SDG 13, the SEEA and New Zealand's missing carbon tax

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Abstract

After more than 25 years of work on environmental accounting, there is a need for demonstrable policy applications, and in todays context, this includes how the SEEA can contribute to domestic policies and the Sustainable Development Goals. The case of New Zealand's carbon tax is almost such an example. Between 2001 and 2004, Statistics New Zealand drew together data from a range of sources to form a comprehensive set of energy accounts including energy related greenhouse gas emissions (i.e. residuals) that matched the monetary and physical flow tables. Together, these data formed the basis of carbon tax working papers prepared by the New Zealand Treasury, and the tax itself became an important part the 2005 election and subsequent formation of a government. Based on the New Zealand experience, this paper provides an insight into the role statistics, and environmental accounts, can have in policy making, while also serving as a cautionary tale with regards to expectations around environmental accounting policy applications.

Introduction

The development of New Zealand's first energy accounts using the SEEA speaks to the possibility of using the SEEA to support powerful policy analyses, contributing to the preparation of national determined contributions (NDCs) to the global response to climate change and sustainable development goal (SDG) 13. SDG 13 is to take urgent action to combat climate change and its impacts and is one of 17 SDGs adopted by the United Nations as part of its Agenda 2030. Under SDG 13 are 5 targets including to "Integrate climate change measures into national policies, strategies and planning" (SDG 13.2), including NDCs (UN 2017).

A carbon tax is one way of supporting SDG 13, by simultaneously internalising the cost of climate change driven by greenhouse gas emissions from combustion, and sending a price signal to markets. However, carbon taxes are a politically contentious requiring not only good data to help with policy analyses, but also public acceptance and political leadership (Grubb et al 2014).

As such, the case presented here consists of multiple elements. The first was the political opportunity and the second was the funding of an environmental accounting programme. The third element regards the SEEA, which served as a powerful framework for organising data. Importantly, data organised by the SEEA could be used in existing computable general equilibrium models. The fourth element was the human and institutional network, and the building of connections with the purpose of finding users for the energy accounts. The fifth element regards the use of data by policy agencies to test issues and options. The final element regards political trade-offs and the politics that sealed the fate of New Zealand's carbon tax.

After going through these elements, the paper discusses policy making styles and the role of a national statistics office in relation to policy agencies and political processes. The paper finishes with a summary and conclusions, drawing observations from the New Zealand case study.

New Zealand Carbon Tax Case Study

Political Opportunity

Following the 1999 election, a Labour led coalition government was formed. The Greens were outside the coalition, but were able to secure provisions in successive budgets including NZ$ 730,000 for "pilot work on alternative national accounts and business environmental reporting" (Green 2000). This included funding for Statistics New Zealand (SNZ).

Resourcing of Environmental Accounts

With funding coming on stream, SNZ undertook recruitment and formed a team of 6 staff to prepare New Zealand's first environmental accounts. These included mineral and energy accounts as well as water, forest, land-use, fish and environmental protection expenditure accounts. The staff had the benefit of being able to focus on accounting full time, building their own capacity with support from experts from National Accounts, literature and international case studies and successive drafts of the Handbook of National Accounting: Integrated Environmental and Economic Accounting 2003 which was being developed by the London Group (UNSD 2017). The time required to find existing data and compile accounts was longer than expected for most accounts, including for the mineral and energy accounts.

SEEA Energy Accounts

New Zealand's Energy Flow Accounts provided estimates for the flow of energy from the environment into the economy, including geothermal energy, hydro and wind, as well as coal oil and gas. The accounts then included product flow tables (i.e. supply and use tables) with figures for the value of energy flows through the economy along with corresponding physical quantities. Finally, the accounts included energy related greenhouse gas emissions by the industries generating the emissions (SNZ 2004).

The energy flow accounts were based on data from the Ministry of Economic Development's (MED) Energy Data File (EDF), the Energy Efficiency Conservation Authority's (EECA) Energy End Use Database (EEUDB) as well as input output tables from Statistics New Zealand's national accounts (SNZ 2004).

A majority of the work preparing the flow accounts was spent unpacking transport energy demand. This involved taking physical energy data for transport (following the energy balance approach) and splitting this between the economic activities (i.e. industry categories) that actually purchased the fuel. Monetary figures for fuel demand were already available but needed to be split between fuel types. Once physical energy use figures were compiled, it was possible to estimate the energy related greenhouse gas emissions by economic activity (SNZ 2004).

Connecting with the Treasury

While preparing the accounts, there was a desire in the Environment Statistics team for the accounts be applied to policy (SNZ 2003). Given the link between energy related greenhouse gas emissions and the issue of climate change, the Energy Accounting Lead attended a public consultation by the government team working on climate policy. Following the consultation, the Lead spoke to one of three officials holding the consultation, who happened to have been with the Treasury before joining the climate change consultation team. Upon hearing about the work on energy accounts, he suggested the Lead contact a person working for the New Zealand Treasury, who was seeking energy information similar to energy accounts. The Energy Accounting Lead attempted to contact the person from Treasury. After a month contact was made, and the Lead organised a meeting in Wellington with the Treasury. From the meeting, the Treasury decided to use SNZ's energy accounts on the basis that SNZ had greater time and resources available to compile the required numbers, and as such there was an expectation that this would improve the quality of the data for the study (Pers. Comm. Creedy 2002).

SNZ had various organisations review the first draft of the Energy Accounts, given that the accounts were being developed for the first time. This included the Treasury. The Treasury provided feedback noting that the figures were too aggregate to be useful for the analysis they intended to carry out. This led to internal discussions in SNZ with regards to what level of breakdown was feasible, while ensuring adequate data quality, consistent with SNZ's data quality standards. From this discussion, a more detailed breakdown was prepared with the assistance of two additional staff (a team of 3 staff working full time on the project with input from the Environment Statistics team leader). The draft Energy Flow Accounts were eventually sent for final review by other government departments[1], including the Treasury, just prior to Christmas 2003, and after incorporating feedback, were published in 2004.

Treasury Working Papers

From the energy accounts, the Treasury prepared two Treasury Working Papers. The first was titled "Carbon Taxation, Prices and Household Welfare in New Zealand" (Creedy and Sleeman 2004a). By looking at the use of fossil fuels by industries, inter-industry transactions, and a range of possible carbon taxes, Treasury was able to assess: what carbon tax rates would do to consumer prices, changes in household expenditure by type of household, and the level of inequality of carbon tax burden (Creedy and Sleeman 2004a).

The second paper was titled "Carbon Dioxide Emissions Reductions in New Zealand: A Minimum Disruption Approach" (Creedy and Sleeman 2004b). In this paper, the Treasury looked at how carbon dioxide emissions may be reduced by changes in the structure of the economy, specifically in relation to: final demands, use of fossil fuels by industry, and the structure of inter-industry transactions. Treasury modelled how to reduce carbon dioxide emissions in the least disruptive way possible, by assessing the minimum changes to the above components that would achieve necessary greenhouse gas reductions. Treasury constrained their model by allowable changes in GDP growth and aggregate employment (Creedy and Sleeman 2004b).

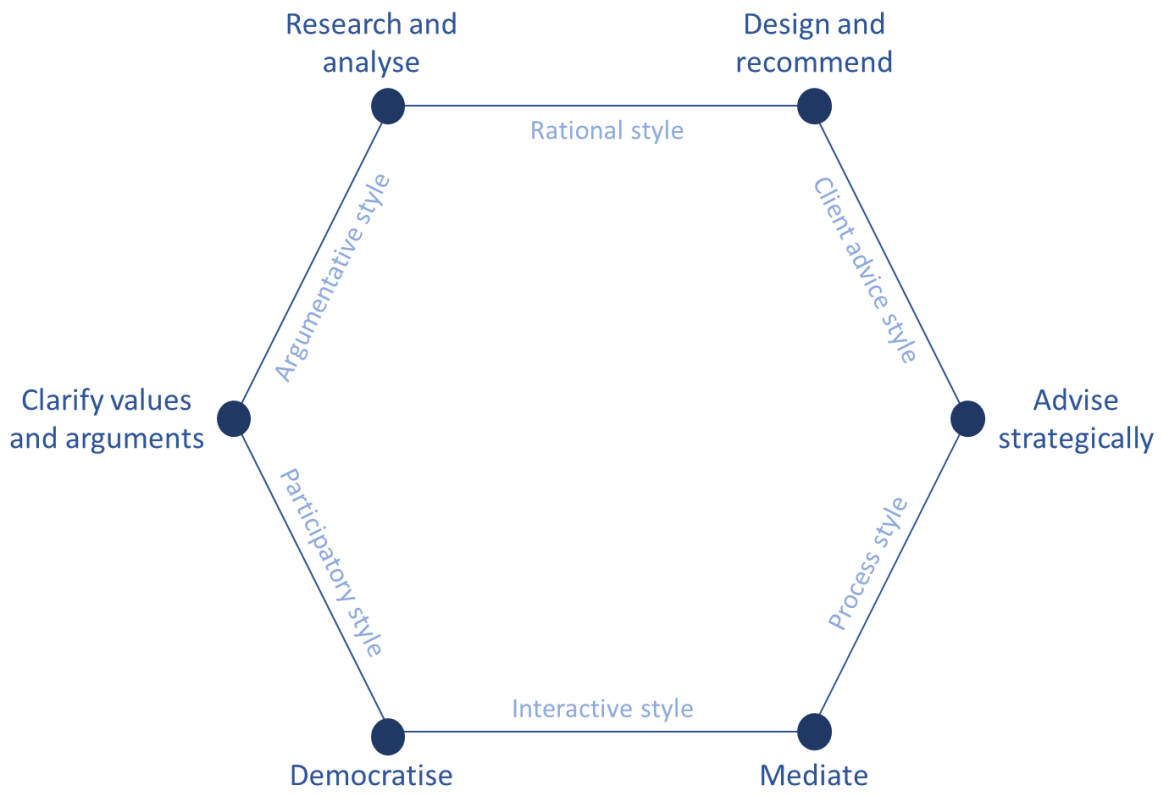
Political Trade-offs

So, what happened to the carbon tax? The election in 2005 resulted in a situation where Labour had campaigned on a carbon tax but United Future, who's support was required to form a government, had campaigned against the carbon tax. The confidence and supply agreement between Labour and United Future included a review of the carbon tax under Peter Dunne (the leader of United Future) as Revenue Minister (Bennet 2005) and the carbon tax was dropped. This was a classic case of mediation between political leaders and trade-offs. Thus, the New Zealand case study went from being a case of the SEEA contributing to climate policy, to an example where the SEEA almost contributed to climate policy.

Environmental Accounting and Policy Making Styles

In the book titled "Public Policy Analysis: New Developments" edited by Thissen and Walker (2013), six policy making styles were presented using a hexagonal plot (Figure 1) (Mayer et al 2013). The case study from New Zealand demonstrates many of these policy making styles. In the first instance, mediation between Labour and the Greens created the opportunity for funding of environmental accounting activities at SNZ. Importantly, there was sufficient funding for dedicated staff to be recruited to undertake the complex task of preparing accounts for the first time.

[1] As these were experimental accounts compiled using existing data it was considered appropriate to share them with other government departments and select reviewers in advance of publication. For established statistical products this would not happen, but rather figures would be embargoed until the time of publication.



Source: Mayer et al 2013

Figure 1: Styles of policy making.

The government undertook public consultations, following the participatory style of policy making, serving as an opportunity for the democratisation and clarification of arguments by business, civil society and others (MfE 2001). It also facilitated an opportunity for networking and the connection between SNZ and the Treasury, and ultimately the use of energy accounts as part of New Zealand's carbon tax policy analysis. The networking by the SNZ Energy Accounting Lead can be considered a case of "policy entrepreneurship", or at least "data entrepreneurship", where an individual seeks to find an application of their data within government.

The actual compilation of energy and emissions accounts followed the rational research and analyse mode, following the fundamental principles of official statistics (UNSD 2014) and the norms within SNZ. This also meant that the accounts did not make interpretations of the data or their policy implications, but rather, commentary was descriptive. That said, assumptions and choices were made with regards to methods especially where there were gaps or alternative data to choose from. However, the methods used were to the best extent possible recorded and described in the methodology section of the report.

The preparation of Treasury Working Papers by the Treasury also followed the rational style but also the client advice style of policy making as the analysis involved designing and recommending a policy. In this case it involved staff at the Treasury taking the best available data and using existing models to look at how a carbon tax could be optimised, and inform the government (the primary client) and other interested parties (e.g. business and civil society) through working papers.

In the end, politics and the mediation style of policy making that created the opportunity to compile energy and emissions accounts also demonstrated that there are trade-offs. Thus, a confidence and supply agreement involving Labour and United Future meant that the carbon tax was never implemented.

Summary and Conclusions from the New Zealand Case Study

From the New Zealand case study, it is clear that no one thing resulted in the energy and emissions accounts being used as an input to the Treasury working papers on New Zealand's ill-fated carbon tax. As such, if environmental accounts are to be applied to policy many things need to happen. In the New Zealand case, this included having the mandate and adequate resources to compile environmental accounts, engagement with other parts of government, the active pursuit of opportunities to have data used by others, and an interest from the government in a policy (i.e. carbon tax) that could benefit from environment accounts.

It should be noted that energy and related GHG emissions accounts and a carbon tax sit in the sweet spot for environmental accounts and their application to policy questions. Annual accounting periods are meaningful as are national figures, there are no geographic constraints to consider when assessing GHG emissions, and the policy being considered can readily be assessed using existing models in government. In other cases, seasonality may be very important, national figures may have limited analytical value as issues may be geographically constrained (e.g. local in character), potential policies may be lacking, and those that could be applied may require new models and methods if they analysed in advance of implementation. At a minimum, SEEA energy and energy relate GHG emissions accounts could be a very important framework for organising information for further analysis in support of NDC preparation and addressing SDG 13.

However, given the resources required to prepare environmental accounts, consideration of whether environmental accounts will generate meaningful and analytically useful information should be considered in advance of initiating such a programme. In some cases, indicators and other types of analyses may be adequate and require less effort to be collected, compiled and analysed.

An awareness of policy styles may help those preparing environmental accounts to engage with others government agencies and manage expectations. Data entrepreneurship was central to the New Zealand case study, but at the same time there was an awareness of the need to follow the fundamental principles of official statistics and stick to the rational style of data preparation (i.e. research and analyse). Through interactions with the Treasury, an awareness emerged of the role the Treasury had following the rational and client advice styles of policy making. However, it was only on reflection that the wider issues of mediation, participation, democratisation and the clarification of values and arguments emerged as being important to the case study. Mediation not only created the opportunity for developing environmental accounts but also the trade-off that led to the carbon tax being abandoned following the 2005 election.

In conclusion, environmental accounts provided a framework for organising data used for powerful carbon tax analyses, but this depended on a lot of things including resources, linking with other government agencies, and finding an alignment of opportunities. Perhaps most importantly, if data is to be applied to policy issues, it is useful to take a proactive "data entrepreneur" approach being aware of policy making styles, while at the same time ensuring data quality through the rational style of research and analysis.

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