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POLICY AREA:
Taskforce on "Global inequalities and social cohesion"

Policy options for a socially balanced climate policy

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Abstract

Climate policies, including removing fossil subsidies or imposing carbon prices, can be designed in a way that is both efficient in addressing climate change and results in a fair distribution of the associated costs.

Challenge

The objective of climate policy is to mitigate anthropogenic climate change. In most cases the cost burden of such climate policies does not fall evenly on households. Depending on the carbon intensity of consumption for different income groups, the direct effect of climate policy can be regressive, neutral or progressive, meaning that low-income households would pay more than proportionally, the same, or less than proportionally, respectively, than high-income households. In developed countries, empirical evidence indicates that climate policy would in many cases be regressive. This implies that low-income households would lose a higher share of their consumption than high-income households. To avoid climate policy design to be regressive, a comprehensive approach can neutralize these distributional effects and turn such a policy into being progressive. Carbon pricing, in the form of a carbon tax or an emission trading system, is widely recommended by economists as a particularly suitable form of climate policy. Since almost all G20 members have started implementing carbon pricing or are considering it, this policy brief uses carbon prices as a leading example.

Proposal

1) Explore the feasibility of further strengthening the ongoing process of carbon pricing

There is a wide far-reaching consensus among economists that carbon pricing is a highly desirable form of climate policy (Acemoglu et al. 2012; Tirole 2012; Stiglitz 2016). It is an efficient way of addressing the challenge, it generates government revenue, and it can be designed in a progressive way. As highlighted in (World Bank, Ecofys, and Vivid Economics 2016) and by the International Carbon Action Partnership (ICAP), carbon pricing has been implemented or is planned or considered in almost all G20 countries. Still, only a small share of emissions are covered by carbon pricing. Carbon pricing offers an opportunity to design climate policy in a progressive way (see recommendation 3 below), but also has direct distributional benefits:

Climate policy affects distribution via health co-benefits.

While the distributional effect of climate policy via changes in income and wealth of different households is an important dimension, it is not the only one (Fullerton 2011). Another important distributional effect is due to non-climate environmental improvements. Climate policy often has co-benefits, such as improved local air quality. Households most affected by local air pollution would hence be the ones to benefit most from climate policy.

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2) Use reductions in fossil fuel subsidies to finance a modern approach to fight poverty

Fossil fuel subsidies are often considered as a benefit to low-income households. This can make reductions in these subsidies unpopular. Empirical studies, however, show that wealthy households benefit most from fossil fuel subsidies and also that low income-households are most at risk from climate change. Reductions in fossil fuel subsidies can thus be used to finance an effective and sustainable policy for fighting poverty, in particular by providing basic infrastructure.

Climate policy, and in particular the reform of fossil fuel subsidies, is expected to have a progressive direct effect in developing countries.

The relative distribution of the consumption of carbon intensive goods across income groups is very different in developing countries compared to developed countries. The subsidy for petrol in Nigeria for example is highly regressive (Soile and Mu 2015). A climate policy that removes such subsidies would be progressive in most cases, that is, it would affect high-income households more than proportionately (Dennis 2016). Similarly, the direct effect of carbon prices is expected to be progressive in China (Brenner, Riddle, and Boyce 2007) and India (Datta 2010). Nevertheless, the direct effect of removing fossil fuel subsidies (without considering the alternative use of government revenues) can be very harmful to low-income households (Rao 2012; Siddig et al. 2014).

A reduction of subsidies on fossil fuels frees government resources which can be used to improve well-being of households.

In many developing countries, fossil fuel subsidies not only accelerate CO2 emissions, but also pose a high burden on the government budget and have regressive distributional effect (del Granado, Coady, and Gillingham 2012; Edenhofer 2015; Coady et al. 2017). In cases in which removing subsidies would

result in negative effects on households, a reform package can be designed such that budgetary savings are redistributed in a way overall progressive outcomes (Siddig et al. 2014; Dennis 2016). In addition, investing the public revenues freed by subsidy reform to promote development goals, such as health, education, or access to basic infrastructure, also predominantly benefits poor household and can thus generate a "double progressivity".

3) Determine the optimal form of making climate policy progressive

Climate policy can be designed in different ways to reduce a potential regressive direct effect. Among the most evident forms of redistribution are climate dividends, tax reductions and investments in infrastructure. Depending on the specific situation of the implementing country, any of these options can be the best approach.

The direct effect of climate policy in developed economies is mostly regressive.

Households with low income display higher expenditure shares for carbon intensive goods to satisfy basic needs like heating and transportation. As a consequence, the direct effect of climate policy is likely to be regressive in developed countries (Bento 2013; Bento et al. 2005; Wier et al. 2005). This means that low-income households would lose a higher share of their consumption than high-income households. In addition, losing a given percentage of income is a more serious concern for poorer households, even if they pay less for climate policy in absolute terms.

Climate policy itself offers attractive options for compensating its direct distributional effects, in particular through the use of carbon pricing revenues.

Carbon prices are not only the economically most efficient policy instrument to internalize the social costs of emissions, they also generate public revenues (Edenhofer et al. 2015). These revenues can be recycled to households in a way which offsets potential adverse distributional effects of climate policy. A straightforward approach is to pay a "carbon dividend" to households, as Switzerland is currently doing. This has a progressive effect on the income distribution: as all households receive the same amount, poorer households benefit more relative to their income. British Columbia has adopted a revenue-neutral approach, which uses the revenues from carbon pricing to reduce existing distortionary taxes like income taxes. A combination of reducing tax distortions and a positive distributional effect can be achieved by non-linear tax reductions (Klenert et al. 2016). The idea here is to reduce labor taxes most for the households with the lowest income. (Fullerton and Metcalf 2001) have shown that other forms of climate policy like detailed sectoral regulations ('command and control') and subsidies can also be designed in a way which compensates distortionary effects.

4) Identify complementary policies

Climate policy works best when it is part of a comprehensive policy package. In the transport sector, in particular, incentives to reduce emissions will be accepted more easily when clean alternatives like public transport offer an attractive alternative.

In developing countries, carbon pricing revenues can be used to reduce inequality through infrastructure investments.

In developing countries, government revenues are often insufficient to provide essential infrastructure. In these countries, carbon pricing can be an attractive form of generating government revenues. As they are harder to evade than taxes on e.g. labor income, carbon taxes are found to

increase economic efficiency of the tax systems in countries with large informal sectors (Liu 2013). The additional revenues could make significant contributions to the achievement of universal access to water, sanitation, electricity or telecommunication (Jakob et al. 2016), in line with the UN Sustainable Development Goals. As low-income households have least access to infrastructure so far, they would benefit most from additional infrastructure provision, such that the result of these investments would be highly progressive (Dorband 2016).

In the transport sector, the availability of low-carbon transport infrastructure determines the distributional effect of climate policy on fuel prices.

Ambitious emission reductions in the transport sector will require not only cars with lower emissions, but also a shift to cleaner modes of transport (Creutzig et al. 2015). The impact on households thus depends strongly on the availability of infrastructure for low-carbon mobility. In locations with high-quality local public transport and high-speed rail services it will be much easier to adjust to rising fossil fuel costs. This tends to be favorable to households living in urban centers and in countries with developed rail systems.

5) Explore options for overcoming political obstacles

Climate policy can be inconvenient for some established and influential elites. This makes implementation difficult, because these elites have the resources to avert a policy, even when it is to the benefit of a large majority of the population. When this opposition is too strong, it may be necessary to compensate the elites, even though they may not be in need of distributional policies from a perspective of social welfare.

Climate policy has a distributional effect not only on incomes, but also on wealth.

As climate policy affects prices of assets depending on their carbon content, it also has a distributional effect on wealth. (Meinshausen et al. 2009) point out that limiting global warming would require leaving more than half of economically recoverable fossil fuel reserves in the ground. As these reserves lose value, their owners are strongly affected by climate policy. Fossil fuel reserves become “stranded assets” (Jakob and Hilaire 2015). This will be a progressive effect as ownership of fossil fuel reserves is highly concentrated among rich households. The effect, however, also explains the difficulty of implementing climate policy as these households have significant political influence (see Point 9 below).

Climate policies need to be designed in a way to overcome political resistance by adversely affected interest groups.

Climate policy may affect certain highly exposed groups that are related to the extraction or use of fossil fuels in a particular manner. Workers who are affected are often concentrated in certain regions and are thus able to mobilize resistance through labor unions or politicians. Affected asset owners can use their wealth to lobby and pressurize politicians directly. Distributional effects thus form substantial political and institutional barriers against climate policy (Rentschler and Bazilian 2016). Such private interests need to be countered by effective governance acting in the general interests. In the case of workers, governments should address the transition process leading to their re-employment in other sectors. Active labor market policies may improve the skill transferability to the recipient sectors. The Ruhr area in Germany provides an example where such a transition has been implemented

successfully (Mattes, Huber, and Koehrsen 2015). In the case of capital investors, lump-sum transfers, possibly financed by carbon pricing revenues, may be paid to relevant stakeholders to acquiesce their political opposition to climate policies. Alternatively, the government may mobilize public opinion to affirm the prevalence of public interests over private interests.

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Implementation Overview

While climate policy has been implemented in many G20 member countries, distributional effects have not been addressed explicitly. There are, however, three types of implementation experiences concerning the distributional effects of climate policy. The first are fossil fuel subsidy reforms, which have been implemented in India and Indonesia in particular. As pointed out above, they can be expected to be beneficial for both the environment and distributional fairness. The second are distributional adjustments, which have been used to obtain the consent by powerful political

opponents in the sense of point 9 above. An example for this are the free emissions certificates granted to major polluters in the establishment of the EU ETS. The third is the explicit attempt of Switzerland to achieve distributional justice in climate policy through a “climate dividend”. While Switzerland is not a G20 member, its experience could prove to be exemplary.

Existing Agreements

G20 Pittsburgh Summit 2009
The first commitment by the G20 to reduce fossil fuel subsidies.

G20 Toronto Summit 2010 – Initiative on Rationalizing and Phasing Out Inefficient Fossil Fuel Subsidies
Energy and Finance Ministers submit implementation plans for FFS reform

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Existing Policies and Monitoring

Please provide implementations and monitoring of implemented measures related to the proposal.

Chinese self-assessment on fossil fuel subsidies
First peer review by China
To the document

USA self-assessment on fossil fuel subsidies
First peer review by USA
To the document

Analysis and Data

New Climate Economy – Fossil Fuel Subsidy Reform, From Rhetoric to Reality
Description of the costs of the current FFS and of the benefits of reform possibilities (11/2015)
More Information

G20 – Methodology for G20
Voluntary Peer Reviews on Inefficient Fossil Fuel Subsidies That Encourage Wasteful Consumption
Description of peer review process (09/2013)
More Information