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Obstacles to Successful Climate Policy

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OBSTACLES TO SUCCESSFUL CLIMATE POLICY

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At the 2016 international climate summit in Paris 194 countries throughout the globe have committed themselves to limit global warming to not more than 2˚C and to strive for 1.5˚C above pre-industrial temperatures. A two-thirds chance of meeting this target means that the world as a whole from now onwards cannot emit more than 600-1100 Giga tonnes of CO_2 ($GtCO_2$) and must strive to emit less than 150-300 $GtCO_2$. This is called the carbon budget and is the key factor driving climate policy. If the world does not cut emissions, the carbon budget runs out in 18 to 33 years for the 2˚C target and 5 to 9 years for the 1.5˚C target from 2018. Running existing coal-powered electricity stations to the end of their normal economic lifetime is enough to overshoot the Paris targets (Pfeiffer et al., 2016). Hence, very ambitious climate policies must be pursued by all countries on the planet to meet the Paris targets. It will involve painful measures such as scrapping assets that have not been able to fully earn back their back investments and last-resort methods to ensure negative emissions such as geo-engineering.

Pricing carbon

The best method to achieve such a drastic reduction in emissions is to price carbon. This can be done by committing in advance to a rising path of carbon taxes. Sweden, Norway, Finland Switzerland, the United Kingdom already have done this. Alternatively, this can be done via a competitive market for permission permits such as the European Emissions Trading Scheme (ETS). Trading of the permits ensures that reduction takes place in those sectors and countries where this can be done in the most cost-effective way. The disadvantage of permits markets is that the price can be volatile and thus the signal for industry and households to transition to carbon-free production and consumption is less strong. It is therefore attractive to combine the best of both by announcing and committing to a rising time path for the CO_2 price by topping up the ETS price if it is below this path. The initial price could be at least 40EUR/tCO_2 and from then onwards grow steeply at a rate of 5-8% per annum to reflect the increasing scarcity as the carbon budget compatible with 2˚C or 1.5˚C gets exhausted. Pricing carbon helps the transition to the carbon-free era in many ways. It curbs demand for fossil energy, encourages substitution from carbon-intensive coal to less carbon-intensive oil and gas, stimulates green innovation, makes carbon capture and sequestration economically attractive, and forces fossil companies and nations to lock more coal, oil and gas in the earth. Also, climate policy has the collateral benefit of

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improving air quality in cities and saving many early deaths, especially of schoolchildren near busy roads (e.g., Mayrhofer and Gupta, 2016). China shows that this is an important catalyst for getting rid of diesel-powered modes of transport and climate policy more general.

Climate sceptics

One of the biggest obstacles to a successful climate policy is the rise of populism and climate scepticism. President Trump has already pulled out of the Paris commitments. It is not clear whether populists really believe, despite all the evidence, that climate scientists are wrong or whether their scepticism is driven by the coal lobbies. Assigning a probability of 10% of sceptics being right hardly affects the carbon price. Also, the max-min principle of maximising outcomes under the worst possible view of the climate leads one to price carbon (Rezai and van der Ploeg, 2017). The reason is that the cost of unnecessarily pricing carbon if the sceptics are right is modest (especially as the revenues are handed back to the private sector), but the cost of not pricing carbon is huge if the scientists are right and temperature rises to 4°C or more.

International and national gaps in the carbon price

To make sure that the transition to the carbon-free era is done most efficiently, it is crucial that the price of carbon and thus the cost per saved tCO_2 is the same throughout the world. By allowing trade in CO_2 permits, some countries who can get a lot of extra output per unit of CO_2 emitted (e.g., the cement industry) can buy permits from countries who can reduce emissions more efficiently (e.g., woods in Bohemia) and thus from a global perspective emission reductions are done in a more cost-effective manner. To persuade poorer countries to go along with one global price for CO emissions (and to compensate for past emissions in rich countries), it is essential for rich countries to transfer funds to poorer countries. However, despite three decades of summits such transfers have hardly been forthcoming. For efficient reductions in emissions, the cost per saved tCO_2 must also be the same across all sectors for the economy. However, in practice, they vary hugely. The reason for this is the piecemeal approach adopted by policymakers. It is also explained, for example, by the lobby to keep a steel plant open being stronger and more concentrated than the one to eliminate gas from all residential homes. Furthermore, the cost per saved tCO2 must be the same for different climate policies but this is rarely the case. Politicians prefer renewable energy subsidies to carbon pricing even though the latter is much more cost-effective – witness the huge solar subsidies in German power generation.

Fossil fuel energy subsidies and lobbies

Although pricing carbon is the first-best policy, there is the no-brainer of getting rid of all fossil fuel subsidies. Worldwide these explicit and implicit subsidies are a colossal $5.3 trillion (6.5% of world GDP) compared to a miserly $120 billion subsidies for renewable energies (Coady et al., 2016). These subsidies tend to be largest in countries that are oil or gas producers and have insufficient state capacity to redistribute incomes towards the poor via the tax system. But fossil fuel subsidies are a blunt, costly

and CO_2-intensive way of helping the poor. In Europe the biggest polluters such as coal-fired power stations, steel and aluminium producers, and airline companies have been the most successful in claiming exemptions from carbon pricing. Furthermore, the practice of "grandfathering" ETS permits has meant that the biggest polluters got the most permits in the past. The recent reforms of the ETS should get rid of some of these inefficiencies. In the Netherlands energy is taxed, but CO_2 emissions are not taxed. This implies that coal use is undercharged.

Although fossil fuel lobbies have been incredibly powerful, we now see a rise in renewable energy lobbies trying to capture the climate policy rents. This is also dangerous, since business not government should pick winning technologies as they are much better informed. Government should promote renewable energies by pricing carbon, but take a neutral stance towards particular technologies.

The Green Paradox and carbon leakage

Politicians dislike carbon pricing and prefer subsidies to carbon pricing. They also procrastinate and commit their successors to more ambitious climate policies. Such second-best policies lead coal, oil and gas barons to deplete their reserves more quickly as they realise that their reserves will become obsolete more quickly. This depresses energy prices and boosts demand for fossil fuel, thus accelerating global warming in the short run. This so-called Green Paradox effect is costly and is stronger if supply of fossil fuel reserves does not respond much to price changes. However, such second-best policies do lock up more carbon and curb global warming in the long run. It is better for politicians to price carbon, commit to a steeply rising price, and to start immediately. Even without the Green Paradox effect, delaying climate action pushes up the cost considerably as the marginal damages of global warming rise steeply as global warming gets worse.

The spatial equivalent of the Green Paradox effect is carbon leakage. This arises if only a subset of countries prices carbon. Some of the burden of the carbon price is shifted to producers, so energy prices abroad fall and thus emissions abroad rise while at home emissions fall. This carbon leakage effect is on average about 20%, but can be much higher in countries such as the Netherlands which has become a hub for gas trade in Europe. In the Netherlands energy is taxed, but CO_2 emissions are not taxed. This makes a huge difference, since coal use emits much more CO_2 per unit of energy than oil use and the latter emits more CO_2 than gas use. Energy pricing rather than CO_2 pricing thus implies that coal is undercharged from a social perspective. Put differently, energy pricing This provides too little incentive to reduce carbon emissions with 'dirty' and 'clean' energy being equally taxed.

The beneficial impact of carbon pricing if it were to be introduced in the Netherlands is partially offset by additional coal and gas imports from Belgium and Luxemburg where carbon is not taxed. This carbon leakage effect is especially strong for the Netherlands, since it is an international gas hub for Europe. The reason is that a carbon price is partially shifted to producers, so that the price of fossil energy in neighbouring countries falls and thus CO_2 emissions in these countries rise. Multilateral carbon pricing

is therefore more effective than unilateral carbon pricing. It is best if pricing carbon can be done together with neighbouring countries, if necessary by offering transfers to persuade them to cooperate.

Adverse impacts on the poor, carbon-intensive industries and investors

One of the biggest obstacles to a successful climate policy is the effect of carbon prices on the lowest incomes. Carbon pricing increases electricity prices and these hurt the poor relatively more than the rich, especially if they live in badly insulated houses. A key policy question is to decide what to do with the revenues from the carbon taxes. If the tax system is already efficient, it is best to refund the revenue in lump-sum manner to all households. This helps the lowest incomes in society most. To maximise societal support, it is important to make this transfer as salient as possible by calling it say a carbon dividend (Klenert et al., 2018). Depending on political preferences, one could also use the carbon tax revenue for targeted transfers to the poor. It helps to give housing insulation subsides for the poor. If labour income or corporate tax rates are inefficiently high, the carbon tax revenue can be used to cut these tax rates. This helps to boost employment and labour activity.

It is often proposed that the carbon tax revenue is used to subsidise R&D into new renewable energies. However, if there is a learning-by-doing or infant-industry case for such subsidies, one should subsidise independent of the carbon tax revenue. It is sometimes argued that carbon tax revenue should be used to get political support by compensating carbon-intensive industries such as coal-fired power stations and steel. This should be avoided. Instead, it helps to minimise the costs to these industries by announcing the transition to the carbon-free economy as early as possible, sticking to a well-defined transition by a rising time path of carbon prices and formalising it in a special climate law.

Proven coal, oil and gas reserves are a factor 8-10 times higher than the carbon budget. This implies that either climate policy is incredible or fossil companies are overvalued. But private investors and institutional investors are heavily exposed to fossil fuel companies and to the risk of climate policy becoming more ambitious in the future. For example, the largest stock in the portfolio of Dutch pension funds is Royal Dutch Shell. But oil, gas and coal companies like coal-fired power stations and steel factories lose the most if climate action is stepped up. Last year Swedish largest pension fund, AP7, sold its investments in companies that violate the Paris agreements (ExxonMobil, Gazprom, TransCanada Corp, Westar WR.N, Entergy and Southern Corp). Pension funds could also hedge themselves by investing in low-carbon trackers such as the ones offered by MSCI. They give a similar return to ordinary trackers when climate policy is stepped up, but also keep a good return by avoiding stranded assets and losses in stock market value if climate policy is stepped up.

Summing up

To keep global temperature within safe limits, the world needs to get rid of its addiction to fossil fuel in the next few decades. This requires phasing out of coal, getting rid of all fossil fuel subsidies and a commitment to a steeply rising path of carbon prices for all regions and sectors of the economy. It is

important to act multilaterally, resist carbon lobbies, redistribute revenue to the poor and subsidise home insulation and carbon-free heating for the poor. Waiting longer before taking actions will drive up costs of decarbonisation and increases the risk of having to implement policies that lead to negative emissions. Leaving it to each of the sectors of the economy to come up with top-down plans to cut emissions or to the government to pick particular renewable energies to be subsidised is prone to rent seeking and will be much more expensive than pricing carbon.

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