

Will the needs-based planning of health human resources currently undertaken in several countries lead to excess supply and inefficiency? Rejoinder

Kisalaya Basu* and Maxwell Pak†

July 2016

Although we welcome Birch et al.'s comment on our paper, "Will the needs-based planning of health human resources currently undertaken in several countries lead to excess supply and inefficiency?", we would argue that their comment is in many ways based on a misreading of our work. Our paper uses formal economic analysis to show that basing healthcare workforce planning on the needs-based method is likely to result in excess supply of the workforce and inefficient allocation of resources if it does not take into consideration how much healthcare service will actually be used. This conclusion is predicated upon an obvious fact that health is but one component (although a very important one) of an individual's well-being. Because individuals have other wants and desires that compete with their healthcare consumption, they may not consume all of the healthcare services prescribed to them by their medical circumstances, even when healthcare is free and there are no barriers to access.

Birch et al. do not challenge our mathematical proofs, which we take to mean that they find no flaw in our logic. Instead, the authors seek to refute our conclusion by disputing our assumptions. However, they make no attempt at actually demonstrating that needs-based planning will result in efficient allocation of resources under their purportedly "correct" assumptions. Without such demonstration, their remarks are merely exercises in non sequiturs. Simply put, we show that A implies B , and the authors try to argue that B cannot be true by casting doubt on A . This is a logical fallacy known as "denying the antecedent." Moreover, as we detail below, the arguments the authors provide against our assumptions are based on several misleading and irrelevant points. We start by correcting one mischaracterization of our paper that Birch et al. perpetuate throughout their comment. We then respond to each of the three points raised by the authors.

In their comment, Birch et al. first declare that we "propose that planning be based on service utilization." Then later they chide us for "fail[ing] to address how utilization-based approaches would protect governments, taxpayers and the general

*Health Canada, Ottawa, ON, Canada. The views expressed in this paper are those of the authors and do not represent the views of Health Canada. e-mail: kisalaya.basu@canada.ca.

†Corresponding author. Research Institute of Economics and Management, Southwestern University of Finance and Economics, Chengdu, Sichuan 610074, China. e-mail: mpak@swufe.edu.cn.

public” and sound various warnings about “[our] approach.” These assertions make it appear as if we advocate returning to the traditional utilization-based planning method, which relied solely on past utilization rate for each demographic group and projected demographic changes. However, a cursory reading of our paper should make it clear that we do no such thing, for the very first paragraph of our paper delineates the deficiencies of that method. We do point out that provisioning of healthcare services should take into consideration not only the medical needs of the population but also its demand responses, but this is clearly different from advocating that planning be based only on utilization. Thus, the failings of the utilization-based planning the authors attempt to associate with our work is misplaced.

1 Inappropriate considerations?

Birch et al. claim that we have given “inappropriate consideration” to the nature of healthcare demand because we did not consider physician-induced demand (PID) or positive externality generated by healthcare. Indeed, our model did not consider them. But we ask, “Why does it matter?” Models are by nature simplifications of complex phenomena, and for a model to be clear enough to be useful it must necessarily assume away details that are not central to its main point. Thus, omission of some factors is relevant only if their inclusion alters the central result. In this case, it does not.

Positive externality is certainly a well-known justification for subsidizing healthcare. However, healthcare is already free in our model, so including externality cannot make excess supply disappear. When individuals make their healthcare consumption choices, they do not take into consideration the positive benefit their consumption confers on others (this is the definition of externality). Therefore, the presence of externality by itself cannot alter the level of healthcare consumption.

The absence of PID in our model is also inconsequential. To start, despite the authors’ claims, the existence of PID remains empirically debated (see e.g., Davis et al., 2000 and Grytten and Sørensen, 2001) and, even at a theoretical level, is limited to providers who are paid through fee-for-service arrangements. More importantly, since we are showing that inefficiencies are likely to arise from needs-based planning, it is appropriate to assume that medical needs are determined exogenously by the same impartial medical experts who presumably determine needs in needs-based planning. Allowing the needs to be determined even partially by physician self-interest will only make our results stronger by creating additional channels through which inefficiencies can arise.

2 Misrepresentation?

Birch et al. claim that we “misrepresented” their papers when we stated that Birch et al. (2005), Tomblin-Murphy et al. (2009), and Birch et al. (2007) do not consider socioeconomic factors. They state that this is “incorrect” because in their model “service

levels can be determined based on any criteria deemed relevant by planners.” Here, the authors have unfortunately made an issue out of what was but a passing remark in our paper and has no bearing on our conclusion. We are aware that needs-based planning could *in principle* incorporate all the factors “deemed relevant.” In fact, we cited these papers as examples of works that, despite what is possible in principle, *in practice* have nevertheless used “a very narrow definition of ‘needs’ that includes only the medical circumstances of the population.” We note that the authors could not point to any estimation model in their papers that actually used socio-economic factors. Rather, while implementing their empirical model, Birch et al. (2007) write:

“Because there is no crystal ball with which to identify the future level and distribution of needs for care, three alternative scenarios for the epidemiology determinant are used:

1. age- and gender specific levels of health remain constant over time,
2. age- and gender specific levels of health move to current levels observed for Canada as a whole over the next decade, and
3. age- and gender-specific levels of health change in accordance with the observed trend in the Atlantic region over the decade.”

Given such statement, we stand by our characterization of their papers.

3 Misunderstanding?

Birch et al. claim that we were “misunderstanding” publicly funded healthcare systems when we assumed that central planner maximizes social welfare. The authors state that the objective of a healthcare system is instead to “maximize health gains.” These assertions reflect a misreading of our paper. The decision maker in our model is not an isolated healthcare authority but a central planner for the entire society who must care for not only the healthcare needs of its people but also their other needs (education, national defense, material wants, etc.). Even under the extra-welfarist approach, which the authors appear to be subscribing to, maximizing health gains cannot be the goal of the central planner in such framework (see Brouwer et al., 2008). Furthermore, even if one takes the narrow objective of maximizing health gains, needs-based planning that does not take demand responses into account will still be inefficient since providing services that will not be used cannot produce health gains. The authors make no attempt to demonstrate otherwise.

While explaining our supposed “misunderstanding,” Birch et al. also state that we “identify unmet need as the key element of [our] model.” We are perplexed by this statement since the inefficiency in our model arises through excess supply, while “unmet need” represents exactly the opposite: excess demand. The remainder of the comment expresses the authors’ opinion, in various iterations, that if any healthcare service goes unused, it must be because there are other non-price related barriers to access, seemingly unaware that we have shown our result in an environment where there are no such barriers. The authors’ belief that “Notions of ‘if we build it they

should come' might be replaced with questions about 'now we've built it why don't they come?'" is especially baffling. It assumes a utopian world in which all other needs of its population have been fully met and all that remains is to ensure that every medical service is delivered at exactly the right time, in exactly the right place, under exactly the right circumstances.

4 Final remark

Healthcare workforce planning deserves serious scholarly attention. We recognize that our model, like all theoretical models, employs simplifying assumptions and would welcome any rigorous investigation into the sensitivity of our conclusion to these assumptions. Attempting to reject the conclusion of a model in the manner of Birch et al., though, is not the way to advance the planning literature or health economics in general.

References

- [1] Birch S, Kephart G, O'Brien-Pallas L, Tomblin-Murphy G. 2005. *The Atlantic health human resources planning study*. Med-Emerg Inc.: Mississauga.
- [2] Birch S, Kephart G, Tomblin-Murphy G, O'Brien-Pallas L, Alder R, MacKenzie A. 2007. Human resources planning and the production of health: A needs-based analytical framework. *Canadian Public Policy* **33**:1-16.
- [3] Brouwer W, Culyer A, van Exel N, Rutten F. 2008. Welfarism vs. extra-welfarism. *Journal of Health Economics* **27**: 325-338.
- [4] Davis P, Gribben B, Scott A, Lay-Yeed R. 2000. The "supply hypothesis" and medical practice variation in primary care: testing economic and clinical models of inter-practitioner variation. *Social Science & Medicine* **50**:407-418.
- [5] Grytten, J, Sørensen R. 2001. Type of contract and supplier-induced demand for primary physicians in Norway. *Journal of Health Economics* **20**: 379-393.
- [6] Tomblin-Murphy G, Birch S, Alder R, MacKenzie A, Lethbridge L, Little L, Cook A. 2009. *Tested solutions for eliminating Canada's registered nurse shortage*. Canadian Nurses Association: Ottawa.