattle farming are ranked among the least popular in all countries. Bans on intensive cattle farming enjoy somewhat higher support than either the removal of subsidies for cattle farming or a high tax on cattle products overall; which is the case in Ukraine, as well.

In short, a key finding from the survey is that a majority of Ukrainians support subsidies for the adoption and deployment of low-carbon technologies, public investments in low-carbon infrastructure, mandatory thermal renovation with subsidized retrofits and bans of polluting vehicles in city centres.

Socio-economic characteristics are not a strong predictor for support

Overall socio-economic characteristics are not a strong predictor of support for climate policies. In Ukraine, there is no difference between genders nor whether people have children or not. There are no significant effects for education. With advanced age there seems to be a slight increase of support for climate policies (which is the same for other countries in the survey). A particularity of Ukraine is that voters of right-leaning parties seem to be more supportive of climate policies⁴. In most other countries support is lowest among people who consider themselves most right-wing, and higher the further people place themselves on the left of the political spectrum. People with lower incomes are less supportive of climate policies in Ukraine.

Regarding energy-use indicators, two variables stand out as predictors of support: the availability of public transport and the frequency of air travel. In Ukraine, people who fly more than once per year are significantly less likely to support climate policies, also when controlling for income. Availability of public transport is an important predictor for support in all countries, including in Ukraine. There is no significant effect of other factors: using the car for daily life, eating beef regularly, working in a polluting sector, gas or gasoline expenditure, size of the area where people live (e.g., in rural or urban agglomerations) or home ownership.

⁴ The survey took the 2019 presidential elections in Ukraine and considered the following voting categories: Left: Petro Poroshenko; Center: Iouri Boïko, Anatoliy Hrytsenko, Ioulia Tymochenko, Oleksandr Vilkul, Volodymyr Zelensky; Right: Ruslan Koshulynskyi, Oleh Lyashko, Ihor Smeshko; Other.

4 Policy options to improve the acceptability of climate policies

An effective response to the climate challenge calls for new ways of thinking about climate policies. In particular, it is essential to know the considerations, concerns and constraints of citizens. Climate policies can lead to profound changes in lifestyles. The survey highlights seven considerations for Ukraine policymakers to design measures that are effective and supported by citizens.

Since the survey was carried out between October 2021 and February 2022 it presents the situation before Russia launched its large-scale, unprovoked aggression against Ukraine on 24 February 2022. Following Russia's war of aggression against Ukraine and once conditions are right, the recommendations in this paper can help strengthen the environmental dimension of Ukraine's post-war reconstruction, reform and recovery agenda (Box 4.1).

Box 4.1. How can the survey's recommendations help in the post-war reconstruction of Ukraine?

Ukraine's current Post-War Recovery Plan puts forward ambitious environmental tax reform plans. Recommendations 1, 5 and 6 help inform the discussions of what a future environmental tax system in Ukraine can look like and how it can be implemented in a way that receives public support. They can also help align the existing system of national environmental taxation in Ukraine with the EU tax system, one of the goals in Ukraine's Post-War Recovery Plan (Ukraine Recovery Conference, 2022, p. 34[22]).

Ukraine will have to rebuild large parts of its infrastructure. Recommendations 2, 3 and 4 help prioritise the sequencing of policies and suggest priorities for public and private investments once reconstruction after the war begins. These considerations will be important to direct international financial support into projects that help improve the lives of Ukrainians the most and well into the future: green infrastructure, including public transport, and energy efficiency retrofits.

These recommendations are even more pertinent in light of the rise in energy prices and Ukraine's efforts to become less dependent on fossil fuel imports. Investing in public transport and providing subsidies for energy efficiency retrofits of buildings develops alternatives to fossil fuels. They protect households from future price increases. Helping households (especially those with low incomes) prepare themselves today is necessary to protect them against the current and future rise in energy prices and prepare them for a more carbon-constrained world. Prioritising support to lower-income households will be especially important in a post-war context.

Source: (Ukraine Recovery Conference, 2022^[25]).

Inform citizens about climate policies

Recommendation 1: Better inform citizens on the functioning and effects of climate policies. Consider giving the task of disseminating information to an independent institution or to the Energy Efficiency Fund, allocating it resources commensurate with this new competence.

The survey shows that the effect of information on climate change itself is limited, as most Ukrainians are already aware of the problem and its consequences. On the other hand, the study suggests that there is a clear knowledge gap about the effect of public policies, especially in terms of its effectiveness and distributional impacts, and demonstrates that providing information about these elements has a very strong effect on perceptions of the measures. In Ukraine this holds even more weight than for other countries in the study. One reason is that support for a carbon tax increased by the largest margin once respondents had watched the videos explaining how the policy works and its distributional impact. Another reason is that Ukrainians are the most pessimistic about the financial effects on their own households for the three climate policies amongst middle-income countries and also rank among the more pessimistic compared to high-income countries.

A recommendation is therefore to provide citizens with the necessary information on the three key aspects of climate policies: effectiveness in reducing emissions, equity and self-interest. Other studies confirm the need for targeted information focused on distributive and efficiency effects. For example, Maestre-Andrés et al. (2021^[26]) show that providing information about the environmental and distributive impact of a carbon tax in Spain has a positive effect on acceptance. In British Columbia, Rhodes et al. (2014) show through information experiments that support for the carbon tax increases with its perceived effectiveness and another study in France shows that support for the carbon tax can be explained entirely by the three beliefs highlighted in the survey: effectiveness, progressiveness, and self-interest (Douenne and Fabre, 2022 as cited in (Dechezleprêtre, Fabre and Stantcheva, 2022^[20]).

The results of the survey show that before Russia's war of aggression Ukrainians already disproportionately worried about the impacts of climate policies on their household. In a post-war context, where many households will have been plunged into poverty, equity concerns will likely rise amongst Ukrainians. Based on estimates from the World Bank, an additional seven million people were living in poverty in 2022 (World Bank, 2023^[27]), more than 15% of the population. Compounded with a rise in inflation, and a lack of government revenues, living conditions for many Ukrainians are and will be hard. Information on climate policies should address people's concerns about the impacts on households and how it affects different income-levels. Particular attention needs to be paid to address these concerns in Ukraine given the war.

This information could be integrated into school curricula, take the form of non-partisan communication campaigns and be accompanied by online public resources. The educational videos that were shown to survey participants are an example of easy-to-understand, objective and effective information. The importance of visual and tangible information has been emphasized in numerous studies. This information can also be provided through the Internet.

This information can also be provided through online simulators that allow citizens to easily predict how much these policies will cost or benefit them. As mentioned, the survey also demonstrates that many Ukrainians have pessimistic perceptions about the impact of environmental policies on their own households. It is therefore necessary to provide them with simple, interactive simulators so that they can estimate the effect of proposed reforms on their own household (i.e., on households with the same income level and circumstances).

In light of the mistrust of government and the state as well as the media, an important question is which institutions are best able to provide this new information about the operation and effects of climate policies in an objective and credible manner. International cooperation partners and the EU, for example through their in-country representation could be good candidates to fulfil this mission. The Energy Efficiency Fund

in Ukraine could also be a potential contender (even though it is a state institution). Using it to disseminate information about the operation and effects of climate policies would require an expansion of its mandate and competencies and an increase in its budget.

Help households save energy and invest in alternatives to fossil fuels

Recommendation 2: Sequence the implementation of climate policies: promote the diffusion of low-carbon alternatives first to protect households from price increases before possible increases in the price of carbon.

The survey shows that the presence of low-carbon alternatives is a powerful lever for the implementation of well-accepted climate policies. For example, providing alternatives to the combustion engine car is a key issue, as they are currently limited or non-existent for a large proportion of trips. Taking into account the results of the study, the sequencing of public policies should therefore be as follows: first, encourage the large-scale adoption of low-carbon alternatives (via public infrastructure and subsidies for households), and only then consider an increase in the price of carbon.

This recommendation is all the more pertinent in light of the recent rise in energy prices exacerbated by the geopolitical situation. Carbon pricing is difficult in a context of sharply rising energy prices. Helping households (especially those with low incomes) prepare themselves today is necessary to protect them against the current and future rise in energy prices and against possible new carbon pricing in the future. Investing in public transport and providing subsidies for energy efficiency retrofits of buildings develops alternatives to fossil fuels to protect households from future price increases.

Any future increase in carbon pricing should be preceded by a significant increase in government incentives to adopt low-carbon equipment and behaviour. These measures are all the more urgent in the context of rising energy prices.

Recommendation 3: Scale up existing support schemes for energy retrofits of buildings, particularly for vulnerable and low-income households.

Alternatives to fossil fuels depend in part on private investment that should be encouraged and subsidized, especially for the most vulnerable households who face significant financing constraints. However, vulnerability does not depend solely on income level: it also depends on geographic location (including the availability of public transportation), housing quality, household composition, and reliance on fossil fuel consumption. The survey finds that three-fourth of Ukrainians are in favour of mandatory insulation of buildings, with subsidies covering half the cost.

In Ukraine, there are many instruments for supporting energy efficiency renovations in housing, the most important being the Energy Efficiency Fund established in 2017 and the Warm Loans scheme launched in 2014. The Fund has so far focused on financing energy efficiency retrofits of apartment buildings, but it is expected to be extended to retrofits of privately owned detached housing. The Warm Loan programme has provided almost one million households with financial assistance to improve insulation and upgrading of major appliances such as space and water heaters to date supporting investments of more than UAH 8.5 billion, including more than UAH 3 billion in reimbursements to households (IEA, 2021^[22]).

However, high upfront costs still prevent most households from undertaking thermal renovations. In addition, non-monetary costs (duration of the work and related discomfort) tend to be underestimated and the observed energy savings are often lower than those initially hoped for (McCoy and Kotsch, 2020^[28]; Fowlie, Greenstone and Wolfram, 2018^[29]). Despite undeniable recent successes, the need for investment (public and private) in the energy renovation of private residential buildings and the adoption of electric vehicles remains considerable if Ukraine is to meet its emission reduction targets and make its citizens less dependent on fossil fuels.

Reconstruction and renovations after the conflict presents an opportunity to incorporate energy efficiency improvements as a cornerstone of the nation's recovery strategy. Those buildings that are heavily damaged can be reconstructed in line with EU standards for new buildings, i.e. making them houses that use very little energy. Buildings that are moderately or little damaged can be renovated in energy-efficient ways. Support to the most vulnerable households should be a priority. Helping Ukrainians transition away from fuel-intensive technologies (especially in heating and driving) and increasing the uptake of building renovations will lower Ukraine's energy consumption and provide better homes to Ukrainians.

Recommendation 4: Prioritize public investment in low-emission mobility infrastructure: public transport, railways, bicycle lanes, charging stations for electric vehicles.

While private investment is crucial, the provision of low-carbon alternatives also depends on public infrastructure. In all twenty countries covered by the survey provision of public transport would increase support for climate policies in the transport sector. The availability of public transport is also a strong predictor of support for climate policies in general in the survey. To achieve a successful climate transition, it is therefore necessary to increase the supply of public transport, but also to develop bicycle paths and install charging stations where electric cars are the only solution.

Ukraine's 2030 National Transport Strategy envisaged bringing the share of electric transport in domestic traffic to 75 percent and increasing the level of use of alternative fuels and electricity to 50 percent by 2030 respectively (Order of the Cabinet of Ministers of Ukraine, 2018^[30]). Low-carbon public spending and investment were insufficient to meet these goals, even before Russia's unprovoked aggression against Ukraine. Now, it is estimated that rebuilding the urban transport infrastructure alone would cost an estimated USD 74 billion, which is higher than in any of the other major sectors (World Bank, 2022^[31]).

Address demands for progressivity

Recommendation 5: Redistribute the revenues from carbon pricing and fossil fuel taxes to compensate vulnerable households in the form of lump sum transfers.

One of the main findings of the survey is the importance people give to the progressiveness of measures. The analyses show that the perception that a climate measure is regressive - i.e., perceived to affect the least affluent households in particular - explains a significant part of the lack of support for it.

There are ways to counteract the regressive effect of carbon pricing while maintaining its effectiveness: redistributing at least part of its revenues to taxpayers in the form of lump-sum transfers. The amount of transfers can vary according to income or other characteristics such as geographic location (as it affects access to public transport), housing quality, or household composition. The survey shows that such a measure significantly increases support for the carbon tax, from 40% without earmarking the revenues to 61% when its revenues finance an offset for households dependent on fossil fuels and to 62% when they finance a payment for the poorest households. In contrast, equal payments to all Ukrainian people does not receive such high support.

At least part of the revenues from any new carbon tariffs and existing taxes on fossil fuels must therefore be mobilized to compensate vulnerable households. To protect them from high fossil fuel prices, price regulation (a general discount on gasoline prices, a freeze on gas prices) is not the right instrument, as it primarily benefits the wealthiest (who consume more energy). It would be preferable to maintain the price mechanism (which has a definite incentive effect on wealthy households without a strong financing constraint) and to specifically compensate low-income households and/or those most exposed through cash transfers.

In the Canadian provinces of Alberta and British Columbia, carbon pricing measures include a generous redistribution scheme to affected households and has so far enjoyed public support (Klenert et al., 2018^[32]).

In countries that have implemented carbon pricing schemes with redistribution of revenues, taxpayers are often unaware of, or underestimate, the offsets in place (Mildenberger et al., 2022^[33]), however. Communication efforts about the existence and amount of redistribution - and the implications for progressivity - are therefore crucial (see Recommendation 1).

Use of environmental revenues

Recommendation 6: Commit to allocating the revenues from any new environmental taxes, or increases in revenues from existing environmental taxes, to finance a just energy transition.

A fundamental contribution of the survey is to reveal that a carbon tax that raises the price of fuel by UAH 3 per litre receives overwhelming support when the revenues are redistributed to compensate vulnerable households or to finance low-carbon alternatives. The survey shows that support for the carbon tax increases from 40% without earmarking the revenues to 69% when its revenues are used to finance green infrastructure and to 62% when they finance a payment to the poorest households. While earmarking revenues should be avoided as it usually results in inefficient use of public resources, this survey provides further evidence that the public will not support carbon pricing if the revenues only flow into a government's general budget.

In this spirit, one recommendation is to allocate revenues from any new environmental tax (carbon pricing, energy taxes) to environmental spending and transfers to vulnerable households. This could also be extended to other existing environmental taxes as part of Ukraine's environmental tax reform. The new European carbon market (known as "ETS2") as proposed by the European Commission (which would cover buildings and transport), foresees the use of revenues from auctioned allowances for climate and social spending. In Ukraine, calls for a new national fund that earmarks revenues from the carbon tax for environmental spending have become louder in recent years. The ETS2 proposed by the European Commission can give further support to earmarking revenues for environmental spending in Ukraine.

An increase in Ukraine's carbon tax was decided before Russia's large-scale aggression against Ukraine. It remains an important climate policy tool. The revenues could be redistributed in the form of energy vouchers for the most vulnerable and used to finance subsidies for the acquisition of low-carbon capital goods (thermal insulation, heat pumps, etc.) rather than distributed indirectly to households in the form of price reductions that are not means tested. In addition to ensuring that the allocation of revenues is well-targeted, earmarking needs to be limited in size and duration. At the end of this time, earmarking should only be continued if it can be demonstrated that it is providing value-added to its objectives. The institution that manages the funds also needs to follow sound principles of public expenditure management and use financial and human resources as efficiently as possible.

Understand the perceptions of citizens

Recommendation 7: Conduct regular surveys of households' constraints, understanding and acceptance of climate measures, and appropriately integrate citizens' expectations and concerns into policymaking.

Understanding the conditions of public acceptability is critical to addressing citizens' concerns and potential misconceptions, and to design successful climate policies. For example, increases in fuel or energy prices, which are immediately noticeable and affect the daily lives of most of the population, have given rise to social protest movements in recent years, both in Ukraine and abroad. According to economic theory a fuel or carbon tax can only reduce fuel or energy consumption if those who pay it are able to give up their consumption, for example by taking the bus or more efficiently heating their homes. The data from the

survey shows that the lack of alternatives to energy-intensive infrastructure, especially poor insulation of buildings, should be removed before a fuel or carbon tax increase can be implemented.

It is important to regularly collect data on the understanding of, and attitudes towards, the various measures that can be used to design public policy. The survey is an illustration of this method. The underlying principle of this approach is that successful public policy requires listening to citizens in a way that allows to hear citizens who are often invisible (because of their income, their socio-economic category, their place of residence or their agency). Surveys can be an essential barometer for identifying public attitudes before environmental policies are introduced, to inquire about their reception and to assess their impact immediately after their implementation. Surveys are therefore an essential complement to other evaluation tools that can be used long after the policy has been implemented; once the survey data has been collected. They make it possible to quickly observe the effects of the introduction of a policy and the obstacles encountered. They also provide information on perceptions according to socio-economic status, equity considerations, and knowledge gaps or misperceptions that could be changed with better information.

Recent policy proposals- before Russia's war of aggression in Ukraine and in discussions around Ukraine's post-war recovery- have crystallized around ambitious new environmental tax reform (Ukraine Recovery Conference, 2022^[25]), further increasing the CO₂ tax or phasing down coal mines. These measures would not only require the need to legislate and issue new norms, but also the capacity and willingness of society and businesses to cooperate and negotiate. Large-scale surveys can be a complementary instrument to these new policy instruments, they can help improve both the effectiveness and legitimacy of public policies and strengthen citizens' trust in the political system.

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