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Analysis

Distributive fairness in paying for clean energy infrastructure

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ABSTRACT

Despite the rapid rise in public expenditure on clean energy infrastructure, there has been little discussion about what constitutes a fair distribution of this new spending burden. We examine four ethical principles that speak to different notions of fairness in the way this burden can and should be shared, and use them to produce three normative criteria for pursuing fairness in the clean energy fiscal policy context. We use these criteria to examine the extent to which fairness is being achieved in large clean energy roll-out programs in Australia, California and the United Kingdom. Maintaining a close focus on providing practical guidance for decision makers in similar policy contexts, we find that fairness is more achievable when program design explicitly considers which households should pay for the program and which should be exempt; when the idea of proportionality guides the distribution of the cost across paying households, and when the interests of low-income households are protected, by ensuring that they share in the benefits of the program, for example.

'*A policy that averted dangerous climate change would nonetheless be unfair if the duties to mitigate and adapt were unfairly distributed. It is not enough to devise efficient policy proposals for they might be thoroughly unjust in their distribution of the costs.*' (Caney, 2009: 127).

'*No solution of a practical problem, relating to human conduct, can be regarded as complete, until its ethical aspects have been considered. It is clear, accordingly, that practical discussions of an economic character cannot be isolated from ethics, except in so far as the aim is merely to point out the practical bearing of economics facts, without any attempt to lay down absolute rules of conduct.*' (Keynes, 1917: 60-61).

1. Motivation and Background

This paper considers how policymakers can ensure greater fairness in the way that the large new cost of paying for clean energy infrastructure is distributed across socioeconomic groups.

We start from the premise that the level of clean energy capital spending globally is projected to grow from an estimated USD 214 billion in 2014 to USD 300 billion by 2020 (IEA/OECD, 2014) and that very little public discussion has focused on what might constitute a fair distribution of this spending burden. Some modeling work suggests that investment levels would need to reach USD 1.1 trillion annually, in order to achieve mitigation consistent with a 2-degree target (McCollum et al., 2014).[1] Distributive concerns are material here because this investment tends to be motivated into existence by government subsidies, and the cost of these subsidies tends in turn to be passed on to either tax payers or electricity utility customers. Evidence suggests that the distribution of the costs and benefits of these subsidies across socioeconomic groups are not being taken adequately into account, including programs in Australia (Macintosh and Wilkinson,

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[1] These types of estimates are static and tend not to account for general equilibrium responses from carbon pricing policies or capital cost changes for example, and the need to account for the final incidence as opposed to the proximate incidence is something we discuss more below.

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2010), the United Kingdom (Grover, 2013) and California (Proctor, 2014) that we consider in this paper.

The question of fairness in sharing this new cost also sits in a context of historically high and rising income inequality (since the early 1900s) in several of the countries leading the clean energy investment charge. These include Germany, Norway and the United States (OECD, 2008; OECD, 2011; Piketty, 2014; Piketty and Saez, 2003; US Census Bureau, 2011). In line with the quotation from political philosopher Simon Caney (2009) in the header above, it seems to us that policies that succeed in mitigating GHG pollution should not do so in a way that worsens socioeconomic inequality.

This paper extends a growing literature about fairness in distributing the cost of mitigating (GHG) pollution more generally. Climate change economic research has turned to moral philosophy in recent years for guidance in deciding how much the current generation should be asked to pay to mitigate future pollution damages (Nordhaus, 2008; Stern, 2014; Weitzman, 2007). Moral philosophers have at the same time been developing a 'climate justice' narrative around the closely related question of who should pay for mitigation or any other action necessary to keep global warming from becoming any more harmful than necessary (Shue, 2010; Caney, 2009). These theoretical discussions do not always offer tangible guidance for policymakers on how fairness might look in practical terms, however.

A substantial body of applied research has examined the distributional incidence of policies designed to mitigate harm from environmental pollution, including harm arising from GHG pollution (Smith, 1992; Grainger and Kolstad, 2009; Metcalf et al., 2010; Fullerton, 2011). Some of this concern with fairness arose in response to the environmental justice research that emerged in the 1980s. This work demonstrated that systematic inequalities exist in who bears the exposure cost of pollution across racial, ethnic, and income groups (Rhodes, 2003; Schlosberg, 2007), but also in who enjoys the protective benefits of anti-pollution policy (Bullard, 1994). In part to guide policymakers on achieving environmentally just outcomes from policy, several ideas have been developed about what constitutes fairness in environmental policy design, including in this journal (Neumayer, 2000; Pascual et al., 2010; Pelletier, 2010).

This prior work takes us some way to understanding the broad contours of how distributive fairness might look in policy contexts involving environmental policy and pollution, but not all the way to distributing the clean energy infrastructure burden specifically. The question, therefore, that we set out to answer in this paper is, 'What practical guidance can be drawn from existing principles of distributive justice for fairly sharing the cost of clean energy infrastructure?'

The next section sets up a framework for answering this question in a way that we hope will yield useful guidance for policymakers who work on related policy issues. Section 3 analyzes what four established principles of distributive fairness have to say about achieving fairness in the clean energy context. Section 4 derives from these principles three normative criteria for evaluating fairness in policy design. Against these criteria, Section 5 evaluates clean energy roll-out programs focused on household and small-scale deployment in Australia, California and the United Kingdom. Section 6 summarizes and caveats our findings, and recaps how decision makers might apply them.

2. Framework for Analysis

Our aim is to establish a practical, implementable moral basis for fairly distributing the cost of just one increasingly common approach to mitigating GHG pollution — deploying new clean energy infrastructure. In discussing how this new cost should be shared we are treading on the kind of normative ground that standard approaches in neoclassical economic analysis are not particularly well suited to answer (Stern, 2014). In order to establish something akin to widely acceptable prescriptive judgments about the desirability of different distributive outcomes from policy, we therefore need to go beyond a positivist analysis of 'facts'.

To do this we engage with several of the philosophical principles that are coloring the climate change mitigation debate. Our treatment of these principles may seem sparse to scholars of ethics, but for economists and policy-makers who are currently discussing these issues minimally if at all, we expect that a discussion focused mainly on the principles' instrumental value will go some way to raise the standard of that discussion. Those interested in the principles' deeper underpinnings and in principles other than the ones we have identified as the most relevant to this normative problem, can consult the references cited.

We have chosen to frame our question mainly in terms of the fair distribution of a new cost or burden associated at least in part with mitigating GHG emissions, but we are aware that the question could also be framed in terms of fairly distributing the benefits of clean energy infrastructure itself. One reason that we chose the cost framing is because we felt that there could be greater consequence for vulnerable social groups to an inequitable distribution of costs than to an inequitable distribution of benefits. New costs seem more likely to affect current welfare levels of these groups in absolute terms. However, in both the discussion of distributive principles and in the evaluation of actual policies, we try to account for how program benefits flow to low-income groups when they do not least as 'negative costs'. Another reason for our cost-focused approach is that decision-makers in this context typically have greater control over how the cost of clean energy infrastructure policies is spread than over who participates in them and therefore who benefits.

In any discussion of distributive outcomes it is important to distinguish between a policy's proximate (or immediate) impact, and its final (or ultimate) incidence (Fullerton and Metcalf, 2002). It is possible, indeed common, for a policy to satisfy common notions of fairness in its immediate impact but results in an unfair final incidence (Kotlikoff and Summers, 1987). This can happen when the agents who are directly liable to pay the new cost or tax shift it forward or backward through asset price adjustments and/or because the new cost may cause equilibrium adjustments that alter factor prices themselves (Kotlikoff and Summers, 1987). Our view is that decision-makers should aim to achieve a fair ultimate incidence in the policies they design, but we also recognize that this is not always an easy ask. Technical aids to policy design like detailed regulatory impact assessment and computable general equilibrium (CGE) modeling will often be necessary to ensure that this outcome is fully achieved over different time horizons and economic sectors. Our primary aim in this paper is to direct decision makers' attention to notions of fairness in the proximate distribution of public costs, which we see as an important first step towards realizing fairness also in the ultimate sense. We emphasize this and other caveats to policy implementation and design in the Conclusions Section.

We have limited the scope of our analysis in several important ways in order to place clear boundaries on our question and to produce meaningful guidance for policymakers. We do not address the question of who should bear responsibility for historical GHG pollution or what a fair shouldering mitigating its damage should look like. This is because clean energy infrastructure by definition only mitigates current and future pollution. We also focus on the question of distributive fairness within the current generation rather than the between-generation question. This is because inter-generational burden-sharing is well covered in the debate over how to discount avoided climate damages (Arrow et al., 2015) and because intra-generational burden sharing is the most relevant to the financial scale of the policies we consider empirically. We also limit our discussion to how the cost should be shared across people within individual countries. This is because building clean energy infrastructure has to date been almost exclusively the domain of national or sub-national governments. However, there is considerable overlap between the principles we consider here and the principles that might guide a fair distribution of the GHG pollution mitigation