



The French and Climate Policies

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A better understanding of citizens' attitudes towards climate policies –their expectations, their concerns, and the determinants of their support– is essential for a successful ecological transition.

This *Note* is based on the results for France of an international survey conducted in twenty countries. Administered online in June 2021 to a representative sample of 2006 French people, this survey provides a detailed overview of attitudes towards climate change and climate policies.

The first finding is that the French are concerned about climate change and support ambitious measures to stop it, both at the national and international level. Some measures are very popular: public investment in low-carbon infrastructure, compulsory thermal renovation with subsidies, or a ban on polluting vehicles in city centres. Others generate divided opinions: the carbon tax, a ban on internal combustion cars or a tax on red meat.

Respondents' support for a particular measure is explained by three crucial perceptions: the effectiveness of emission reductions, the distributive effects and the effects on their household. The survey shows that informing citizens about the effects of climate policies, particularly the distributive effects, increases support for them. The design of policies is also a determining factor: for example, carbon pricing is mostly accepted when its revenues are used to finance green

investments and/or financial compensation for vulnerable households.

Our survey leads us to propose several courses of action that are both effective and supported by citizens. First, we recommend that a system of continuous surveys be established to better understand and monitor citizens' considerations. We also suggest that citizens be provided with more information on the functioning and effects of climate policies and that this task be carried out by an independent institution. Secondly, the short-term priority (ahead of any future carbon pricing increase and to protect households from the current energy price spikes) should be to strengthen programmes to offer everyone alternatives to fossil fuels. This means increasing support for vulnerable households (energy-efficient renovation of buildings, investment in equipment, electric vehicles) and accelerating public investment in low-carbon infrastructure (public transport, rail network, etc.). In the future, once carbon pricing has been increased, there should be a commitment to use all new revenues from carbon pricing to finance low-carbon infrastructure and equipment and to compensate vulnerable households through cash transfers.

Support for effective climate policies is possible, but it is imperative to take into account citizens' expectations in terms of equity and their legitimate demand for low-carbon alternatives ahead of price increases and tariffs.

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This *Note* presents the main findings for France from an international survey of attitudes towards climate change and climate policies. The data for all countries covered are detailed in an OECD working paper.¹

Attitudes towards the climate

A broad concern

Among our sample of 2006 French residents, climate change is an important issue for four out of five respondents. They have a bleak view of the consequences of climate change by the end of the century if nothing is done to limit it. A majority consider it “very likely” that there will be more heat waves and droughts, an increase in migration flows, or a rise in sea levels. Although the majority believe that climate change will only affect them personally to a moderate extent, three out of four respondents believe that France should take action to combat climate change.

Overall, the results for France are similar to those for other high-income countries (the consensus that climate change is an important issue against which action needs to be taken is even higher in middle-income countries), although more French respondents consider themselves personally affected.

Finding 1. The French people surveyed are aware of the potentially disastrous consequences of climate change and recognise the need to fight against its progression, both individually and collectively.

Moderate willingness to change lifestyles

Respondents say they are ready to adopt certain low-carbon behaviours, as long as they represent a valid substitute for their usual lifestyles. For example, 45% say they are largely ready to adopt an electric or energy-efficient vehicle. Thus, rather than limiting their car journeys, the French people surveyed prefer to change their equipment. The lack of alternatives to carbon-based individual transport appears to be a major obstacle: only 46% of respondents say they have ‘good’ availability of public transport where they live, while 9 out of 10 say they use a car or motorbike in their daily life. The willingness to limit car use, beef consumption, or home heating and cooling is moderate. In other words, only a minority of respondents seem willing to make major lifestyle changes, at least on their own initiative.

Compared to high-income countries, the willingness of the French to change their lifestyles is close to average, although the French are more reluctant to adopt a less polluting vehicle.

The adoption of a low-carbon lifestyle depends on certain factors. For example, six out of ten respondents consider it ‘very important’ that the richest people also change their behaviour so that they themselves are willing to change theirs. It is also important that those around them also change their behaviour, to obtain sufficient financial support, or to see ambitious climate policies implemented.

Perceptions of climate policies

Policies are often perceived as regressive and costly

Our survey explores in detail perceptions of three major climate policies² which could all be part of the European Commission’s *Green Deal* or the French government’s National Low Carbon Strategy decarbonisation plans. We describe each measure in detail before asking respondents about their properties. The *green infrastructure programme* consists of large-scale investments in low-carbon technologies (renewable electricity, public transport, thermal renovation, sustainable agriculture) financed by public debt. *The carbon tax with transfers* consists of a 45euro/tCO₂ increase in the price of carbon, applied to all sectors (it is explained to respondents that the price of petrol will increase by 10 cents per litre), the revenue from which would be redistributed to households so that each adult receives 160 euros per year. Finally, *the ban on thermal vehicles* consists of a gradual lowering of CO₂ emission standards for new vehicles to zero by 2030, when all new vehicles should be electric or hydrogen powered.

These measures are perceived by respondents as having strong incentive effects (see table). Only a quarter of respondents disagree that a carbon tax would discourage car use, and only an eighth disagree that a green infrastructure programme would encourage the use of public transport. For each of the measures, a majority thus agree that it would reduce CO₂ emissions or pollution, but a majority also think that it would be an expensive way to combat climate change. Opinions are more divided on the consequences for the country’s economy and employment: about as many French people predict positive as negative effects for the green infrastructure programme, more predict positive effects for the ban on combustion cars and more see negative effects for the carbon tax with transfers.³ Regarding the perception of the economic effects of these

The authors are particularly grateful to Blueberry Planterose, whose contribution was crucial. They would also like to thank Tobias Kruse and Ana Sanchez Chico for their analysis of the study on which this *Note* is based, and Claudine Desrieux and Madeleine Péron, who monitored this work for the CAE, for their careful review and valuable advice.

¹ Dechezleprêtre A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico and S. Stantcheva (2022): “Fighting Climate Change: International Attitudes Toward Climate Policies”, *OECD Working Paper*, July.

² Many other policies are also explored in less depth, see below.

³ The table shows only the proportion of positive effects, not the proportion of negative effects (which cannot be directly deduced because of the ‘neither agree nor disagree’ responses).

measures, the French surveyed are in line with the average for high-income countries. On the other hand, they are less likely –by 5 to 15 percentage points (p.p.) less– to perceive the environmental effectiveness of climate measures.

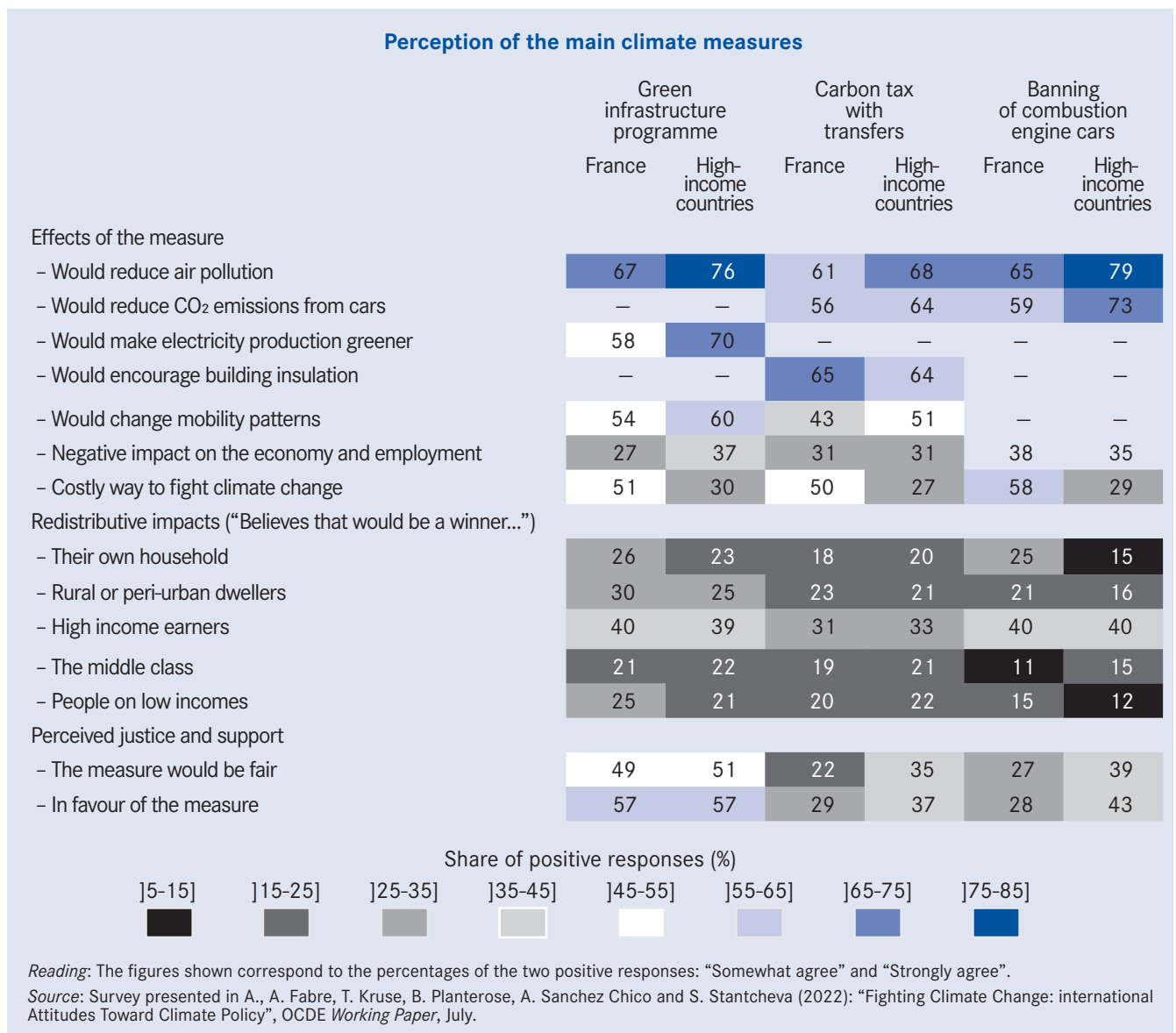
A majority perceive each of the three measures as neutral or regressive from a redistributive point of view. For the carbon tax with transfers and the ban on internal combustion cars, low-income people and the middle classes are perceived as losers by a majority of respondents. For each of the measures, there are systematically more respondents who think that high-income earners would gain than those who think they would lose. France is in the average range of high-income countries in terms of perceived redistributive effects.

Finding 2. A significant proportion of French people think that climate policies are regressive and anticipate negative consequences for their households.

Three perceptions determine support: effectiveness, redistributive effects, effects on one’s household

To understand the determinants of support for climate measures, we investigate the social, energy-use and political characteristics of respondents, as well as perceptions of the effectiveness of these measures on climate change.

The variation in support for climate policies is primarily explained by perceptions of their redistributive effects, their effects on one’s own household, and their environmental effectiveness. The index of support for the three main measures and an index that they are perceived to be fair are correlated at 85%. The perceived effectiveness of the policies in reducing emissions and air pollution explains 27% of the differences in support among respondents. Anticipated effects of the measures on one’s own household explained 12% and effects on low-income people explained 7%. Thus, perceptions of the effectiveness and redistributive effects of



measures explain about half of the differences in support for policies.

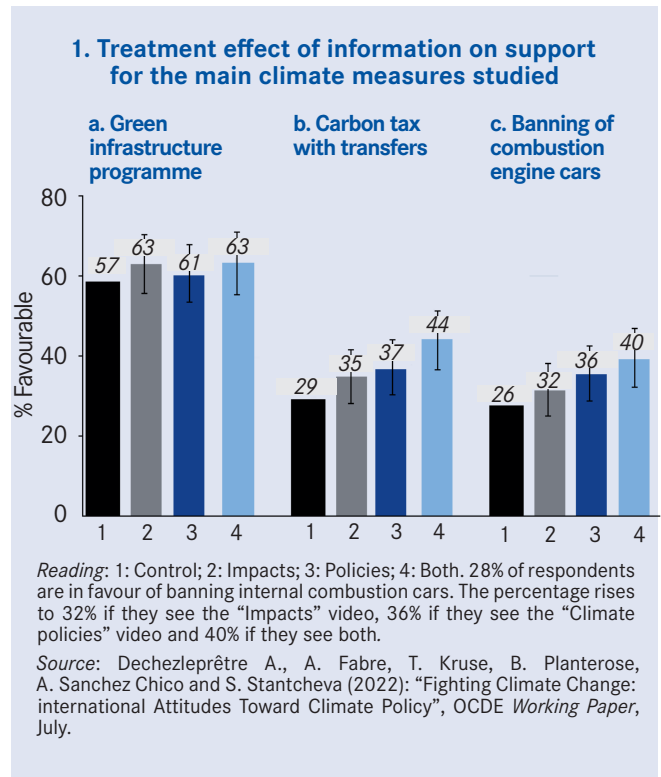
Compared to the other countries surveyed, the French respondents are more sensitive to the effectiveness of policies in reducing emissions and to the effects on low-income people, but less sensitive to the effects on their own household.

Informing citizens about the effects of measures significantly increases support

To measure the effect of information on support for climate action, we show randomly selected respondents an *Impacts* video on the effects of climate change in the country⁴ and/or a *Policies* video explaining the operation and effects of the three main climate policies. The videos consist of graphical animations accompanied by a voice that pedagogically presents nuanced and unbiased information.

Watching the *Impacts* and *Policies* videos has significant effects on support for each of the three main measures (Figure 1).⁵ For the combustion car ban and the carbon tax with transfers, which have relatively low support at baseline, the effects are significant, particularly the *Policy* video. For example, support for these measures increases by 12 and 15 percentage points (p.p.) respectively when both videos are viewed, becoming a majority. Watching only one of the two videos is enough to obtain a relative majority⁶ for the carbon tax with transfers. For the green infrastructure programme, which starts from a much higher level of support, the videos have a smaller effect in absolute terms, but a comparable effect when related to the proportion of respondents who do not support the measure (+ 14% vs + 16% to 21%). Information on the redistributive effects of the policies contained in these videos seems to play an important role. For example, the view that low-income people would gain from a carbon tax with transfers is 14 p.p. higher for those who have seen the *Policy* video, which pedagogically explains that this is the case.

Finding 3. Support is explained by perceptions about the environmental effectiveness of policies, their redistributive effects and their financial impact on the household. Providing information on the consequences of measures can help to increase support.



Support for the various measures

Different levels of support for different measures

Figure 2 shows the support or opposition to the climate measures considered in the survey.

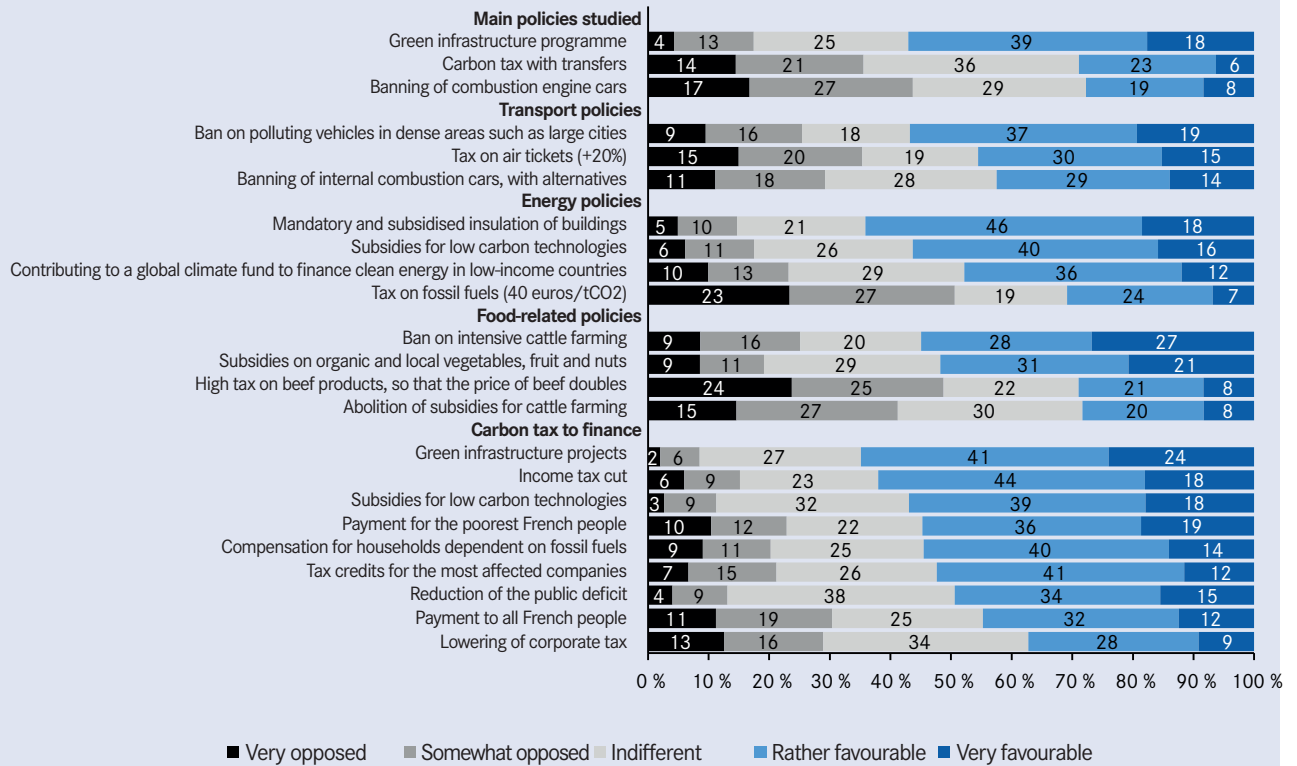
As we have seen, a relative majority is opposed to the banning of combustion engines. But this measure receives a relative majority in a variant where it is specified that alternatives such as public transport are made available. The fact that support increases by 16% in this variant confirms that the lack of alternatives to fossil fuels is a decisive factor in the rejection of certain measures. This need for alternatives helps to understand the enthusiasm for the green infrastructure programme, which is probably also explained by the ambiguity of who will pay for it. Other measures receive an absolute majority of support: a requirement to retrofit buildings by 2040 with public subsidies covering half the costs is the most popular, with 64% support (and 15% opposition), the others being a ban on polluting vehicles in dense areas such as city centres, subsidies for low-carbon technologies, a ban on intensive cattle farming, subsidies on organic and local fruit and vegetables, and some variant of a carbon tax (these are discussed separately). Two other measures received a relative majority: a contribution to a global fund to finance

⁴ Videos are available on request.

⁵ These causal effects can be read as the difference between the values of the treatment and control groups. They correspond to the coefficients of a regression that also includes social and political indicators.

⁶ That is, the number of people opposed to these measures is greater than the number in favour, although no absolute majority emerges given the rate of people who are indifferent, which is around 25-30% for all measures).

2. French support for various national climate measures



Source: Annex France, note 5 in Dechezleprêtre A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico and S. Stantcheva (2022): “Fighting Climate Change: international Attitudes Toward Climate Policy”, OCDE Working Paper, July.

clean energy in low-income countries, and a tax on airline tickets (increasing their price by 20%). Two measures aimed at reducing the consumption of beef products were opposed by a relative majority: a tax that would double the price of beef and the abolition of subsidies for beef farming. Finally, one measure is rejected by an absolute majority of respondents: a pure and simple increase in the tax on fossil fuels that would raise the price of petrol by 10 cents per liter –that is, more or less the carbon tax without allocation of revenue as initially implemented and contested by the *Gilets jaunes*.

Finding 4. Subsidies for the adoption and deployment of low-carbon technologies, public investment in decarbonised infrastructure, mandatory thermal renovation with subsidies and the banning of polluting vehicles from city centres are supported by a majority of the French.

Support for a measure depends on its modalities

Support for a measure varies substantially according to its sources of funding, its modalities, or the use of its revenues (in the case of a tax).

French respondents were very supportive of a carbon tax when its revenues are used to finance green infrastructure projects. Other variants obtain an absolute majority, notably the use of revenues for an income tax cut, subsidies for low-carbon technologies, a transfer to the poorest, compensation for households dependent on fossil fuels, or tax credits for the most affected companies. All these variants get more support than using the revenues for a payment to all French people (i.e. the modality that corresponds to the main carbon tax increase measure we present).

Finding 5. Support for carbon pricing measures is significantly higher when revenues finance transfers to compensate vulnerable households or green investments.

When asked to tick which sources of funding they would find appropriate for a green infrastructure programme, 69% of French people choose an increase in taxes on the richest, while other options are chosen by only 15-33% of respondents. These options include a reduction in military spending, a reduction in social spending, an increase in VAT, and additional public debt.

Some French specificities

Compared to other high-income countries, France, Germany and Denmark are the only countries without a relative majority in favour of a ban on combustion vehicles or a carbon tax with transfers. It should be noted, however, that this rejection does not extend to the variants of the carbon tax (with different uses of the revenues), for which France is in the average range of high-income countries. Another specificity, is that along with Italy, France is the only country where the ban on intensive cattle farming receives an absolute majority of favourable opinions. On the other measures, France is in the average range of high-income countries.

Little support explained by socio-demographic characteristics

Support for the measures is largely explained by perceptions of their effects: only 14% of the variation in support is explained by socio-economic and energy factors, but the explained share of this variation rises to 62% when perceptions are included.

Nevertheless, most socio-demographic variables are significantly correlated with support. This is particularly the case for the position on economic policy issues: support is lowest among those who consider themselves to be most right-wing, and higher the further to the left of the political spectrum they place themselves.

A particularity of France (along with Australia and the United States) is that younger people are more supportive of climate measures. In most other countries, older people are no less supportive: they are even more supportive in Asian and some middle-income countries.

Regarding energy indicators, two variables stand out as predictors of support: the availability of public transport and the use of the car in daily life. While these factors are important in all countries, it is in France that car use has the strongest effect on support. France is also one of the countries where eating beef regularly or working in a polluting sector has the strongest effect. Conditional on these factors, no significant effect is found for other variables: size of town, gas or petrol expenditure, frequency of air travel or home ownership.

Finding 6. France is the country where the difference in support between those who use and do not use a car is the greatest. The quality of the services and facilities available is more important than the size of the urban area in which people live.

Strong support for global climate measures

When asked to tick the levels at which climate policies should be implemented, 85% of French respondents chose the global scale, 37% the European scale, 27% the national scale and 26% the local scale. This preference for the global scale should not, however, be understood as a wait-and-see attitude whereby the French would only want to act for the climate if the whole world also acts. Indeed, a strong relative majority considers that if other countries do less for the climate, France should do more. Thus, support for global action is an extension of –rather than a substitute for– support for national action.

Regarding the distribution of emission reduction efforts, when asked in proportion to what countries should pay for the necessary investments, of 71% respondents agreed that it should be in proportion to countries' emissions, 66% in proportion to their income, and 51% in proportion to their cumulative emissions since 1990. In addition, a majority of respondents believe that low-income countries should not have to pay for their emissions reductions and should even receive assistance from rich countries. These responses indicate an awareness of the need for fair distribution of efforts at the global level.

Finding 7. In addition to national climate measures, most French respondents support a global agreement to reduce emissions according to a fair distribution of efforts.

Developing effective and well accepted climate policies

Better understanding of citizens' perceptions

Responding to the climate challenge requires thinking about new ways of designing climate policies. In particular, it is essential to understand the considerations, concerns and constraints of citizens as ; ecological measures can lead to profound changes in lifestyles. For example, increases in fuel prices, which are immediately noticeable and affect the daily travel of most of the population, regularly give rise to social protest movements, both in France and abroad. According to economic theory, a fuel tax can only reduce fuel consumption if those who pay it can forego it, for example by taking the bus instead of their car.⁷ However, our survey data show that the lack of alternatives to the car is an important constraint, which would have to be removed before a fuel tax increase could be effectively implemented.

⁷ This example is taken from the report by Blanchard O. and J. Tirole (2021): *Les grands défis économiques*, France Stratégie Report, June.

It is therefore important to regularly collect data on the understanding of, and attitudes towards, the different measures that can be used as instruments for policy design. Our survey is an illustration of this method.⁸ The underlying principle of this approach is that successful public policy depends on listening to citizens in a rigorous and inclusive way, i.e. listening to citizens who are often invisible (because of their income, socio-economic category or location). Surveys can be an essential barometer for identifying views prior to the implementation of environmental policies, for ascertaining their reception and for assessing their impact immediately after their implementation. Surveys are therefore an essential complement to other evaluation tools that can be used long after a measure has been implemented, once the relevant data have 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 proposals have crystallised around new forms of governance, such as the establishment of a five-year plan or a ‘deliberative continuum’⁹ or the need to develop an ‘ecology of contract’ that would not only rely on the need to legislate and issue new norms, but also on a capacity to drive society and business based on cooperation and negotiation, following the example of the Citizens’ Climate Convention.¹⁰ We believe that large-scale surveys are a complementary instrument to these new forms of governance, and that they can help to improve both the effectiveness and legitimacy of public policies and the trust of citizens in the political system.

Recommendation 1. Conduct regular surveys on household constraints, understanding and acceptance of climate measures, and better integrate citizens’ expectations and concerns into policy-making.

Better information on climate policies

Our study shows that the effect of information about climate change itself is limited, as the vast majority of citizens are

already aware of the problem and its consequences. On the other hand, our study suggests that there is a clear knowledge gap about the effect of public policies, particularly in terms of their progressivity, and demonstrates that providing information about these elements has a very strong effect on perceptions of the measures.

Our second 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 distributional and efficiency effects. For example, Maestre-Andrés *et al* (2021)¹¹ show that providing information on the environmental and distributional impact of a carbon tax in Spain has a positive effect on acceptance. In British Columbia, Rhodes *et al.* (2014)¹² show through information experiments that support for the carbon tax increases with its perceived effectiveness. For France, Douenne and Fabre (2022)¹³ show that support for the carbon tax is fully explained by the three beliefs highlighted in our survey: effectiveness, progressivity and self-interest.

This information could be integrated into school curricula, take the form of non-partisan communication campaigns and be accompanied by online public resources. Our educational videos are an example of easy to understand, objective and effective information. The importance of visual and tangible information has been highlighted in many studies (for a summary, see Metze, 2020).¹⁴

This information can also be provided through online simulators that allow citizens to easily predict how much these policies will cost or benefit them. Our study also highlights that many citizens have pessimistic perceptions of the impact of environmental policies on their own households. It is therefore necessary to provide them with simple and 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).¹⁵

Given the mistrust of government and the state, an important question is which institutions are best able to provide this new information on the functioning and effects of climate policies in an objective and credible way. The High Climate Council, established in 2019, has quickly demonstrated its

⁸ ADEME (Agence de l’environnement et de la maîtrise de l’énergie) currently conducts annual “Social Representations of Climate Change” surveys which are a good example. Our survey complements this work with more detailed measurements and a structure that allows us to capture different aspects of citizens’ perceptions.

⁹ Barasz J. and H. Garner (coord.) (2022): *Soutenabilités ! Orchestrer et planifier l’action publique*, France Stratégie Report, May.

¹⁰ Canfin P. and T. Pech (2021): “Gouverner la transition écologique”, *Note Terra Nova*, November.

¹¹ Maestre-Andrés S., S. Drews, I. Savin and J. van den Bergh (2021): “Carbon Tax Acceptability with Information Provision and Mixed Revenue Uses”, *Nature Communications*, vol. 12, art. 7017.

¹² Rhodes E., J. Axsen and M. Jaccard (2014): “Does Effective Climate Policy Require Well-Informed Citizen Support?”, *Global Environmental Change*, no 29.

¹³ Douenne T. and A. Fabre (2022): “Yellow Vests, Pessimistic Beliefs, and Carbon Tax Aversion”, *American Economic Journal: Economic Policy*, vol. 14, no 1.

¹⁴ Metze T. (2020): “Visualization in Environmental Policy and Planning: A Systematic Review and Research Agenda”, *Journal of Environmental Policy and Planning*, vol. 22, no 5.

¹⁵ For an example, see the Climate Action Network’s simulation site: <https://reseauactionclimat.org/calculer-sa-taxe-carbone-juste/> or the Citizens’ Climate Lobby UK: <https://test.citizensclimatelobby.uk/climate-income-calculator/>

expertise and independence from government. As such, it would be a good candidate to fulfil this mission, which would require a broadening of its mandate and competences and a substantial increase in its budget.

Recommendation 2. Better inform citizens about the functioning and effects of climate policies. Consider entrusting this information mission to the High Council for the Climate by adapting its resources to this new competence.

Developing alternatives to fossil fuels

Our survey shows that the presence of low-carbon alternatives is a powerful lever for the implementation of well-accepted climate policies. For example, offering alternatives to the combustion engine car is a key issue, as they are currently limited or non-existent for a large proportion of journeys.

In view of the results of our study, the sequencing of public policies should therefore be as follows: first promote the large-scale adoption of decarbonised alternatives (*via* public infrastructure and subsidies for household equipment), and then, only as a second step, consider an increase in the price of carbon.

This recommendation seems all the more essential in view of the recent rise in energy prices exacerbated by the geopolitical situation. Carbon pricing cannot be considered in a context of sharply rising energy prices. Helping households (especially those on low incomes) to equip 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. In particular, the new European carbon market that would cover both transport and buildings is not expected to be implemented before 2026 at the earliest. This leaves four years to develop alternatives to fossil fuels to protect households from future price increases.

The example of the new carbon tax introduced in the Netherlands in 2021 (the *Carbon Levy*) is instructive in this respect, even though it mainly concerns companies. The tax was introduced with an initially low rate and a predetermined increasing trajectory until 2030. 500 million per year (the SDE++), whose upstream deployment was intended to avoid companies paying future taxes linked to the Carbon

Levy (Anderson *et al.*, 2021),¹⁶ by further strengthening the incentives to invest created by future and predictable tax increases. Similarly, any future increase in carbon pricing should be *preceded by* a significant strengthening of public support schemes for the adoption of low-carbon equipment. These measures are all the more urgent in the context of rising energy prices.

Recommendation 3. Sequence the implementation of climate policies: first promote the dissemination of low-carbon alternatives to protect households from price rises, before possible increases in the price of carbon.

Decarbonised alternatives depend partly on private investment which should be encouraged and subsidised, particularly for the most vulnerable households who face significant financing constraints. Indeed, in our survey, 54% of households in the top income quartile give financial constraints as the main reason for not being able to upgrade, compared to 35% of households in the top quartile. But vulnerability does not depend solely on income level: it also depends on geographical location (including the availability of public transport), housing quality, household composition and dependence on fossil fuel consumption.

In France, there are a number of public support instruments for home energy renovation, the most important being the “MaPrimeRénov”, a scheme launched in 2020, which provides varying levels of support depending on household income. The scheme has seen a significant take-up, with 644,000 applications granted in 2021, the vast majority for partial rather than comprehensive renovations, which is explained by the low aid ceilings in relation to typical costs (the cumulative bonus per dwelling and household over 5 years is capped at €20,000).¹⁷

Existing evaluations of the scheme highlight the achievement of the quantitative and social objectives of the programme, but question the energy efficiency gains achieved and insist on the need to promote comprehensive renovations in the future in order to increase the environmental effectiveness of the scheme (Goldberg and Guillou, 2022, Dolques, 2022, Rüdinger, 2022, Haut Conseil pour le climat, 2020, and Descoeur and Meynier-Millefert, 2021).¹⁸ It should be noted

¹⁶ Anderson B., E. Cammeraat, A. Dechezleprêtre, L. Dressler, N. Gonne, G. Lalanne, J. Martins Guilhoto and K. Theodoropoulos (2021): “Policies for a Climate-Neutral Industry: Lessons from the Netherlands”, *OECD Science, Technology and Industry Policy Papers*, no 108, OECD Publishing Paris.

¹⁷ The programme is complemented by the Energy Savings Certificates (CEE), the “Habiter mieux sérénité” programme (reserved for low-income households for comprehensive renovations), and the zero-interest eco-loan. The latter, for a maximum amount of €50,000, can be used to finance energy renovation work in a dwelling for owner-occupiers or landlords. It covers both one-off and comprehensive renovation work.

¹⁸ Cf. Goldberg N. and A. Guillou (2022): *Un plan de bataille pour le climat qui soit socialement désirable : le temps du consensus et de l'action*, Report Terra Nova; Dolques G. (2022): *Quelles aides publiques pour la rénovation énergétique des logements ?*, Rapport I4CE; Rüdinger A. (2022): “La rénovation énergétique, levier essentiel pour se prémunir durablement contre la hausse des prix de l'énergie”, *Blog de l'IDDR*; Haut Conseil pour le Climat (2020): *Rénover mieux : leçons d'Europe, Réponse à la saisine du gouvernement*, November; Descoeur V. and M. Meynier-Millefert (2021): *Rapport d'information sur la rénovation thermique des bâtiments*, Assemblée nationale, no 3871, February.

that the choice of targeting renovation aid is complicated: non-monetary costs (duration of the work and related discomfort) tend to be underestimated and the energy savings observed are often lower than those initially expected (Fowlie *et al.*, 2018; Blaise and Glachant, 2019).¹⁹

In terms of support for the purchase of low-emission vehicles (electric, plug-in hybrids or hydrogen), the ecological bonus scheme is worth noting.²⁰ Electric vehicles reached 10% of new car sales in France in 2021 after 1.9% in 2019 and 6% in 2020, but the direct impact of the ecological bonus on this increase has not been analysed to our knowledge. As the bonus was similar in 2019 and 2020, it seems to us that other factors such as European emission standards, rising energy prices (and their predictable long-term increase), improved battery capacity and falling model prices explain this recent success. By comparison, in Norway, the market share of electric vehicles has reached 65% by 2021 thanks to a unique system based on a combination of tax exemptions for electric vehicles and a malus on thermal cars, making electric vehicles much cheaper than their thermal counterparts.

Despite undeniable recent successes, (public and private) investment needs for the energy renovation of private residential buildings and the adoption of electric vehicles remain considerable if France is to meet its emission reduction targets.²¹ It therefore seems essential to strengthen support schemes for the conversion of the most polluting equipment (particularly cars and boilers) and the overall renovation of housing, targeted at the most vulnerable households.²²

Recommendation 4. Strengthen support schemes for the purchase of low-emission equipment, particularly for vulnerable and low-income households.

But the provision of low-carbon alternatives also depends on public infrastructure. Among the twenty countries covered by our study, France is the one where the provision of public transport would most increase support for climate policies in the transport sector. In order to achieve a successful climate transition in this sector, it is therefore necessary to increase the supply of public transport, but also to develop cycle paths and install charging stations where electric cars are the only solution.

The various cost-benefit analyses on the development of public transport or rail transport show a benefit/cost ratio that is generally favourable to these projects (Quinet, 2019).²³ Examples are the new Tangentielle Ouest tramway line (Exhibit H, 2011),²⁴ the new metro lines of the Grand Paris Express, new high-speed lines or upgrades to conventional rail lines,²⁵ for which the net present values (NPVs) are positive and the internal rates of return (IRRs) are satisfactory from both the socio-economic (including externalities) and financial points of view.

The deployment of projects with a favourable carbon footprint and a satisfactory economic return should therefore be accelerated. Moreover, public spending on green investments has spillover effects on private investment: for example, Springel (2021)²⁶ shows that in Norway, NOK 100 million in public subsidies for the construction of new charging stations leads to the adoption of 1,423 electric vehicles, with a total value of NOK 421 million. Several analyses of green investment packages adopted following the 2009 financial crisis have also shown significant spillover effects on private investment in sectors targeted by public investment, such as renewable energy (Aldy, 2013; Council of Economic Advisors, 2016).²⁷

Numerous studies suggest that low-carbon public spending and investment are still insufficient to meet the national low-carbon

¹⁹ Fowlie M., M. Greenstone and C. Wolfram (2018): "Do Energy Efficiency Investments Deliver? Evidence from the Weatherization Assistance Program", *The Quarterly Journal of Economics*, vol. 133, no 3; Blaise M. and M. Glachant (2019): "Quel est l'impact des travaux de rénovation énergétique des logements sur la consommation d'énergie ?", *La Revue de l'Énergie*, no 646, Septembre-October.

²⁰ This provides for a maximum aid of EUR 6,000 per vehicle (capped at 27% of the acquisition cost including VAT) for vehicles costing up to 2,000 if the price is between 45,000 and 60,000. This aid can be combined with the conversion premium designed to take older vehicles off the road, which also applies to the purchase of combustion vehicles but with a more advantageous scale for electric vehicles (up to 5,000 euros for an electric vehicle, compared with 3,000 euros for a combustion vehicle) and higher aid for the poorest households (less than 13,489 euros of taxable income per unit). For internal combustion vehicles, a malus calculated on the basis of the emissions of internal combustion vehicles applies, with a maximum malus of 40,000 euros (capped at 50% of the car's purchase price including tax) from 224 g/km.

²¹ According to the I4CE Climate Finance 2021 Panorama 3 billion per year for low-carbon passenger cars and 34 billion per year for comprehensive housing renovations, see Ledez M. and H. Hainaut (2021): *Panorama des financements climat*, Report, I4CE.

²² Aussilloux V. and A. Baïz (2020): "Comment accélérer la rénovation énergétique des logements", *Note d'Analyse France Stratégie*, no 95, June.

²³ Quinet A. (2019) : *La valeur de l'action pour le climat*, Report France Stratégie, February.

²⁴ Exhibit H (2011): *Évaluation socio-économique de la tangentielle Ouest*, Dossier d'enquête d'utilité publique.

²⁵ See the reports of the Commissariat général à l'investissement available at www.gouvernement.fr/Rapports_CE

²⁶ Springel K. (2021): "Network Externality and Subsidy Structure in Two-Sided Markets: Evidence from Electric Vehicle Incentives", *American Economic Journal: Economic Policy*, Vol. 13, no 4.

²⁷ Aldy J. (2013): "Policy Monitor A Preliminary Assessment of the American Recovery and Reinvestment Act's Clean Energy Package", *Review of Environmental Economics and Policy*, Vol. 7, no 1; Council of Economic Advisors (2016): *Economic Report of the President*, Executive Office of the President, February.

strategy: depending on the source, the additional budgetary effort that public authorities should make by 2028 to meet the climate objectives in the main emission sectors is estimated at between 17 and 36 billion euros per year (Ledez and Hainaut, 2021, Berghmans *et al.*, 2021, Institut Rousseau, 2022).²⁸

Recommendation 5. Prioritise public investment in low-emission mobility infrastructure: public transport, rail network, cycle paths, charging points for electric vehicles.

Taking into account the demands for progressiveness

One of the main findings of our survey is the importance attached to the progressiveness of measures. Our 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 proportion of the lack of support for it.

The economic literature has long suggested a solution 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 which can vary according to income or other characteristics such as geographical location (as it conditions access to public transport), housing quality or household composition.²⁹ Our survey shows that such a measure significantly increases support for the carbon tax, from 31% without earmarking the revenue to 54% when its revenue finances compensation for households dependent on fossil fuels and to 55% when it finances a payment for the poorest households. *In contrast*, a payment equal to all French people does not receive such high support.

At least part of the revenues from any new carbon pricing and existing taxes on fossil fuels should therefore be mobilised to compensate vulnerable households. To protect them from high fossil fuel prices, price regulation (general discount on petrol prices, freezing of gas prices) is not the

right instrument, as it primarily benefits the richest (who consume more energy). It would be preferable to maintain the price mechanism (which has incentive effects on wealthy households without strong financing constraints) and to specifically compensate low-income and/or most exposed households through cash transfers.

In the Canadian provinces of Alberta and British Columbia, carbon pricing measures include a generous redistribution scheme to affected households, which has resulted in a majority of public support for these measures (Klenert *et al.*, 2018).³⁰ However, in countries that have implemented carbon pricing schemes with revenue redistribution, taxpayers are often unaware of, or underestimate, the offsets in place (Mildenberg *et al.*, 2022).³¹ Communication efforts on the existence and amount of redistributed amounts –and the consequences in terms of progressivity– are therefore crucial (*see recommendation 2*).

Recommendation 6. Redistribute all or part of the revenues from carbon pricing and fossil fuel taxes to compensate vulnerable households in the form of lump sum transfers.

Use of environmental revenues

A key contribution of our survey is to reveal that a carbon tax increasing the price of fuel by 10 cents per litre receives overwhelming support when the revenues are redistributed to compensate vulnerable households or to finance low-carbon alternatives.

In this spirit, we believe it is essential that all revenues from any new environmental tax (carbon pricing, energy taxes) be allocated to environmental spending and transfers to vulnerable households.³² The new European carbon market (the so-called “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.³³ In view of its relevance to our recommendations, we consider it important to support the ETS2 proposed by the Commission and the Council.

²⁸ Ledez and Hainaut (2021) *op. cit.*; Berghmans N., L. Vallejo, B. Leguet, E. Kerrand, A. Eisl, P.V. Nguyen, T. Pellerin-Carlin and X. Timbeau (2022): *Climat : quels investissements pour le prochain quinquennat ?*, IDDRI Report.

²⁹ A previous *Note by the CAE* already recommended redistributing all of the new revenues from the carbon tax borne by households with transfers decreasing with income and taking into account geographical disparities, *cf.* Bureau D., F. Henriot and K. Schubert (2019): “A Proposal for the Climate: Taxing Carbon not People”, *Note du CAE*, no 50, March.

³⁰ Klenert D., L. Mattauch, E. Combet, O. Edenhofer, C. Hepburn, R. Rafaty and N. Stern (2018): “Making Carbon Pricing Work for Citizens”, *Nature Climate Change*, no 8.

³¹ Mildenberger M., E. Lachapelle, K. Harrison and I. Stadelmann-Steffen (2022): “Limited Impacts of Carbon Tax Rebate Programs on Public Support for Carbon Pricing”, *Nature Climate Change*, no 12.

³² Note that although the non-allocation of taxes is considered one of the fundamental budgetary principles (universality), there are exceptions and the allocation of taxes is explicitly allowed in Article 16 of the Organic Law on Finance Laws of 2001.

³³ For a more complete presentation, see BSI Economics (2022): “Le Green Deal est-il un bon deal ?” in *L'économie décryptée*, Coll. ‘Lignes de Repères’, February.

An increase in carbon taxes in France does not seem feasible in the short term given the recent rise in energy prices. On the other hand, this recommendation for earmarking environmental taxes can be extended to existing instruments. In particular, the recent increase in energy tax revenues –notably *via* VAT– could be redistributed in the form of energy vouchers aimed at the most vulnerable and allocated to finance subsidies for the acquisition of low-carbon equipment (thermal insulation, heat pumps, etc.) rather than distributed indirectly to households in the form of price reductions applied without means testing.

Recommendation 7. Commit to fully allocate the revenues from any new environmental taxes, or increases in revenues from existing environmental taxes, to finance a fair energy transition.

The limits of the polluter pays principle

Our survey showed that the majority of the population is not prepared to adopt a lifestyle compatible with a radical reduction in emissions if the wealthiest do not do the same. Respondents are not only concerned about the redistributive effects of climate policies, but also express strong reservations about the prospect of the wealthiest retaining certain activities that would be made unaffordable for the middle classes. Thus, a large majority of respondents prefer an outright ban on combustion cars rather than a

heavy penalty on the purchase of such cars (the 10,000 euro penalty corresponding to the regulation recently supported by the European Council and Parliament).

These results suggest that certain measures should not leave the possibility for the richest to pay to pollute. Thus, for example, in the future regulation on CO₂ emission standards, which aims at a zero emission target for new vehicles from 2035, it might be preferable, to be in line with public opinion, to replace the excess emissions malus with a ban on the production of thermal vehicles from that date.

Strengthening international solidarity

In all countries surveyed, respondents understand that high-income countries have a historical responsibility for climate change, that the response to climate change must be global, and that the distribution of emission reduction efforts among countries must be fair. Two principles of justice underpin support for global action: the polluter pays principle, and an equal right to pollute for every human. International cooperation is underway, despite the problems of monitoring and enforcing pricing in third countries. For example, the EU is already in discussions with China and some US states to link its emissions trading scheme (ETS) to theirs. The Blanchard-Tirole report³⁴ advocates going further and that the EU should include any voluntary country in the ETS by allocating free emission permits in proportion to their population, following the previous logic. In each country, a majority of respondents support such a potentially global market for emissions permits. France should be a leader in this international integration. ●

³⁴ Blanchard and Tirole (2021) *op. cit.*



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