

## What is applied demography?

DAVID A. SWANSON<sup>1</sup>, THOMAS K. BURCH<sup>2</sup> &  
LUCKY M. TEDROW<sup>3</sup>

<sup>1</sup>Portland State University, Center for Population Research & Census, Portland, Oregon, USA;

<sup>2</sup>Population Studies Center, University of Western Ontario, London, Ontario Canada; <sup>3</sup>Demographic Research Laboratory, Western Washington University, Bellingham, Washington, USA

**Abstract.** Applied demography has recently gained recognition as an emergent specialization among practicing demographers. We argue that applied demography is intrinsically distinct from basic demography because it exhibits the value-orientation and empirical characteristics of a decision-making science while the latter exhibits the value-orientation and empirical hallmarks of a basic science. Distinguishing characteristics of applied demography are based on the context in which it places precision and explanatory power relative to time and resources as well as the fact its substantive problems are largely exogenously-defined, usually by customers. The substantive problems of basic demography, on the other hand, are largely endogenously-defined, usually by academic demographers. Moreover, basic demography is primarily concerned with offering convincing explanations of demographic phenomena and tends to view time and resources as barriers to surmount in order to maximize precision and explanatory power. This context is very different from the one in which applied demography is embedded, which views explanatory power and precision in terms of doing what is necessary to support practical decision-making while minimizing time and resources. We examine this conceptualization of applied demography in terms of the methods and materials that fall within its purview and discuss some important consequences, including research agendas and training programs. We conclude by posing several important but unanswered questions about the actual and potential scope of applied demography and discuss some of the implications inherent in these questions.

**Key words:** Applied demography, Decision-making science, Population characteristics

### Introduction

Until the late 1970s, as noted by Pol (1995), use of the term *applied demography* was infrequent; and before the 1980s few demographers considered themselves 'applied demographers'. Over the last decade or so, applied demography has come to be widely recognized as a distinct specialization within demography. A growing number of demographers now call themselves applied demographers (Kintner 1995a; Kintner & Swanson 1987). They have written texts and other specialized works on the topic. Sessions on applied demography are commonplace at regular meetings of demographic associations, and a biennial International Conference on Applied Demography (held at Bowling Green State University) is well-established. The Population

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Association of America has a special section on applied demography, with its own newsletter.

But what exactly is applied demography? What sets it apart from demography in general? As is true for many scientific disciplines or sub-disciplines – especially in their formative years – a tidy definition is elusive. A standard ploy is to say simply that ‘applied demography is what applied demographers do’, leaving it to the self-proclaimed to settle the issue over time. Despite circularity, this approach has merits. But the resulting definition may have a certain accidental character, and in any case can be known only after the fact.

An attempt at a more principled definition may be in order. If nothing else, a better definition is needed to deal with the view sometimes voiced that much of what currently goes under the name applied demography is neither new nor distinctive, but rather just a continuation of a long-standing tradition of ‘applied’ work in general demography, carried out for practical rather than purely scientific reasons.<sup>1</sup> How does applied demography differ, for example, from standard demographic data-collection and analysis at central statistical bureaus? How does it differ from the now thirty-year old tradition of applied research on family planning programs? Is it co-extensive with ‘business demography’ or with ‘state and local demography’? Is it just regular demography applied to a limited set of topics, another specialization like ‘fertility’, ‘migration’, or ‘household/family’? Or is applied demography, in fact or potential, a truly distinctive sub-discipline with its own substantive focus, value orientation, analytic style, materials, and techniques?

Our exploration of these issues begins with a review of some recent definitions of applied demography. Amid the many characteristics of applied demography identified in these definitions, we single out one as its core purpose and defining characteristic: applied demographic analysis has as its immediate goal the facilitation of good-decision-making regarding practical problems. Next we look at possible claims to distinctiveness in the ‘methods and materials’ of recent demographic work. Finally, we pose some important but unanswered questions about the actual and potential scope of applied demography and discuss some of the implications inherent in these questions.

### **Some recent definitions**

In what is generally recognized as the first general textbook on applied demography, Rives & Serow offered the first known attempt at a formal definition:

... applied demography is that branch of the discipline (demography) that is directed toward the production, dissemination, and analysis of demographic and closely related information for quite specific purposes of planning and reporting. (Rives & Serow 1984: 10)

They add:

. . . we would further suggest that applied demography is more concerned with the measurement and interpretation of current and prospective population change than with the behavioral determinants of this change. (Rives & Serow 1984: 10)

Finally, they emphasize applied demography's focus on specific geographic areas:

Applied demographers tend to focus on geographic units and their population characteristics, while others (i.e., non-applied demographers) are more concerned with individuals and their demographic behaviors. (Rives & Serow 1984: 10)

Further discussion makes it clear that the specific geographic units identified as the object of applied demographers' attention often include areas that are relatively small, ranging for example, from states, counties, and municipalities, to census tracts and blocks.

Building on the Rives & Serow definition quoted above, Murdock & Ellis (1991: 6) distinguish 'basic' from applied demography in terms of different emphases across five dimensions.

1. Scientific goal: Basic demography is concerned largely with explanation; applied demography with prediction.
2. Time referent: Basic demography is concerned with the past; applied demography with the present and future.
3. Geographic focus: Basic demography is concerned with international or national patterns (often studied using individual data); applied demography with aggregate data for small areas.
4. Purpose of the analysis: Basic demography is concerned with the advance of scientific knowledge, especially generally theoretical knowledge of causes; applied demography with the application of knowledge to discern the consequences or concomitants of demographic change.
5. Intended use of analytic results: Basic demography is concerned with the advance of knowledge and the sharing of that knowledge with the scientific community and the general public; applied demography with the use of research results to inform decision making among non-demographers.

Based on the above, Murdock & Ellis (1991: 6) suggest that applied demography be viewed as:

. . . a specified area or areas with emphases on gaining knowledge of the consequences and concomitants of demographic change to guide decision making related to the planning, development, and/or distribution of public- or private-sector goods or services for current and future use in the study area or areas.

They also note that applied demography requires knowledge both of basic demographic science and of 'the means by which it can be applied to address pragmatic and policy-related questions' (Murdock & Ellis 1991: 6).

To complete this survey of some recent definitions of applied demography, we look at the characterization offered by Kintner, Merrick, Morrison, and Voss, co-editors of the recent collection *Demographics: A Casebook For Business and Government* (1994). In the opening chapter, they identify applied demography with 'demographic analysis . . . put to use in government and the business world' (1994: 3). And, in a section described as giving 'representative applications illustrat(ing) the problems that applied demographers address', they focus on 'state and local government applications' and 'business applications'. But in developing their examples, they emphasize breadth and versatility in applied demographic work: '. . . applied demographers make themselves useful in various ways that, more often than not, stretch beyond the boundaries of demographic analysis per se'. And, 'applied demographers inevitably get drawn to other roles that go beyond their technical competence'. And in looking to the future of applied demography, they foresee '. . . an ever wider array of applications'. Finally they comment that 'applied demography is not a theory-directed body of knowledge. It is driven by problems and has been from the start' (1994: 6-8).

The above definitions and descriptions of applied demography are important insofar as they contain elements of consensus among many of those who explicitly identify themselves as applied demographers. There appears to be agreement on the following points:

1. Applied demography brings demographic expertise to bear on specific, concrete practical problems.
2. These problems arise especially in the realms of business and government, particularly state and local government.
3. The problems typically are posed at the level of small geographic areas.
4. The core analytic activities in applied demography are population estimation and forecasting.
5. Applied demography is relatively uninterested in theory or in causal explanation.
6. Applied demographic work is not autonomous scientific activity but is done specifically for a client.

The points of consensus derived from the above-quoted definitions, as well as other recent definitions of applied demography (De Jong 1988; Kintner & Swanson 1987; Merrick 1986; Morrison 1990; Pol 1987; Rives & Serow 1984) accurately reflect much of the work done under the rubric over the last decade or so. But the academically inclined applied demographer may not be content to leave it at that. Our reading of the above definitions leads us to the following comments:

1. A definition of applied demography based on 'what applied demographers do' risks confusing accidental with fundamental characteristics of the sub-discipline, especially when the period of observation is as short as ten

years. The same may be said of contrasts drawn between applied demography and 'non-applied' (also referred to here as basic or academic) demography. Given massive restructuring in governments, businesses, universities, and other institutions, the period 1990–1995 may turn out to be a poor guide to the future, in respect to opportunities for and constraints on both applied and basic demography.

2. If there is consensus in the above definitions, there are also ambiguities and elements of tension and ambivalence. Most important, there are strong suggestions of limited scope (identification of applied demography with small-area estimates and projections), but also expressions of an expectation that applied demography might also play a broader and more important role in practical affairs. Kintner et al. (1994) speak of demographers being useful in ways that 'stretch the boundaries of demographic analysis per se', and comment that 'applied demographers inevitably get drawn into roles that go beyond their technical competence'. Is this expansiveness an accidental feature of current applied demography or is it somehow central to what the sub-discipline might aspire to? If the former, then in time presumably others will take over roles that applied demographers have usurped, 'roles beyond their technical competence'. If the latter, then there are many implications for the organization of the field and for training of its practitioners.
3. The core elements in the above definitions seems to us to be the idea that applied demography is demographic analysis (narrowly or broadly conceived) in the service of practical decision-making regarding concrete problems. Its problems come not from demographic theory or from empirical or technical research traditions, but from someone in government, business, or some other organizational sector who needs demographic analysis to assist him or her in making good, informed decisions. Applied demography is in some sense a decision-making science. This idea is most clearly expressed in the definition of applied demography provided by Murdock & Ellis (1991: 6). It is implied in of several of the others described above. These remain, however, accurate descriptions of only what applied demography has been, not necessarily of what it might become.

### **Applied demography as a decision-making science**

In providing our conceptualization of applied demography, we return to the formal definition by Murdock & Ellis (1991: 6) that we cited earlier and use it as a point of departure:

The study of population size, distribution, and composition and of the processes of fertility, mortality, and migration in a specified study area or areas with emphases on gaining knowledge of the consequences and

concomitants of demographic change to guide decision making related to the planning, development, and/or distribution of public- or private-sector goods and services for current and future use in the study area or areas.

The key phrase in the preceding definition is 'to guide decision making'. The inclusion of this phrase sets the definition of Murdock & Ellis (1991) apart from others.<sup>2</sup>

An elaboration on their phrase, as noted above, would emphasize that applied demographic analysis has as its sole and immediate aim that of assisting a decision maker with a concrete practical decision. A corollary is that the process is client-driven – the definition both of the problem and of an adequate answer are determined primarily by the decision maker, not by the demographic analyst or by demographic research traditions.

While it would be inaccurate to draw a black-white contrast between applied and basic demographic work, it is true that at least in terms of emphasis, basic demography pursues an open-ended quest for ever better knowledge – more precise and reliable measurement, firmer empirical generalizations, better theoretical systems, and more refined techniques. The guiding principle in applied demography, by contrast, is *quantum sufficit* – only as much as necessary for the immediate problem at hand. A more contemporary specification of this principle would be the so-called 80/20 rule: That 80 percent of the benefit derives from the first 20 percent of effort. An implication is that the last 80 percent of effort may be wasted if the marginal gains in benefit are not absolutely necessary, if 80 percent performance is good enough. Properly applied, the rule can lead to efficiency; poorly applied, to mediocrity.

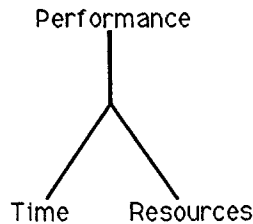
Applied demographic work can be succinctly represented in terms of the 'triple constraint perspective' (Rosenau 1981; Swanson 1986), which includes three dimensions:

1. a performance specification – the explanatory/predictive precision sufficient to support a given decision-making situation;
2. time – the schedule requirements under which the performance specification must be accomplished; and
3. resources – the budget requirements under which the performance specification must be accomplished.

As a heuristic device, it is useful to view the triple constraint as if each of the three elements represents an axis in three dimensional space (Rosenau 1981). Using this perspective, for example, we can see that a high performance specification (say a very high degree of accuracy for a total population number) generally requires a great deal of time and resources (a complete census); a lower performance specification requires much less time and resources (a population estimate rather than a complete census).

We would note here that the triple constraint perspective is not without

applicability to basic demography. Clearly, even with its emphasis on precision and explanatory power, basic demography must be cognizant of the constraints of time and resources. Again, however, we stress that in basic



demography the triple constraint perspective is embedded within a context that is distinctly different than that of applied demography. For basic demography the context involves the goal of maximizing the performance dimension-explanatory power and precision. Thus, it tends to view time and resources as barriers to surmount in order to maximize explanatory power and precision. For applied demography, the context is to set the performance dimension at a level that is just sufficient to support a given decision-making process in order to minimize the use of time and resources – *quantum sufficit*.<sup>3</sup>

### **The methods and materials of applied demography as a decision-making science**

The demographic methods most closely identified with applied demography are, broadly speaking, estimates and projections (De Jong 1988; Kintner & Swanson 1987; Merrick 1986; Murdock & Ellis 1991; Pol 1995; Rives & Serow 1984). Around this core, a set of related techniques is generally found that includes research skills, and analytic techniques associated jointly with geography and computer technology such as GIS (Kintner & Swanson 1987; Merrick 1986; Merrick & Tordella 1988; Pol 1995; Rives & Serow, 1984). Other techniques still related to demography described as important to applied demography include the following: constructing policy-applicable assumptions (Morrison 1990); strategic planning (Merrick & Tordella 1988); standardization (Pol 1995); and disaggregation (De Jong 1988).

As we move from what are generally perceived to be methods that are fundamentally demographic in nature (e.g., cohort analysis), the list of methods changes largely in response to the sector in which applications are desired. For example, in the private sector, at least a passing knowledge of the methods of financial analysis and accounting, among others, has been described as useful for the applied demographer (Ambrose & Pol 1994; Johnson 1994; Merrick & Tordella 1988). Similar arguments are provided relative to demographic applications in the public sector, where for example, some knowledge of legal and related methods is deemed important (Bolton 1994; Morrison 1994; Siegel 1994; Terrie, 1995). De Jong (1988), while

acknowledging that the private and public sectors respond to different 'bottom lines', suggests that there are commonalities in terms the methods with which applied demographers should be conversant to function in both sectors.

The demographic materials most closely identified with applied demography are, broadly speaking, geographically aggregated census data (De Jong 1988; Kintner & Swanson 1987; Merrick 1986; Murdock & Ellis 1991; Pol 1995; Rives & Serow 1984). Around this core, a set of related materials is generally found that includes vital statistics, large-scale surveys, and materials associated jointly with geography and computer technology (Gobalet & Thomas 1995; Kintner & Swanson 1987; Merrick 1986; Merrick & Tordella 1988; Pol 1995; Rives & Serow 1984). Other materials still related to demography described as important to applied demography include what may be called 'non-standard'. Here, we largely mean administrative records collected for purposes other than demographic analysis (Kintner & Swanson 1994) but, which, nonetheless, are necessary or useful for many applications. Material of this type occurs both in the private and public sectors (Ambrose & Pol 1994; Gobalet & Thomas 1995; Kintner & Swanson 1994; Tayman, Parrott & Carnevale 1994; Terrie 1995).

Because applied demographers commonly work with data aggregated over sets of small geographic areas their activities are often focused on 'methods', particularly in terms of their performance (e.g., accuracy) in regard to making the 'correct' decision, relative to cost and time requirements (Swanson & Tayman 1995). In this regard, it is not surprising that applied demographers are found in the movement to develop an understanding of precision and uncertainty in demographic data (Kintner & Swanson 1993a, b; Roe, Carlson & Swanson 1992; Smith & Shahidullah 1995; Swanson 1989; Swanson & Beck 1994; Swanson, Kintner & McGehee 1995; Swanson & Tayman 1995; Tayman, Schafer & Carter 1995; Tayman & Swanson 1995). Recent evidence also indicates that applied demographers are struggling with issues concerning utility, decision-making in the face of uncertainty, and the identification of the 'sufficient' levels of precision needed to make correct decisions relative to cost and time (Kintner et al. 1994; Merrick & Tordella 1988; Pol 1987, 1995; Pol & Thomas 1992; Roe, Carlson & Swanson 1992; Romaniuc 1994; Smith & Shahidullah 1995; Swanson, Tayman & Beck 1995; Swanson & Tayman 1995; Tayman, Schafer & Carter 1995). Another consequence that comes from working with data aggregated over small geographic areas is that non-standard materials are often the rule, which, in turn, usually requires non-standard methods (Gobalet & Thomas 1995; Kintner 1995b; Murdock & Hamm 1994; Tayman, Parrot & Carnevale 1994). Add to this the fact noted earlier that many of the problems of applied demography are customer-driven and it is easy to see why applied demography is characteristically viewed as 'fragmented', both by its practitioners and basic demographers: It is difficult to develop generalizations whether methodological or theoretical – from problems that are characteristically unique not only in terms of their methods and materials but also in terms of their solutions.



Based on our knowledge of the field, we do not believe that any of these methodological and material features characterizing applied demography – nonstandard methods, unique problems, and non-generalizable solutions – have been clearly stated in the form of a coherent ‘research agenda’. We believe, however, that these clearly can be developed into such an agenda – a possibility that has been noted by others, including by some looking at this issue from more of an ‘academic’ perspective (Burch 1992; Hakkert 1992; Madan & Sinha 1994; McNicoll 1992; Olsen 1988). We suggest, in this regard, that a suitable organizing principle can be found for this agenda in the context of the ‘Triple Constraint’ perspective in which we argue that applied demography is embedded. Such an agenda should also lead to improving our understanding of the interrelationships among performance specification, budget and schedule, as well as the models and decision-making materials sufficient to support correct decisions. In this regard, the demand for ‘accurate, reliable, long-term forecasts’ is a case in point. Given the recent volatility of household and family formation, for example, there really is no way of saying with a high degree of precision and certainty how many households there will be in Canada or the USA in the year 2010. Nor, it can be argued, do current policy makers need precise figures. It is likely that many can live with what are in effect ‘wide confidence bands’. That is, in such an instance it may be important to be certain that there is a relatively imprecise number involved in the decision. To this extent, elaborate studies to try and produce highly precise figures with little or no idea of their certainty are probably a relative waste of time and money. The triple constraint perspective, in conjunction with the principle of ‘sufficient information’, would likely indicate that the same performance specification could be reached for far less time and money.

### **Unanswered questions and some of their implications**

Overall, the thrust in conceptualizing and defining applied demography is toward a circumscribed sub-discipline. At the same time, it is clear from our review and discussion that there is some degree of ambivalence about the scope and potential importance of applied demography within the decision-making process. Is it a narrow technical field, specializing in small area population estimates and projections? Or, can applied demography claim an active and central role in government and business decision-making, providing input from a unique ‘demographic perspective’? This is a claim based on the view that the population sub-stratum is absolutely fundamental to most important practical problems. The desire to give applied demography coherence and shape pushes toward a narrow view. The desire to make applied demography important and influential pushes toward the latter, broader view. For the moment, at least, the narrower approach seems to hold sway among those identifying themselves as ‘applied demographers’.<sup>4</sup>

This narrow conceptualization of applied demography prompts several questions. Perhaps the most important is: Where does one place the many demographic activities, past and present, that are neither basic science nor academic in character, but do not fit into the framework sketched above? What of traditional demographic analysis at the national level, undertaken by central statistical agencies? What of the demographic analysis of international organizations such as the World Bank or the United Nations Population Division? These bear on practical issues of socio-economic diagnosis and planning – often on very specific issues – but at the national or regional level rather than at the level of small geographic aggregates. What of the literally thousands of analyses of family-planning programs in terms of socio-economic background, organization and operation, and demographic effect? What of the many ‘policy analyses’ in a journal such as *Population and Development Review*?

The conceptualization of applied demography as a broad decision-oriented science may call for some fundamental changes in the way demographers think about a problem. Not least, we may have to learn to rely less on the simplifying and comforting assumption that demographic dynamics are self-contained. Cohen (1995: 110) has recently noted that:

Demographic knowledge of the future of a population focuses on its internal dynamics. Other views of the future of a population emphasize how ecological, economic, cultural, and other factors may affect a population’s internal dynamics.

The focus on internal population dynamics (typified by the standard cohort-component population projection) has some advantages, notably tractability of the analysis and an apparent simplicity that appeals to non-demographic users of the results. In addition, the assumption sometimes, and at some demographic scales, comes close to the truth. The ‘baby-boom’ bulge in contemporary North American age structures, for example, is a given, essentially exogenous to social, political or economic change. But the assumption is less apt to be realistic at other scales, notable when dealing with small geographic areas or other small populations. A development decision or zoning revision by a municipality, for example, may have more impact on future population than internal dynamics defined with reference to past fertility, mortality, and migration.

There are additional implications worth considering if applied demography begins to shift from the narrower view to the broader view and with it away from a focus on internal population dynamics toward a focus on the interrelationships among demographic and other variables. One is that the traditional applied demographic methods of estimation and projection risk becoming technologically obsolete, to the extent that they are based solely on internal population dynamics, because a focus on internal dynamics fails to take full advantage of the analytical potential of the computer. Modern

computers make the computational aspects of such work close to trivial. They also allow and even favor more ambitious modelling efforts, which capture the interrelations and feedbacks among demographic and other variables, including policy or program variables. Such computer modelling is becoming commonplace in many scientific fields, as browsing through any issue of *Science* magazine will reveal. Some (Waldrop 1992) have begun to talk about computer modelling of complex dynamics as a new 'third way' in science, in addition to the traditional tools of theory and experiment. Standard spreadsheets now feature tools for doing 'what-if scenarios'. Another implication is that the next generation of decision makers will have grown up with these approaches and may be less interested in population projections based solely on internal dynamics given assumed inputs. They are apt to be more interested in flexible systems models in which they can analyze the impact – including demographic impact – of changing socio-economic conditions and policy interventions. Further, they may well question the claim to relevance of traditional projections, especially as they come to realize that such projections have only a formal precision and accuracy. Even in the face of time-consuming and costly refinements, they carry no guarantee of accuracy as predictions. And low-cost projections may turn out to be as close to the truth as high-cost projections (Swanson & Tayman 1995; Tayman & Swanson 1995). In this regard, if applied demography is viewed as analysis in the service of decision making, the quest for ever-greater accuracy is misplaced. What is required is sufficient accuracy for the decision at hand, obtained, at the very least, on time and within budget.

In short, a shift to a broader role for applied demography in practical decision making may be closely related to a shift from traditional methods, with their focus on internal dynamics, to newer methods better suited to a focus on interrelationships among demographic and other variables. The paper by Jeff Tayman in this special issue may be a harbinger of things to come.

The shift to a broader decision-making role and to an analysis of the place of population dynamics within more complex systems would raise some other questions about characterizations of applied demography presented in the opening of this paper. If applied demographers are to study the feedback of other variables on population dynamics, then it will no longer be sufficient to deal only with consequences and not with causes of demographic trends, or to deal only with prediction and not explanation. Nor will it do to ignore behavioral theory of demography. While theory will not set out the problems for applied demography as it tends to do in basic demography, it would seem necessary for an applied demographer to understand the behavioral dynamics of the complex systems at issue – at least in order to construct reasonable models.

Another important issue raised by our conceptualization of applied demography and whether or not it is broadly or narrowly defined, is the form, content, and location of applied demography training programs. Currently,

most of this training is accomplished within university departments such as sociology, economics, and geography or centers comprised of inter-disciplinary groups of sociologists, economists, and geographers. Virtually all of the academic units within which demography is practiced and taught have a value-orientation toward basic science. De Jong (1988) argues that most of the training for applied demography could be accomplished within these traditional settings. However, he seems to hold the view that applied demography is a circumscribed sub-discipline of basic demography. Kintner & Swanson (1987) also found that these traditional locations have the capability of providing most the training required by applied demographers (under the narrow, circumscribed view). However, they observed that if this were the case (that even under the narrow, circumscribed view) some level of reorientation would be needed (Kintner & Swanson 1987: 8) away from the traditional concerns of basic demography. Given our argument that applied demography is a decision making science, one may go even further and ask: Would not its training needs be better served in units with a decision making orientation – business, public administration, and urban and regional planning? This is of particular interest if applied demography is to play a more proactive role in the decision making process.

The preceding comments are also applicable to the ‘research agenda’ that would presumably be related to both the training and practice of applied demographers. Given our earlier point that it is difficult to develop generalizations in terms of applied demography’s methods, materials, and solutions, the development of coherent training programs and research agendas for ‘Applied Demography as Decision Making Science’ presents interesting challenges. While the challenges are difficult, we are confident that the collective talent and experience of both applied and basic demographers will rise to the occasion and that coherent training and research agendas will be developed. We also believe that these developments will be facilitated by viewing applied demography as a decision making science and using this viewpoint as a unifying principle for the field’s training programs and research agenda.

Applied demography has only recently gained recognition as an emergent specialization among practicing demographers. In an attempt to bring some form to the field, we have provided an overview of applied demography’s current features and argue that as a field of inquiry it is better described as a decision-making science than as a basic science. As we stated in the Introduction, a tidy definition is particularly elusive for any sub-discipline or discipline during its formative years. Applied demography is no exception and as with any emergent field of inquiry, there is ample room for discussion about applied demography, what it is, and what it could or should be. We believe that the time has arrived for this discussion and that it will serve to benefit both applied and basic demography.

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## Notes

1. For example, Bogue (1957), Porter (1986), and Stigler (1986) recognized demographic applications as a distinctive subset of demography before the 1980s and, as noted by Anderson (1988) and Cohen (1982), demography itself has long had an association with national government statistics. In fact, until the development of sample surveys following World War II demography was virtually totally dependent on governmental statistics (census and vital statistics) for its data. The close association of modern statistics, including demography, with the modern nation state is developed in Porter (1986). More recently, demography has been heavily influenced by its involvement with government-sponsored family planning programs in the Third World. Again, the key link has been with national-level governmental agencies (USAID, CIDA) and with the UN and other intergovernmental organization (e.g., World Bank).
2. Although other definitions of applied demography may not be as explicit in their link to decision-making as that provided by Murdock & Ellis (1991), the link has not been overlooked and, in fact, permeates the applied demography literature (e.g., De Jong 1988; Gobalet & Thomas 1995; Kintner et al. 1994).
3. This contextual distinction is the basis for our argument that, unlike basic demography, applied demography is better characterized as a decision making science instead of a basic science. For descriptions of 'basic demography' that indicate it is largely a discipline with a value-orientation and the empirical characteristics associated with a basic science, see, i.a., any number of introductory textbooks (e.g., Bogue 1969; Stockwell & Groat 1984; Weeks 1992), a general reference book (e.g., Coale, Demeny & Vaughn 1983; Keyfitz & Flieger 1968; Shryock, Siegel & Stockwell 1976), or a discussion piece (e.g., Crimmins 1993; Namboodiri 1988; Preston 1993). Of particular interest in this regard is Nam's (1979) Presidential Address to the Population Association of America: 'The progress of demography as a scientific discipline'. For a clear description of what constitutes the core value-orientation of basic science see Casti (1990).
4. This tension between a broader and narrower definition of demography is not confined to applied demography. Several have recently commented (Olsen 1988; McNicoll 1992; Burch 1993) that there are in fact two (if not more) demographies, one largely concerned with modelling and studying interrelations among a small set of strictly demographic variables, the other more concerned with interactions among demographic, social, cultural, economic, etc. variables, and therefore with behavioral theory. McNicoll (1992) quotes Keyfitz to the effect that demography is perhaps the only discipline he has encountered which is the opposite of imperialistic when it comes to subject matter.

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*Address for correspondence:* David A. Swanson, Center for Population Research & Census, Portland State University, P.O. Box 751, Portland, OR 97207-0751, USA  
E-mail: [davids@upa.pdx.edu](mailto:davids@upa.pdx.edu)