

Applying the Delphi method as a research technique in tax law and policy

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Abstract

This article examines the Delphi method as a tool for legal research that can be used to facilitate transparent and informative policy-making in a variety of fields including tax policy. It points to strengths and limitations of the technique based on the findings of the Delphi study conducted to assist in the assessment of fiscal and more general market-based instruments (referred to in this article as carbon pricing instruments) that could be used to tackle climate change in Australia. Whether the Delphi method is utilised in empirical or theoretical legal research or in legal and policy decision-making, this article demonstrates the strength of the technique in providing transparent and justified results, which in turn reinforces the utility of the method as a legal research and/or decision-making tool.

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1. Introduction

The conduct of legal research has developed significantly over past decades, so too has law and policy-making. Traditional legal research methodologies, while relevant for a doctrinal approach to legal research, and, indeed, legal practice, have been giving way progressively to non-doctrinal forms of research. Siems considers these forms of research as “deep research” which go beyond the work of legal practitioners.¹

Examples include “legal philosophy, legal history, legal sociology [and] law and economics”.² These non-doctrinal forms of research have been described by McKerchar as falling into the categories of reform-oriented or theoretical research and are interdisciplinary in nature.³ They have been considered to align with qualitative research methodologies or even the developing of a mixed methodological approach having non-positivism as their underlying philosophy, whereas quantitative methodologies more readily align with doctrinal legal research and a legal positivism underpinning.⁴ At first glance, this alignment between quantitative methodologies and doctrinal legal research might seem strange, but arguably lies in the empirical nature of both research processes. The quantitative methodology “reflects the view that knowledge is created by facts and observations whose existence can be verified by empirical means”,⁵ while legal doctrinal research relies on the collection of empirical data in the form of statutes and cases, the creation of hypotheses on the meaning and scope of that data and then tests those hypotheses “using the classic canons of interpretation”.⁶

However, McKerchar notes that there will often be some element of doctrinal research in the process of undertaking the non-doctrinal methodologies.⁷ The subject of this article, the Delphi method, is a technique or method of research described as a form of “consensus group interview” which is primarily utilised in qualitative research.⁸

1 MM Siems, “A world without law professors”, ch 4 in M Van Hoecke (ed), *Methodologies of legal research – which kind of method for what kind of discipline?*, Hart Publishing, Oxford and Portland Oregon, 2011, p 82.

2 Ibid.

3 M McKerchar, *Design and conduct of research in tax, law and accounting*, Law Book Company, Pyrmont, 2010, pp 116–117.

4 Ibid p 90.

5 Ibid p 91.

6 M Van Hoecke, “Legal doctrine: which method(s) for what kind of discipline”, ch 1 in M Van Hoecke (ed), *Methodologies of legal research – which kind of method for what kind of discipline?*, Hart Publishing, Oxford and Portland Oregon, 2011, p 11.

7 McKerchar, above n 3, p 90.

8 Ibid p 163.

However, it is also described as an “expert survey” conducted in two or more “rounds” and “makes use of the intuitive available information of the participants” thereby delivering both qualitative and quantitative results.⁹ While its utility has been primarily in science and technology contexts,¹⁰ there is a growing use for this technique in education, legal and other research and, as this article explores, law and policy decision-making in the context of environmental tax policy and climate change, such as carbon pricing.

A comprehensive policy assessment approach is vital for balanced law/decision-making processes.¹¹ Nonetheless, a number of commentators argue that processes of political decision-making are frequently not rationally based.¹² It was long recognised that policy-making is strongly influenced by politics and the range of available policy options is limited by institutional dependencies and political factors.¹³ Different actors have a specific set of preferences aimed to influence policy evaluation to achieve their own goals, rather than to cooperate in a process of identifying the best overall policy option.¹⁴ However, policy-making processes can at least be designed to a certain extent according to the principles of rational discussion and balanced problem solving.¹⁵ Sanderson claimed that a careful analysis of the problem and the evaluation of available options should identify mutually acceptable solutions in an efficient manner.¹⁶ This process can then inform law and/or policy decision-making. The Delphi method has been used in this context, for example, by Evans when investigating options for personal tax reform in Australia.¹⁷

9 K Cuhls, *Delphi method*, United Nations Industrial Development Organisation, p 96. Available at www.unido.org/fileadmin/import/16959_DelphiMethod.pdf. Accessed 30 April 2013.

10 Ibid p 93.

11 P Mickwitz, *Environmental policy evaluation: concepts and practice*, Tampere, Commentationes Scientiarum Socialium, 2006.

12 JW Kingdon, *Agendas, alternatives and public policy*, New York, Harper&Collins, 1995; N Zahariadis, *Ambiguity and choice in public policy. Political decision making in modern democracies*, Washington DC, Georgetown University Press, 2003.

13 G Becker, “A Theory of Competition among Pressure Groups for Political Influence”, (1983) 98 *Quarterly Journal of Economics* 371–400.

14 T Bernauer and L Caduff, “In whose interest? Pressure group politics, economic competition and environmental regulation”, (2004) 24 *Journal of Public Policy* 99–126 at 100.

15 I Sanderson, “Evaluation, policy-learning and evidence based policy making”, (2002) 80 *Public Administration* 1–22 at 19

16 Ibid.

17 C Evans, “Unravelling the mysteries of the Oracle: using the Delphi methodology to inform the personal tax reform debate in Australia”, (2007) 5 *eJournal of Tax Research* 105–135.

This article makes the assumption that law-making is the outcome of political and policy decision-making processes.¹⁸ An evaluation study comparing a carbon tax with an emissions trading scheme for the purpose of achieving climate change mitigation will be used as an example of the utility of the Delphi method in both tax policy-making and legal research. In this study, the Delphi method assisted in prioritising the criteria used in the evaluation. The criteria identified for such an evaluation were drawn from a variety of sources dealing with the question of evaluating environmentally related taxes. Based on the idea that tax policy and environmental policy need to be mutually reinforcing,¹⁹ the OECD, in its 1993 report, suggested a set of criteria for evaluating taxes and other forms of economic instruments to encourage environmentally responsible outcomes.²⁰ These and other criteria formed the basis of the Delphi study, but it must be kept in mind that the history of the evaluation of environmentally related policy instruments is rather short and the concepts are fragmented, but the interest in evaluations in this field is growing rapidly in many countries.²¹ The need for policy evaluation is not only emphasised within environmental research, but also policy-makers and administrators are more frequently articulating the necessity for such evaluations.²² In this context, the utility/appropriateness of environmental taxes and other forms of economic instruments to encourage environmentally responsible outcomes need to be evaluated.

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- 18 It is sometimes very hard to distinguish policy-making and law-making as they quite often go hand in hand. See, for example, RA Dahl, "Decision-making in a democracy: the Supreme Court as a national policy-maker" (1957) 6 *Journal of Public Law* 279–295.
- 19 There have been several reports from the OECD in this regard, including, "Guiding principles concerning the international economic aspects of environmental policies" (OECD 1972), "Taxation and the environment: complementary policies" (OECD 1993), "Environmentally related taxes in OECD countries, issues and strategies" (OECD 2001), "The political economy of environmentally related taxes" (OECD 2006) and "Instrument mixes for environmental policy" (OECD 2007). The internalisation of environmental costs and the use of economic instruments are also well established in international environmental law under principle 16 of the 1992 Rio Declaration, see: United Nations, *Rio Declaration on Environment and Development*, 31 I.L.M. 874 (1992).
- 20 OECD (1993), "Taxation and the environment: complementary policies", OECD, Paris.
- 21 See, for example, EEA 2001. "Reporting on environmental measures: are we being effective?", Environmental Issue Report 25, Copenhagen; M Hilden, J Lepola, P Mickwitz, A Mulders, M Palosaari, J Similä, S Sjöblom and E Vedung, "Evaluation of environmental policy instruments—a case study of the Finnish pulp & paper and chemical industries", *Monographs of the Boreal Environment Research*, Helsinki, 2002.
- 22 For example, a policy evaluation requirement is formulated in the 6th Environmental Action Program for the European Union which was adopted in June 2002. Article 10, para C of this document states: "[The objectives shall be pursued by] improvement of the process of policy making through: 1) ex-ante evaluations of the possible impacts, in particular the environmental impacts, of new policies including the alternative of no action and the proposal for legislation and publication of the results; 2) ex-post evaluation of the effectiveness of existing measures in meeting their environmental objectives".

In Australia, the use of *ex-ante*²³ evaluation of environmentally related policies and programs has been growing.²⁴ At the national level, strategic environmental assessment (SEA) is mandatory for fisheries under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), although for other activities, such assessment is discretionary.²⁵ The *National Environment Protection Council Act 1994* (Cth) requires strategic environmental assessment for national environmental protection measures.²⁶ Additionally, regulation impact statements, which include environmental assessment, are coordinated by the Office of Regulation Review (ORR) at the national level.²⁷ At the state level, *ex-ante* environmental impact assessment (EIA) is connected with the general project approvals arrangements.²⁸ For instance, New South Wales evaluates fisheries management schemes and Victoria and Tasmania perform an evaluation of environmental protection policies. Some state jurisdictions also implement SEA procedures—in particular New South Wales, Victoria, Western Australia and Tasmania—and, to some extent, the Australian Capital Territory employs this evaluation method.²⁹

However, overall systematic evaluation of economic, social and environmental impacts of policies and programs is inadequate at the federal and state levels in Australia.³⁰ In this context, the carbon pricing policy implemented by the Gillard Government to deal with climate change is not different.³¹ Further, without broad and systematic policy evaluation procedures that would clearly indicate all necessary criteria of appraisal, social and environmental effects of policy would still be secondary for the law-makers.³² That, in turn, would lead to disorganised and narrow policy evaluation, and therefore to tentative and biased policy decisions.

23 There are two major distinctive approaches to policy assessment, namely *ex-post* and *ex-ante* evaluations. *Ex-post* assessment involves undertaking a review of an operational law, programme or institution in order to establish strengths and weaknesses. *Ex-post* evaluation methods are critically important for updating and examining existing policies and programs. Over the past few years, many policy-making institutions worldwide have utilised *ex-post* evaluation to assess policy effectiveness (P Mickwitz, above n 11).

24 A Ross and S Dovers, "Making the harder yards: environmental policy integration in Australia", (2008) 67 *Australian Journal of Public Administration* 245-260.

25 S Marsden and J Ashe, "Strategic environmental assessment legislation in the Australian states", (2006) 13 *Australasian Journal of Environmental Management* 205-215.

26 *Ibid.*

27 Ross and Dovers, above n 24.

28 *Ibid.*

29 Marsden and Ashe, above n 25.

30 Ross and Dovers, above n 24.

31 See section VI for a discussion of climate change law-making in Australia.

32 Marsden and Ashe, above n 25.

Various methods have been applied to policy analysis of climate change mitigation mechanisms such as carbon pricing, with disparate and often contradictory results.³³ Attempts to compare costs of abatement against the expected environmental benefits are frequently undermined by fundamental uncertainties or questionable assumptions.³⁴ Expected environmental benefits are unquantifiable because of inadequate understanding of both the climate system and the likely societal responses to climate change.³⁵ The central challenge is to reflect these factors and climate impacts. An evaluation method which is able to incorporate environmental, economic and equity factors is required to assess climate change related policy such as carbon pricing.

This article argues that the Delphi method can be a useful tool in legal research facilitating transparent and informative development of policy and law. It points to strengths and limitations of this research technique based on the findings of the Delphi study conducted to facilitate the assessment of fiscal and other economic instruments in developing climate change mitigation policies such as carbon pricing for Australia. But first this article commences with the background to, and definition of, the method and considers examples of its use before applying it to carbon pricing policy-making.

2. Historical Background of the Method

The Delphi method concept is attributed to the experience of the oracle of the ancient Greek temple of Apollo at Delphi.³⁶ Delphi oracles accumulated knowledge about life and the problems of people and the solutions to those problems. This accumulated knowledge allowed them to predict successfully the outcome of various situations. The Delphi temple was one of the few places in the ancient world where knowledge was accumulated and preserved with the intention of its use and disseminated to make the world better.³⁷

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- 33 See, for example, RV Bartlett, "Evaluating environmental policy success and failure", in NJ Vig and ME Kraft (ed), *Environmental policy in the 1990s: towards a new agenda*. Washington DC: Congressional Quarterly Press, 1994; M Grubb, "Policy modelling for climate change: the missing models", (2003) 21 *Energy Policy* 203-208; S Dovers, *Environment and sustainability policy: creation, implementation, evaluation*, Sydney, The Federation Press, 2005.
- 34 LH Goulder and I Parry, "Instrument choice in environmental policy", Resources for the Future, Discussion Paper, 08-07, 2008.
- 35 M Grubb, above n 31; E3 Network, "Real people, real environments, and realistic economics, economics for equity and the environment", 2006.
- 36 K Cuhls, "Delphi method", United Nations Industrial Development Organisation. Available at www.unido.org/fileadmin/import/16959_DelphiMethod.pdf. Accessed 30 April 2013.
- 37 AV Sokolov, "The method of critical technologies", (2008) 4 *Forsyth* 66-74.

Oracles answered questions from officials as well as the general public.³⁸ The consultations were formally religious and not mere inquisitive speculations on the future. An oracle's function was to tell the divine purpose in a normative way so as to shape coming events.³⁹ Ultimately, the oracle acted as a universal arbiter.⁴⁰ The answers and predictions spread around the country and contributed significantly to the prosperity of Hellenic civilization. For example, the ancient Greek philosopher Socrates attributed the contribution of the famous prophetess, Pythia, to the development of ancient Greek society.⁴¹ Thus, the idea of the long-term oriented development is sourced from the Delphi oracle.

The modern Delphi method was developed in the 1950s by researchers working at the Rand Corporation.⁴² They designed the process as an instrument for forecasting future events by means of a series of questionnaires combined with controlled-opinion feedback.⁴³ Participants were experts in the issues related to national defence, such as in estimation of probable bombing targets the Russian Government might select in the case of an attack on the United States.⁴⁴ Initially, the method was intended to increase the coherence of expert opinions concerning the issue or judgment being studied.

Dalkey and Helmer experimentally studied accuracy and reliability of the Delphi method and suggested that the optimal number of rounds is between two and four.⁴⁵ A greater number of rounds does not significantly improve the consistency of results, but rather it has proved to be psychologically difficult for experts and costly for the organisers of the survey. With further development of the Delphi forecasting process, its capabilities have expanded and become more diverse. Subsequently, the Delphi method has been used in various areas such as industry, government and the academic world.⁴⁶

38 Ibid.

39 VS Nersesyants, "Socrates", Publisher: Science, Moscow, 1984.

40 Ibid.

41 Ibid.

42 NC Dalkey and O Helmer, "An experimental application of the Delphi method to the use of experts", (1963) 9 *Journal of the Institute of Management Sciences*, in: *Management Science* 458-467.

43 It should be noted, though, that Dalkey and Helmer were not satisfied with the term Delphi, arguing that the term implied "something oracular", something signifying a little of the occult rather than a method designed to identify the best possible solutions (NC Dalkey, 1968, cited in H Gunaydin, "The Delphi method, optimization group" 2006. Available at <http://www.iyte.edu.tr/~muratgunaydin/delphi.htm>. Accessed 9 April 2013).

44 H Gunaydin, "The Delphi method, optimization group" 2006. Available at www.iyte.edu.tr/~muratgunaydin/delphi.htm. Accessed 9 April 2013.

45 Dalkey and Helmer, above n 42.

46 M Turoff and HA Linstone, "The Delphi method: techniques and applications". Available at <http://is.njit.edu/pubs/delphibook/>. Accessed 28 April 2013.

3. Definition of the Method

The aim of most Delphi applications is the examination of ideas as well as the creation of appropriate information for decision-making.⁴⁷ The Delphi method is a structured process for accumulating knowledge from a pre-selected group of experts via a series of questionnaires combined with controlled opinion feedback.⁴⁸ The method is equipped to handle a complex problem or task in a systematic way. The questionnaires could be sent, for example, by mail or via computerised systems. The questionnaires are designed to obtain personal responses to the issues posed and to allow the experts to verify their views.

According to Turoff and Linstone, the characteristics of the Delphi method are anonymity, controlled feedback, and statistical response.⁴⁹ The experts' responses from the second round are under the influence of other participants' opinions. Thus, the Delphi method is characterised as a "relatively strongly structured group communication process, in which matters, on which naturally unsure and incomplete knowledge is available, are judged upon by experts".⁵⁰

The Delphi method as a research method has been used for many years and the types of issues where it can be applied have been well defined. Notwithstanding some methodological concerns, it is suggested that the Delphi method can be particularly useful if:

1. an application of definite analytical methods is problematic while subjective judgments on a collective basis may be beneficial;
2. the related experts are in diverse fields and professions;
3. there are too many experts to effectively apply other interactive methods and time or funds are limited to organise group conferences; and
4. moral or social dilemmas dominate monetary or practical ones.⁵¹

One of the most important issues for the Delphi process is the understanding of the aim of the exercise by all participants—otherwise the panellists may answer

47 Gunaydin, above n 44.

48 E Ziglio, "The Delphi method and its contribution to decision-making" 1996, in M Adler, and E Ziglio (ed), *Gazing into the Oracle: the Delphi method and its application to social policy and public health*, Jessica Kingsley Publishers, 1996.

49 Turoff and Linstone, above n 46.

50 M Hader, and S Häder, "Delphi und Kognitionspsychologie: Ein Zugang zur theoretischen Fundierung der Delphi-Methode", *ZUMA-Nachrichten*, 37, November 1995, 12.

51 See, for example, HA Linstone and M Turoff, *The Delphi method techniques and applications*, Reading: Addison-Wesley, 1975; UG Gupta and RE Clarke, "Theory and applications of the Delphi technique: a bibliography (1975-1994)", (1996) 53 *Technological Forecasting and Social Change* 185-211.

inappropriately or become frustrated and lose interest.⁵² The Delphi method could commence the process with a set of carefully selected options. These pre-selected options may be drawn from various sources including related reviews of the literature and practice.⁵³ A number of recent Delphi studies used the pre-selected options approach, for example, see the study discussed in section V.

Another significant aspect of the Delphi study is the selection of participants. It is suggested that the Delphi respondents should be well informed in the appropriate area.⁵⁴ However, some scholars state that it is misleading to assume a direct link between the quality of expert judgment, or expert credibility, and the accuracy of impact predictions.⁵⁵ Welty noted that there is no linear relationship between accuracy of prediction and expertise.⁵⁶ Generally, however, the participants in Delphi studies are experts in the relevant fields.

The literature differs on what is the appropriate number of participants for a Delphi study. The number of participants is usually dependent on the study design.⁵⁷ Brockhoff argues that, under perfect conditions, groups as small as four can achieve good results.⁵⁸ Ludwig notes that the approximate size of a Delphi panel is generally fewer than 50 experts.⁵⁹ According to Miller, feedback beyond the first thirty responses is unlikely to add new information.⁶⁰ Many researchers agree that the greater number of Delphi studies recruited between 10 and 20 respondents.⁶¹ Accordingly, while

52 See, for example, C McCampbell and O Helmer, "An experimental application of the Delphi method to the use of experts" (1993) 9 *Management Science* 458-467; KC Green, JS Armstrong and A Graefe, "Methods to elicit forecasts from groups: Delphi and prediction markets compared" Munich Personal RePEc Archive, 2007. Available at http://mpr.ub.uni-muenchen.de/4999/1/MPRA_paper_4999.pdf. Accessed 3 May 2013.

53 KW Brooks, "Delphi technique: expanding applications" (1979) 54 *North Central Association Quarterly* 377-385; McCampbell and Helmer, above n 52.

54 See, for example, NC Dalkey, "The Delphi method: an experimental application of group opinion", in NC Dalkey, DL Rourke, R Lewis and D Snyder (eds), *Studies in the quality of life*. Lexington Books, 1972; Brooks, above n 51; Evans, above n 17.

55 G Welty, "Problems of selecting experts for Delphi exercises" (1972) 15 *Academy of Management Journal* 121-124; JS Armstrong, *Long-range forecasting: from crystal ball to computer*, New York, Wiley, 1978.

56 Ibid.

57 K Brockhoff, "The performance of forecasting groups in computer dialogue and face-to-face discussion", in HA Linstone and M Turloff (eds), *The Delphi method: techniques and applications*, Reading: Addison-Wesley, 1975.

58 Ibid.

59 B Ludwig, "Predicting the future: have you considered using the Delphi methodology?" (1997) 35 *Journal of Extension* 1-7.

60 MM Miller, "Enhancing regional analysis with the Delphi method", (1993) 23(2) *Review of Regional Studies* 191-212.

61 RC DeLoe, "Exploring complex policy questions using the policy Delphi", (1995) 15 *Applied Geography* 53-68; Ludwig, above n 59; Evans, above n 17.

the number of respondents in the Delphi method may be variable, the prevailing view suggests that about 10 to 20 participants are adequate for most studies.

Gupta and Clarke's analysis of the theory and application of the technique has shown that practitioners often modify the Delphi method.⁶² They suggest that some modifications are beneficial but others may undermine the credibility of the technique. Indeed, a number of diverse types of Delphi studies have been recognised. For example, Van Zolingen and Klaassen, provide the following classification.

1. The classical Delphi method is characterised by anonymity, iteration, controlled feedback, statistical group response and stability in experts' responses.
2. The policy Delphi is characterised by "selective anonymity"⁶³, iteration, controlled feedback, polarised group response and structured conflict. Stability in responses is not a priority for this type of Delphi method. Instead, the aim is to generate policy alternatives by using a structured discussion. Accordingly, policy Delphi is a device for generation of different opinions and policy development.
3. The decision Delphi is characterised by "quasi-anonymity"⁶⁴. This type of Delphi method is used for decision-making on social developments. Decision-makers involved in the relevant issue participate in the Delphi study and the aim is to structure discussion so that consensus can be reached.⁶⁵

In many cases, the Delphi method is used to assess long-term issues.⁶⁶ Further, the Delphi method is able to transfer the implicit and complex knowledge to a proposition that is easier to judge.⁶⁷ That makes the Delphi appropriate for law-making procedures where there is the (political) attempt to involve various stakeholders in processes.⁶⁸

62 Gupta and Clarke, above n 51, p 189.

63 Selective anonymity may mean that participants answer questions individually but may also come together in a group meeting.

64 People with expertise are mentioned by name and known to everybody from the beginning but questionnaire responses are anonymous.

65 SJ Van Zolingen and CA Klaassen, "Selection processes in a Delphi study about key qualifications in senior secondary vocational education", (2003) 70 *Technological Forecasting and Social Change* 317-340.

66 See, for example, M Wilenius and J Tirkkonen, "Climate in the making. Using Delphi for Finnish climate policy", (1997) 29(9) *Futures* 845-862; J Klabbbers, P Vellinga, R Swart, A Van Ulden and R Jansson, "Climate change and climate policy: improving science/policy interface", (1996) 1(1) *Mitigation and Adaptation Strategies for Global Change* 73-93; H Eto, "The suitability of technology forecasting/ foresight methods for decision systems and strategy. A Japanese view", (2003) 70 *Technological Forecasting and Social Change* 231-249.

67 Gupta and Clarke, above n 51.

68 Eto, above n 66.

4. Examples of Applications

The Delphi method has been used in a variety of research contexts for a variety of reasons. For example, Jenkins and Smith explored the use of this method in family therapy research as a means of uncovering information that might have been overlooked.⁶⁹ Other examples include: analysing the features of a good offender treatment programme in criminology studies;⁷⁰ identifying key words essential for analysing the international discourse on intellectual property law;⁷¹ and country risk assessment when dealing with export letter of credit transactions.⁷²

In a project designed to develop teaching tools for sports law, the Delphi method was considered an ideal technique to assist in selecting the case law to be studied under each topic in the course.⁷³ Young, Pittman and Spengler noted several benefits to utilising the Delphi method.⁷⁴ The nature of the method permitted greater flexibility enabling experts to be chosen from a variety of geographical locations.⁷⁵ This together with the anonymity of the members in the expert panel enabled “equal and balanced participation” minimising the “tendency to follow-the-leader, or the band-wagon syndrome”.⁷⁶ Meanwhile, it was noted that the individuals chosen for the expert panel may be experts in a particular area of the field in question but not necessarily experts on the entire field. While this has been considered to be a potential problem, it has been suggested that it is up to the researchers to make the “most constructive and systematic use of the experts’ opinions”.⁷⁷

Taking the utility of the Delphi method in legal research a step further, the technique has proved useful in content analysis of judicial opinions, a method described as a “legal form of empiricism”.⁷⁸ Hall and Wright explain that “empirical legal methods are often standard applications of basic social science methods” noting that legal

69 DA Jenkins and TE Smith, “Applying Delphi methodology in family therapy research”, October 1994, 16(5) *Contemporary Family Therapy* 411–412.

70 A McCulloch and M McMurrin, “The features of a good offender treatment programme manual: a Delphi survey of experts”, (2007) 13(3) *Psychology, Crime & Law* 265–274.

71 R Ghafele, “Of war and peace: analyzing the international discourse on intellectual property law”, (2010) 3 *Intellectual Property Quarterly* 237–255.

72 R Bergami, “A risk management approach for export letter of credit transactions”, (2010) 14 *Vindobona Journal of International Commercial Law & Arbitration* 165.

73 SJ Young, AT Pittman and JO Spengler, “Best case scenario: the development of a teaching tool for sport law”, (Winter 2004) 14 *Journal of Legal Aspects of Sport* 1 at 3.

74 *Ibid.*

75 *Ibid.*

76 *Ibid.*

77 *Ibid* p 4.

78 MA Hall and RF Wright, “Systematic content analysis of judicial opinions”, (February 2008) 96 *California Law Review* 63, 64, 117.

researchers “are great borrowers of scholarly methods”.⁷⁹ A variety of coding techniques for their content analysis of judicial opinions were considered noting that the Delphi method with its “expert panel consensus model” had been known for its use in evaluating medical judgments.⁸⁰ The technique had “been shown to be a fairly reliable method for rating highly complex and judgmental aspects of medical decision making ... combin[ing] elements of ‘gold standard’ expertise with consensus building and majority rule”.⁸¹ One of the advantages of the Delphi method over traditional social science methods like focus groups is different levels of anonymity as described in section III above. This may reduce the impact of peer pressure experienced in focus group methods.

The Delphi method has been applied to policy-related issues in a number of studies.⁸² For instance, Evans fruitfully utilised this method in the field of taxation.⁸³ With regard to environmental policy, the Delphi method has been applied, for example, to natural resource issues such as forest biodiversity, sustainability, heritage tourism, environmental disputes, forecasting, national park selection in Taiwan and aquatic habitat selection in Lake Ontario, to name a few.⁸⁴

However, its application to climate change policy issues is rather limited. An early example of application of the method to climate-related policy is the Finnish study intended to identify future scenarios of Finnish climate change policy.⁸⁵ A practical aim of the study was to assist Finnish decision-makers in the preparation of national strategies for the Climate Convention initiated in Rio de Janeiro. The Finnish

79 Ibid p 117.

80 Ibid.

81 Ibid.

82 DeLoe, above n 61; Evans, above n 17.

83 Evans, above n 17.

84 JJ Kangas, M Alho, O Kolehmainen and A Mononen, “Analyzing consistency of experts’ judgments – case of assessing forest biodiversity”, (1998) 44 *Forest Science* 610-617; GA Mendoza and R Prabhu, “Development of a methodology for selecting criteria and indicators of sustainable forest management: a case study of participatory assessment”, (2000) 26 *Environmental Management* 659-673; B Garrod and A Fyall, “Managing heritage tourism”, (2000) 27 *Annals of Tourism Research* 682-708; A Miller and W Cuff, “The Delphi approach to the mediation of environmental disputes”, (1986) 19 *Environmental Management* 321-330; LG Ying and H Kung, “Forecasting up to Year 2000 on Shanghai’s environmental quality”, (2000) 63 *Environmental Monitoring and Assessment* 297-312; NW Kuo and YH Yu, “Policy and practice: an evaluation system for national park selection in Taiwan”, (1999) 42 *Journal of Environmental Planning and Management* 735-745; WD Bush and SJ Lary, “Assessment of habitat impairments impacting the aquatic resources of Lake Ontario”, (1996) 53 *Canadian Journal of Fisheries and Aquatic Life* 113-120.

85 Wilenius and Tirkkonen, above n 64.

study closely correlates with a similar project carried out in the Netherlands within the Dutch National Research Programme on Global Air Pollution and Climate Change.⁸⁶ Both projects aimed to engage the experts in compound dialogues to analyse the climate change situation and obtain future projections rather than solutions for the issues discussed.

Perhaps one of the most recent and complete applications of the Delphi method in this context is the US Government Accountability Office (GAO) study conducted to identify experts' opinions concerning climate change economic policy options.⁸⁷ The group of qualified experts was asked in particular to identify and rank criteria for evaluating greenhouse gas reduction policy options.⁸⁸ This project is one of a few comprehensive studies making the most of highly ranked professionals to facilitate appraisal of climate change policy options.

Another example is a Malaysian study based on the research of Guglyuvatty and of Mariolla.⁸⁹ The study was conducted with a group of Malaysian experts and professionals from various fields to identify operative strategies for promoting effective environmental policy in Malaysia.⁹⁰ The study considered the application of subsidies to the range of environmentally related issues such as water conservation, hybrid and other sustainable forms of transportation, cooking oil recycling, glass

86 Klabbers et al, above n 66.

87 The group of experts includes respected professionals in the field of climate change economics: Joseph Aldy, Resources for the Future; James Edmonds, Pacific Northwest National Laboratory; Richard Howarth, Dartmouth College; Bruce McCarl, Texas A&M University; Robert Mendelsohn, Yale University; William Nordhaus, Yale University; Sergey Paltsev, Massachusetts Institute of Technology; William Pizer, Resources for the Future; David Popp, Syracuse University; John Reilly, Massachusetts Institute of Technology; Roger Sedjo, Resources for the Future; Kathleen Segerson, University of Connecticut; Brent Sohngen, Ohio State University; Robert Stavins, Harvard University; Richard Tol, Economic and Social Research Institute; Martin Weitzman, Harvard University; Peter Wilcoxon, Syracuse University; Gary Yohe, Wesleyan University.

88 GAO, "Expert opinion on the economics of policy options to address climate change", United States Government Accountability Office. Washington DC, 2008.

89 E Guglyuvatty, "Assessing carbon tax and emissions trading as policy options for climate change mitigation in Australia" (PhD thesis, The University of New South Wales, 2011). Available at unsworks.unsw.edu.au/fapi/datastream/unsworks:9300/SOURCE02; MJ Mariola, "Are markets the solution to water pollution? A sociological investigation of water quality trading", The Ohio State University, 2009. Available at http://etd.ohiolink.edu/view.cgi?acc_num=osu1250015222. Accessed 5 May 2013.

90 LC Hong, D Lakshmayya and TL Cheng, "Subsidies: boon or bane in promoting proper implementation of good environmental public policy", Research paper, 2012. Available at <http://library.wou.edu.my/vertical/vf2012-10.pdf>. Accessed 5 May 2013.

recycling, encouragement of the usage of public transport via tax deductions and tree growing fees.⁹¹ The Malaysian researchers obtained some interesting results. For example, they found that subsidies on water would not provide an incentive for the consumer to save water or harvest rainwater; the excise duty exemption on the hybrid vehicles would not encourage motorists to change from regular petrol/diesel vehicles; and cooking oil recycling is not viable as the cost of cooking oil is low.⁹²

One of the Australian examples comprises a Delphi study conducted to verify and assess the relative importance of the evaluation criteria relevant for the choice between a carbon tax and an emissions trading scheme as the appropriate policy choice to tackle climate change in Australia.⁹³ This study is discussed in more detail in the next section.

5. Applying Delphi: Environmental Tax Policy in the Australian Climate Change Context

In order to better explain the utility of the Delphi method in both legal research and policy decision-making, we have chosen to illustrate this through the case study of the Guglyuvatyy research project mentioned above. Through this mechanism, we can demonstrate the process of the Delphi method and the outcomes achieved in the research context. We then go on in section VI to consider those outcomes in the light of the environmental tax policy actually developed in Australia, namely the two-step carbon pricing mechanism, without the benefit of a Delphi study to establish and prioritise the necessary criteria for policy evaluation.

Guglyuvatyy used the Delphi method as one part of a broader research project which was conducted in 2010.⁹⁴ The primary question explored by this project was which alternative, carbon tax or emissions trading, would be an optimal policy for climate change mitigation in Australia. The project focused on assessing carbon tax and emissions trading policy options on the basis of multiple criteria related to environmental and tax policy in the Australian context. The project combined various research techniques including the Delphi method which was utilised to assess a set of criteria. The Delphi study was applied to obtain consistent experts opinions needed to assess and update the list of evaluative criteria and weigh the relative importance of

91 Ibid.

92 Ibid.

93 Guglyuvatyy, above n 89.

94 E Guglyuvatyy, "Identifying criteria for climate change policy evaluation in Australia", (2010) 7 *Macquarie Journal of Business Law* 98–130.

those criteria.⁹⁵ We use this example to demonstrate the value of the Delphi method in achieving the goals of a legal research project. Due to the nature of Guglyuvatyy's project, however, it also illustrates how the method can be used in the policy-making process.

Many researchers agree that to select an optimal economic instrument, the policies should be first evaluated in accordance with a set of definite criteria.⁹⁶ Evaluation of economic instruments such as environmental taxes and emissions trading schemes needs to be undertaken with due consideration of not only the usual economic evaluation criteria, but also the specifics of climate change issues, otherwise there is a serious risk that the policy will be ineffective. The Guglyuvatyy study is, in essence, a study on carbon pricing policy-making. As the OECD has reported time and again, such tax or economic policy must be mutually reinforcing with the goal of the environmental policy to be served.⁹⁷ This would be the case if not all the related factors were considered and thus some evaluation criteria might be omitted.⁹⁸ Identifying criteria for policy evaluation is a task that has progressively occupied scholars and policy-makers in recent years. However, there is no mutual agreement on precisely what criteria an optimal carbon pricing policy should satisfy.⁹⁹ Guglyuvatyy's study identified evaluation criteria on the basis of literature and similar studies assessing carbon pricing policies and also suggested testing the identified criteria by means of the Delphi method.¹⁰⁰

The preliminary criteria list is presented in Table 1.¹⁰¹ As this article is concerned with demonstrating the use of the Delphi method in identifying vital evaluative criteria as well as clarifying their importance, it is not necessary to explain the meaning of each criterion.

95 The weights may be obtained directly from the decision-maker, stakeholders or may be developed by applying appropriate methods. Nonetheless, it is very difficult to obtain objective quantitative weights, as knowledge and the confidence are typically rare. Criteria weighting is sensitive to the expressed preferences of decision-makers or stakeholders which adds an additional subjectivity to the outcome. Considering this, it is necessary to limit the degree of subjectivity in the weighting process for this purpose some policy evaluation procedures involve experts. Employing experts instead of decision-makers or stakeholders is expected to bring an element of unprejudiced and objective assessment of the required information. C Gough and S Shackley, "Towards a multi-criteria methodology for assessment of geological carbon storage options", (2006) 74 *Climatic Change* 141–174.

96 See, for example, S Smith and HB Vos, "Evaluating economic instruments for environmental policy", Paris, OECD, Business & Economics, 1997; Dovers, above n 33; Mickwitz, above n 11.

97 OECD, above n 19.

98 P Mickwitz, "A framework for evaluating environmental policy instruments", (2003) 9 *Evaluation* 415–436.

99 Dovers, above n 33; N Gunningham and D Sinclair, "Policy instrument choice and diffuse source pollution", (2005) 17 *Journal of Environmental Law* 51–81.

100 Guglyuvatyy, above n 94.

101 Ibid.

Table 1: Preliminary list of the criteria for carbon pricing policy evaluation

Selected criteria
1. Environmental effectiveness
2. Cost-effectiveness
3. Correct price signal
4. Competitiveness issues
5. Administrative costs
6. Compliance costs
7. Predictability/regulatory certainty
8. Effect on technology development
9. Minimise rent-seeking
10. International harmonisation
11. Flexibility of the policy
12. Political acceptability
13. Transparency
14. Distribution of benefits and costs across income groups
15. Public acceptability
16. Distribution of benefits and costs across generations

Source: E Guglyuvatyy, “Assessing carbon tax and emissions trading as policy options for climate change mitigation in Australia” (PhD thesis, The University of New South Wales, 2011). Available at unsworks.unsw.edu.au/fapi/datastream/unsworks:9300/SOURCE02.

The individuals selected for the Guglyuvatyy study were identified as experts in the fields related to climate change and carbon pricing policy.¹⁰² This study suggests that experts from economic, legal and environmental policy fields would provide some breadth of insight into factors crucial for climate change mitigation. It is critical that the questionnaire devised for the Delphi study is designed to minimise ambiguities.¹⁰³ Accordingly, closed-ended questions and the five points Likert scale¹⁰⁴ were utilised

102 Guglyuvatyy, above n 94.

103 Kangas, above n 84.

104 J Carifio and JP Rocco, “Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert scales and Likert response formats and their antidotes”, (2007) 3(3) *Journal of Social Sciences* 106–116.

for the first part of the questionnaire and were followed by open-ended questions for the second part.¹⁰⁵

The 11 experts who participated in the study represent Australian internationally recognised specialists. In the round one questionnaire, the respondents were questioned to verify and update the proposed 16 criteria required for policy evaluation in the Australian context.¹⁰⁶ The second question required participants to assess the importance of those criteria. The summarised responses to the round one questions from the experts were included in the second round questionnaire attached to the invitation letter.¹⁰⁷ The fundamental aspect of the Delphi process is that experts can revise their previous answers if they wish to do so. The purpose of the second round was to generate a consensus among the experts and/or to achieve the stability of the results. Guglyuvatyy notes the second round increased the opportunity to get a deeper perspective on the evaluation criteria.¹⁰⁸

The experts identified 17 additional criteria during the first round of responses. These additional criteria were presented for consideration by the panel of experts in the second round questionnaire with the aim of obtaining further comments. Interestingly, most of these criteria were excluded by a majority of these panel members. Nevertheless, the Guglyuvatyy Delphi study resulted in identification of two imperative criteria namely, to “minimise GHG [greenhouse gas] emissions leakage” and the “polluter pays principle”, both of which were included in the list of criteria of this study.

The importance value of each criteria is presented as a percentage in Table 2.¹⁰⁹

105 The Likert scale is commonly utilised in research that employs questionnaires. This approach is habitually used to scale responses in survey research in various disciplines, for example, social science, medicine, law and many others. This scale of measurement lists data in rank order but without fixed differences among the entries. The ordinal scale is utilised to weigh the importance of criteria, with values from 1 to 5, where 1 = not at all important; 2 = somewhat important; 3 = moderately important; 4 = quite important; and 5 = extremely important.

106 Guglyuvatyy, above n 94.

107 Ibid.

108 Ibid.

109 Ibid.

Table 2: Established evaluation criteria

Criteria	Average weight	Importance value in %
Environmental effectiveness	4.63	92.6
Transparency	4.27	85.4
Minimise rent-seeking	4.09	81.8
Correct price signal	4.00	80
Flexibility of the policy	3.90	78
Minimise GHG emissions leakage	3.81	76.2
Public acceptability	3.54	70.8
Political acceptability/feasibility	3.45	69
Predictability/regulatory certainty	3.45	69
Polluter pays principle	3.45	69
Effect on technology development	3.36	67.2
Cost-effectiveness	3.27	65.4
Distribution of benefits and costs across generations	3.27	65.4
Compliance costs	3.09	61.8
Distribution of benefits and costs across income groups	3.00	60
Competitiveness issues	2.45	49
Administrative costs	2.45	49
International harmonisation	2.36	47.2

Source: E Guglyuvatyy, “Assessing carbon tax and emissions trading as policy options for climate change mitigation in Australia” (PhD thesis, The University of New South Wales, 2011). Available at unsworks.unsw.edu.au/fapi/datastream/unsworks:9300/SOURCE02.

The results of the Delphi method, applied in the Guglyuvatyy study, demonstrate that the criteria identified by this study are valid and essential for policy evaluation in the Australian context. The study demonstrated agreement that environmental effectiveness is a prime criterion confirming that greenhouse gas (GHG) reduction is the key aim for a carbon pricing policy.¹¹⁰ This was followed by the criteria of “transparency” and “minimise rent-seeking”, constituting surprising findings of this study.¹¹¹ These areas emphasise the non-economic aspects of a policy and are the criteria signifying equity characteristics of a carbon pricing policy. On the other hand, the “competitiveness” issues, “administrative costs” and “international harmonisation”

110 See Table 2 above.

111 Ibid.

criteria have been given the lowest weights,¹¹² which is rather an extraordinary finding since these criteria are often prioritised by policy-makers.¹¹³ Overall, the Delphi approach employed by Guglyuvatyy allowed the obtaining of consistent and methodically justified weightings for carbon pricing policy evaluation criteria.

6. Carbon Pricing Policy-making in Australia

In this section, we consider the principles or criteria utilised in the development of Australia's carbon pricing policy and compare them to the criteria identified and prioritised in the Delphi study considered in section V of this article. We then consider what this comparison reveals about policy and law-making and the impact a technique like the Delphi method can make on the process.

A range of measures aimed to reduce Australia's GHG emissions have been on the agenda at the federal and state level for the last two decades. Consecutive Australian governments have been dedicated to the introduction of a carbon tax or emissions trading scheme (ETS) designed to reduce GHG.¹¹⁴ There has been some experience with the deployment of an ETS at various governmental levels in Australia. At a sub-national level, for instance, the NSW Greenhouse Gas Abatement Scheme (GGAS) commenced in 1997 and became mandatory in 2003.¹¹⁵ At the federal level, support for a national ETS followed long-standing support at the state government level. The first intention to introduce an emissions trading scheme at the federal level was announced in 2006 by the then Prime Minister John Howard indicating that Australia would move towards a domestic ETS.¹¹⁶ The following Rudd Government then tried to introduce an Australian Carbon Pollution Reduction Scheme (ACPRS) in 2008.¹¹⁷ However, the ACPRS legislation was twice defeated in the Australian Parliament in 2009. Next, the Gillard Government established the Multi-Party Climate Change

112 Ibid.

113 Smith and Vos, above n 96; Gunningham and Sinclair, above n 99.

114 M Wilder and L Fitz-Gerald, "Review of policy and regulatory emissions trading frameworks in Australia", (2009) 27 *AERLJ* 1-22.

115 R Passey, I MacGill and H Outhred. "The NSW Greenhouse Gas Reduction Scheme: An analysis of the NGAC Registry for the 2003, 2004 and 2005 compliance periods". Available at www.ceem.unsw.edu.au/sites/default/files/uploads/publications/CEEM_DP_070827_000.pdf.

116 Wilder and Fitz-Gerald, above n 114. Note, however, that in 2005, the Australian state and territories issued a discussion paper concerning a national emissions trading scheme which would cover the power generation sector.

117 CPRS, "Carbon pollution reduction scheme" 2009, p 10. Available at www.climatechange.gov.au/government/initiatives/cprs.aspx. Accessed 15 March 2011.

Committee (the Committee)¹¹⁸ comprising of members of the federal government and senators¹¹⁹ whose purpose was to investigate carbon pricing.¹²⁰

The major objective of the Committee was to design a carbon pricing mechanism in accordance with eleven policy criteria or principles that were supposed to provide a consistent basis for the considerations on determining a carbon price.¹²¹ The principles are:

- environmental effectiveness;
- economic efficiency;
- budget neutrality;
- competitiveness of Australian industries;
- energy security;
- investment certainty;
- fairness;
- flexibility;
- administrative simplicity;
- clear accountabilities; and
- to support Australia's international objectives and obligations¹²²

The Committee indicated that the proposed principles provided a solid basis for the design decisions of the carbon pricing mechanism. The mechanism comprising a fixed carbon pricing period of three years followed by a cap and trade ETS came into operation on 1 July 2012.¹²³

118 Multi-Party Climate Change Committee. Available at www.climatechange.gov.au/government/initiatives/mpccc.aspx.

119 The Committee included: the Prime Minister, the Hon. Julia Gillard MP, the Deputy Prime Minister, the Hon. Wayne Swan MP and the Minister for Climate Change and Energy Efficiency, the Hon. Greg Combet AM MP, joined by co-deputy chair of the Committee, Australian Greens Deputy Leader Senator Christine Milne, Australian Greens Leader Senator Bob Brown, Mr Tony Windsor MP, and Mr Rob Oakeshott MP. The Committee was assisted by the Parliamentary Secretary for Climate Change and Energy Efficiency, Mr Mark Dreyfus QC MP and Mr Adam Bandt MP, and by expert advisers Professor Ross Garnaut, Professor Will Steffen and Mr Rod Sims.

120 W Gumley and N Stoianoff, "Carbon pricing options for a post-Kyoto response to climate change in Australia", (2011) 39(1) *Federal Law Review* 131. A carbon pricing scheme is often called a "tax" because during the fixed price period, the liable parties are obliged to purchase fixed price carbon units which is similar to paying tax. However, they cannot trade the units on the market, as under an emissions trading scheme.

121 Multi-Party Climate Change Committee. Available at www.climatechange.gov.au/~media/Files/minister/combet/2011/media/february/mr20110224.pdf.

122 It is important to note that the principles are not stated in any order of priority. See Multi-Party Climate Change Committee. Available at www.climatechange.gov.au/~media/Files/minister/combet/2011/media/february/mr20110224.pdf.

123 The Committee, above n 122.

The broad framework of the introduced carbon pricing scheme was similar in some respects to the previously proposed ACPRS.¹²⁴ Nonetheless, the carbon pricing scheme was a considerable improvement on the heavily compromised ACPRS in some aspects. For example, compensation for affected industry was designed as a temporary measure only.¹²⁵ The households' assistance package was intended to compensate low and medium income earners rather than high income earners.¹²⁶ Additionally, a number of measures aimed to inspire energy efficiency was also a noteworthy enhancement. However, the legislation implemented did not seem to reflect some of the Committee's criteria adequately.

The Gillard Government decided to propose emissions trading and prioritise economic objectives but ignore other key policy considerations. It declared that the legislation "is the most cost-effective and economically responsible way of reducing Australia's carbon pollution."¹²⁷ Thus, the Australian Government followed a general tendency to concentrate on some criteria, such as costs-effectiveness of GHG emissions reduction, and ignore other important criteria. Moreover, the whole process of decision-making by the Committee was unclear. There was no information disclosed concerning major aspects of law-making such as what approaches have been employed to prioritise criteria and how policy options were evaluated, if at all. Besides, the policy was further modified in 2012 and once again there was no clear explanation on why the policy had been changed.¹²⁸ In this light, it is difficult to consider the carbon pricing law-making process in Australia as adequate and comprehensive.

It seems that the criteria prioritised by the Committee, and as a result the implemented law, reflect political negotiation rather than an efficient and transparent process of law-making. The result of such a process is a compromised policy and non-transparent political trade. Consequently, the implemented law has been the subject of criticism,¹²⁹ and under the current Abbott Government, substantially repealed, effective 1 July 2014.¹³⁰

124 For details, see CPRS, above n 112.

125 The Committee, above n 122.

126 Ibid.

127 Clean Energy Agreement. Available at www.climatechange.gov.au/government/initiatives/mpccc/resources/clean-energy-agreement.aspx.

128 On 28 August 2012, the Minister for Climate Change and Energy Efficiency announced that the price floor would no longer be implemented as part of a package agreed with the European Commission to link the European Union Emissions Trading System with Australia's emissions trading scheme. See "Price floor for Australia's carbon pricing mechanism". Available at www.climatechange.gov.au/government/submissions/closed-consultations/price-floor-carbon-pricing.aspx.

129 See F Andersson and P Karpestam, "The Australian carbon tax: a step in the right direction but not enough" (2012) 3(3) *Carbon Management* 293-302; A Macintosh, "The carbon farming initiative: removing the obstacles to its success" (2013) 4(2) *Carbon Management* 185-202.

130 Australian Government, Department of the Environment, *Repealing the carbon tax*. Available at www.environment.gov.au/climate-change/repealing-carbon-tax. Accessed 24 July 2014.

As one may note, the results of the study discussed in section V provide the range of criteria which are very similar to the criteria indicated by the Multi-Party Climate Change Committee. More importantly, the discussed Delphi study confirmed the validity of the proposed criteria and relative importance of those criteria in terms of the carbon pricing policy evaluation. As mentioned above in section V, the Delphi experts agreed that the three principal criteria to take into consideration are non-economic aspects of policy signifying the equity characteristics of a carbon pricing policy and represented by the criteria of environmental effectiveness, transparency and minimising rent-seeking, with the last two not appearing in the list of principles considered by the Multi-Party Climate Change Committee. On the other hand, the competitiveness issues, administrative costs and international harmonisation criteria, while appearing in the 11 principles espoused by the Multi-Party Climate Change Committee, were given the lowest weights in the Guglyuvatyy Delphi study.

Unfortunately, the policy implemented by the Gillard Government failed to address a number of the critical principles identified by the Multi-Party Climate Change Committee as well as by the Guglyuvatyy Delphi study, particularly, environmental effectiveness, economic efficiency, investment certainty, administrative simplicity and clear accountabilities. The criteria that the carbon pricing policy might have sustained include competitiveness of Australian industries, fairness and Australia's international objectives and obligations, which seems to be prioritised by politicians. Accordingly, the carbon pricing mechanism contradicted some of the critical principles which were needed to be satisfied first of all. For example, the Delphi experts in the Guglyuvatyy study agreed that environmental effectiveness is a prime criterion confirming that GHG reduction is the key aim for a carbon pricing policy. Further, the criteria of "transparency" and "minimise rent-seeking" have also been identified as extremely important for climate change policy. If the Australian policy-makers had prioritised those criteria, the resulted policy may have been rather different from what was introduced. A policy adequately addressing the criteria of environmental effectiveness, transparency and minimise rent-seeking may have become much more acceptable to the Australian public and perhaps less likely to have been repealed by Abbott Government.

The Delphi method can contribute to improved real world law-making. For example, the criteria which are assessed and validated by the multi-disciplinary climate change experts in the Guglyuvatyy study could have provided justified and solid determinants that promote joint environmental, economic and equity considerations of a policy. Reflection on these criteria and their importance in policy appraisal would have ensured adequacy of policy development and selection and provided an essential guide for the law-makers. Thus, the application of the Delphi method can provide a foundation for a balanced law-making model that can be utilised in various fields of policy-making and legal research, such as in environmental taxation and carbon pricing instruments.

7. Strength and Weaknesses of the Delphi Method

Now that we have demonstrated how the Delphi method has been utilised in legal research and what contribution it could make in environmental tax policy and law-making, such as in the carbon pricing context, it is important to consider its strengths and weaknesses as a decision-making tool. Despite its utility in a variety of legal research and decision-making contexts, the Delphi method has been criticised on the basis of the soundness, reliability and credibility of its application. Sackman suggested that the Delphi method is unscientific, and therefore inherently misleading, and there is no possible way to improve it.¹³¹ He also suggests that anonymity may lead to a lack of accountability since responses may not be traced. Some authors have raised issues related to the selection of experts; for example, their origin, their individual bias and the reason for them to be considered experts.¹³² Further, it has been argued that a consensus tactic can result in a diluted version of the top judgment.¹³³ However, other methods that aimed at consensus, such as focus groups and nominal groups, also run this risk. There are several other issues, such as potential administrative complexity and low response rate, which require attention before conducting a Delphi study.¹³⁴

On the other hand, there have been several studies supporting the Delphi method. A study conducted by Basu and Schroeder reports that the Delphi forecasts were 10–15% more precise than quantitative methods of forecast.¹³⁵ In general, the Delphi method is useful when its results serve as inputs for further analysis.¹³⁶ This position is supported by Gordon and Hayward who argue that the Delphi method, based on the combination of expert judgments, suffers from the possibility that interactions between the observed items may not be fully considered.¹³⁷

One of the major advantages of the Delphi method is its potential to acknowledge the contribution of each participant. Besides, guaranteed anonymity in responding to questions is expected to encourage ideas that are free of influences of others

131 H Sackman, *Delphi critique: expert opinion, forecasting, and group process*, Lexington, Lexington Books, 1975.

132 Ibid; O Helmer, "Problems in futures research: Delphi and causal cross-impact analysis", (1977) 9 *Problems in Futures Research* 17–31.

133 C Powell, "The Delphi technique: myths and realities", (2003) 41(4) *Journal of Advanced Nursing* 376–382.

134 Miller and Cuff, above n 84.

135 S Basu and RG Schroeder, "Incorporating judgments in sales forecasts: application of the Delphi method at American Hoist and Derrick", (1977) 7 *Interfaces* 18–27.

136 RD Gatewood and EJ Gatewood, "The use of expert data in human resource planning: guidelines from strategic forecasting", (1983) 5(1) *Human Resource Planning* 83–94.

137 TJ Gordon and H Hayward, "Initial experiments with the cross-impact matrix method of forecasting", (1968) 1(2) *Futures* 100–116.

and consequently more likely to be accurate.¹³⁸ It is also suggested that anonymity motivates experts to make statements on the basis of their personal expertise and experience, rather than a careful institutional position.¹³⁹ By adopting the Delphi method as a research tool, the “collective human intelligence capability” found in groups of experts can be used.¹⁴⁰ Snyder-Halpern summarises the advantages of the Delphi method as follows: flexibility to diverse data collection strategies; reduced peer pressure; and the simplicity of summarising ideas of varied experts into a few specific concepts.¹⁴¹

Hong et al investigated effective strategies for implementation of environmental public policy using a group of experts and public members in Malaysia.¹⁴² The research provided some interesting findings. Currently, there are many environmental policy initiatives in Malaysia, however, a number of subsidies disrupt the environmental effectiveness of the initiatives, specifically those using fiscal instruments.¹⁴³ The findings of the Malaysian researchers provide valuable information which could be effectively utilised by policy-makers for future environmentally related decision-making.

The findings of the research discussed in section V demonstrate the effectiveness of the Delphi method as a qualitative method seeking to clarify ill-defined topics. The Delphi method is a low-cost and reliable instrument to achieve valid judgments concerning the investigation of an issue.¹⁴⁴ It provides participants opportunities to revise their responses through multiple rounds based on feedback received from other members of a panel. The primary advantage of a Delphi activity, which starts with a selected set of options, is that it increases the opening round response rate and facilitates a solid foundation in earlier work.¹⁴⁵ In the context of the discussed research, the Delphi method with a set of pre-selected options proved to be an effective approach.

In complex real world situations, no evaluation can resolve all the uncertainties and decidedly determine which one of the evaluated policy alternatives would potentially be the optimal approach. Therefore, even though the Delphi method will remain appropriate for most types of GHG policy evaluation, the approaches of obtaining

138 CM Goodman, “The Delphi technique: a critique”, (1987) 12 *Journal of Advanced Nursing* 729-734; R Snyder-Halpern, “Indicators of organizational readiness for clinical information technology/systems innovation: a Delphi study”, (2002) 63 *International Journal of Medical Informatics* 179-204.

139 Gupta and Clarke, above n 51.

140 Linstone and Turoff, above n 51.

141 Snyder-Halpern, above n 138.

142 Hong et al, above n 90.

143 Ibid.

144 I Masser and P Foley, “Delphi revisited: expert opinion in urban analysis”, (1987) 24(3) *Urban Studies* 217-225.

145 Dalkey, above n 54; Brooks, above n 53.

input information concerning criteria and policy options may need to be changed to incorporate, for example, various stakeholders and decision-makers' preferences. For example, the study discussed in section V does not include decision-makers who may introduce an extra strength to the procedure. The Delphi process may need to be extended to include a sufficient number of decision-makers and/or industry representatives in order to improve the reliability of the proposed policy. It is therefore important to adjoin the method to a particular decision-making situation.

The potential performance of policy options is certainly one of the key aspects of policy evaluation. The Delphi method may be used to facilitate assessment of the potential performance of policies. The qualitative assessment of policy performance based on data collected from the literature and experiences as well as recent scientific estimations may not be adequate because this information tends to alter rapidly. The environmental, economic and equity variables are generally confined to the time of the research/assessment, as conditions, as well as people's perceptions, are constantly changing. To obtain the most recent data and rank policy options on various related criteria, the government might employ a number of experts providing additional objectivity to the law-making process.

This article suggests a practical method facilitating transparent and comprehensive decision-making procedures. The discussed method used to evaluate and select the criteria serves as a foundation to create information support for the problem of multi-criteria choice. This methodological approach is coherent and simple in that it can be utilised by a single researcher or policy-maker/s when considering such a multi-dimensional policy as carbon pricing. The Delphi method advances the discussion by bringing forward new aspects, ideas and generalisations, enforcing learning processes that can contribute to improving the choices and implementation of policy instruments. It is hoped that the Delphi method will become a viable legal research tool that can help to alert and inform policy-makers about different approaches and solutions which can be more rational and significantly more appropriate for policy-making. But what is important to note is that this method often forms the first stage in an overall legal analysis, for example, it is a useful tool for identifying and ranking essential evaluative criteria. What must then occur is the application of those criteria in the evaluation process of the subject of the research.

8. Conclusion

This article has explored the technique known as the Delphi method and how it has and can be applied to tax policy-making and legal research and decision-making. It has been primarily useful in qualitative research and this article has noted how legal research has evolved utilising methodologies drawn from the social sciences. The nature of such interdisciplinary research has been described as reform-oriented or theoretical research. The examples provided, including the specific case study of

applying the Delphi method in the Australian policy context, demonstrate both the use of this technique in legal research and its applicability for tax legal policy-making, whether or not it has been utilised by the policy-makers. This has reinforced the utility of the technique in both theoretical and reform-oriented research, particularly as a method of identifying and ranking key evaluative criteria to be applied in a legal analysis whether of an existing regime or to assist with the choice of a regime from a variety of policy options.

There have been a number of criticisms of the Delphi method but by far the greatest criticism relates to the way the method is carried out, in particular, how the experts are chosen and how many are chosen. It relies on the skill of the researcher in defining who is an expert in the field being investigated. Further, with the optimal number of experts being in the range of 10 to 30, the criticism here relates to whether the group is a representative group. Conversely, the proponents of the technique hail the flexibility of the Delphi method, its ability to obtain “equal and balanced participation” with reduced peer pressure thereby providing for consensus-based conclusions, and the ability of the method to clarify complex and ambiguous issues and achieve valid judgments. Whether the Delphi method is utilised in empirical or theoretical legal research or in legal and policy decision-making, this article has demonstrated the strength of the technique in providing transparent and justified results, which in turn reinforces the utility of the method as a legal research and/or decision-making tool.