Achieving the Paris Goals: Consumption-Based Carbon Accounting

Marco Grasso

Università degli Studi di Milano-Bicocca

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Abstract

To achieve the Paris Agreement abatement goals, the use of consumption-based carbon accounting (CBA) as a target base, i.e., as a reference scale for emissions reductions, has potential advantages of fairness, effectiveness, and cost. At the same time, CBA also has rather high political feasibility. However, CBA has not yet been adopted, not even experimentally. Nevertheless, major concurrent reasons suggest that the time is ripe for employing this accounting system as a target base. Accordingly, this review article indicates a strategy that leverages the potential of CBA to take advantage of the ripeness of the time through the activation of governance measures that increase the likelihood of its adoption as a target base. This strategy can shape converging preferences in support of CBA among stakeholders belonging to different political traditions and subject to different political constraints, and increase the chances of this accounting system being adopted as a target base.

Keywords

Consumption-based carbon accounting, governance systems; international coordination

Highlights

- Consumption-based carbon accounting (CBA) has advantages of fairness, effectiveness, and cost.
- The use of CBA also has rather high political feasibility.
- Major concurrent reasons suggest that the time is ripe for employing CBA.
- A strategy for promoting the adoption of CBA should shape converging preferences in its support.

1. Introduction

Although the Nationally Determined Contributions (NDCs) part of the 2015 Paris Agreement testify to an unprecedented global breadth of climate initiatives, they do not set emissions cuts sufficient to achieve the goal of safely limiting the global temperatures increase (Rogelj et al., 2016; Young, 2016). In fact, to attain the targets set by article 2(1),[1] major emitters must commit in the near future to cutbacks larger than the pledges they have made to meet the Paris goals. This implies a further proportional distribution of the abatements burden; a challenge that, despite the many difficulties that climate change poses, continue to be the toughest and most crucial problem of international climate policy (Keohane and Victor, 2011).

Fortunately, the Paris Agreement envisions a periodic review, known as the 'global stocktake', of progress towards achievement of its goals. The first global stocktake should be undertaken in 2023, and thereafter every five years unless differently decided. This is an unparalleled occasion to change some 'rules of the game' that have so far hampered adequate emissions cuts: first and foremost those related to carbon accounting, whose role 'is crucial for informed decision-making on how to curb the rise [of emissions]' (Nature Climate Change 2016, p. 975), and for the eventual achievement of the Paris goals (Tollefson, 2016). In particular, with respect to addressing the additional carbon abatements required to strengthen the otherwise inadequate Paris Agreement, this review article investigates the advantages of using consumption-base carbon accounting (CBA) as a target base, i.e., as a reference scale for internationally agreed emissions reductions (Steininger et al., 2016), and puts forward a possible strategy for adopting it.

2. The Potential of Consumption-Based Carbon Accounting

CBA measures emissions associated with the final consumption of goods and services and is calculated by adding to production-based accounting (PBA), which is currently the only accounting system used under the UNFCCC, emissions generated to produce imported goods and services and subtracting those associated with exported goods and services. CBA is not an overall panacea (see Liu, 2015), but, in a context of increasing sensitivity to governing global consumption patterns (Dauvergne, 2010), it makes it possible to focus on high-consumption lifestyles

[1] Article 2(1) of the Paris Agreement requires at paragraph (a) that the increase in the global average temperature will be kept 'to well below 2 °C above pre-industrial levels' and that efforts 'to limit the temperature increase to 1.5 °C above pre-industrial levels' will be pursued.

everywhere (Harris and Symons, 2013). Methodologies for its calculations and estimates have existed for decades, and independent studies on its application report consistent results (Peters et al., 2012). PBA should continue to provide the monitoring and instrument bases for framing and evaluating climate policy and for targeting emissions (Steininger et al., 2016). CBA matters only for determining the distribution of the remaining amount of emissions that can be safely released to achieve the 2 °C target, i.e., the so called 'carbon budget'. In other words, CBA's role is limited to determination of the slices of the 'carbon cake', whereas in no case should it be employed on its own to identify the actions needed for countries to abide by the amount of emissions dictated by such slices. CBA should be therefore only a satellite account to be used jointly with the other accounting systems (Steininger et al., 2016).

The adoption of CBA as a target base has potential major advantages of fairness, cost and effectiveness (Grasso and Roberts, 2014; Steininger et al., 2014). In particular, it is able to reconcile one of the most entrenched contradictions raised by market-based systems of environmental governance, especially by carbon markets: namely, the trade-off between fairness and (cost) efficiency (Osborne, 2015). CBA can, in fact, transform the burden-sharing problem of distributing emissions cuts into a self-enforcing situation of fair and cost-efficient international coordination among major emitters for effective abatements. This coordination challenge would be far less complex to address than the malign cooperation problems that usually characterize climate change (Keohane and Victor, 2016), and it would eventually increase the overall effectiveness in terms of emissions cuts.

To justify such claims, it should first be stressed that a central tenet of climate policy is that justice plays a crucial role in building effective internationally collective actions to abate global emissions (Jamieson, 2013). Accordingly, the governance systems for dealing with climate change should be consistent with core moral requirements for more just social arrangements. With regard to the use of CBA as a target base, a crucial moral principle, based on a weak value judgment, holds that a carbon accounting system is more just when it attributes the bulk of the onus of emissions to those agents who bear a burden lower than justice demands (Steininger et al., 2014). CBA shifts, in fact, the emissions burden from those who, under a PBA system, shoulder more than justice demands – typically the less developed countries – to those whose obligation is less than justice demands – the richer countries – whose

responsibility for past emissions is higher and whose capacity to solve the problem is greater, however both are measured.

With regard to effectiveness, it should first be pointed out that countries' motivations to participate in collaborative abatement actions are mostly driven by its place in the international system. More specifically by its relative material power capabilities, shaped by indirect and complex domestic-level systemic pressures, often morally relevant (Rose, 1998; Purdon, 2014; Oberthür, 2016; Vogler, 2016).
Countries' motivations in international climate politics can in fact be usefully framed in terms of, and grounded in, agreed normative beliefs on responsibility for past emissions and the role of relative gains; issues whose sensitivity has greatly increased in the recent past (Grasso and Roberts, 2014). International emissions abatements, in fact, redefine moral concerns and relative gains dynamics for the largest emitters, and especially so for the most powerful ones, China and the U.S. (Grundig, 2006; Oberthür, 2016). Grasso and Roberts (2014), for instance, shows that the relative gains dynamics of a CBA-based distribution of abatements confirm that costs should be acceptable to China, which would have substantial headroom and ultimately less stringent abatement targets. At the same time, CBA would not excessively penalize the U.S., since its relative gains would diminish to an extent negligible compared with overall spending to address the climate crisis. Such outcomes seem ultimately to prove that China and the U.S. – countries with traditionally conflicting objectives in relation to international emissions reductions – might forgo part of their narrow short-term interests in order to stabilize the climate system. The involvement of additional countries in mitigation action would be fostered also by the minor variations of relative gains among the other major emitters – apart from the EU, whose reasons for further engagement in international emissions reductions are mainly grounded in its intent to regain primacy in climate policy within a coalition-building strategy (Bäckstrand and Elgström, 2013; Oberthür, 2016).

Accordingly, the rationale for the greater effectiveness in terms of agreed international abatements resulting from the use of CBA as a target base lies in the fact that the different spaces of emissions accounting modify the theoretical conceptualization and empirical configuration of a critical, morally connoted domestic systemic pressure: responsibility for past emissions. When this novel conceptualization of responsibility determined by CBA is applied to distributing the

emissions cuts among countries, it produces a shift in the allocation of the related burdens that indicates a more feasible allocation of abatements costs. In fact, the resulting dynamics of material power capabilities as measured by relative gains are more acceptable to, and therefore facilitate further collaboration among (Keohane and Nye, 1989), the major emitters (Purdon, 2014). Furthermore, the structural power exercised by these more powerful countries, especially if China and the U.S. took the lead, can induce other countries to participate in wider and more compelling action on emissions reductions.

CBA sheds also light on the appropriateness of carbon markets and of their accounting practices in relation to the spaces where processes, activities and mechanisms that remove greenhouse gases from the atmosphere take place. In particular, the adoption of CBA as a target base can disprove the inability, feared by part of the relevant literature (e.g., Knox-Hynes, 2013), of carbon accounting practices to adapt to the complexity of carbon emissions. Rather, the re-distribution of countries' burdens produced by CBA, as opposed to the one determined by the current PBA, confirms the view that carbon markets are necessarily the result of shifting and negotiable boundaries, given that they are the techno-political product of expert knowledge and political practices (Kama, 2014).

The strengths of CBA are complemented by its rather high political feasibility. In normative terms, given its capacity to shift the emissions burden to those who shoulder it less than justice demands, it would satisfy the core moral principle for a more just social arrangement in this context (Grasso, 2016). This feature, combined with the stability of CBA (i.e., its maintainability once it has been implemented) and accessibility (i.e., the existence of a practical route for its implementation), fulfil the requirements for determining its normative political feasibility (Gilabert and Lawford-Smith, 2012; Grasso, 2016). CBA thus would not only advance international action to abate emissions effectively, it would also favour carbon-exporting countries, so that its political feasibility should be quite high in those regions (Ashton, 2012). At the same time, the positive political feasibility of CBA crucially depends on countries' institutional capacity (Burnell, 2012).

3. The Right Timing for Consumption-Based Carbon Accounting

Despite its potential and the rich and almost consistently favourable literature, CBA has not yet been adopted, not even experimentally. Nevertheless, major concurrent

reasons suggest that the time is ripe for including CBA among the carbon inventories employed and, especially, for its use as a yardstick for emissions reductions.

First, the scientific evidence unanimously urges an effective international coordinated effort to lessen the dangerousness of the climate crisis within the next 10-15 years, the last available window of opportunity (Nature Climate Change, 2014). The Paris Agreement, for instance, urges the IPCC to clarify how to achieve the emissions targets set. In the same vein, in September 2015 China and the U.S. announced their intention to formulate ambitious initiatives for swift achievement of the 2° C goal (U.S.-China Joint Presidential Statement on Climate Change, 2015).[2] Also the EU has put forward a low-carbon roadmap that envisions severe emissions cuts in the mid term (EU, 2011). Hence, it is this unique conjuncture of scientific acknowledgment and generalized political will on the necessity of immediate, incisive abatements that boosts the possibility of CBA's eventual adoption: hopefully in view of the next Paris global stocktake.

Second, the attention to the cost of tackling climate change has been strengthened in the past few years by the widespread economic recession, by the post-Copenhagen sense of disillusion, and by a certain loss of credibility of climate science and policy. Therefore the greater cost-efficiency of CBA in achieving the emissions targets imposed by the meagre amount of emissions left would concur in promoting its adoption.

A third reason relates to the current high sensitivity to ethical considerations in the climate debate. As underlined, CBA has in fact a greater intrinsic fairness. Altogether, the attention of CBA to ethical issues notably increases the current possibility of its implementation at a time when sensitivity to climate justice is at its highest.

Fourth, there is mounting awareness of the unsustainability of consumption patterns and of the environmental threats posed by consumerism. Hence CBA, by targeting the consumption processes that embed emissions, the 'bad thing', and especially, by penalizing high-consumption ones, responds also to the increasingly pressing demand for global consumption to be governed.

Finally, consistently with the power shift that has occurred in global politics, emerging economies have gained awareness of the climate threat, as well as a larger role in

[2] At the time of writing, however, the President-elect of the United States does not seem willing to engage in international collaboration against climate change.

international climate politics. This circumstance improves their willingness to combat climate change and eventually to develop, also with the support of richer countries, the necessary technical and political capacities, including those for adopting CBA.

4. A Strategy for Introducing Consumption-Based Carbon Accounting

The potential of CBA coupled with the favourability of the timing make it possible to delineate a strategy for its implementation as a reference scale for emissions reductions. This strategy is articulated into concurrent spheres that can be understood as an attempt to leverage the strengths of CBA to take advantage of the ripeness of the time through the activation of governance approaches, structures, instruments, and actions that shape preferences in order to increase the likelihood of a swifter and smoother implementation of CBA as a target base.

The adoption of CBA should first be carried out by a limited group of major emitters, belonging both to the developed and developing world. With their leadership and structural power, other countries will more willingly follow suit. This would avoid the cumbersome nature of the UNFCCC decision processes, and the resulting enhanced viability would respond to the urgency of the climate crisis by making the achievement of ambitious abatement goals possible. To extend the adoption of CBA to the remaining countries at a later stage, the entire process could be formalized under the UNFCCC. The limitation of initial action to a restricted group of first movers would also dramatically reduce the transaction costs of implementing CBA. In the midst the current pervasive economic slowdown, the lower the transaction costs, the more politically and individually acceptable CBA implementation becomes.

Given the centrality of justice in its various understandings in the climate debate, the greater distributive justice of CBA should be supplemented by procedural elements of justice. At the same time, the governance systems to implement CBA should be legitimate, i.e., they should have the moral right to apply this accounting system and be believed to have such a right (Buchanan and Keohane, 2006). Fully-fledged notions of justice and legitimacy that take account of intergenerational considerations further increase the already high political feasibility of CBA, since they improve the support among agents involved with different substantive commitments and provide a useful ground for objectively resolving the deadlock on emissions abatements. This comprehensive ethical dimension would also comply with the necessity to broaden the scope of climate ethics to accommodate the challenges raised by carbon markets

and the involved processes of carbon commodification (Randall, 2011). In particular, this inclusive perspective can help forestall the tendency of carbon markets to nature's neo-liberalisation (e.g., Higgins et al., 2015), by returning to individuals' values and judgment and thus avoiding the mere logic of capital accumulation.

Similarly, to increase the acceptability of addressing emissions at the consumption stage, actions that focus the attention on the role of consumption as the ultimate source of carbon emissions are needed to favour the smooth adoption of CBA as a target base. In particular, it would be necessary to introduce a wide range of local and international initiatives that question the practical and moral implications of a global socio-economic system offshoring a disproportionate amount of the costs of producing goods and services largely consumed in the rich countries to the world's poorer and more socially and environmentally vulnerable regions. These initiatives should, in fact, increase the willingness to consider also consumption, besides production, as a major culprit for carbon emissions, and therefore an additional locus where they should be accounted for.

The greater institutional capacity of the major emerging economies makes them ready to take advantage of other forms of collaboration on climate issues that can at the same time usefully spur the adoption of CBA. In particular, more affluent large emitters should extend a green ladder to emerging and developing economies through technology transfer, sufficient and predictable financial assistance, technical and institutional support, and capacity building. Moreover, richer large emitters would have a further specific obligation to provide the necessary technological constituents of the carbon economy for adopting CBA: in particular tools, methodologies, training, knowledge for collecting and calculating consumption-based figures. These forms of collaboration would augment the fairness and feasibility of adopting CBA in the beneficiary regions.

In sum, to favour the introduction of CBA it is important to weaken the resistances against this accounting system through appropriate governance responses able to stimulate and aggregate the support of all stakeholders involved. This would be much more effective in promoting a timely adoption of CBA as a target base than any form of imposition or trust in the mere vision of politicians. In fact, in the current fragmented and multipolar international climate order, countries' preferences largely differ, authority is divided, and compliance with any initiative depends solely on voluntary agreements. Therefore, feasible international climate action needs to

operate in this polycentric and quasi-anarchic system through careful, gradual transformation of governance systems. This applies especially to the introduction of CBA, since it significantly interferes with vested interests, influences patterns of well-being across countries and generations, and modifies the flow of very large amounts of financial and other resources. Hence, through the governance approaches, structures, instruments and actions proposed, the strategy delineated can shape converging preferences in support of CBA among citizens and political representatives belonging to different political traditions and subject to different political constraints, and eventually increase the chances of this accounting system being adopted as a target base.

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