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International survey evidence on user and community co-delivery of prevention activities relevant to public services and outcomes

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ABSTRACT

This study compares surveys of user and community co-delivery of prevention activities internationally, exploring both the level of co-delivery, as revealed by citizens, and the characteristics of those citizens most likely to co-produce. It draws upon a baseline survey of five EU countries in 2008, more recent updates from two of these countries in 2012 and 2014, and a similar survey in Australia in 2014. Although there are many differences in detail, the results are quite consistent in relation to most key issues and provide a unique quantitative insight into the characteristics of co-delivery behaviour by citizens.

KEYWORDS Co-production; co-delivery; prevention activities; international comparisons

Introduction

After its brief flowering in the 1980s in the work of Ostrom and colleagues, user and community co-production of public services has once again become a highly topical issue in public administration (Alford 2002, 2009; Bovaird 2007; Pollitt, Bouckaert, and Loeffler 2007; Loeffler 2009; OECD 2009; Jakobsen 2012; Pestoff, Brandsen, and Verschuere 2012; Verschuere, Brandsen, and Brandsen 2012; Osborne, Radnor, and Nasi 2013; Brandsen and Honingh 2016; Alford 2016; Meijer 2016; Nabatchi, Sancino, and Sicilia 2017; Brandsen et al. 2018; Loeffler 2021; Loeffler and Bovaird 2021; Zou and Zhao 2021). This interest has been sparked by a number of drivers. Before the international financial crisis of 2008, much of the interest stemmed from the alternative service delivery literature and the collaborative governance literature. After the financial crisis, some of the interest was undoubtedly due to the perceived potential for co-production to reduce service costs. The current COVID-19 pandemic has generated a new rush of work (Hall et al. 2020; Cepiku et al. 2021) that mainly focuses on the high levels of community co-production that arose in response to the pandemic.

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Admittedly, this resurgence of interest is partly because of the broad and varying definitions of the concept of co-production. Co-production is a hybrid form of social organization, situated between public sector action, service user self-help and self-organizing communities. However, while some co-production is reciprocal (where each party gives and receives more or less symmetrically), in much co-production one side – usually the public service organization – plays a more dominant role in initiating the co-production process and/or performing the requisite work. Nevertheless, there are many examples where the co-production process is initiated and even led by service users and other community members. Strokosch and Osborne (2021: 123), using the Public Service Logic framework, emphasize that citizens have a fundamental role to play in creating value for themselves and the wider society, and that this role is enabled through processes of participation, of which co-production is one.

While co-production can encompass both *citizen voice* (co-commissioning, co-design, co-assessment) and *citizen action* (co-delivery) (Bovaird and Loeffler 2013), many authors focus on a subset of these activities – for example, the seminal article by Parks et al. (1981) focused mainly on co-delivery and Brandsen and Honingh (2016: 428) in their review of the field confine their definition to the direct input of citizens in co-design and co-delivery of a service during the production phase. In this article we explicitly confine our attention to co-delivery, in line with Parks et al. (1981).

In co-delivery, there is a distinction in the literature between those minimal contributions which service users must make in order for a service to take place at all (processes labelled as ‘an inalienable part of public service delivery’ by Strokosch and Osborne (2021)) and the much wider set of contributions which service users and other citizens might voluntarily make in order to make public services more effective. Here we focus particularly on studies into those co-delivery activities which seek to prevent problems that might otherwise necessitate more public services or that impact negatively on levels of publicly-desired outcomes. These studies look at the ways people behave in key areas of their life where serious quality-of-life problems are likely to arise, and how they take steps to cope, including their contributions to detecting, reporting, dealing with and recovery from these problems, working in different ways with public services. This research therefore highlights the contributions which service users and other citizens make to improving public outcomes through their everyday activities, often not seen as directly part of ‘public services’ although benefitting from a relationship with public service organizations and influenced by public policies.

The upswing in interest around user and community co-production has yet to be fully matched by a high volume of quantitative empirical research. Commentators have pointed out that empirical work to date has mainly consisted of qualitative research, often using single case studies only, which magnifies the limitations of the approach (Haxeltine et al. 2017; Yin 2012), and only occasionally expanded to encompass case comparisons (Voorberg, Bekkers, and Tummers 2015, 1339; Cepiku et al. 2020, 100). A few experimental studies have also been undertaken, sometimes showing positive results of co-production on outcomes (e.g. Jakobsen 2012; Jakobsen and Andersen 2013) and sometimes null or even negative results (e.g. Kang and Van Ryzin 2019; Thomsen and Jakobsen 2015). An interesting ‘half-way house’ between quantitative and qualitative studies is presented by Q-methodology, which van Eijk and Steen (2014) used to analyse motivation towards co-production in social care – however, in the nature of this methodology, its results cannot be generalized to a larger population, for which purpose follow-up survey research is generally necessary. However, this

general predominance of the case study method has meant that many key conceptual issues around co-production have not been rigorously tackled through quantitative empirical work.

A further gap in the literature is that there are still few comparative studies, although much of the recent literature highlighting case studies of successful co-production initiatives has stressed the need to adapt relevant practice to other arenas, both within and between countries. The most notable recent example of international comparative research has come from the EU-funded LIPSE ('Learning from Innovation in Public Sector Environments') project (see <https://cordis.europa.eu/project/id/320090/reporting>), but this has not involved quantitative studies.

While qualitative research on co-production remains essential, its prevalence has meant that some key questions in relation to co-production have been tackled from partial, granular perspectives, whereas complementary quantitative research would have allowed them to be addressed at a more general level. This is especially the case in relation to how much co-production is occurring in overall terms and, in particular, which citizens are most likely to be involved. These important questions have been much debated in the literature but cannot be convincingly tackled by purely qualitative studies alone and are particularly unsuitable for case study research, although such qualitative research must provide the underpinning of the survey questionnaires used in quantitative work.

In this study, we draw on data from a series of quantitative studies that have already been undertaken for one important set of co-delivery approaches, namely those involving preventative activities relevant to public services. Furthermore, these studies have had a two-fold comparative aspect: first, they have been undertaken in fully comparable ways for health, community safety and environmental improvement; second, they have been undertaken in six 'developed' countries, thus allowing international comparisons. We show how the results from these studies are broadly consistent with each other, confirming but also challenging many of the results which have emerged from the co-production literature based on qualitative research.

In the sections that follow, we first clarify the theoretical bases of co-production underlying the empirical surveys and anchor these in the long-standing academic debate on what co-production means. We next describe the research design and the methodology used in the citizen surveys and how the concept of co-delivery was operationalized. We then report the key shared findings and the distinctive differences which emerged across the different contexts. Finally, we set out the key comparative conclusions from this portfolio of quantitative research studies.

Theoretical bases of co-production

The conceptualizations of co-production in the literature come from a variety of disciplines, including economics, sociology of science, political science, services management, public choice, health management, consumer psychology and governance. While these theorizations are generally quite different in the core questions they seek to answer and in their modes of inquiry, it is noticeable that there is growing interest in each of these fields about the role of citizens in co-production processes.

In economics, there is increasing recognition that traditional production functions ignored many aspects of the production context, including citizen contributions, which are critically important in determining economic success (Stiglitz, Sen, and Fitoussi 2009). In the study of governance, in both political science and public choice, there is increasing interest not only in co-governance mechanisms, e.g. involving citizens in accountability mechanisms (Ackerman 2012) or decision making or planning of public services (Ostrom 1996; Pestoff 2009) but also in how government can both contribute resources to and facilitate co-delivery (Sorrentino, Sicilia, and Howlett 2018). The services management literature has increasingly recognized that cause-and-effect chains (referred to by such names as 'logical frameworks', 'strategy maps' or 'pathways to outcomes') need to take account of a much wider range of factors, including citizen inputs, than has traditionally been acknowledged (Bovaird 2021; Alford and Yates 2016; Osborne and Strokosch 2013).

Furthermore, this theoretical delving into the 'hidden inputs' of public services and public outcomes has uncovered an uncomfortable aspect of our knowledge of public management and governance – it appears that there is very little empirical evidence about the actual contributions made by citizens to many of the public management and governance processes which have been most studied by social scientists. Scholars have generally been more interested in the 'tip of the iceberg' represented by the actions of politicians and bureaucrats (including 'street level bureaucrats') who apparently 'provide' public services, than in the 'objects' of those services. The research reported in the literature to date has largely sought to demonstrate the existence and circumstances of co-delivery in specific public service sectors, rather than attempting to uncover its actual extent and the extent to which different types of citizens become involved. In contrast, the studies discussed here focus on some of the citizen behaviours and characteristics that constitute the larger part of the iceberg that lies below the surface.

A corollary of this ignorance of the 'hidden inputs' by citizens into public services and public outcomes is that a rather narrow approach tends to be taken, both in research and in practice, into those public service activities that try to co-produce with service users and other citizens. Most attention has been given to the encouragement and motivation of service users and communities to improve public services, from the internal perspective of public service organizations. Although there has been some recent research on non-service related policy tools for influencing and motivating behaviour change by citizens which will support public goals, such as 'nudges' and change-of-lifestyle campaigns (John et al. 2013; Hallsworth and Kirkman 2020), in general much less attention has been given to how publicly-desired outcomes are being achieved by the everyday actions of service users and their communities, often (but not always) triggered by the conscious interventions of public service organizations but always shaped by the actual and potential contributions of those organizations. This has been the focus of the survey research reported in this paper, which throws light on these issues in one important context, namely the preventative activities undertaken by service users and other citizens in their everyday lives, which are by their very nature often less visible to public service organizations, other than those members of staff who themselves have lived experience of the problems concerned (Park 2020).

A further common characteristic of these theoretical approaches is that the co-delivering citizen is often conceptualized through analysis of individual motives and behaviours, e.g. a service user making a contribution to the work of a professional, or a citizen co-delivering outcomes in the community through voluntary work. However,

this approach neglects a key element of co-delivery: it involves citizens in supporting public policies by undertaking prevention activities which improve publicly-desired outcomes, or at least impede the deterioration of those outcomes – outcomes which are often experienced collectively rather than simply individually (Brudney and England 1983: 64), such as an improved local environment. The studies reported here include the co-delivery activities of citizens which affect these collective outcomes, as well as those which achieve individual outcomes. For example, the current Covid-19 crisis has shown the importance of citizen compliance with physical distancing, masking wearing and hygiene for reducing the transmission of Covid-19 and of undertaking actions such as shopping, fetching masks, etc. to help other people in the community to maintain their self-isolation (Cepiku et al. 2021).

We therefore focus on a much wider set of citizen contributions than scholars have hitherto taken into account in a co-production debate that is often centred mainly around policies of designing and running public services. Instead, we highlight the important context to those public services, in which service users and other citizens directly through actions in their everyday lives have a significant effect on their own welfare, and that of others, and on wider publicly-desired outcomes. By preventing problems arising or changing their type and scale, this co-delivery of preventative activities may not only result in public services being designed to be much more effective but may actually ensure that some services are not needed at all. At the same time, by creatively opening up much wider opportunities for making use of citizen capabilities, this co-delivery through preventative activities is likely to have important resource implications for public services – e.g. it may entail significant investments in citizen education, training and support, which need to be compared to the improved outcomes expected.

Survey designs and data

The set of surveys reported here provided the opportunity for what we believe is the largest ever quantitative study of co-delivery behaviour and the associated attitudes of citizens. It therefore allows testing of key claims from the many qualitative studies which have been carried out into co-production in general, and co-delivery in particular. These studies involve a cross-national comparison over six countries, exploring citizens' co-delivery activities, their demographic characteristics and their attitudes towards public services and civil society in their area.

These surveys allow for cross-national comparisons because the research methodology and instruments were essentially the same in each of the six countries. The study draws first upon a 2008 survey of five EU countries, specifically the UK, Denmark, France, Germany and Czech Republic (Loeffler et al. 2008; Parrado et al. 2013; Bovaird et al. 2016). Similar surveys were then undertaken in 2012 in the UK (Bovaird et al. 2015) and a more in-depth but narrower survey in 2014 in Germany (Löffler et al. 2015). Also in 2014, a similar survey was conducted in Australia (Alford and Yates 2016). In each case, the surveys were conducted by telephone and covered representative samples of about 1000 citizens in each country (over 3000 in the UK in 2011–12). This study brings together these various surveys and compares their results for the first time, with the intention of shedding more systematic light on some of the speculations emerging from recent qualitative studies of co-production.

The six countries in this international comparison include the UK, Germany, Denmark, France, the Czech Republic, and Australia. These countries clearly represent different (but partially overlapping) administrative traditions and political systems, which makes this comparison particularly revealing. For example, the dominant administrative culture in both the UK and Australia is characterized as a 'public interest' culture, with strong civil society institutions; in Germany and France it is more legalistic ('Rechtsstaat'); in the Czech Republic there is still a legacy of socialist administrative culture; and in Denmark it is more pragmatic and pluralistic. Again, in terms of state structure, Australia and Germany are federal and decentralized, the Czech Republic, Denmark and France are unitary states (with differing levels of decentralization) and the UK is a 'mixed' case, with devolution to its four nations but high centralization in each of these nations. The civil society context also differs, from the relatively high involvement of citizens and very strong NGOs in the UK, through medium involvement of citizens and strong NGOs in Germany, to relatively low citizen involvement but strong NGOs in Denmark and France, to low citizen involvement and very weak NGOs in the Czech Republic. This wide range of contexts provides the opportunity to explore whether characteristics of co-delivery appear to apply cross-nationally, as opposed to being specific to certain contexts.

The surveys analysed here focused on preventative activities and attitudes in three important sub-sectors within public services: *health and wellbeing*, some aspects of which create individual goods and (as the Covid-19 pandemic has illustrated) some create community goods; *community safety*, which is largely a regulatory issue; and *care of the local environment*, which is more of a community good. In order to prepare the survey questionnaire, prior focus groups were undertaken in all cases (except the Australian study) in each of these sub-sectors, with participants who were strongly involved in that issue. This qualitative research explored in depth the characteristics and potential drivers of these co-delivery behaviours.

Co-production in these three policy areas can, of course, involve citizens in a wide range of activities, including problem identification, prevention, and solving and giving feedback. As a result, all surveys involved samples of the general adult population rather than attempting to identify and survey specific user groups. Consequently, the surveys focused largely on those preventative activities and attitudes likely to be relevant to members of the general public.

Core questions in the surveys probed the levels of co-delivery (both by individuals, e.g. service users, and collectively in communities) currently undertaken by respondents in preventative activities in the three key service areas. The questions on individual co-delivery explored activities triggered by public sector agencies which citizens can undertake personally (or can encourage others to undertake) in order to reduce need for the public services concerned (e.g. 'try to recycle your household rubbish', 'get advice from the police on how to protect property', 'take part in health checks'). To explore collective co-delivery, respondents were asked about their participation in groups related to each of the three policy areas. Citizens were also asked about the extent to which they would be willing to do more than currently to improve outcomes in these policy areas.

In addition, respondents were probed on their satisfaction with current outcomes in relation to these three policy areas, and their satisfaction with both the performance of public services and the ways in which they are involved by public agencies, e.g. through information-giving, consultation and interactive participation

opportunities. Additional variables included the socio-economic profile of respondents and their level of ‘self-efficacy’ (their perception that they can make a difference). In the follow-up study in the UK, questions also probed citizens’ level of trust in the public sector and in other people, and their scores on the ‘Big Five’ psychological traits.

In the European countries, a telephone survey of the general public, designed by two of the authors, was undertaken in 2008 by TNS Sofres. Using random-digit dialling, the survey interviewed 4,951 adults (18 years of age or older), with about 1000 respondents in each country. These random samples were balanced with the population, using quotas by gender, age and region.

The UK follow-up study in 2011–12 consisted of over 3,100 responses to co-production sections in omnibus surveys conducted in a sample of four English local authorities (one London Borough, one metropolitan district, one large city, one rural area) and one medium-sized Welsh city. The survey focused in-depth on the outcome areas of local environmental improvement; community safety; social wellbeing; and health.

The Australian version of the 2008 five-country survey was based on a telephone survey of 1000 Australian respondents, conducted by AFS Smart Askers. The sample was representative (to within a 10% tolerance) of the wider Australian population with reference to age, gender, state/territory location, and rural/urban location (Alford and Yates 2016).

Finally, the German follow-up study consisted of a representative sample of 1000 nation-wide phone interviews undertaken by the pollster TNS Emnid (Löffler et al. 2015).

Results and discussion

Levels of user and community co-delivery of public services and outcomes

The levels of individual co-delivery reported in the six countries varied by preventative activities, as Table 1 shows. In general, we can see that citizens in these countries give particularly high responses for activities that do not need much effort by themselves and do not require involvement with third parties. This applies, for example, to locking doors and windows in their home before going out, recycling household rubbish, and saving water and electricity. Indeed, as can be seen in Table 1 over 75% of citizens indicate often doing these activities in almost all countries.

When it comes to making changes to one’s own lifestyle, there is a sharp drop in the proportion of citizens who walk, cycle or use public transport, change to a healthier diet, or try to exercise. Although these activities also do not require involvement with third parties, for the most part, they do involve more effort and perhaps a more difficult behaviour change. As Table 1 shows, around 50% of citizens in most countries indicated that they undertook these activities often.

Clearly, there were also activities that citizens were even less inclined to undertake, at least on a regular basis. As can be seen in Table 1, activities characterized by requiring involvement with others – be it a neighbour, a doctor, the police or strangers – were undertaken by fewer than 40% of citizens in most countries. Nevertheless, one set of interactive activities (presumably seen as rather important) was more common: between 40 and 60% of citizens in most countries reported asking

Table 1. Levels of individual co-delivery in preventative activities reported across surveys (reporting the responses 'Often'; or 'Yes').

	EU 2008	Czech Rep (%)	EU 2008 Denmark) (%)	EU 2008 France (%)	EU 2008 Germany (%)	EU 2008 UK (%)	EU 2008 Average (%)	Australia 2014 (%)	UK 2012 (%)
<i>Very high</i>									
Take care to lock doors and windows	62.9	90.3	84.6	84.3	84.3	93.0	85.8	86.9	95.8–95.3 – 94.7 – NA – 94.1 (Avg. 93.9)
Try to recycle household rubbish	84.8	69.4	83.1	78.8	78.8	87.5	82.4	93.3	NA – 94.3–93.5 – 88.9–82.3 (Avg. 90.4)
<i>High</i>									
Try to save water/electricity at home	78.6	79.5	83.5	82.5	82.5	78.6	81.6	88.8	NA – 62.7–28.8 – 77.2–72.8 (Avg. 62.5)
<i>Somewhat high</i>									
Walk, cycle or use public transport	64.2	53.9	51.1	56.1	56.1	50.6	53.6	46.2	NA – 51.4–45.1 – 53.3–53.2 (Avg. 51.1)
Change to a more healthy diet	48.2	49.9	53.4	54.1	54.1	53.8	53.5	54.6	NA – NA – 49.3 – NA – NA (Avg. 49.3)
Try to exercise	46.7	56.1	50.6	48.8	48.8	58.6	52.0	66.7	45.4–58.2 (Avg. 51.9)
Keep an eye on neighbour's home	15.1	42.2	29.1	45.9	45.9	58.0	43.1	60.6	52.9–63.5 – 72.3 – NA – 72.2 (Avg. 65.1)
Ask neighbours to watch your home	11.0	38.1	27.1	43.4	43.4	57.8	41.2	58.0	55.7–61.6 – 72.5 – NA – 65.7 (Avg. 63.5)
<i>Somewhat low</i>									
See doctor for health check	35.2	13.8	33.2	36.2	36.2	32.6	33.8	47.8	NA – NA – 38.0 – NA – NA (Avg. 38.0)
Take care of sick family or friends	35.8	14.7	32.0	26.8	26.8	25.8	28.1	40.6	31.8 – NA – 17.7 – NA – NA (Avg. 24.7)
Tell others not to drop rubbish or let dogs foul streets	33.8	22.4	37.4	20.5	20.5	20.9	25.8	23.5	NA – 3.4–4.4 – 6.2–4.7 (Avg. 4.6)
<i>Low</i>									
Have personally intervened to stop anti-social behaviour	23.6	22.3	19.2	12.7	12.7	20.8	17.4	NA	1.3–2.8 – 1.9 – NA – 4.8 (Avg. 2.7)
Report to police a crime or anti-social problem which affected your household	12.4	9.9	9.8	9.2	9.2	16.9	11.6	NA	9.4–13.8 – 9.5 – NA – 17.8 (Avg. 13.0)

(Continued)

Table 1. (Continued).

	EU 2008 Czech Rep (%)	EU 2008 Denmark) (%)	EU 2008 France (%)	EU 2008 Germany (%)	EU 2008 UK (%)	EU 2008 Average (%)	Australia 2014 (%)	UK 2012 (%)
Report to police a community safety problem not affecting you	16.8	16.8	8.7	7.0	19.4	11.4	NA	3.6–9.1 – 7.4 – NA – 9.8 (Avg. 7.9)
Ask police for advice on how to protect your property	1.3	1.1	3.7	4.8	6.4	4.7	5.4	1.5–1.5 – 1.3 – NA – 3.2 (Avg. 1.8)

Key to level of responses: 0–9% Very low; 10–19% Low; 20–39% Somewhat low; 40–49% Somewhat high; 60–80% High; 80%+ Very high. (NA = not asked).
* Results from 5 UK local authorities – in order: LB Barnet, Bristol City Council, Derbyshire Dales District Council, Swansea City Council, Wolverhampton MBC.

a neighbour to keep an eye on their home while they were away and doing the same in turn for their neighbours, which suggests that the publicity campaigns often undertaken by the police are having an effect.

It is clear from [Table 1](#) that there is considerable commonality between the six countries studied in the level of co-delivery activity reported. There is only one case where there is a considerable difference between countries: citizens in the Czech Republic are very much less likely to report that they keep an eye on their neighbour's house while they are away or to ask their neighbour to do likewise during their own absences, in spite of the fear of crime being higher in the Czech Republic than in the other countries, with the exception of the UK (Hummelsheim et al. 2011). This could be an indication of low trust between citizens or simply that people have more confidence in their household security systems.

The results from the more detailed survey at the local level in the UK over 2012–13 showed strong commonalities with the UK results in the EU five-country study. For 8 of the 15 questions, the scores recorded in the two different UK surveys fell within 5 percentage points of each other, and in only two cases was there a wide gap (differing by more than one score class): telling people not to litter or let dogs foul the street, and having personally intervened to stop anti-social behaviour. It was not possible to compute co-delivery indices for the five individual local authorities in this survey, but it is clear that there was considerable variation between them in their levels of co-delivery. Specifically, there was substantially lower levels in the two metropolitan areas, even though the average across the five local authority areas was largely in line with the national average recorded in the 2008 survey. Moreover, there appeared to be a 'peaking' phenomenon in co-production: where only a little was taking place, there appeared to be an unfulfilled demand of residents to do more; but where a lot was taking place, citizens were rather less willing to do more.

In the Australian survey in 2014, there was again a strong commonality of the results with the EU average in 2008. In only four of 12 items did the Australia score fall into a different category, namely trying to exercise and keeping an eye on a neighbour's home, seeing a doctor, and looking after a sick person. In each of these cases, the Australian score was higher than the EU average. Indeed, the Australian survey reported higher levels of co-production than their European counterparts on nearly all measures (see Alford and Yates 2016).

There are also some interesting differences between outcome areas. An *index for each outcome area* (environment, health, community safety) was developed for the EU five-country survey, comprising the sum of responses to five specific questions about co-production behaviour in that sector (Loeffler et al. 2008). The index was standardized on a min-max (0–100) scale, with 0 representing minimum co-production (answering 'never' to all the co-production questions) and 100 representing maximum (answering 'often' to all the co-production questions).

Citizens were particularly active in taking steps to look after the local environment (index score 61), to a somewhat lesser degree in health improvement initiatives (index score 52) and considerably less active in prevention of crime (index score 45) and in reporting crime to the police or intervening in anti-social behaviour (index score 33). Similarly, in the Australian survey, the highest levels of co-production were in the area of environment and the lowest in community

safety. But, differently from Europe, in Australia there was overall little difference between the three areas (although this may have been influenced by the omission of crime reporting items from the Australian survey, since scores here would have been expected to be low, given the EU experience). Further interesting evidence comes from the five local authority areas surveyed in the 2012–13 UK study. Here, the value of the co-delivery index varied widely between outcome areas from an index score as low as 20 (community safety in Bristol) to an index score of 68 (environment in Swansea). Where pair-wise comparisons could be made, co-production was substantially higher in environment than in community safety, which mirrors the ranking in the EU five-country study. However, responses in health and wellbeing domain tended to be below even community safety, which differed from the EU study, although there was less data here than for the other outcome areas.

These differences in index scores are likely to have been influenced by the particular mix of questionnaire items chosen to represent each outcome area. For example, the questions asked on co-delivery in the local environment could be perceived generally to involve significantly less effort and less interaction with others than the questions asked on community safety. Moreover, there is the possibility that these differences in index scores between outcome areas might be influenced by the priority attached by citizens to improvements in those outcome areas.

Demographic correlates of co-delivery activities

So which types of citizens are most likely to co-deliver the wide range of preventative activities reported in Table 1? We constructed an overall *index of each individual respondent's co-delivery behaviours*, on a 0–100 min-max scale, composed of the average of their index scores for health, community safety, and the environment (as described earlier). Table 2 presents the correlation of this overall co-delivery index with a set of demographic and contextual characteristics. Of all the demographic variables examined in these studies, the most common and consistent correlation with the level of co-delivery was age (see Table 2). In the EU five-country study, age was positively correlated with the index of individual co-delivery in every country and this was also the case in the 2014 German study of co-delivery of activities for older people. The tendency for older citizens to be particularly engaged in co-delivery behaviours was especially marked in community safety in all five countries. However, older people generally reported less willingness to co-deliver more in the future, consistent with the hypothesis that many were likely to be reaching physical limits on the time and energy which they had to devote to co-production. This resonates with the finding by Alonso et al. (2019) that the effect of age may be non-linear in respect of environmental co-production activities.

However, there were some exceptions to this relationship. In particular, as Table 2 shows, in the Australian study age had an insignificant relationship with the overall index of each individual respondent's co-delivery activities. However, in the Australian study some activities were more likely to be performed by certain age groups (Alford and Yates 2016) – e.g. the retired were generally more active in co-delivering in community safety and older people were more likely to keep an eye on others' properties and ask others to keep an eye on theirs. Unsurprisingly, older people were

Table 2. Correlates of individual co-delivery: demographic factors and contextual factors.

	EU 2008				EU 2008	EU 2008	Australia 2014	UK	Germany	Germany
	Czech Republic	Denmark	France	Germany	UK			2012	2014 (Older people)	2014 (Younger people)
Age	0.137***	0.198***	0.293***	0.271***	0.128***	Insig.		-.** in 1 case (0.096) -*** in 3 cases (0.175, 0.33, 0.24) Insig. in 3 cases	0.091**	-0.040
Female	0.153***	0.123***	0.126***	0.132***	0.142***	Insig.		+*** in 1 case (0.10) -*** in 1 case (0.124) Insig. in 5 cases	-0.052	-0.072*
Educated	0.043	0.008	0.003	0.016	-0.010	Insig.		N/A	0.034	-0.008.
Inactive in labour force	0.037	0.023	0.040	-0.042	0.032	Insig.		N/A	0.006	0.011.
Urban resident	0.074**	0.001	0.051*	0.044	0.002	Insig.		N/A	-0.050	-0.069*
Sense of self-efficacy	0.120***	0.242***	0.247***	0.174***	0.250***	Safety	+*** in 6 cases (0.176, 0.168, 0.144, 0.139, 0.134, 0.134)		0.183***	0.159***
						Health	+** in 2 cases (0.105, 0.115)			
						Envmnt	-.** in 1 case (0.108)			
						0.202***	Insig. in 3 cases			
Satisfaction with conditions	-0.23** (safety)	Insig.	Insig.	-0.13** (safety)	-0.07** (safety)	N/A			N/A	N/A
Favourable perception of government performance	-0.119***	-0.100**	-0.037	-0.096*	-0.151***	Safety	0.162*** (Barnet, safety) -0.082** (Bristol, safety) -0.098*** (Bristol, envmnt) +*** in 2 cases (0.168, 0.160)		-0.015.	-0.015
						Health	-.** in 1 case (0.016)			
						0.130***	-.*** in 1 case (0.193)			
						Envmnt	Insig. in 6 cases			
						0.075*				
Favourable perception of government information	0.065	0.172***	0.035	0.131	0.161	Safety	+*** in 3 cases (0.117, 0.138, 0.138)		N/A.	N/A.
						0.167***	-.*** in 1 case (0.251)			
						Health	Insig. in 7 cases			
						0.179***				
						Envmnt				
						0.108***				

(Continued)

Table 2. (Continued).

	EU 2008 Czech Republic	EU 2008 Denmark	EU 2008 France	EU 2008 Germany	EU 2008 UK	Australia 2014	UK 2012	Germany 2014 (Older people)	Germany 2014 (Younger people)
Favourable perception of government consultation	0.061	-0.188***	-0.014	-0.084	0.011	Safety 0.125*** Health 0.166*** Envmnt 0.170***	+*** in 5 cases (0.246, 0.201, 0.184, 0.163, 0.107) -** in 2 cases (0.089, 0.096) -*** in 1 case (0.156) Insig. in 3 cases	N/A.	N/A.
Observations	961	947	913	940	946	1000	N/A	734	687
R-squared	0.076	0.123	0.181	0.098	0.124	N/A	N/A	0.087	0.082

Key: The correlation coefficients are given where statistically significant (***) at the 1% level, ** at the 5% level, * at the 10% level) Attitudinal correlates of co-delivery of activities.

also more likely to see a doctor for a health check. They were, however, less likely to tell others not to drop rubbish or let their dog foul the street, or to walk, cycle, and use public transport; or to take care of a sick family member or friend. This reminds us that overall levels of co-production mask many different kinds of behaviour at micro-level, so it is often unhelpful to focus simply on the overall patterns. Similarly, in the UK 2012 study of five local authorities (Bovaird et al. 2016), age was either insignificant or actually negatively correlated with individual co-delivery activities. It is also important to recognize that the effect of age is quite small, even where it is statistically significant.

As regards the correlation between gender and co-delivery in Table 2, the EU five-country study suggests women are more likely to engage in individual co-delivery (Parrado et al. 2013). This is consistent with widespread evidence that women evidence higher volunteering than men, often through caring responsibilities which involve individual co-production with social or health services. However, this relationship was not strong and this finding was not replicated in most of the other studies (although women in Australia were slightly more likely than men to change their diet or see a doctor).

The urban variable had a small but positive association with individual co-delivery in two of the countries in the EU five-country study but a small negative association with co-delivery for young people in the German study of 2014. In the 2012 UK study, individual co-delivery was lower in the two metropolitan areas than in the two free-standing cities and the rural local authority, but the sample of local authorities was not large enough to test if this difference was statistically significant.

Other demographic variables were only rarely correlated with levels of co-production. As Table 2 shows, education had a weak and inconsistent relationship with co-delivery behaviours, which contrasts with international evidence that participation in general is strongly correlated with level of education. This finding may suggest that the participation literature is highly focused on more deliberative 'participation', rather than the preventative and service delivery behaviours on which we focused. Aspects of economic activity such as unemployment did not have a significant relationship with overall levels of individual co-delivery. Finally, in the UK 2012 study, there was no significant association between levels of co-production and ethnic background in the four local authority cases for which we have data.

In summary, the results from these studies demonstrate that many of the assumptions which are often held about who co-produces may need to be reconsidered. At least in the field of co-delivery of preventative activities, there are only rather weak (and often insignificant) relationships between the main demographic characteristics and the overall levels of co-production, even when this is broken down to co-delivery in the separate domains of environment, health and community safety. This has important policy implications, as we discuss later.

In the EU five-country study, citizens' sense of self-efficacy was the most consistent and often the strongest correlate of their reported co-delivery behaviours, within all three policy areas and in all five countries, with effects which were especially strong in Denmark, France and the UK (Parrado et al. 2013, Table 2). A similar pattern of positive and significant correlations with self-efficacy was also found in the Australian study. Self-efficacy was also positively and statistically significantly correlated with co-delivery in 8 of the 12 cases in the UK 2012 survey of five local

authorities and in the 2014 German study of co-delivery of activities for older people and co-delivery of activities for younger people. This is also confirmed by the Wales study by Alonso et al. (2019).

In the EU five-country study, dissatisfaction with the perceived conditions (in the environment, community safety, and health) was generally associated with higher co-delivery activities. This was clearly higher in relation to community safety than the other policy areas and it was statistically significant in the case of community safety in Czech Republic, Germany and the UK (Parrado et al. 2013). However, in the UK local authority study in 2012, individual co-delivery was only statistically significantly correlated to satisfaction with conditions in three cases out of 11 (two negatively, one positively). These results suggest that this relationship is only likely to have any importance in the policy area of community safety. (The dissatisfaction question was not included in the 2014 surveys in Australia or Germany).

In the EU five-country study, satisfaction with government information was largely positively correlated with co-delivery, although only statistically significant with co-delivery overall in Denmark. In the UK five local authority study, there was a positive association between higher co-delivery and satisfaction with information provided in three cases, negative in one case and insignificant in seven cases. In the 2014 survey in Germany, the relationship was again insignificant. But the relationship in the Australian survey was not only positive but highly significant statistically. Still, satisfaction with government information does not appear to be an important correlate of individual co-delivery in most contexts.

Satisfaction with government consultation was statistically significant in the EU study only in the case of Denmark, where it was positive. In the 2012 UK study, it was significant and positive in 5 cases but significant and negative in 3 cases, and insignificant in 3 cases. In the Australian survey, the correlation was again positive and highly significant statistically in all three policy areas. But in the German survey of 2014, the correlation was insignificant. Satisfaction with government consultation, therefore, appears to be positively correlated to individual co-delivery but not in a very strong or consistent way across contexts.

We expected dissatisfaction with government performance in relation to a policy area to be an important motivator of co-production in that policy area and, indeed, we found in the EU study that government performance was negatively correlated to individual co-production in all countries (although not statistically significant in France). However, in Australia, two out of three relationships were statistically significant and weakly positive. In the UK five local authority study in 2012, concern with unsatisfactory government response was not statistically correlated to co-delivery levels in most cases (6 out of 11), and in the significant cases it was sometimes negatively, sometimes positively correlated. In the 2014 Germany study it was generally an insignificant factor – but there was a positive significant relationship between co-delivery of activities with younger people and a kindred variable, namely satisfaction with government opportunities for people to help younger people. Overall, then there are grounds for expecting that dissatisfaction may play a role in encouraging co-delivery of preventative activities, but clearly this does not happen in all contexts.

Finally, in two of the studies reported here several other variables were tested. In three out of the five local authority sites in the 2012 UK study (Bovaird et al. 2016) the research probed the extent to which ‘nudges’ to respondents affected their responses on

co-production, using information-based nudges agreed in advance with the local authorities and phrased to be relevant to the local situation. The results indicated that these nudges generally had only a weak capacity to make a difference to the level of co-production, although they were probably more effective in encouraging collective than individual co-production responses. In the 2014 German study (Löffler et al. 2015), several variables on the level of trust were tested (both trust in other people generally and trust in local people) and a positive correlation was found with perceived improvements to the quality of life of younger and older people (respectively) but the level of influence was low. No attempt was made in this study, however, to assess the 'trustability' of other actors, a factor which clearly plays a major role in the extent to which trust is a desirable factor.

Conclusions

We have integrated and reported here on a range of international surveys about the co-delivery of preventative activities by citizens, activities that may reduce the need for public services and/or improve achievement of publicly-desired outcomes. These studies look at the ways people behave in key areas of their life and how they take steps to cope with problems which arise (including detecting, reporting, dealing with and recovery from these problems), as part of their everyday lives, but working alongside public services.

The empirical results across six countries are based largely on the same survey methodology. Although there are differences in methodological details, the results do seem to be quite consistent on many of the key issues and to have important and highly relevant lessons for public services across a wide range of contexts (including widely differing countries and public services). The consistency of these results suggests that they should be taken seriously by policymakers in designing (co-designing) their policies to promote co-production with service users and citizens.

First, the level of co-delivery activities in all of the surveys tends to be high. In every country where the surveys were prefaced by focus group discussions, the levels of co-delivery reported by citizens in their survey responses were rather higher than expected by professionals participating in the focus groups. This suggests not only that co-delivery is important but also that it is underestimated by many of the actors in public services. Although there are again differences in detail between countries, this finding seems to apply to most, if not all, countries studied here. Why the Australian sample reported higher levels of co-delivery than their European counterparts on nearly all measures, and why the Danish sample in 2008 was at the lower end of the spectrum, are questions which we are not yet able to answer – but even in Denmark the level of co-delivery was not much lower than in the other countries. What does seem clear is that there is no simple relationship between the levels of co-delivery reported and the state structure, administrative culture or civil society context, as discussed earlier.

Second, the level of co-delivery tends to differ between service areas. Specifically, it seems often to be higher in environmental issues and rather less in relation to community safety, with more variation between countries in relation to health. This raises the question as to which characteristics of these services have led to these differences but there have not yet been substantial quantitative surveys of

a wider range of services which would allow this question to be answered – and it may be that varying the questionnaire items included for each service area might change this finding.

Third, individually undertaken co-delivery activities appear to be considerably higher in volume than co-delivery which involves interacting with other people. As (Alford and Yates 2016, 164) concluded: ‘although the idea of “co-production” conjures up the idea of people doing things together, and perhaps sharing the “products” once they are produced, it actually appears that the more popular activities involve doing things alone, and privately “consuming” the results’, although, of course, most of these activities could have significant impact on public value. This finding applies across almost all countries and all service areas. It provides a challenge to public services, where there are reasons for believing that collectively-undertaken co-delivery, if it could be more successfully promoted, might have more impact on publicly-desired outcomes. The implication is that governments should recognize that citizens engage most often with activities that they can perform on their own, or at least not in a coordinated manner with other citizens or government professionals. In certain areas such as health and social care, where collectively undertaken co-delivery provides additional benefits such as increased wellbeing through social contact, this tendency needs to be tackled head-on so that collective action can be increased.

Fourth, although ‘co-production of public services involves some kind of reciprocal relationship between the government organisation in question and the citizens or clients contributing time and effort’ (Alford and Yates 2016, 170), the survey findings in most countries and in most service areas suggest that levels of co-delivery are not strongly associated with satisfaction or dissatisfaction with public services, public consultation or being provided with adequate information about services.

Fifth, the level of citizen self-efficacy has emerged from all studies as strongly associated with levels of individual co-delivery, although this relationship was somewhat weaker in the Australian survey. While this opens up a number of potentially important avenues for public intervention, we need to be cautious, since the direction of causation has not yet been clarified. Does a belief that citizens make a difference lead people to engage in more co-delivery (so government policy should promote the belief in self-efficacy) or does co-delivery lead to a belief in self-efficacy (so that promotion of self-efficacy is not relevant as a co-production policy tool)?

Sixth, most demographic variables do not have a consistent or strong relationship with the level of co-delivery. Age was shown to have a significant positive effect in a number of studies, particularly in community safety, but the effect size was generally weak and it was also often non-significant. Similarly, women were shown in a number of studies to be significantly more likely than men to be involved in co-delivery but the relationship was weak and often insignificant. The other demographic variables (education level, ethnicity, urban/rural location) were rarely of any importance. This is rather different from results from the public participation and citizen engagement literature (see, for example, Michels and De Graaf 2010) and suggests that governments should not make any assumptions about who is likely to (and who is not likely to) get involved in co-delivery, at least in regard to preventative activities. It is likely that prejudices about who to approach in prevention initiatives are inhibiting more than they are promoting co-delivery. This has clear lessons for policy approaches to current major issues, such as pandemics and climate-related emergencies; for example,

recent UK research demonstrates that people from a black and minority ethnic (BAME) background reported they were more likely to adopt the ten preventive behaviours towards Covid-19 that they rated most highly than did the White British ethnic category (Breakwell, Fino, and Jaspal 2021).

Finally, these findings sometimes confirm and sometimes challenge the results from the literature on co-production which are based on qualitative research. For example, the clear result that demographic variables do not play a major role in influencing the level of co-delivery activities in any of the three outcome areas is at variance with some previous studies. However, this finding can be explained by the fact that qualitative studies themselves have generally been relatively small scale and have often come to conflicting conclusions about the role of demographics – in such situations, quantitative studies have the advantage of larger numbers which can pick up the more general picture. However, the quantitative studies reported in this paper were partly designed on the basis of thorough qualitative research (mainly through focus groups in each country) and subsequent qualitative research helped to interpret the results (mainly through feedback seminars and conferences in the countries concerned). The importance of interweaving qualitative and quantitative research as complementary approaches is therefore plain.

In line with this point, it is important to note that, in interpreting the figures on levels of co-delivery and their correlates, some contextual issues need to be recognized, as highlighted by Alonso et al. (2019). For example, one contextual factor which may be more important than represented in this analysis is the quality of local public services – for example, the low proportion of respondents in Denmark taking care of sick or elderly may be explained by the high quality of relevant public services in that country. While we have examined perceptions of public services, we know that these perceptions can be considerably at variance with more objective indicators, especially since perceptions are so bound up with expectations.

Similarly, our analysis may under-represent the effects of the level of underlying problems – e.g. the low proportion of respondents reporting crimes to the police in Germany, compared to the high level in the UK, may reflect relative crime rates in the two countries. In future research it would also be useful to probe fear of crime on the part of respondents.

Finally, the limitations of these studies have to be recognized. They have so far only explored some of the key outcome areas of public policy. There are also limitations to the phone-based methodology of the surveys used so far, as these do not achieve fully randomized samples. The design of the surveys will no doubt be greatly improved in the light of the results so far achieved, especially where qualitative evidence can be gathered as part of the survey design and refinement process (which was possible for only some of the studies reported here). As Alford and Yates (2016, 171) suggest, potentially fruitful avenues for future research will be to look more closely at the ‘production processes’ to analyse whether co-delivery activities relate to inputs, processes, outputs, or outcomes; to probe whether factors may have an impact that is not merely additive; to investigate the relationship between self-efficacy and more finely grained motivations, such as intrinsic rewards, social affiliation, or moral purposes; and to explore more fully the relationship between co-delivery and trust in government and in other actors. The latter is particularly important in the context of the significant preventative co-delivery behaviours required to limit the spread of Covid-19, as suggested by O’Flynn (2021). Moreover, using the framework recently adopted by Lindenmeier et al. (2021), similar

quantitative research is now needed into those aspects of economic, social and political co-production which do not involve co-delivery, specifically the other three of the 'Four Cos' (Loeffler 2021) – co-commissioning, co-design and co-assessment.

However, we would suggest that the greatest contribution of these studies to date has been to demonstrate how limited has been our previous understanding of the processes by which public services achieve improvements to the outcomes experienced by citizens. In particular, they highlight how much contribution is being made 'behind the scenes' by citizens in a wide variety of ways, and the scope for making much more appropriate use of citizen capabilities, resources and strengths in the future, in a way which may genuinely transform public services and the achievement of publicly-desirable outcomes.

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