

Inclusive innovation as urban policy: A review and critique

Neil Lee
Department of Geography and Environment
London School of Economics and Political Science
Houghton Street
London
WC2A 2AE
n.d.lee@lse.ac.uk

Abstract

The concept of ‘inclusive innovation’ has become increasingly important in public policy. It was initially used in the international development literature, before being taken up by national governments in OECD economies. Now, it has become important in urban policy - the term has increasingly appeared in economic strategies, and a number of city governments have launched dedicated inclusive innovation strategies. Yet this trend has been unremarked in the academic literature. Based on case studies of three cities where the concept has been influential – London, Washington DC, and Pittsburgh - this paper reviews this agenda, provides new critiques, and a categorisation of different meanings of the term. Many of the policies which form part of this inclusive innovation agenda are important and necessary, and the term provides a politically acceptable way of linking innovation with social outcomes. But the agenda is also problematic - inclusive innovation is a nebulous buzzword which has been used to mean quite different things, strategies lapse into neophilia and the search for technological solutions for complex social problems, and city governments often lack powers over innovation policy. The paper concludes with suggestions to reconcile these problems and ensure the inclusive innovation agenda has a positive impact on urban disadvantage.

Keywords: Inclusive innovation; Regional policy; Inclusive Growth; Regional innovation

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1. Introduction

Governments devote significant resources to innovation policy, on the basis that innovation is seen as one of the most important determinants of long-term economic performance. Yet innovation is fundamentally a disruptive activity - it can create losers as well as winners, and the gains are often unevenly distributed. Disadvantaged groups are often under-represented in innovation related activities and so do not gain from higher wages in advanced sectors (Echeverri-Carroll et al., 2018). Innovation resources are often invested in a way which reflects the priorities of the affluent rather than the needy: Bill Gates has, famously, claimed that more money is spent on a cure for male pattern baldness than Malaria (Chu, 2013). Even the most innovative cities and regions can find themselves with polarised labour markets, high poverty rates, and lower real wages for many groups (Lee and Clarke, 2019; Kemeny and Osman, 2019).

In this context, policymakers have increasingly focused on the idea of ‘inclusive innovation’. The term came into widespread use in the economic development literature (e.g. Altenburg et al., 2009; Chataway et al., 2014; Heeks et al., 2014), before becoming increasingly important in ‘advanced’ economies of the OECD. At a national level, social goals are now prominent in innovation strategies - in a study of 10 innovation strategies from a diversity of countries including Germany and South Africa, Stanley et al. (2018) found that all included environmental objectives in their strategies, and seven included more general ‘social’ goals. There is increasing agreement of the need to integrate innovation strategies with wider inclusion and social policy goals (George et al., 2013; Zehavi and Breznitz, 2017).

Yet a related agenda has been largely unremarked: the idea of inclusive innovation has become increasingly important at a *sub-national* scale. For example, the US state of Georgia has launched a Partnership for inclusive innovation, Belfast in Northern Ireland has launched a commission for “Innovation and Inclusive Growth”, Innovate North Carolina, a partnership body, has an “inclusive innovation Policy Toolkit”. Other cities have more formally integrated inclusive innovation as part of their economic development strategies, or even launched specific inclusive innovation strategies. This nascent policy agenda has been growing in importance, yet the literature has - as far as I am aware - largely ignored this trend.

This paper addresses this gap by providing a review of this emergent policy agenda. Based on a review of strategies which consider inclusive innovation across cities or sub-national areas in ‘advanced’ economies alongside more in-depth case studies of three cases - Washington DC, Pittsburgh, and London (UK) - the paper aims to provide a constructive critique of the use of the concept to date. It argues that inclusive innovation at a sub-national level has become a fuzzy concept

with multiple, inconsistent meanings, but that many of the policies which form part of these strategies - notably around participation in the innovation economy - are important and necessary. However, there is a tendency towards neophilia - a focus on the new and exciting, rather than the effective and boring - and technological solutionism, the search for a technological fix for complex social problems. Moreover, there is a mismatch between the pure conceptualisations of inclusive innovation and the actual powers held by city government.

This paper builds on a wider literature on innovation studies, in particular George et al's (2012) work on innovation for inclusive growth, work in international development on inclusive innovation (Heeks et al., 2014), and Zehavi and Breznitz's (2017) work on distribution sensitive innovation policies. But it also relates to the more geographically specific literature on regional and urban innovation policy (McCann and Ortega-Argilés, 2013), and that on Inclusive Growth (e.g. Lee, 2019; Green et al., 2019; Waite et al., 2020). Inclusive innovation as urban policy represents one aspect of the 'normative turn' in innovation policy (Uyarra et al., 2019).

The paper is structured as follows. Section two considers the context: why inclusive innovation policy is increasingly seen as important and in what contexts. Section three outlines inclusive innovation policy, focuses on the local dimension and why this is important. Section four critiques this – setting out the challenges which need to be overcome. Section five concludes with implications for policy.

2. What is inclusive innovation?

The idea of inclusive innovation developed in the 2000s, building on a widespread set of concerns about the inclusivity in the direction of innovation processes. As Chataway et al. (2014: 34) argue, there were problems with the nature of 'innovation' processes at the time, notably:

“... capital-intensive nature, its scale intensity, its dependence on high-quality networked infrastructure, its reliance on skilled labour and its product portfolio (producing products which meet the needs of the rich) all have the effect of disadvantaging the poor, both as consumers and producers. It also excludes large segments of the population in many countries from productive employment.”

They suggest that inclusive innovation has become apparent as the confluence of several trends: growing concern related to differential growth paths, in particular the contrast between the relatively inclusive East Asian growth model compared to Latin America; the Appropriate Technology movement which focuses on small scale, locally appropriate technologies; interest in the potential of

disadvantaged communities as markets and producers of innovation (in particular, the ‘base of the pyramid’ innovation movement – the concept developed by Prahalad, 2005), and the notion that some innovations serve as public goods and should be provided in an inclusive way.

Yet despite a huge number of papers on the concept. “inclusive innovation” has no intrinsic meaning or dictionary definition. There has long been concern about the distributional consequences of innovation – since the Luddites, at least, with more recent concern in the 1950s (Chataway, 2013). But the term ‘inclusive innovation’ only began to be used in the late 1990s in the literature on international development (Heeks, 2013). It is often, in this literature, consistently if broadly defined. Foster and Heeks (2013: 335) defined it as: “the inclusion within some aspect of innovation of groups who are currently marginalised”.

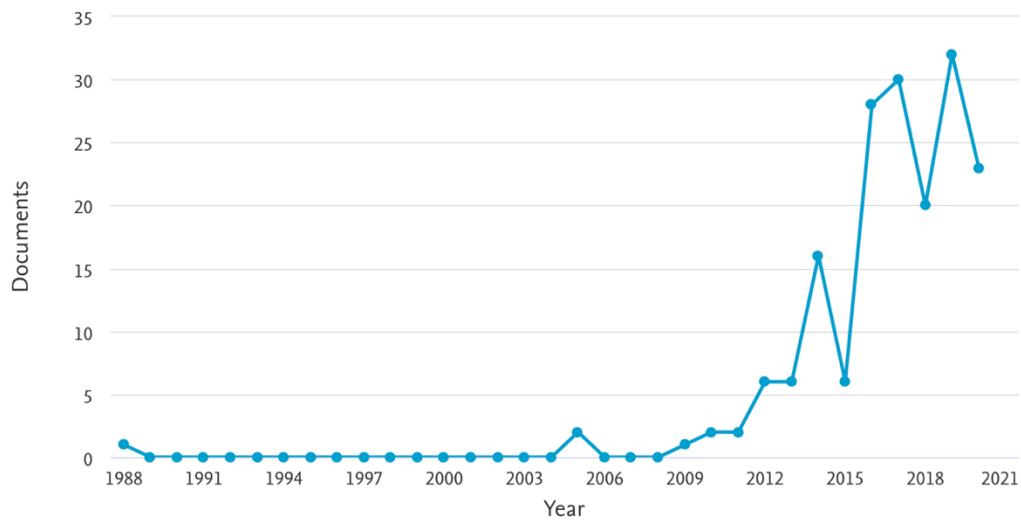
Regardless of what people mean by inclusive innovation, the term is now relatively entrenched in policy and academic debate. One way of showing this is through web-searches, and data from Google searches shows steady interest with, if anything, a slight upwards trend (figure 1). Academic interest has grown more rapidly, and figure 2 shows the number of new documents published per year which include the phrase ‘inclusive innovation’ in the title or keywords. With the exception of a small bump in interest in the mid-2000s, the term was barely used until 2009 since when it has been on a steep, if erratic, trajectory. The concept, or subtle variations on it, have been popular and impactful in the academic literature - for example George et al.’s (2012) theoretical review on “innovation for inclusive growth” has been highly cited. While interest is still not large, compared to other more established concepts, it only became the subject of academic interest from the late 2000s.

Figure 1. Google Trends: Web searches for ‘inclusive innovation’ since 2006



Figure 2. Scopus: Published articles with the term ‘Inclusive innovation’ since 1988

Documents by year



As the literature has grown, the number of formal definitions of inclusive innovation have expanded. These definitions range from simple: e.g. George et al. (2012) define it simply as “Innovation that benefits the disenfranchised”; simple but precise as “Inclusive innovation projects are initiatives that directly serve the welfare of lower-income and excluded groups” OECD (2015), and precise but definitive: “Inclusive innovation policies are directed towards ensuring that the benefits and the risks of innovation are more equally shared. These policies will actively consider whose needs are met by innovation and how excluded social groups could be better served, focus on initiatives that promote broad participation in innovation, and take a democratic and participatory approach to priority-setting and the governance of innovation.” Stanley et al. (2019).

The formal definitions have come in parallel with more extensive conceptualisations. One of the most thought-through conceptualisations comes from the UK’s National Endowment of Science, Technology and the Arts (NESTA). They (2019) highlight three main ways in which inclusive innovation can be understood - “Broadening participation in the innovation economy” for example through increasing BAME involvement in the high-tech sector; “Ensuring the benefits of innovation are shared by all” - for example, by ensuring that biomedical innovation represents the interests of groups who are not normally prioritised, and; “Involving the public in shaping innovation policy” by engaging the public in shaping what government’s fund.

Inclusive innovation is related, but distinct, to other concepts. One closely related concept is distribution-sensitive innovation policy (DSIP) is used by Zehavi and Breznitz (2017) who define them as (1) those supporting R&D in traditional industries, rather than high-tech firms, (2) Science and Technology in the periphery, (3) science and technology for disadvantaged minorities, and (4) Science and Technology for the disabled. They also distinguish between DSIP which are

producer-oriented, aiming to include them in the production of innovation, and consumer oriented, aiming to produce products which will be used by disadvantaged groups. Compared to inclusive innovation DSIP is more concrete, focused, and clearer in terms of policy.

Other similar, related concepts differ in terminology and subtle emphasis. Some, such as ‘base of the pyramid innovation’ or ‘frugal innovation’ are terms which are predominantly focused on the developing world. Others, such as ‘innovation for inclusive growth’ are more closely related. These different names matter as they highlight differences in emphasis and content (Foster and Heeks, 2013). But while individual groups of academics might be clear on what they mean, when the term becomes used in policy the meaning is often lost. The general tenet of inclusive innovation has also been considered by research funders in Europe through the idea of Responsible Research and Innovation, through which the actors involved in innovation “work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.” (European Commission, 2020).

3. Operationalising inclusive innovation: Three examples

How is inclusive innovation being conceptualised and operationalised at a local level? To answer this question, a research assistant drew up a long-list of strategies and other policy documents which used the term ‘inclusive innovation or variants of (such as ‘innovation for inclusive growth’). This was a purposive, rather than random, process which identified around twenty potential candidates for further study. Second, the definitions and conceptualisation of inclusive innovation were considered in more detail. Three of the cases were particularly interesting because the concept was in widespread use. Interviews in these cases are ongoing, but were used to clarify conceptualisation and gain background detail. These case studies – London (UK), Washington DC (USA), and Pittsburgh, (USA) – are considered next.

3.1 Inclusive innovation in London

The first example is London, UK, where inclusive innovation has become an important part of the policy discourse at both the strategic and deliver level. London has something of a paradox: it has one of the highest levels of GDP per capita of any UK city, but also higher poverty and greater inequality than any other large city (Centre for Cities, 2020). The city has two of the UK’s largest ‘golden triangle’ science-focused universities, UCL and Imperial College, and a thriving tech scene (Nathan et al., 2019). But much of this is close proximity to significant disadvantage, particularly in East London.

The institutions of economic development in London are explicit in their desire to use the capital's economic success to address disadvantage. The centrist Mayor of London, Sadiq Khan, represents the Labour Party, the UK's major left-wing party. The Mayor's office runs economic development via a Local Enterprise Partnership (the London 'LEAP') which produces a London Industrial Strategy designed to shape the economy of the city.

The idea of inclusive innovation has been important and clear at this strategic level. One of London LEAP's overarching aims is to develop

“an approach that supports and encourages innovation to drive productivity growth, especially where it is directed at solving London's social, environmental and economic challenges, and where it benefits Londoners, SMEs and parts of the city that have not typically shared in the benefits of innovation. This will also include investigating the potential to apply new generation technologies to improve productivity and job quality across the economy”

(GLA, 2019)

Inclusive innovation here is used to refer to the use of innovation to address challenges, and to ensure benefits are widespread.

The notion of inclusive innovation has also pervaded some of the major regeneration projects across the capital. Part of the site of the 2012 Olympics has been made into an 'inclusive innovation district' - with space provided for disabled tech entrepreneurs (New London Architecture, 2020). Here, the concept is used to imply something different - ensuring the innovation process, or at least entrepreneurship, can include disadvantaged groups.

A third meaning comes from the local level. The London Borough of Camden has produced an inclusive innovation network, with it defined as: “Doing something differently for improved outcomes, with a focus on social justice, resident-centred design and working in the open with all our communities.”. The focus here is on public service or organisational innovation, rather than innovation in the form of new products. This is very different to the meanings used by the Mayor's Office or as rationale for the Olympic park. In short, what London shows is that the same buzzword - even when applied, clearly, in strategic documents - can be picked up in different ways in a city.

3.2 Pittsburgh's inclusive innovation Roadmap

A second example is Pittsburgh, a formerly industrial city of some 300,000 people in Pennsylvania. While London's focus on inclusive innovation was still nascent, Pittsburgh provides perhaps the best example of the use of inclusive innovation at a local level: it has branded itself

an ‘inclusive innovation city’ through an ‘inclusive innovation roadmap’ which ran from 2015 - 2018. This defined inclusive innovation as providing “equitable access to products and services by leveraging new technologies, ideas, personnel and inventions to meet new challenges and higher standards” (City of Pittsburgh, 2015: 4). This provided six focus areas:

- **Enhance City Operations** - Use technology, improve employee engagement, and support internal development
- **Close the Digital Divide** - Provide pathways to internet access, computer access and digital learning opportunities for all
- **Connect Citizens with City Government** - Pilot strategies to facilitate communication between citizens and city government
- **Strengthen Local Business** - Support entrepreneurs, small business owners, and innovation in the city.
- **Foster Clean Technology** - Lead the City of Pittsburgh in awareness and adoption of clean technology solutions
- **Champion Open Data** - Provide open data and create tools to visualise important public information for citizens.

Nested in each of these are a set of ‘goals’ and then ‘actions’ which provide further detail on what the meaning of each is. For example, under “Champion Open Data” is three goals - “Establish the Regional Data Centre”; “Employ Data Driven Operations”, and ;“Increase 311 Call Centre Capacity” and a series of actions which include “Install Neighbourhood Nodes” (sensors collecting real time data) and “Partner with Civic Programmers” such as Code for America.

It is hard to work out what sort of precise definition of inclusive innovation is being used here because the strategy is so sprawling: “inclusive innovation provides equitable access to products and services by leveraging new technologies, ideas, personnel and inventions to meet new challenges and higher standards.” This is framed both as a social justice element (“Focusing on inclusion means providing opportunities in the high-tech, high-skill innovation economy.”) but also in the sense that inclusion will have practical benefits for economic outcomes (“Diversity of gender, race, and background strengthens the chance for success in a competitive environment by improving decision-making and understanding of diverse markets.”).

Overall, the Pittsburgh strategy shows the limitations of inclusive innovation as a policy approach. First of all, while inclusive innovation is important - it doesn’t necessarily match with the powers and areas over which local government wants and has the ability to act. As with other, similar, concepts it begins to sprawl when confronted with the reality of local government.

3.3 inclusive innovation Fund, Washington DC

A third case study of the use of inclusive innovation is Washington DC, a city characterised by high levels of inequality. The Democratic Mayor from 2015, Muriel Bowser, set up an Innovation and Technology Inclusion Council with the stated aim of bringing together people from across the private and public sector to focus on inclusion in the tech sector. The city also developed a specific strategy for inclusive innovation in 2016 - the Pathways to Inclusion Strategy which set out to diversify the tech economy:

“While many cities around the world are thriving in tech, Washington, DC is one of the first major jurisdictions to study inclusive innovation in depth, with three goals in mind: First, we will expand the capacity of DC residents to engage in the tech economy by creating 5,000 new tech jobs for underrepresented workers. Second, we will grow our tech economy by creating 500 new tech businesses founded by underrepresented entrepreneurs. Third, building on our city’s diversity, we will establish the most inclusive culture among tech ecosystems on the East Coast.”

(Mayor of Washington DC, 2016: 4)

Underpinning this was a set of initiatives such as an inclusive innovation Incubator, a business innovator with the specific aim of giving disadvantaged groups access to tech-entrepreneurship.

One particularly interesting aspect of this is the DC inclusive innovation Fund, which will invest in early stage businesses “led by underrepresented entrepreneurs, including people of color, women, and LGBTQ people and individuals with disabilities.” Aping a classic VC model, it invests in “pre-seed, seed and pre-series A stage companies with at least 51% ownership by underrepresented entrepreneurs (i.e. those who identify as African American, Latino, Native American, women, LGBTQ, or disabled). The fund will target technology, technology-enabled and non-technology companies with potential to scale. The Marathon Foundation will also support prospective companies and entrepreneurs seeking investment with entrepreneurial training and education. The District will provide seed funding of \$1.5 million to help the fund raise private capital to support DC entrepreneurs.” The logic for this policy is given in economic language as city documents suggest it is a solution to a market failure in that under-represented groups in raising money from family and friends which is necessary at early stages. It merges a desire for technology-based businesses - the fund focuses on “scalable tech or tech-enabled, DC-based businesses led by underrepresented entrepreneurs” but does so through a Silicon Valley style Venture Capital-esque model.

What does the DC case tell us? This is an agenda which is focused on tech and entrepreneurship, inspired by a Silicon Valley model. The specific policies are all ethically important, but relatively narrowly focused. And there are wider concerns about the ability of these initiatives to effectively address the multiple barriers faced by entrepreneurs from disadvantaged backgrounds or neighbourhoods (Blackburn and Ram, 2006; Lee and Drever, 2014)

4. **Conceptualising inclusive innovation**

There are several ways to think about inclusive innovation. The first is that it is a policy agenda. The inclusive innovation agenda here can be understood as a broad thrust of policy undertaken by different actors, potentially in different ways, but with a shared aim of linking inclusion and innovation in some sense. A second way of thinking about inclusive innovation is as a specific buzzword or phrase. It is similar here to the idea of clusters, a term which entered the policy lexicon in the mid-1990s while associated with the work of Michael Porter. Originally the idea of a cluster was relatively tightly defined, but term rapidly lost meaning, and became simply a buzzword to reflect a general idea without precise definition. So a third way of thinking about inclusive innovation is perhaps the most charitable: it is a tightly defined concept subject to shared definition, and which can be used to develop policy. Yet, while some groups of academics do clearly share a conceptualisation of inclusive innovation, it is hard to believe that this meaning is widely shared.

While the academic literature consists of relatively defined notions of inclusive innovation, the term is used by policymakers in multiple ways. In her classic paper on the relationships between academic concepts and policy, Markusen (1999) argued that certain policy concepts had become malleable, nebulous, situations where: "researchers may believe they are addressing the same phenomena but may actually be targeting quite different ones". Academics were often, according to Markusen, moving from clear and concrete conceptualisations to abstract theorising and, in doing so, limiting the extent to which academic work influenced policy.

It is hard not to see inclusive innovation in this light. Both words are fuzzy, but innovation is famously prone to multiple-interpretations. The classic Oslo manual definition (OECD, 2005) has innovation as a "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organization or external relations." Most definitions also involve the successful implementation, in a particular firm, or commercialisation of a new innovation, in that it must be applied or introduced to the market. But policymakers focused on inclusive innovation interpret innovation in multiple ways.

Some use a conception of innovation as about STEM, R&D, or the Tech Sector, a conceptualisation dominant in Washington DC, London's Olympic Park, or the Bristol and Bath Creative Partnership. Innovation here is about sectors, and inclusion about under-represented groups. A second model of innovation is as entrepreneurship, sometimes in the tech sector but often more generally. Examples here include the Scottish Government, Dublin BIC, Flanders, DreamStart Facility (Brussels), or the inclusive innovation workshops in Gdansk. A third strand is that which was dominant in the London Borough of Camden – where innovation is used to refer to public service delivery. And the fourth conceptualisation is simply innovation as productivity. This is dominant in the Mayor of London's strategy. Each of these definitions is valid in some way, but they are very distinct in terms of policy. And none reflects the classic use of innovation in development studies to refer to the production of a particular type of good. An affordable car, the Tata Nano, is sometimes used as an example of an inclusive innovation in the development literature (e.g. George et al., 2012). But because cities rarely have the powers to produce new products, the definitions of innovation used by cities is inevitably different.

Based on the strategies we have identified – and our reading of the academic literature – we identify ten basic 'types' of policy labelled as inclusive innovation, set out in table 1. These policies can be categorised into three broad groups – those which shape the direction of innovation in some sense, for example by including disadvantaged groups in setting priorities for innovation; those addressing inclusion in the innovation process, such as those focusing on ensuring diversity in STEM occupations; and downstream innovation policies which aim to use new technologies for social aims.

Table 1. Variations of inclusive innovation policy

Type	Definition	Example policy
Strategy:		
<i>1. Inclusive decision making for innovation</i>	Who chooses priorities for innovation policy	Washington DC's inclusive tech leadership council
<i>2. Innovation in inclusive sectors</i>	Shifting innovation funding from high-tech sectors to those in which the disadvantaged work	NESTA's proposal for R&D spending in foundational industries
<i>3. Geographically diversifying innovation</i>	Policies spreading innovation to low-innovation regions	Much classic 'regional development' policy
Participation:		
<i>4. Participation in the entrepreneurship</i>	Efforts to ensure disadvantaged groups can set up firms	London's incubator for disabled entrepreneurs
<i>5. Participation in the innovation workforce</i>	Ensuring holders of STEM jobs are representative, e.g. Gender / STEM	Washington DC's targets to increase underrepresented groups employment in tech sector
Outcomes:		
<i>6. Ensuring inclusive responses to innovation</i>	Policies considering the impact of technological change / innovation	Retraining of displaced workers
<i>7. Inclusive innovations</i>	Focus on a particular innovation which serves disadvantaged groups	A non-urban example is the Tata Nano
<i>8. Innovation in inclusion</i>	New forms of public services, social enterprise which benefit disadvantaged groups	London Borough of Camden's inclusive innovation network
<i>9. Innovation for Inclusive Growth</i>	Focus on innovation with the assumption that benefits will trickle down	Much of the London strategy
<i>10. Dissemination of innovation</i>	Policies aiming to ensure disadvantaged groups have access to new technology	Policies to address digital divide in Washington DC

In their conceptualisation of DSIPs Zehavi and Breznitz (2017) make the core distinction between producers and consumers of innovation. This is a useful distinction, but most of the policy efforts

above are focused on production – when thinking about urban policy it perhaps makes sense to divide this into two forms, strategic decisions and actual workforce participation. A simple model of the different types of inclusive innovation policy is to think of three areas:

- (1) Strategy, or decisions about choosing which parts of the economy receive innovation finance, which sectors, places, or products are invested in.
- (2) Participation, considering the extent to which disadvantaged groups are involved in either working in innovation intensive sectors or shaping the decisions made in (1).
- (3) Outcomes or consumption, by ensuring that the benefits of innovation are broadly felt – including efforts to compensate losers of innovation and ensure beneficial technologies are distributed evenly.

These are not a perfect distinction - some policies may aim to do two (for example, by ensuring those who have lost jobs due to automation are able to set up new companies. And some of these types of policy are more widely used than others: the non-scientific review conducted for this paper showed a focus on participation in innovation intensive sectors.

What are the merits of this agenda? An important aspect of the inclusive innovation material is that it suggests that inclusion can have a positive impact on economic growth. This point is made strongly in many policy documents “Diversity of gender, race, and background strengthens the chance for success in a competitive environment by improving decision-making and understanding of diverse markets” (Pittsburgh Roadmap, 2016: 4). In this respect, inclusive innovation represents another front in the long-running set of attempts by policymakers to reconcile efficiency with equity or competitiveness with cohesion (Sapir, 2004).

It is also clear that many of the policies which form part of the inclusive innovation agenda are important and overdue. While there may be practical difficulties in the design of policies, those aimed at including disadvantaged groups in the R&D or tech workforce are morally important, regardless of whether they are also growth promoting. The question here is the extent to which they should form part of a localised inclusive innovation strategy, rather than being part of a wider – and more powerful – national approach to discrimination and disadvantage.

There are practical benefits to the agenda as well. This is particularly important in the context of strained city budgets – inclusive innovation suggests a way of using innovation funding in a way which might achieve social policy goals (Zehavi and Breznitz, 2017). Well-meaning urban policymakers often lack powers over inclusion but have a strong desire to achieve inclusive growth (Lee, 2018). Inclusive innovation provides political cover to do so: few people are against innovation or inclusion.

5. Problematising inclusive innovation

However, while the merits of inclusive innovation are clear, there are some problems with the concept's practical application: its fuzziness, tendency to solutionism and neophilia, and the problem of applicability at an urban level. This section develops each of these problems in turn.

Buzzwords and Fuzzy Concepts. In a now-seminal study on semantics in economic development, Cornwall and Brock (2005) consider the use of buzzwords in economic development policy. Focusing on three concepts which were particularly important at the time - participation, empowerment, and poverty reduction - they consider how concepts lose their meaning or, rather, their meanings are changed to become useful as they are updated and change their meanings as policymakers use them. Focusing on participation, empowerment, and poverty reduction, they argue that these are ripe for such reappropriating being optimistic, hard to oppose, but lacking a clear, precise meaning. While the use of these buzzwords may pacify critics of development agencies, in doing so they may simply lose their meaning.

Inclusive innovation can be understood both as a buzzword - something fashionable which can be dropped into policy - but also as a fuzzy concept, in that there is no shared meaning behind the concept. As table 1 shows, the concept can be defined in many different ways and interpreted to mean a wide variety of policies. It joins other optimistic and well-meaning concepts, such as Inclusive Growth (see Lee, 2019) which appeal to urban policymakers who are often faddish (Turok, 2011). Clearly, policy processes are complex and evolutionary rather than set in abstract models (Flanagan et al., 2011), but even given this the range of policies labelled inclusive innovation seems very large.

The counter-argument to this view is that it is precisely the conceptual fuzziness which makes the concept so useful. A lack of clear definition makes the concept malleable to different contexts; the concept can be applied regardless of political context, and both 'inclusion' and 'innovation' are exciting, positive terms making it is hard to argue against either (nobody can argue against 'inclusion').

But the fuzziness of the concept is also problematic. Clarity of definition allows some form of learning, with policymakers able to precisely define and draw out what works. It means that political efforts are clear and concrete, and so makes it possible for clear-headed evaluation. Otherwise, concepts such as inclusive innovation can become buzzwords which are applied to concepts with little direct impact. Fundamentally, unless there is a shared definition of a particular policy discourse, it becomes hard to learn, replicate, and use the concept. It also makes it hard to separate out which parts of policy are 'inclusive innovation' and which should be a more general part of public policy in cities.

For example, the use of sensors which tell public officials when street rubbish bins are full is highlighted as an important in the Pittsburgh Roadmap for inclusive innovation. These are potentially a useful tool for public policy. But are they inclusive innovation? They could, at a push, be seen as an innovation - but it is hard to see how they are particularly inclusive.

Solutionism and Neophilia. Two further, related critiques can be levelled at the notion of inclusive innovation. In his book on people's perceptions of technology, Morozov discusses the problems of "technological solutionism" – the idea that policy makers place a blind faith in the idea that technology can solve problems. Similarly, Scott-Smith (2016) argues for a form of "humanitarian neophilia" which "merges *neo* (new) and *philos* (love) to label an obsessive love of novelty." This neophilia, he argues, results in "an ideology that combines New Left and New Right with techno-utopian fervour." In doing so, he argues that there is a harmful disconnect between humanitarian agencies, who rely on new technologies, and the recipients, who would be better-off using older, trusted techniques of humanitarian intervention.

These themes of solutionism and neophilia are clear in the policy literature on inclusive innovation. Of course, urban policymakers have historically been criticised for boosterism in the past (e.g. Turok, 2011). But there certainly a strong case that there is technological solutionism inherent in the inclusive innovation agenda. It is hard to separate from the usual boosterist discussion of the effects of urban policy. But it is often apparently overstated in importance. Inequality and under-representation are the result of complex, interlinked phenomena, not simply exclusion from the tech economy. A strategy which addresses one part of this - inclusion in the tech economy - is perhaps treating the symptom of these problems rather than the causes. This is not to say they are worthless, but rather that they need to be considered as part of a much wider argument.

Solutionism which focuses on the provision of tech is also troubling. There are plenty of good examples where provision of new tech for disadvantaged groups have failed (e.g. 3D printers in Brazil, Woodson et al. 2019). Yet the techno-optimism in some of these strategies does little to consider these wider contexts and problems. But the second part of Scott-Smith's argument - that there is a disconnect between recipients and groups - is less clear. Much of the II agenda is intended to address this point exactly, by bringing different groups into the participation in innovation at the strategic or operational level.

A second problem here is how much of the inclusive innovation is actually new and, more to the point, whether the label 'inclusive innovation' actually changes anything? Some strategies seem to be genuinely new, particularly those aimed at inclusion in the tech economy. Other parts of the policy

agenda simply seem to be using the term as a convenient label for policy initiatives which would have happened anyway.

Powers. Perhaps one of the most obvious critique here is pragmatic. Strategies we have identified seem to start with a basic premise: how can innovation be made inclusive? But they are not really answering that question, but instead are focused on a subtly different one: how can the existing powers of a sub-national government unit influence the innovation economy? This second question is much harder to address, of course, because local areas rarely if ever have the powers to fully shape their economies. The Pittsburgh Roadmap (2016) is a great example here. It starts with claim that it seeks to “bridge the digital divide and provide opportunities for Pittsburghers to participate in the new economy” (3) which is, of course, a worthy goal. But part of the route to achieve that is to improve city web services (p. 11), branding of the city as “an inclusive innovation city”, and upgrading to smart bins. These may all be worthwhile activities, but the problem here is that the powers the city has do not match up the concept. In short, the concept of inclusive innovation needs to be matched onto the existing powers and responsibilities of city governments. The simple problem here is that inclusive innovation may represent part of the solution, but will only ever address some parts of it. The problems faced by disadvantaged workers in weak or strong tech economies are often similar - low skills, expensive housing, precarious work. These strategies do little to address them.

7. Conclusions

The idea of inclusive innovation has become an important public policy agenda. In various forms, it has spread from the literature on international development, to national government, and has now become an important part of many city’s agendas. The aim of this paper has been to summarise this agenda, consider the various ways in which inclusive innovation is being conceptualised, and to critique and redevelop the concept’s application. The central argument is that inclusive innovation is an important but flawed agenda. It suffers from conceptual problems neophilia, solutionism, and conceptual fuzziness; and pragmatic concerns around the powers local government have over innovation policy.

This does not, of course, mean that the inclusive innovation agenda as applied by sub-national governments is useless. Many of the policy initiatives which form part of the initiative - such as the need for more diversity of participation in STEM activities - are important and overdue. In their important paper on regional innovation policy, McCann and Ortega-Argilés (2013) reviewed the various logics of a ‘modern regional innovation policy’ but had little or no consideration of the potential beneficiaries. The importance of the use of inclusive innovation is that it starts to link

innovation policy with questions of fairness and distribution. But the argument this paper makes is that these vital parts of the agenda risk being lost by a conceptual fuzziness. This conceptual fuzziness is part of the agenda's success. But it makes learning and evaluation harder, and the concept risks becoming a buzzword which is used by urban policymakers but changes little.

There are two important, related preconditions for any policy based around inclusive innovation to be successful. The first is that it needs realism about what innovation in general, and new technologies in particular, can achieve. Smart bins will do little to solve entrenched poverty. Secondly, inclusive innovation can achieve little alone. Here, the notion of the 'policy mix' is useful. As Flanagan et al. (2011) note, the interaction between different innovation policy instruments, and their evolution over time, is crucial to the success of innovation policy. But the 'mix' of instruments which matter for inclusion will span innovation policy but also social policies, the law, policies governance, and so on. Inclusive innovation policy has more potential if embedded in a wider strategy of addressing disadvantage.

Perhaps the most important part of the inclusive innovation agenda is that it reframes innovation to put attention on the purpose and rationale behind innovation. Innovation is not a 'good' nor a 'bad' thing, but a means to a wider end (Uyarra et al., 2011). Inclusive innovation strategies can be helpful in that they force policymakers to reflect on these questions of beneficiaries and participants, rather than simply considering innovation for its own sake.

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