

The Role of Evidence-Based Policy in Urban Planning

The aim of this essay is to explore the appropriateness of applying evidence-based policy to urban planning research. The first issue that must be addressed is simply what is evidence-based policy. This discussion will explore what is meant by evidence-based policy and how it emerged as a model of scientific inquiry. The discussion of its historical emergence will hopefully add clarity to the implications inherent in the provided framework. Agreement on the definition and interpretation of evidence-based policy established by this discussion will be invaluable in exploring the applications and feasibility of evidence-based policy in urban planning. Next, the essay will critique the framework before applying these critiques to evidence-based policy in urban planning. The result of this discussion is rather bleak: evidence-based policy has the potential to alter the field of planning in very negative ways. However, given its flaws, the likelihood of this happening is determined to be rather small. This leads to a cautiously optimistic outlook for evidence-based policy as another method for urban planners to use in practice, one that is viable only in limited spatial and temporal contexts.

What is evidence-based policy?

A common approach when crafting policy is to implement interventions that have succeeded elsewhere. It is justifiably safe to use policies that have worked in the past. One way to measure if whether a policy worked is randomized controlled trials (RCTs). These RCTs add a layer of credibility to the policy through objective examination of policy outcomes. Their statistical rigor presents outcomes essentially as laws: it “worked there” so it “will work here”. As a result, RCTs are increasingly being incorporated into the policy research and design process across multiple disciplines. This – the use of RCTs to inform policy – is one common way that evidence-based policy is materializing in practice. Evidence-based policy is the process of designing and implementing policy through rigorous examination of relevant evidence to ensure

that the policy is effective – that is, it achieves its desired outcomes. Evidence-based policy is effective policy.

This is somewhat problematic, however. The way evidence-based policy is currently implemented may not truly be effective. In the case of RCTs, they demonstrate “that a policy worked there, where the trial was carried out, in that population” (Cartwright & Hardie, 2012). The leap from “worked there” to “will work here” is not so simple and intuitive as it is often assumed to be. “Worked there” may be a good starting point, but it is not capable of being the sole predictor of policy effectiveness. Nancy Cartwright, the philosopher who has informed much of this early discussion, posits that two types of facts are needed to make the jump from “worked there” to “will work here”: “facts about the causal role the policy plays and facts about the support factors that must be in place if the policy is to work” (Cartwright & Hardie, 2012). In effect: causal mechanisms and context.

Cartwright’s framework for evidence-based policy is a response to the logical empiricist school of thought regarding knowledge production, which saw the goal of science as explanation instead of as description. Notable in this school was Carl Hempel, known for his deductive-nomological model for scientific inquiry. This (formerly) hegemonic and deterministic model suggests that scientific explanation is derived from the interaction of particular facts and general laws. In the context of evidence-based policy, this is to say that given some particular circumstances acting in accordance with a general law of the universe, the desired outcome will consistently occur (Hempel et al., 1962). On the surface, this appears quite similar to Cartwright’s framework – both models ostensibly rely on the interaction between context and concept. However, this is inaccurate. For Hempel, context takes the form of directly observable facts: the road is made of asphalt, it is raining, et cetera. Here, his roots as a logical positivist are evident. Cartwright, on the other hand, sees context as more encompassing. Yes, context can

take the form of directly observable facts, but it can also be indirectly observable, unobservable, or yet to be observed (that is, some context that is not immediately observed or observed but thought to be irrelevant). Cartwright believes that we can never fully understand our world, it is much too complex and dynamic, we can only ever know and understand the world in part. More importantly, context is not just relevant facts, but supporting factors. A supporting factor is some condition that must be present in order for the desired outcome to be achieved. It is relevant context. Cartwright uses ashtrays as an example: while there is a link between lung cancer and ashtrays via smoking, “there is no way ashtrays will play a role in producing lung cancer”. It is smoking and genetics that produce lung cancer; those are the supporting factors (Cartwright & Hardie, 2012).

The largest difference between the two models is on how they connect the facts and factors to outcomes. Hempel relies on general laws of the universe, or covering laws – the inverse relationship between pressure and temperature as explained by the ideal gas law is an example. However, covering laws are problematic for a number of reasons. Most importantly, there are few of them. Secondly, the general laws that we do have are often true only under very controlled circumstances. Regarding the ideal gas law, for example, it is most accurate for gases at high temperature and low pressure due to ignorance of molecular interactions in the calculations. For this reason, Cartwright proposes *ceteris paribus* laws – regularities that occur holding all else equal. *Ceteris paribus* laws are distinct from covering laws in that they acknowledge their context-dependence (Cartwright, 1999). By highlighting the role of context in the process of knowledge production, Cartwright opens up the possibilities for inquiry. No longer is scientific knowledge confined to the laws of the hard sciences, legitimate knowledge can now be produced through rigorous examination of context and regularities. This is elucidated by her use of causal principles – the explication of “factors that operate to bring about

the outcome in question in that situation and [show] how these combine to produce it” – as the mechanism that predicts policy effectiveness from previously observed outcomes: “Causal principles fix what causes what” (Cartwright & Hardie, 2012). These causal mechanisms make “visible how the participating entities and their properties, activities, and relations produce the effect of interest” (Heldström & Ylikoski, 2010). Finally, causal principles in Cartwright’s model serve to establish the three preconditions of causality – time order, covariation, and non spuriousness – thus improving on the problems – symmetry and irrelevance (not addressed within this essay) – resulting from Hempel’s insensitivity to the importance of causation.

To summarize this conception of evidence-based policy, we are referring to policies that have “worked there” in the past. As Cartwright puts it, to have “worked there” means that the policy “played a positive causal role in the causal principles that hold there and the support factors necessary for it to play this positive role there were present for at least some individuals there” (Cartwright & Hardie, 2012). The implication being that the causal role and support factors can be correctly identified. For a successful policy to make the leap from “worked there” to “will work here”, those causal roles and support factors must not be wholly unique to “there”. The policy must fulfill the same causal role “here” and do so with the same set of support factors. Without these conditions, the claim that the in question policy “will work here” is baseless and unscientific.

Problems of evidence-based policy

Cartwright’s model is very helpful in aligning our intersubjective understanding of evidence-based policy. However, it is not entirely unproblematic. Each of the conditions she puts forth are necessarily limiting and these limitations must be addressed in order to elucidate the shortcomings of relying fully on evidence-based policy in practice. The first condition is that a policy is to be considered for “here” if and only if it “worked there”. This, in essence, creates a

hermeneutic circle within the policy realm. That is to say, new policy must be built atop the frameworks created by old policy. This is necessarily confining; it infinitely narrows the range of possible policy interventions to those already in existence. It does not allow for policy innovation and incubation. To be clear, when I write innovation and incubation, I mean policies that have strong theoretical evidence of success, not baseless (and therefore reckless) policy implementation. How to build this evidence is besides the point of this essay; it is only important to realize that prior success is only one method to predict policy effectiveness.¹ In this same vein, Cartwright's first principle ignores policies that have failed "there". She gives the example of California's education system attempting to implement a class-size reduction program that was very successful in Tennessee. The program failed in California for a number of reasons (Cartwright & Hardie, 2012). What if California had implemented the class-size reduction program first – and still failed? Given the first condition, at worst Tennessee would not have implemented the program because it did not "work there", and thus would not have reaped the benefits. At best, California's failure would serve as evidence against class-size reduction programs that may eventually be overruled in the future, delaying implementation in Tennessee. In either case, Tennessee schools would be negatively effected by the program's failure in California.

My critique of causal roles and supporting factors is based on Cartwright's own admission that our world is incredibly complex and dynamic. This makes it difficult to a) identify the roles and factors "there", and b) to ensure that they are present without interference "here". I think that Cartwright would agree that "without interference" is, in many cases, too

1 To be fair to Cartwright, she does address alternate methods to RCTs – meta-analysis, systematic reviews, causal Bayes nets, econometric methods, and causal tracing. However, she clearly favors RCTs because she believes them to be "self-validating". That is to say, that "few of their assumptions require knowledge about the factors that might be involved for their settings". This appears self-defeating; the whole point of her framework is that we must explicitly know the causal roles and supporting factors for a policy (Cartwright & Hardie, 2012).

much to ask for given her view of the world. Nevertheless, simply ensuring that the roles and factors are present “here” is a challenge in itself. Again, I believe that Cartwright acknowledges these challenges; after all, her model is a probabilistic model (as opposed to deterministic) for predicting policy effectiveness and is thus prone to error. However, she fails to provide an effective means to move past these challenges consistently and scientifically. As a result, if we take her literally, we have a near impossible standard of not only identifying the causal roles and supporting factors, but also ensuring they are present “here”. If we loosen these conditions, at what point do we stop? Is there one threshold for all policies, or must each one be examined on its own merits? I do not think Cartwright has an answer, and neither do I. However, I do think these critiques will help make apparent the potential flaws of evidenced-based policy as applied in urban planning.

The final aspect of evidence-based policy that worries me is its goal-oriented nature. Evidence-based policy is focused on the “there”, but only in relation to achieving some final end over “here”. Dewey suggests that there are no ends, only near means and far means. By referring to far means as ends, we keep our actions oriented towards the goal, but we tend to ignore what comes after (Dewey, 1922). In planning, the goal is never a mere end because the world keeps on. Our interventions have effects and consequences, often unforeseeable. That does not mean that we can ignore them. However, Cartwright’s framework ignores the after. If an intervention fulfills her conditions, it can be said to be probably effective “here”, but implicitly only now. There is no claim to the future success of said intervention. Cartwright’s failure to account for that fact that supporting factors and causal roles may evolve differently across space and time is perhaps the single greatest flaw in her framework.

Evidenced-based policy in urban planning

Knowledge production has a tumultuous relationship with legitimacy. The best example of this may be in the field of economics. Massive developments in the field of physics over the course of the nineteenth century inspired academics in the budding field of economics to develop rigorous mathematical explanations for social phenomena. Physics-envy relegated non-mathematical work as secondary knowledge, illegitimate. This has created its own problems within economics due to the fact that many observations in physics are made under controlled conditions, often in the form of vacuums. Economics followed this trend, creating ideal formulas that exist under controlled conditions. The difference being that controlled conditions do not exist in the social world. Despite this very obvious problem, simplified mathematical models continue to dominate the field, even spreading to others. For example, in the field of history, this was realized through cliometrics – the application of economic models to historical research. This privileging of some forms of knowledge over others has occurred in many fields and in many forms; it is not contained to physics over all else (though it does sometimes feel that way). Notably in planning, technocratic knowledge has been superseded by grassroots knowledge – potentially an effect of the widespread circulation of Sherry Arnstein's Ladder of Participation (Arnstein, 1969). But in planning, many forms of knowledge remain privileged in parallel to grassroots knowledge. The rise of geographic information systems has created unique forms of spatial analysis that have in their own right superseded other, less computationally-intensive forms of spatial analysis. Economic, historical, and ethnographic methods, among others, are all viewed as capable of creating legitimate knowledge. This is potentially due to planning's unique position as interdisciplinary field, a mosaic of disciplines united on the urban.

The question that must be asked is where does evidence-based policy fit into the mosaic? Clearly, my fear is a paradigm shift in how planners privilege knowledge – and further, how the ingratiation of evidence-based policy shifts the goals of planning research. This fear is warranted

from a political point of view. This is because of the goals inherent to evidence-based policy. That is, to ensure that a policy is effective, that its desired outcome is attained. These goals are admirable but problematic. In an applied field like planning, research is often designed to inform some form of real-world intervention, policy or otherwise. It should be easy to see the attractiveness of a research framework – in this case, evidence-based policy – which loudly proclaims it can predict an intervention's effectiveness. It is arguable that planning is susceptible to this call because it lacks a dominant research method. Planning research is, in essence, multipolar. The adoption of a new method, a potentially hegemonic method, will always lead to instability and change which can radically redefine a field (Mearsheimer, 2001). To see this, just look back to the brief discussion of how physics methods redefined the field of economics.

The hegemony of evidence-based policy in planning is concerning because of how it could consolidate the types of research the field is capable of doing. This is a claim on legitimacy. A dominant evidence-based policy agenda would reestablish technocratic importance as the mediator of knowledge. Grassroots interventions could still take place, but not formally through the state or large institutions. Instead, these grassroots interventions would have to be meticulously examined and put through the research framework in order to have any chance at large-scale adoption. This is potentially bad for five reasons. First, stated previously, it gives more power to experts to mediate knowledge. This is problematic because it is the experts which are providing themselves this benefit. To put it another way, it gives the most advantaged members of the planning process more power to shape the world. Second, in the same vein, it creates a strict division of labor within the planning process. This strict division separates those now-legitimate knowledge producers from all other knowledge producers and the public at large. This alienation of those effected by planning (read: everyone) from the planning process itself is liable to create issues of identity. That is to say, growing indifference towards planning

interventions and the planning process in general ensuing from the “inability to identify one’s self with definite issues” (Dewey, 1927). Planning with limited citizen participation is likely to be misdirected and ultimately ineffective. These first two problems are augmented by the third problem, also mentioned previously. That is the confining factor of evidence-based policy: interventions must be built only on previous successes. Planning interventions designed by those in power to benefit themselves creates the risk that, over time, those interventions become the only legitimate forms of intervention – this is the hermeneutic circle applied to a hegemonic evidence-based policy agenda. The fourth problem is cost. For an intervention to become legitimate, it must pass through an intensive vetting process. Stated above, this creates a stickiness to interventions – once they are adopted they will be less likely to be revisited. These costs also limit the viability of implementing small-scale projects. This is already a problem in planning – small-scale interventions do not benefit from economies of scale; adding a new cost will surely not help. Fifth and final, evidence-based policy limits the scalability of interventions – or at least their scalability in a timely manner. No longer can successful grassroots interventions be rapidly scaled to meet the needs of a larger population. This is because interventions must first go through the process of being mediated and applied by experts before they can be adopted. Similarly, once an intervention goes through the vetting process, it could be much harder to change as the world changes around it. I see this as especially problematic in subfields like environmental planning and disaster planning, where rapid, scalable interventions are often necessary.

Evidence-based policy as a hegemonic method could clearly be a disaster for the field of urban planning. While I believe the fear over how this new method changes planning research is warranted, how realistic is this full-scale adoption? Maybe not so great. Remember that Cartwright’s framework for evidence-based policy requires us as planners to identify the causal

roles and supporting factors where the intervention was successful – “there” – and ensure they are present “here”. Stated previously, these conditions are incredibly difficult to meet. By Cartwright’s own admission, the world is complex and dynamic. Nowhere do we see this more than in the urban, where cities experience massive spatio-temporal differences. Starting from the earliest walled cities – built as collective enterprises for safety from invasion – through industrialization and onto today’s cities, the problems faced have changed radically. Further, the challenges faced are incredibly unique and local. Even today, the challenges that dense New York City faces differs wildly from the problems that auto-dependent Los Angeles faces which differ again from the problems that declining Rust Belt cities like Cleveland and Detroit face. This is all to say that there are limitations to the issues that evidence-based policy is equipped to handle, and these issues tend to diminish across space and time. Evidence-based policy may be best suited to regional and local issues in planning, therefore limiting its ability to drastically alter the trajectory of the field as a whole.

Similarly, Cartwright’s framework relies heavily on randomized controlled trials (RCTs) to measure policy effectiveness. Are these possible in planning? Yes, but probably not at the scale that they are used in other fields like education or public health. Again, it is urban complexity that is the culprit. RCTs may be suitable for less spatially-dependent projects (e.g. project funding models), or for projects that occur in very similar localized areas (e.g. feasibility of bike lanes on similar roads); they are not suitable for a large range of projects that planners undertake. This is true for small-scale, localized interventions all the way up to large mega-projects. The former due to excessive time and costs to carryout the RCTs, the latter more so to project and contextual uniqueness.

Finally, a hallmark method for urban planning interventions is incrementalism. In planning’s most applied form, incrementalism materializes as discretely and asymmetrically

adding curb cuts, extending sidewalks, experimenting with different styles of bike lanes, and otherwise changing the built environment as needed. But evidence-based policy limits our ability to quickly and readily adapt to our changing environment by privileging a more controlled form of intervention. I cannot see planners willingly disavowing the usefulness of incrementalism in solving problems quickly on an as needed basis. Incrementalism also serves the purpose of allowing for experimental policy design. Here, planners can use discretion and insight to define problems and innovate to solve them. Innovation is anathema to evidence-based policy. Further, implicit within experimental policy design is also the exculpation of consequences, something ignored by our understanding of evidence-based policy.

Conclusion

The lofty goal of evidence-based policy almost certainly justifies its adoption by urban planners. Though it fails to stress the importance of consequences, Cartwright's framework is very good method for ensuring that a policy achieves its desired outcomes. Given the current research landscape in urban planning, I think evidence-based policy will be a flash in the pan, a new trend that will be adopted rapidly by researchers. However, due to its limitations for solving all planning problems effectively, I believe it will quickly fade, becoming just another tool in our planner's toolbox. Evidence-based policy is limiting, and the conditions of explicitly identifying causal roles and support factors will prove to be too strict to warrant a realignment in the field. Nevertheless, under the right circumstances, evidence-based policy can be very useful for effectively implementing planning interventions.

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