Quantifying Social Entities: An Historical-Sociological Critique

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In formulating social policy the administrative arm of government relies heavily on number-based significations of knowledge, such as needs indicators and performance measures. Relying on numbers increases administrators' confidence in their decisions and shifts responsibility for error away from the decision-maker and towards the numbers. A close examination of the technology of social quantification reveals instability in many of the definitions and codes that needs analysts and program evaluators adopt when numerically inscribing social entities. To deal with these risks, bureaucracies must establish ways of explicitly assessing the uncertainty, imprecision and social construction that often lies behind the evidence presented as numbers, evidence that can easily be accepted on face value and be turned uncritically into decision-making rationales.

Keywords: *numbers, policy, social quantification, needs indicators, evidence, decision-making, statistics*

The modern western state applies most public funds to its social programs. The objectives of social programs are determined by the social policy of the state, formulated ideally on sound evidence. In recent years there has been a growing call for policy to be evidence-based. The fundamental elements of this evidence are meaningful descriptions of the characteristics of social entities that represent the needs of the citizens and the priorities of the state concerning those needs, as determined through the political process. Typically these social entities describe the population's health and welfare needs. For example, the state's health administrators seek to know the population's priority needs in health care and how these are likely to change, while regional

and social planners seek forecasts of the socio-economic status of sub-populations. This knowledge is invariably captured through numbers, as quantitative significations of one or more social entities.[1] As such it is numbers that are commonly used to signify the social within the welfare policies of the modern western state.

The morphology of the social entity does not sit comfortably with the concept of number. Numbers are ideally constructed from systematic measurement processes that capture predictable properties. Social entities generally are not of this character. As the product of human behaviour, social entities are often unpredictable and possess little of the repeatable, systematic nature of a physical entity such as distance or weight. They can be transient in definition and variable in incidence. Even so, we find that the most common way of signifying social entities is through numbers.

Why Bureaucrats are Attracted to Numbers

Administrative bureaucracies of the modern western state fully embrace the technology of quantification to formulate and implement their governments' welfare policies. Five distinct reasons for this are proposed.

(1) The inevitable avalanche of numbers that arises from government action

The state has evolved with a reliance on a series of technical apparatus that enable governments to govern. These techniques are exercised by the administrative bureaucracy as agent of government. In the exegesis of the 'grand narrative' of the history of modern society, historians and sociologists have developed a range of themes to explain the nature and purpose of administrative bureaucracies, such as Weber's iron cage (1992), Latour's centres of calculation (1987) and Foucault's art of governmentality (1991). A defining role of the bureaucracy is the practice of surveillance. This generates large banks of official statistics about the state and its citizens which, along with other technical apparatus of governmentality, facilitate the purpose of systematisation and control of the state (Dandeker 1990, Dean 1994, Giddens 1990).

Foucault describes the rise of *statistics*, or knowledge of the state, as a key apparatus of the expanding state in post-Renaissance Europe. Statistics made it possible to quantify masses of population

characteristics with which to plan, manage and control. This ava-
lanche of numbers also enabled patterns to be identified which
revealed the population's: 'own regularities, its own rate of deaths
and diseases, its cycles of scarcity, etc' (Foucault 1991:99). One
outcome of these central surveillance activities was that govern-
ments' administrative control became inseparable from its routine
monitoring of official statistics (Giddens 1990:42). Today this is
facilitated by a network of bureaucratic specialists who, armed
with the latest computer technology, engage in quantification, cal-
culation and codification to assist the development of social poli-
cies. Hunt & Wickham point out that these enumeration activities
'generate social policies that operate both to constitute the 'social
problems' at which government action is directed and actively to
regulate, control and coordinate the targets thus created' (1994:53).
Hence government action and the language of quantification have
become inextricably linked.

(2) The growing call for policy to be evidence-based

An important element of the push for social entities to be signi-
fied through number is the institutional trend towards social pol-
icy and practice that is evidence-based (Stoker 1999). This is un-
derpinned by a prevailing view that 'good policy' is founded on
empirical evidence constituted within a rational model of policy
formulation. This in turn presumes that policy is formed through
a cycle of investigative, analytical and consultative activities that
systematically injects 'evidence' at pre-determined stages in the
cycle (Keynes, 1971). This view takes a positivist approach to what
constitutes evidence, preferring the numerical outputs of research
such as statistical data, over non-numerical knowledge such as
values, intuition and practical know-how (Brownson Baker Leet
& Gillespie 2003, Leicester 1999). Hence, institutional action in
support of policy formulation is commonly geared to the produc-
tion of the bureaucracy's preferred form of evidence, i.e. numbers.

Studies of policy-making in action reveal significant and regu-
lar variations to the Keynesian ideal. For example, Doherty (2001)
cites the case of social housing policy in the United Kingdom
and identifies a paradox in the evidence-policy nexus where, de-
spite a strong research program, research evidence rarely impacts
directly on housing policy formulation[2]. Critics of the rationalist
approach argue that policy-making practice usually falls short of

this idealised model. Alternative approaches recognise the role of power, culture and language in shaping the direction of policy setting. For example a Foulcauldian alternative would frame the key drivers in terms of power and knowledge (Gibson 2003:27). Other alternatives include 'disjointed incrementalism' (Braybrooke & Lindblom 1963) and 'mixed scanning' (Etzioni 1967). They all emphasise the incomplete nature of what the rational model assumes to be a valid relationship between positivist evidence and policy formulation.

(3) The bureaucrat's need for impersonality of decision-making

In systems of modern state governance the bureaucracy is expected to have a sense of neutrality and objectivity and a commitment to the agency's purpose (Jaensch 1991:278–9). This is consistent with the Weberian-derived model, in that politics decides the strategic goals and priorities of the state as dictated by the will of the people, and the bureaucracy merely computes the means in an impartial and apolitical fashion. Bureaucrats' greatest vulnerability is the public perception they have acted partially. This ensures that neutrality is generally among their foremost motivations. Bureaucratic communications that feature numbers and the language of quantification are more likely to convey neutrality than other significations, such as the vernacular language. This is partly because discourses that rely on quantification are characterised by a high degree of structure, in that their users have an assumed knowledge of the rules or codes of conduct for their use. This enables the language of numbers to remove an appearance of imprecision and value-ladeness from administrative action and replace it with one of objectivity and disinterestedness. These characteristics are regarded as advantageous for honest government and the fair allocation of resources. But as Porter contends, quantification can also be: 'a way of making decisions without seeming to decide' (1995:8). Because the bureaucracy is not elected and has no democratic legitimacy, any decision that can be made 'by the numbers' will have the necessary appearance of impartiality.

> Governing by numbers, at least in certain western economies, has become the dominant managerial rationale. . . . according objectivity, neutrality, and legitimacy to decisions that otherwise appear to be subjective. (Miller 1994:250)

(4) *The power of the 'single figure' and the role of standardisation*

To be most effective the instruments of government control and systematisation need to be spatially portable. In this regard quantitative measures have a natural advantage over qualitative measures. This, plus the success with which signifying social entities through number has been accepted, allows the language of quantification to dominate technical discourses on social measurement. For the modern bureaucracy to exert control over social actions, such as the processes and decisions involved in administering a social welfare program, the actions must be standardised. This is dependent on the associated social entities being *stable*. The success of social mathematics is largely due to the success with which researchers and bureaucrats have stabilised concepts of social entities and developed methods for measuring them. Examples are poverty, need and well-being, entities that are transient in nature, difficult to categorise and therefore unsuited to being quantified. By turning them into forms that are easily signified and collected, social action can be stabilised for the purpose of counting, packaging and distribution throughout the state. Standardisation is a key technique in this process, enabling the bureaucracy to produce summary *single figures* that bring an appearance of stability and objectivity to highly subjective social entities.

> The neutrality and social authority accorded to the single figure is one that is set above the fray, apart from disputes and political interests, and endowed with a legitimacy that seems difficult to contest or dispute (Miller 1994:246)

However the inherent lack of stability of social entities means that the elemental codes for their standardisation are always subject to revision. This is the paradox of standardisation. For numerical inscriptions to remain stable the agents of quantification must agree on what conventions to adopt. Because these agreements rely inherently on negotiation there is always a risk of dissent from one or more agents. Therefore the quest to standardise social entities is never closed.

(5) *The pre-conditioning of bureaucrats as agents of calculation*

Calculative technologies rely on two related constructs. One is the calculator's willing participation as compliant and self-interested user of the language and techniques of enumeration.

The other is the bureaucratic facility to support and enable the calculator to calculate. Each relies on the language of numbers and utilises the tools of calculation, such as algebraic methods and computers. As Rose observes: 'turning the objects of government into numericised inscriptions . . . enables a machinery of government to operate from centres that calculate' (1991:676). The success of quantification in measuring the social is therefore a product of the ability of researchers, policy analysts and administrators to link-up as a calculative network[3]. A key feature of this network is that those who count and that which is counted are equally subjected to the process of codification and standardisation. Not only does the network act to package and distribute social numbers, it also perpetuates a culture that regards numbers as essential for formulating policy. In this way numbers enable the boundary between politics and objectivity to be redrawn: 'by purporting to act as automatic technical mechanisms for making judgments, prioritising problems and allocating scarce resources' (Rose 1991:674). Surrounded by this calculative culture, bureaucrats are conditioned agents of calculation.

The Thing About Numbers

The construction and use of quantification in social policy-making occurs within the context of a broad culture of quantification present in everyday life. This culture arises from our psycho-socio propensity to approach the objects of existence, the matter and ideas of everyday life, in terms of quantities. In our private lives we have a propensity to quantify all manner of everyday activities (Cohen 1968). In our public lives we expect and depend on a world that runs on numbers—from distances, to timetables, to consumer decisions, to financial transactions.

In many everyday settings the generation and use of numbers is uncontroversial. This is particularly so with numbers that describe *physical* entities. For example, how many different types of letters are on this page? Provided we agree on what a letter is and we can see and count, then little else is problematic; a number is an accurate and efficient device for signifying this physical entity. But what of the use of numbers to signify *social* entities? These have more transient cultural definitions than physical entities.

Examples include the health of the environment, the success of social services, the relative value of consumer choices, and the quality of life. When the same quantification process that so successfully signifies a non-social entity is transferred with little critique to a social entity, problems of false objectification can arise.

The use of numbers in everyday settings has been theorised from several perspectives. Crosby (1997) identifies this culture as a new model of reality that emerged in Europe during the late Middle Ages and Renaissance to replace the ancient qualitative model. It was aided by visualisation and, in particular, by mapmaking. This enabled space to be conceptualised in geometric terms. By linking visualisation with quantification, reality could be rendered measurable. Potter, Wetherell and Chitty (1991) use discourse theory to analyse ordinary dialogues that rely on numbers. They highlight how the logic and devices of quantification, such as percentages, tables and charts, are marshalled in persuasive ways to support an argument, and conclude that mathematics and other forms of quantification operate only as part of broader social practices from which they gain their sense. Lave (1986) observes the extent to which the language and rationality of quantification has penetrated everyday culture. She examines the situational specificity of calculation and measurement procedures through ethnographic research in ordinary settings, such as the supermarket, and observes how people customise numerical devices for use in their everyday settings for the purpose of persuasive argument or to assist in their decision-making.

Underlying each of these analyses is the particular appeal that the exactness of number as sign holds for its users, compared to other ways of signifying knowledge, such as qualitative descriptions. Qualitative descriptions, particularly when expressed through the vernacular language, have more potential for misinterpretation or conveying unintended meanings. This could be due, for example, to one party's lack of prior knowledge of concepts, events or cultural norms otherwise presumed to be known. This subjectivity of *word* as sign sits in contrast to the apparent objectivity of *number* as sign. For the number 5 (say) is always the number 5, cannot be mistaken as the number 4 or 6, or any other number. As such, it is discrete, exact and universal in its ability to be understood with a singular meaning.

How Good are Social Numbers?

A critical analysis of the actions, processes and motives of the calculative enterprise that is typically applied to the quantification of social entities, reveals a range of measurement problems that challenge the rigour of the resulting numbers. The following two examples of the calculative enterprise demonstrate some of these problems. These concern the state population census and the measurement of housing need.

Example 1: The state population census

Governments' reliance on social statistics for policy-making is founded on an assumption that officially-sanctioned statistical surveys, such as the national census, produce reliable results. For example, the Australian Bureau of Statistics claims that: 'high quality data are obtained from the census' (ABS 1996:19). The state census survey is generally of higher statistical reliability than other datasets held by governments. This is due to their investment of intensive survey and data processing infrastructure to limit the margin for technical error. However on close analysis of this diverse calculative enterprise a series of reliability questions arises.

Like all bureaucratically-administered statistical collections, the state census contains two broad types of error: technical and non-technical error. The technical integrity of census counts cannot be achieved in isolation of their non-technical integrity. While the latter is rarely acknowledged, the final census counts are only accurate to the extent that the census-taking agency deals accountably with both types of error. Examples of non-technical error are the extent to which the counts rely on qualitative judgments, the different interests of the participants in these judgments, how specific meanings are assigned to census data items to enable quantification and how these are re-interpreted over time.

Before conducting any social survey the statistician must design and construct the appropriate data categories. While this may seem an uncontroversial technical responsibility, historical sociologists argue that its effects are far-reaching:

> There is a sense in which many of the facts presented by the bureaucracies did not even exist ahead of time. Categories had to be

invented into which people should conveniently fall in order to be counted. (Hacking 1990:3)

The transient nature of category labeling and category meanings is exemplified when measuring social behaviours that are governed by cultural norms. For example, McGuire refers to imperialist data surveys in early twentieth century India and the colonial administration's measurement of workforce participation on the basis of discrete occupational categories borrowed from the United Kingdom. These categories assumed a stage of economic development incommensurate with the reality of Indian society at that time. Rather, a working Indian's livelihood was commonly gained in many different ways over a year, especially in the agricultural populations of central and southern India. The publication *Census of India 1921* comments that 'the occupational statistics collected in the population schedule give at best only a general sketch of the functional distribution of people and are too vague and imperfect to afford the detailed information required for public and administrative purposes' (McGuire 1992: 14). That is, the theoretical underpinnings of the colonialists' data categories ignored the norms of the society they were enumerating:

> . . . the ideological parameters are established by the statistical categories employed in the classificatory system devised by the Colonial state to collect data. . . . these categories do not necessarily mirror the social reality they are endeavouring to describe. . . . when employed as a conceptual instrument to collect data they can distort that reality. (McGuire 1992:13–4)

The history of census category definitions reveals much about the interests and power relations of the counter and the counted, and of the systemic influences of the counting process itself[4]. Compounding this is the transient nature of the culture that shapes the social behaviours of the population to be enumerated. Tait investigates the socio-political nature of the label 'family' in the history of the Australian census. He identifies ambiguities in the different meanings that have been attached, which at different times have been defined as a group of related persons living together, a respectable centre of reproduction and a network of persons connected through blood ties. That is, they have ranged

from cohabitation to fertility to kinship. As well, the orderly inheritance of property required an official system for recording births, deaths and marriages which: 'provided evidence of legitimacy and therefore rights of succession' (Tait 1985:95). In these ways government-sponsored statistical collections can assist in legitimising power and confirming status among favoured population groups.

If the intention of the census is to capture the size and diversity of the state's social characteristics, its ability to depict that character is constrained by the need to be highly selective in the number and type of questions it asks. What questions are asked, how they are asked and what answers are permissible, are open to the interests of any advocacy group that can successfully negotiate its case, including the government of the day, as exemplified in Australia:

> The 1981 census will be different from 1976 not because the government of Malcolm Fraser has a different view of Australia from that of the Whitlam Labor government. It does not see the census as a vehicle for social change, as did Labour. (Hywood 1981:37)

The 1981 census reduced the number of questions asked from 53 questions in 1976 to 35. The questions eliminated included one's need for child-minding facilities, one's racial origins, whether one has life assurance or pays into a superannuation fund and whether one receives some form of statutory income or benefits. With the political transition at that time from an Australian government emphasising larger government and an expanded social welfare program (Whitlam-led) to one emphasising small government and encouragement of market-based responses to social and economic needs (Fraser-led), the political overtones of these census topics is clear[5].

The political arm of other modern states display similar interestedness. For example, during planning for USA's 2000 census, Republican members of congress objected to how the Bureau of the Census was using statistical sampling methods to correct its upcoming survey of the population (Kleiner 1997:12). Members feared that the resulting corrections would give higher counts of Hispanics and blacks, favouring the Democrats when congressional district boundaries were redrawn. One Republican

congressman advised his constituents not to complete the questionnaire, stating that the 2000 USA census was: 'another onerous sign of the Federal government expanding without regard to personal freedom' (Alcorn 2001:28). In 2002 the government of Russia conducted its first national population census for 13 years. In the lead up, opinion polls showed that a quarter of the population was wary about the government's motives, fearing it would be used by the tax authorities or the police for ulterior motives. This was fuelled by past leaders' manipulation of census counts:

> Residents of the remote eastern Siberian town of Belogorsk offered to co-operate if the Government switched the electricity back on, but they fear that it will be disconnected after the count. (Paton Walsh 2002:20)

In summary, a strong element of social control has accompanied the technical apparatus of population measurement in the evolution of the modern state. A census survey of population characteristics is far from a technical enterprise concerned with disinterested social measurement. It reflects the interests of advocacy groups, the expertise of the administrative bureaucracy and the priorities of political utility. As Alterman concludes: 'the reason for the failure of a Census to be completely inclusive lies in the fact that it is a social enterprise' (Alterman 1969:65). One consequence is that the planning and funding decisions of government and business that are made on the basis of census counts, may be distorted by an exclusive, subjective and utilitarian profile of the state's population.

Example 2: Measuring housing need

Housing assistance programs in the modern state operate in a context of scarcity that is generally not mediated through market surpluses. This requires judgments based on non-market criteria about the size of program resources and their fair allocation. The problem of scarcity creates an environment of uncertainty for program administrators. They must make difficult decisions about who should be assisted, in what priority order and with what housing products or services. In this respect their greatest vulnerability is the risk of decisions that lead to an ineffective, inequitable or wasteful use of public resources, or that lead to

accusations of bias or incompetence. To manage these pressures, administrators are attracted to number-based significations of housing need, or needs indicators. These are commonly quantified by applying technical processes according to tightly specified normative criteria. The normative criteria for measuring housing need are a series of pre-determined social, economic and demographic factors considered to be critical for housing well-being. For example:

> rental affordability for low-income households is based on the second quintile household income (fortieth percentile) calculated each quarter from total (full and part-time) average weekly earnings for NSW. Paying up to 30% of income in rent is considered affordable. This amount is compared with rents in each area to determine the proportion of available housing which a low-income household can afford to rent. (DOH 1999:31)

Once specified, the normative criteria are applied to data collections that describe the circumstances of individual households. In this way the number of households that fit the category 'in housing need' can be determined. While this approach holds in theory there is much debate and difference among housing researchers and policy practitioners about which combination of normative criteria, and the attendant thresholds for each of these criterion, are the most suitable for conducting large-scale needs analysis (King 1994, Nicol 2002). The Australian Institute of Health and Welfare cautions:

> while estimates of numbers of families in housing need provide important information when debating policy on housing assistance, it should be realised that there are many different ways in which these estimates can be derived. . . . the housing problems to be included in an analysis, and how they are defined can affect greatly the results that are obtained. (AIHW 1998:26)

For example, a 1997 study of housing need by the National Centre for Social and Economic Modelling demonstrated how the number of income units measured as 'in housing stress' changed significantly according to the chosen normative criteria. The figure rose from 167,000 using a 'net equivalent affordability measure' to 225,000 using a 'net affordability measure' to 300,400 using a 'gross measure' (NATSEM 1997:12).

Apart from the difficulties of choosing a set of needs characteristics that reflect normative housing conditions, there are a series of more fundamental enumeration decisions of a non-technical nature that bear just as heavily on the size of the final needs numbers. The most fundamental of these is what *counting unit* should represent 'housing need'. This cannot be decided on technical grounds, rather on socio-political grounds such as:

• what choice of counting unit will support what government priority? or

• what aspect of the program should the needs measure reflect?

To measure housing need there are three possible counting units. Each has meaning, each is logical and each is measurable, yet each gives very different counts:

1. the types of assistance required (e.g. number of dwellings or amount of grant funds)
2. the recipients of assistance (e.g. number of persons assisted)
3. the assistance activities (e.g. number of lettings).

Having chosen one of these, there are more non-technical problems to resolve. If for example the second option is chosen (number in need of assistance) a choice is required between whether to count people assisted, income units assisted, families assisted or households assisted. Many housing assistance programs differ on this basis, such as Australia's private rent assistance program (counts demand by number of income units) and social rental housing program (counts demand by number of households). Because people can be multiple to income units, which can be multiple to families, which can be multiple to households, the choice of counting unit has a multiplier effect on the count.

This exemplifies a fundamental limitation of housing needs measurement, as follows: 'meeting housing need' presumes that a unit of supply will house a unit of demand, however the nature of housing supply and housing demand are a conceptual mismatch. The unit of demand is characterised by people who live alone or combine with other people in family or household arrangements. These arrangements are not static since people move from one living arrangement to another, giving a profile of demand that is constantly dynamic. This dynamism is generally greater for people in housing need. The unit of supply is just as variable. It

may be conceptualised as a physical dwelling structure, as some part of that structure (eg. boarders occupying part of a private dwelling) or as a form of tenure, such as a lease, ownership or short-term commercial room hire. These different demand units may be combined with the different supply units in many ways, most of which are quantifiable. However each combination describes a different aspect of the concept 'housing need' and each yields a different count. Choosing which combination to measure cannot be decided on technical grounds.

In summary, defining housing need for the purpose of quantifying it begins with an uncertain process of subjective decisions about methodology, such as what counting unit should be used and which aspects of need should be included. These uncertainties prevent the construction of a stable, reliable standard for defining and measuring need. In spite of these limitations the technical agents of the bureaucracy engage in elaborate processes of analysis and enumeration on the basis of these non-technical and often arbitrary decisions. The result is a series of needs indicators that seek to capture the nature of both housing need and allocative priority. These numbers are attractive to the bureaucracy because they appear to reconcile the myriad of non-technical questions that arise when deciding how to ration scarce public funds. They also appear to introduce accuracy and objectivity into these decisions. As such a significant degree of authority is conferred on these numbers. This is exemplary of Miller's general identification of the neutrality and social authority associated with the 'single figure' (1994:246).

Demystifying the Certainty Image

The difficulty of legitimating quantitative measures of social entities supports the argument that social numbers be treated as highly-qualified significations. They are a consequence of the technical as well as non-technical factors necessarily involved throughout the quantification process, from defining the component measures, to collecting the data for each component and generating the final numbers. They come, therefore, with conditions attached, of which some are explicit and some are not. Though single figures provide the look of certainty, as all numbers do, they

may mislead the policy development process or falsely indicate the success or failure of social performance. Their uninformed use as persuasive instruments of decision-making reinforces the standardisation practices of the calculative network that produces them and may also mask an ulterior purpose. As Porter (1995) observes, in quests for objectivity quantification becomes most important where elites are weak, private negotiation is suspect and trust is lacking.

This is not the case in all settings. Many social researchers and bureaucrats are careful to avoid these pitfalls of interpretation and inference, based on what they know of the non-technical errors and qualitative assumptions of their data or on what they have taken the trouble to investigate. Often the problem lies downstream, where a politician or journalist may knowingly or carelessly pervert the meaning or context of the researcher's carefully documented single figures.

Regardless of these risks, governments' social programs must rely on the measurement of social entities. Indicators of social need must be constructed and the performance of welfare programs needs to be evaluated if responsible and accountable government is to proceed. Social measures that are signified as numbers will not necessarily help in these endeavours. While the best quantitative methods may yield accurate information in some policy or program aspects, they will not yield this in other aspects. In either case the degree of accuracy or inaccuracy may itself be immeasurable. Rather, social measurements yielding information regarded as accurate will be known as such because the stakeholders will agree that useful 'facts' have been produced. In this search for social facts, analysts and administrators should not assume that numbers are necessarily their ally. They are rarely neutral, are poor substitutes for facts if used without care and can be as inherently unstable as non-numeric ways of signifying knowledge.

To deal with these risks, bureaucracies must establish ways of explicitly assessing the social construction embedded in positivist forms of evidence. Efforts to improve the presentation and use of social numbers would be informed by a broad-ranging debate on the fundamental question: how do we conduct a discourse about quality using the language of quantity?

Were social numbers presented with accompanying state-
ments that listed their known and unknown limitations, much of
this concern would dissipate through the forces of self-regulation,
ie peer review and scrutiny. Of course such a development would
require a significant cultural shift in the sociology of quantitative
measurement. But assuming it came to pass, the scenario emerges
of bureaucrats and politicians armed with the requisite social
numbers and their explicit qualifications, along with other forms
of evidence. The final piece in the jigsaw is a set of transpar-
ent processes to enable this information to instruct social policy
decision-making. One element of this set is proper processes of
participatory public consultation. Another element is a risk man-
agement framework that encourages decision-makers to exercise
their professional judgment by applying their expertise, powers
of reasoning and discernment to all of the available evidence,
empirical and non-empirical. As Fisher contends: 'the concept of
'expertise' in risk regulation should not be understood narrowly
as simply referring to . . . someone only skilled in applying a
certain methodology to the facts . . . [rather] . . . it refers to pro-
fessional judgment . . . [which] . . . requires intuition, creativity,
and a sensitive grasp of the issues' (Fisher 2000:116).

Having institutional processes in place that can evaluate these
'facts' and then establish a rationale for subjective judgments,
would not lessen the credibility of the judgments. Nor would
it necessarily produce less accurate judgments than occurs in
the current climate, where an artificial authority is conferred on
many social numbers and other empirical evidence. If nothing
else it would infuse more credibility into these decisions through
improved accountability. This can only heighten the public trust
placed in the political and administrative arms of government.

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Notes

1. The state census of population is a common source of these numbers.
2. Doherty offers two explanations for this: 'the changing nature of housing policy and its increasing complexity as it is implicated in a multitude of social, economic and political problems beyond the mere provision of shelter; . . . [and] . . . the filtering role played by political ideology in determining the relationship between evidence and the shaping of policy agendas' (2001:168).
3. Miller calls these concepts calculative selves and calculative spaces. Calculative selves refers to the distinctive social way in which the language and processes of calculation, such as financial accounting, bear upon the actions of others, installing forms of individualised calculability into the workplace. Calculative spaces are created through the compartmentalisation of structures into divisions of bureaucratic accountability, such as cost centres and business units (Miller 1994:243).
4. Maier observes that a society: 'chooses what to measure—or better stated, groups within society struggle about what will be measured' (1995:238).
5. In 1976 there was a change of national government in Australia with a Liberal/National coalition government lead by Malcolm Fraser replacing the Labor government lead by Gough Whitlam.