

An evaluation of different ways to incentivise citizens to co-produce public services in Lambeth

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Executive summary

Design of the Street Champions trial

- Reductions in budgets for public services are forcing all areas of government to consider how we best deliver public services. Local government is responsible for a number of key public services and has the potential to be an ideal testing ground to trial new ways of delivering such services. The limited use of rigorous evaluation methods in testing ‘what works’ in local councils to date leaves us with an evidence gap to fill. In this project, we partnered with Lambeth Council to design and run a randomised controlled trial to test new ways of delivering local services.
- The main focus of the trial was finding ways to get citizens more involved in the delivery of local public services. This method, known as ‘co-production’, shares the burden of cost whilst capitalising on the skills of the citizenry.
- We chose to focus our attention on street cleanliness, an area where we felt there was high potential for citizens to have an impact, not least because the effectiveness and benefit of relevant services can be witnessed on the ‘doorstep’.

¹ The authors would like to thank Lambeth Council for undertaking this randomised controlled trial and providing the necessary resources. The authors would like to thank Elsie Grace, Jason Prentis and Liz Whitson-Cloud from Lambeth Council for running the scheme, as well as their contribution and comments to the evaluation. We would also like to thank Michael Clarke and Doug Perry from Lambeth Council for providing institutional and managerial support for the scheme. Funding for the research from the ESRC-funded Centre for the Microeconomic Analysis of Public Policy at IFS (grant number ES/M010147/1) is gratefully acknowledged, as is funding from the IFS Impact Acceleration Account (ES/M500483/1) that helped facilitate the partnership with Lambeth Council. Any errors and all views expressed are those of the authors.

- The trial scheme was called ‘Street Champions’. Residents on a street were invited to become a Street Champion and those who accepted would then be expected to coordinate efforts to improve the cleanliness and attractiveness of their street. The council offered ongoing support in the form of advice and physical equipment.
- To assess the best way to achieve and maintain citizen involvement, the trial randomly offered citizens different incentives to stay involved.
- 170 Lambeth streets were randomly divided into five groups: ‘pure control streets’ where business-as-usual was maintained, streets where Street Champions were offered no incentives and three groups where incentives were offered alongside the invitation. The incentives offered were *individual extrinsic incentives*, e.g. free garden waste collection, *community-wide extrinsic incentives*, e.g. removal of graffiti and *identity incentives* focusing on a citizen’s identity as a Street Champion, e.g. hi-vis vest or a Meet the Mayor day.
- We then evaluated the effect of the scheme and different sets of incentives on levels of activity and interest, levels of street cleanliness, measures of social interaction and satisfaction with the local area.

Effect of the Street Champions trial

- We found that the simple offer of being a Street Champion led individuals to come forward (about two per street), but this only resulted in about one active Street Champion per street. When incentives were provided, the number of expressions of interest was much higher and translated into more actual activity. The identity incentives had the largest impact, with double the number of expressions of interest and double the number of activities (such as clean-up events) compared with the simple invite.
- There was no evidence of an impact on measures of street cleanliness or litter counts. However, the streets involved in the experiment were already relatively clean to begin with (around 90% graded acceptable before the trial). There was therefore little scope for citizens to have an impact on this margin.
- The area in which we did observe a positive impact was the effect of incentives on beautification (such as evidence of planters on the street). Streets invited with identity incentives were 17 percentage

points more likely to show evidence of beautification than those receiving the simple invite. This is a big effect. Only 11% of streets, on average, showed evidence of beautification.

- We also observed substantial effects on the perceptions of other citizens in the street, though different types of incentives led to different reactions. Identity incentives led to higher satisfaction with the local area and a reduction in the perception of problems caused by anti-social behaviour. Community-wide incentives led to larger effects on whether people had heard of the scheme and improved perceptions about levels of social interaction in their local area.

Policy implications

- The most important policy implication from our study is that local government can be used as a testing ground for policy innovation. Randomised controlled trials are relatively simple to implement and can produce valuable lessons for policymakers.
- It is also clearly possible to get citizens involved in the delivery of some local services. A simple invitation from the council led to some activity; the provision of incentives led to even more.
- Different types of incentives can lead to citizen action in different areas. Incentives that focused on the individual's identity as a Street Champion (e.g. hi-vis jacket or a Meet the Mayor day) led to more street beautification and greater satisfaction with the local area. Community-wide incentives led to more people being aware of the scheme and improved perceptions of social interaction.
- The trial also shows the potential limits of citizen involvement. There was no evidence of an impact on overall street cleanliness. This could be because the streets were already quite clean to begin with or it may indicate that the delivery model is not suited to regular, labour-intensive services such as street cleansing. Our empirical analysis provides no evidence that citizens can be used as a replacement for such services, but they could certainly be a complement and addition to such services.

1. Introduction

Reductions in budgets for public services are forcing all areas of government to consider how we best deliver public services to meet these new fiscal conditions. One potential solution is to engage citizens to assist in the production of services with government officials. This method, known as ‘co-production’, shares the burden of cost whilst capitalising on the skills of the citizenry.

The viability of this solution for government services in the UK is an open question. Generating empirical evidence and investigating the appropriate design of such a scheme requires a government organisation ready to undertake the appropriate research. US states have frequently trialled different approaches to public service delivery, with successful examples taken up by other states.² To date, however, there has been limited use of rigorous evaluation methods in evaluating the organisation of government in the UK and determining ‘what works’.

The UK’s local councils have the potential to be laboratories for effective public policy in the same way as the US states are. In this project, we have partnered with Lambeth Council to design a randomised controlled trial that tests the efficacy of different incentives for citizens to involve themselves in the co-production of public services.

Co-production in UK society

Getting citizens more involved in the delivery of public services is not a new idea. In the 19th century, friendly, voluntary and mutual societies were the main providers of public benefits, such as health care. They then became less needed following the establishment of the welfare state. However, even at the time, Sir William Beveridge (author of the famous Beveridge Report that paved the way for much of the welfare state) expressed concern that the new model of the welfare state did not leave enough ‘room, opportunity and encouragement for voluntary action in seeking new ways of social advance ... services of a kind which often

² J. Kincaid, *Intergovernmental Relations in the United States of America*, Forum of Federations, Ottawa, 2000.

Pioneer Institute, *Benchmarking to Make State Government More Efficient*, Boston, MA, 2006.

money cannot buy'.³ The term 'co-production' was then coined by Elinor Ostrom in the 1970s to explain why crime rates went up when police spent more time in police cars rather than on the streets, as this reduced their ability to gain information from citizens.⁴

Involving citizens in the delivery of public services has also become of increasing interest to policymakers right across the political spectrum and across different areas of government. The Labour party has always had strong ties with the cooperative movement and mutual societies. The Conservatives have also displayed interest in how to utilise the independent and voluntary sector, with the 'Big Society' being the most prominent example.

Local councils have become increasingly interested in how to encourage citizens to co-produce public services. This is partly due to the large reductions in local government budgets, which have necessitated a rethink of the way services are delivered, but also a recognition of the potential benefits from getting citizens more involved. Lambeth Council has been particularly active in seeking to increase citizen involvement in the planning and delivery of public services, and has been dubbed the 'cooperative' or 'John Lewis' council as a result.⁵ However, other councils have also become interested, with many now offering 'Street Champion' schemes that have some similarities with the scheme we are evaluating here.⁶

The economics literature on the determinants of volunteering and pro-social behaviour emphasises the importance of social pressure,

³ W. Beveridge, *Voluntary Action: A Report on Methods of Social Advance*, Allen & Unwin, London, 1948.

⁴ E. Ostrom, 'Crossing the great divide: coproduction, synergy, and development', *World Development*, 1996, 24, 1073–87.
R. B. Parks, P. C. Baker, L. Kiser, R. Oakerson, E. Ostrom, V. Ostrom, S. L. Percy, M. B. Vandivort, G. P. Whitaker and R. Wilson, 'Consumers as coproducers of public services: some economic and institutional considerations', *Policy Studies Journal*, 1981, 9, 1001–11.

⁵ <http://www.theguardian.com/politics/2010/feb/17/labour-rebrand-lambeth-john-lewis-council>.

⁶ <http://www.independent.co.uk/news/uk/politics/councils-rely-on-local-street-champions-to-pick-up-litter-prune-hedges-and-grit-minor-roads-as-funds-run-out-9985738.html>.

communication and intrinsic motivation.⁷ Lambeth Council's own evidence base stems from initiatives to engage citizens to clear heavy snowfall (Snow Wardens) and one-off events to improve the local street environment (Community Freshview). However, almost all of this evidence relates to engaging citizens in one-off activities. There is currently limited evidence, in both the policy and academic spheres, on how to engage citizens in co-production of public services on a sustained basis.

Partnering for rigorous evaluation

In order to find the best ways to encourage citizens to co-produce public services, it is important to fill this evidence gap with robust empirical evidence. The gold standard for evaluating policy tools and interventions is the randomised controlled trial (RCT). RCTs are widely used for medical trials and increasingly used for educational interventions in the UK. However, local councils (or the national government) have not historically run RCTs to evaluate public policy changes. Designing and running RCTs requires planning, additional survey and measurement costs, and policies to be randomly varied across citizens. These barriers can seem daunting to a council, and perhaps not part of their culture. External researchers can support and guide councils through confronting each of these challenges.

As an example of how this can be done, researchers from the Institute for Fiscal Studies have collaborated with Lambeth Council over the last two years to design and run a randomised controlled trial that can inform the decisions of Lambeth Council and provide wider scientific evidence on how to engage citizens in sustained co-production of public services.

Looking for a sector to undertake a rigorous evaluation of co-production, Lambeth chose to focus on environmental services (and street cleansing in particular) as this was an area where they believed research could inform their decision process as its nature lends itself to co-production.

The project offered citizens an opportunity to become a 'Street Champion', who would help coordinate efforts to improve the cleanliness and beauty

⁷ See, for example:

S-C. Kolm and J. M. Ythier, *Handbook of the Economics of Giving, Altruism and Reciprocity: Applications*, 2006, North Holland, Amsterdam;

S. Linardi and M. A. McConnell, 'No excuses for good behavior: volunteering and the social environment', *Journal of Public Economics*, 2011, 95, 445–54.

of their local environment. To assess the best way to keep citizens involved over the coming months and years, the project randomly offered different citizens different incentives to stay involved. The randomisation was at the street level.

Some citizens were simply asked to co-produce without an incentive, so as to see whether the simple offer of involvement was enough to keep them engaged. Other groups of citizens were offered different types of incentives (individual extrinsic incentives, community-wide extrinsic incentives and incentives that focused on their identity as a Street Champion) to test their effects on people's willingness to come forward and on overall street cleanliness. The extrinsic rewards were chosen to test the additional motivational power they could provide and whether providing them at the community or individual level motivated greater action. The set of rewards that emphasised an individual's identity as a Street Champion were inspired by an academic literature that suggests public officials may derive utility directly from their role as a public servant, either because they derive a 'warm glow' from their actions or because it allows them to build their social status.⁸ Providing incentives that emphasise Street Champions' new role could further lever such effects.

This briefing note outlines the findings from this innovative collaboration and draws lessons from the research for other councils interested in designing co-production schemes. Section 2 details the experimental design and provides some further background. Section 3 describes our methodological approach. Section 4 presents the main results of our impact analysis on measures of co-production and street cleanliness. Section 5 concludes and discusses the policy implications.

2. Experimental design

The Street Champions scheme

The overall aim of this trial was to test out different ways of incentivising citizens to co-produce public services on a sustained basis. These would be

⁸ J. Andreoni, 'Giving with impure altruism: applications to charity and Ricardian equivalence', *Journal of Political Economy*, 1989, 97, 1447–58.

G. A. Akerlof and R. E. Kranton, 'Identity and the economics of organizations', *Journal of Economic Perspectives*, 2005, 19(1), 9–32.

tested using a randomised controlled trial in Lambeth focused on a particular service area. We jointly chose to focus on the area of street cleanliness as this is an area where citizens have large amounts of private information, the results are immediately visible to residents and the outcomes are relatively easy to measure.

For this particular trial, Lambeth wrote to residents and invited them to become a 'Street Champion'. Street Champions were expected to be responsible for efforts to help improve the cleanliness of their environment. This could include the following:

- coordinating neighbours to engage in street cleansing activities;
- picking up litter or campaigning for residents not to drop litter;
- clearing pavements of bins, detritus and other debris;
- street cleansing activities;
- work to beautify the street.

Street Champions were also encouraged to identify their own priorities for improving street cleanliness. This makes clear just how much was expected of Street Champions and we should not necessarily expect the scheme to achieve miracles overnight. It is hard to imagine, for instance, that this could form a replacement for street cleansing services altogether. The scheme was instead intended as a way for Street Champions to improve the cleanliness of their streets in the way they wanted, form new social networks and develop links with the council. Furthermore, if we cannot find ways to encourage co-production in a context that is literally right in front of people's houses, then it is hard to imagine co-production as a feasible option in other contexts.

Given the challenges and commitments that co-production entails, the council chose to support and encourage citizens in two specific ways. First, Lambeth committed to providing citizens with ongoing advice, support, equipment and in-kind resources. Second, incentives were offered to those who came forward. We varied these incentives across streets in order to test which had the biggest effects on activity and outcomes. They are described and motivated in more detail in the next subsection.

The Street Champions scheme was inspired by two existing cooperative schemes run by Lambeth Council: Community Freshview, where council officers support community groups to cleanse their local environment, and

Snow Wardens, where Lambeth residents assist the council to clear freshly fallen snow during the winter.

Both schemes were evaluated internally by Lambeth Council. The council's Environmental Services department claimed that, since its inception in 2007, 'Community Freshview has become arguably the most successful community-based local environmental initiative in the country'. They argue it works because volunteers are recruited by people they know or recognise, volunteers are working in their own street, and informal or formal networks are formed or enhanced. However, Freshview has typically taken place at most a few times a year on the streets involved. It is uncertain whether Freshview on its own is a model that could work to undertake more regular cleansing of a community environment, and whether it could work across the borough as a new method of service delivery. Our interest is to identify the conditions under which there is sustained engagement of citizens in cleansing their neighbourhoods.

The Snow Wardens scheme has exhibited similar successes, albeit on a smaller, more weather-dependent scale. As the review of the scheme stated, 'The willingness of residents to participate in the Snow Wardens scheme and embrace the co-operative principles has led to discussion on how similar schemes could be introduced to address other common problems which are experienced borough wide'.

The Freshview and Snow Wardens schemes provide important lessons for the wider establishment of a cooperative approach to more regular and more borough-wide street cleansing. They point to the critical importance of having motivated leadership at the street level, which provides the local stimulus, and of ideas being area-specific, which leads to further engagement of their neighbours.

Street Champions is a larger scheme than both Freshview and Snow Wardens. It asks citizens to engage in co-production on a sustained basis, keeping their streets clean and beautiful throughout the year, with their neighbours playing their part (such as keeping their bins off the pavement). With this in mind, we therefore sought to test out different ways to encourage citizens to co-produce street cleansing services.

Determining the incentives and experimental groups

It is worth considering the barriers to citizens co-producing public goods such as street cleanliness. In a purely private or autonomous world (i.e. with no government intervention), street cleansing services would be under-provided. Residents face the full cost of any street cleansing activity they undertake, but the whole community benefits from their actions. If individuals only care about their own costs and benefits, there is therefore likely to be a free-rider problem and general under-provision of street cleansing services. If residents are intrinsically motivated and care about the effects of their actions on the rest of the community, this can alleviate some of the problems. However, there are only so many hours in a day and it seems unlikely that there would be enough highly public-spirited individuals to fully alleviate the problem.

With this in mind, we split streets into five groups to test different ways of encouraging greater levels of co-production. These seek to have an effect by lowering the costs of co-production, by increasing the extrinsic benefit from action or by providing incentives that seek to lever intrinsic motivations. In particular, we divided streets into the following five groups:

- pure control;
- letter control;
- individual extrinsic incentives;
- community extrinsic incentives;
- identity incentives.

Individuals in the control group received no communication from the council about the Street Champions scheme over the course of the experiment and all services continued in a business-as-usual scenario.

Individuals in the letter control received a letter from the council offering them the chance to become a Street Champion and emphasising the public benefits from co-production. The letter also offered ongoing support from the council, thereby lowering the costs of co-production. This group allows us to test the effect of the simple invitation to play a prominent role on one's street and the offer of a reduction in the costs of action.

The other three groups also received a similar letter emphasising the public benefits of co-production and an offer of support. In addition, they received different types of incentives.

One group received an offer of individual extrinsic rewards (precise details are provided in Appendix Table A1). Although previous empirical evidence has suggested that extrinsic rewards are less effective for intrinsically motivated individuals,⁹ the Street Champions scheme asks for a sustained time commitment. Empirical evidence also suggests that providing low-value extrinsic rewards and social recognition can both motivate pro-social behaviour.¹⁰ The individual extrinsic rewards thus help us test whether (partially) offsetting the perceived time cost helps encourage greater levels of co-production.

The penultimate group received rewards that would benefit the community as a whole (see Appendix Table A1 for details). This allows us to test whether co-production is more feasible when citizens are working towards a common goal, which might be necessary when seeking to engage neighbours. Rewards that emphasise the community benefit might also lever further intrinsic motivation. Importantly, the community and individual extrinsic rewards aimed to be revenue-equivalent from the council's perspective, so that we are testing the form rather than the level of incentives.

The final group tested the effectiveness of a range of incentives that emphasised and thanked individuals' contributions as Street Champions ('identity incentives'; details are given in Appendix Table A1). This draws

⁹ E. Deci, R. Koestner and R. Ryan, 'A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation', *Psychological Bulletin*, 1999, 125, 692–700.

T. Besley and M. Ghatak, 'Competition and incentives with motivated agents', *American Economic Review*, 2005, 95, 616–36.

J. Tirole and R. Bénabou, 'Incentives and prosocial behavior', *American Economic Review*, 2006, 96, 1652–78.

¹⁰ R. Chetty, E. Saez and L. Sandor, 'What policies increase prosocial behavior? An experiment with referees at the Journal of Public Economics', *Journal of Economic Perspectives*, 2014, 28(3), 169–88.

N. Dwenger, H. Kleven, I. Rasul and J. Rincke, 'Extrinsic vs intrinsic motivations for tax compliance: evidence from a randomized field experiment in Germany', Evidence-Based Economic Policy, Verein für Socialpolitik / German Economic Association, Annual Conference 2014, Hamburg.

on recent empirical evidence suggesting that awards can have notable impacts on individual actions.¹¹ There is also an academic literature that suggests public officials may derive utility directly from their role as a public servant, either because they derive a warm-glow from their actions or because it allows them to build their social status.¹² Providing incentives that emphasise Street Champions' new role could further lever such effects. Again, the incentives were designed to be revenue-equivalent to the other sets of incentives (from the perspective of the council) to ensure that we are testing the type rather than the level of incentives.

In July 2014, the council wrote to all residents on treatment streets (all groups except the pure control group) to invite them to become a Street Champion. A council worker then sought to meet with individuals who expressed an interest and discuss their ideas. Individuals were also invited to a workshop to give them ideas on what they could do as a Street Champion and to share their own ideas with other Street Champions (these workshops were specific to each treatment group).

Despite their best efforts, council workers were not able to meet all individuals who expressed an interest and most individuals did not attend workshops. Indeed, the challenges of trying to organise group-specific workshops proved to be too great and a change was made during the experiment in response to this issue. All individuals who expressed an initial interest in becoming a Street Champion were sent information packs (initially only given to people at the workshop). This change in the experiment is not a serious issue for the evaluation as we are still able to evaluate the offer of the scheme and different incentives. The only change is that most Street Champions did not attend workshops, which might not have been scalable anyway.

The only other notable change to the experiment was a delay in the start of the experiment. Initially, the scheme was intended to start at the beginning

¹¹ For example, M. Kosfeld and S. Neckermann, 'Getting more work for nothing? Symbolic awards and worker performance', *American Economic Journal: Microeconomics*, 2011, 3(3), 86–99.

¹² J. Andreoni, 'Giving with impure altruism: applications to charity and Ricardian equivalence', *Journal of Political Economy*, 1989, 97, 1447–58.
G. A. Akerlof and R. E. Kranton, 'Identity and the economics of organizations', *Journal of Economic Perspectives*, 2005, 19(1), 9–32.

of June 2014. In the end, delays meant that letters were only sent out at the end of July 2014. The summer holiday meant that recruitment was quite slow initially. However, this did not prove to be a major problem as the measurement of final outcomes was delayed, with the final set of cleanliness data collected in May 2015.

Importantly, the council team running the intervention were fully aware of the importance of maintaining experimental conditions. There was frequent communication between IFS researchers and Lambeth Council, with council staff consulting IFS researchers whenever there was doubt about whether a particular action would affect the experimental conditions.

Main evaluation research questions

The main research questions for this evaluation are as follows:

- What is the effect of incentives and council support on the willingness of citizens to co-produce street cleansing services on a sustained basis?
- What is the effect of incentives and council support to co-produce services on street cleanliness outcomes?
- What is the effect of incentives and council support to co-produce services on neighbourhood cohesion?

Evaluation team

The evaluation team comprised the following individuals:

- Daniel Rogger (World Bank and Institute for Fiscal Studies);
- Luke Sibieta (Programme Director at the Institute for Fiscal Studies);
- Agnes Norris Keiller (Research Assistant at the Institute for Fiscal Studies).

Ethical considerations

The research methods and planned data collection were approved by the UCL ethics board. The process of collecting any data about participants prominently informed them that the data would be used for research purposes in an anonymous way. Online surveys were voluntary. Other data collected on the cleanliness of streets were collected as part of Lambeth Council's normal process of monitoring street cleanliness (though this was done at a higher frequency for streets in the trial).

3. Methods

Trial design

The trial of the Street Champions scheme was run as a randomised controlled trial, with streets randomised into one of the five groups described in the previous section. The decision to randomise at the street level was determined on the basis of discussions with council officers and a small number of residents. In particular, the street was perceived to represent a feasible area of Street Champion activity, largely coinciding with what residents saw as their 'community', and it was possible to collect data at this level.

The trial focused on residential streets currently swept by Lambeth Council. Lambeth Council provided a database of all addresses in the borough. We excluded major roads (all A and B roads) and streets with high numbers of commercial properties¹³ as cleanliness is much more outside of the control of residents. We also excluded streets that were predominantly council or private estates as these had alternative street cleansing arrangements.¹⁴

Given the nature of the scheme, there was some concern there would be spillover effects across streets. Indeed, one of the aims of the scheme was forming social networks and increasing community cohesion. However, spillovers from treatment to control streets would lead any estimates of the effect of the scheme to be biased downwards (as the control streets could be positively affected by the scheme).

To reduce the potential for spillover effects, we created 'buffer zones'. Rather than a fixed geographical radius, we chose to create buffer zones based on connections between streets. This method was employed because streets that share connections are more likely to be subject to spillovers as they form residents' travel patterns. We decided that each street in the experiment must be at least two connections away from other

¹³ Roads with more than 10% commercial addresses or buildings were excluded.

¹⁴ Roads where more than 10% of the buildings were council or private estate buildings were excluded.

streets in the experiment (i.e. to travel between experiment streets, one must travel down at least two other streets).¹⁵

This process of determining eligibility and buffer zones left us with 173 potential experiment streets out of 946 residential streets swept by Lambeth Council. These 173 streets formed the intended group of trial streets, which were then split into the five groups using a double-blind procedure based on a sequence of random numbers generated by <https://www.random.org/>.

The number of streets in each group was not fixed. On the basis of power calculations, we chose to allocate a minimum of 30 streets per group (or 150 in total). We then chose to allocate as many as possible of the remaining 23 potential experiment streets, which could not be split evenly across the five groups. We chose to allocate the maximum possible evenly to the three incentive groups, as comparisons between these groups were likely to be more informative for Lambeth Council's policy decisions. The final proposed allocation was thus 31 streets in the pure control and letter control groups and then 37 streets in each of the three incentive groups.

Shortly after the randomisation, three treatment streets were discovered to be ineligible as they were not swept by Lambeth Council. These were removed from the trial and randomly replaced by one street from the pure control and one street from the letter control. This meant that the eventual sample sizes were 37 for each incentive group and 30 for the pure and letter controls.

The randomisation was assessed based on the average scores of streets on the different components of the Index of Multiple Deprivation, with no large or statistically significant differences across groups observed. We also assessed how well-balanced streets were across a range of other area characteristics (such as proportion of people employed or their average age). Again, groups were generally well balanced according to these characteristics too. These results are all reported in Table 1 later.

¹⁵ This was operationalised by picking a random street in Lambeth as a starting point. Eligible streets within two connections to this street were deemed as buffer streets. This process continued until all eligible streets in Lambeth were classed as trial or buffer streets.

Outcomes

We collected a number of outcomes in order to address our three research questions in Section 2. The first set of data relates to the participation and level of activity by Street Champions. Lambeth Council documented the number of individuals who expressed an interest in the scheme, whether individuals attended workshops, whether they met with the council and what activities Street Champions reported undertaking. From these data, we created four measures of participation:

- the number of people per street who expressed an interest in the scheme;
- the number of people per street who had follow-up meetings with the council;
- the number of streets that held a street clean-up event;
- the total number of activities per street, including street meetings, Freshview (or clean-up) events and meetings with council officers.

We also sought to measure the characteristics of Street Champions to see what sorts of individuals came forward. It was intended to do this using two short online surveys (implemented with SurveyGizmo) that measured Street Champions' characteristics, prior experience of volunteering, perceptions of their neighbourhood, motivations and personality type.

Unfortunately, initial responses to these two online surveys in Autumn 2014 were very low. This led us to implement a slimmed-down and combined version of the survey, which was sent to Street Champions in January 2015. Responses were still quite low (around 60 in total). As a result, we cannot use these data to capture differences across treatment and control groups. However, we are able to document the characteristics and motivations of Street Champions as a whole (see Table 3 later). This has the important qualifier that those who filled out the survey might not be representative of Street Champions as a whole and we are only able to examine characteristics and motivations that were in both the original two surveys and the shorter, combined survey. We focus on the following characteristics:

- personal and household characteristics (ethnicity, education, housing, economic activity);
- satisfaction with their street;

- the number of people they know on the street.

Our primary outcome for measuring street cleanliness came from surveys of streets by Keep Britain Tidy. The surveys were based on the (nationally-recognised) NI195 measures collected nationally by Keep Britain Tidy. A surveyor went to each street and a randomly-chosen portion¹⁶ of that street was graded in terms of its cleanliness along four dimensions: litter, detritus, graffiti and fly-posting. For each dimension, a street is defined as 'acceptably clean' or otherwise. Surveyors also counted the total number of items of different types of litter on the street (resulting from cigarettes, confectionery, non-alcoholic drinks, fast food, snack packs and alcoholic drinks, other packaging, paper tissues and other).

In addition, we collected three more indicators of cleanliness that we perceived to be as amenable to Street Champion activity: fly-tipping, plant litter and evidence of beautification. These are all areas where Street Champions could make improvements on their street, but are not covered by the main nationally recognised measure we collected.

The surveys were repeated 13 times between September 2014 and May 2015. Streets were randomly surveyed on a different day of the week each time to ensure we got a picture of the whole week). Data were collected by trained enumerators who were blind to the allocation of streets to treatment and control groups.

Based on these data, we defined the following primary measures of street cleanliness based on data collected after November 2014 (as recruitment had been relatively slow up until that point):

- **overall street cleanliness** – proportion of occasions on which the street was deemed acceptable across the four dimensions of the nationally utilised NI195 standard (litter, detritus, graffiti, fly-posting);
- **total litter count** – averaged across observations;
- **plant litter acceptability score** – proportion of occasions on which the street was deemed acceptable in this respect;
- **fly-tipping acceptability score** – proportion of occasions on which the street was deemed acceptable in this respect;

¹⁶ Of length 50 metres.

- **evidence of beautification** – the maximum number of planter boxes seen on the street across all observations.

Finally, we used data from Lambeth’s regular survey of residents (undertaken in May/June 2015) to capture other residents’ views of the scheme. In particular:

- whether individuals had **heard of the Street Champion scheme**;
- whether residents were **satisfied with their local area**;
- **an index of social capital** – the proportion of statements in the community survey (targeted at measuring social capital) that the respondent agreed or strongly agreed with;¹⁷
- **targeted anti-social behaviours** – the proportion of the following issues that residents agree are problems: rubbish or litter, vandalism or graffiti, dog mess;
- **non-targeted anti-social behaviours** – the proportion of the following issues that residents agree are problems: noisy neighbours, rowdy teenagers, people using or dealing drugs, people being drunk, unwanted door knockers.

Analysis

Our main estimates of the impact of the Street Champions scheme and incentives were obtained using ordinary least squares (OLS) regression analysis after controlling for a range of street characteristics. All estimates are calculated on an intention-to-treat (ITT) basis. In this context, this means we are examining the impact of the offer of the scheme to streets, rather than the impact amongst those who took up the offer.

We estimate the results using two important baselines. First, we estimate the effects of the letter control versus the pure control group. This gives us the pure effect of just offering the Street Champions scheme and council support. Second, we look at the effect of the incentives relative to the letter

¹⁷ The statements are: ‘belonging to the neighbourhood means a lot to me’; ‘friends mean a lot to me’; ‘associations mean a lot to me’; ‘I could get advice from neighbours’; ‘I am willing to work with others to improve the neighbourhood’; ‘community events happen that I would like to get involved with’; ‘I regularly stop and talk to people’; ‘I speak highly of the neighbourhood’; and ‘the neighbourhood is changing for the better’.

control group. This allows us to isolate the pure effects of each incentive, over and above the effect of the offer and additional support.

4. Impact analysis

In this section, we present the main results of our impact evaluation. We start by looking at the characteristics of treatment and control streets before the trial had even begun. For the results to be credible, the streets in the control and treatment groups should be as similar as possible in terms of pre-trial characteristics. Reassuringly, this is true in our case. We then move on to look at the number of people who came forward in each group, their level of activity and their characteristics. Finally, we present our main analysis of the impacts of the Street Champions scheme and associated incentives on outcomes such as street cleanliness and residents' perceptions of their neighbourhood.

Baseline characteristics

Before we look at the overall impact of the Street Champions scheme on participation levels and street cleanliness, it is important to confirm that the treatment and control streets were similar before the trial began. If they were not, then any differences in outcomes could just reflect pre-existing differences in streets' disposition towards co-production. If they were similar before the trial, any differences after the trial are more likely to reflect the effects of the Street Champions scheme.

In Table 1, we show the average characteristics of all streets in the trial and how these differed across the five control and treatment groups. The characteristics we show were selected on the basis that they would be most likely to impact on individuals' willingness to participate in the Street Champions scheme and on its likely effects. In particular, we look at measures of the overall size of the street, characteristics of the local population, levels of deprivation, house prices and sales, economic activity, levels of anti-social behaviour and pre-trial measures of street cleanliness.

Looking at the differences across treatment and control streets, the first important conclusion we reach is that treatment and control streets are largely balanced across almost all the characteristics we present. The differences between streets are generally small and statistically insignificant (i.e. most differences are small enough to have happened by chance, which is what we would expect for a successful randomised

Table 1. Comparison of treatment and control streets at baseline

| Baseline characteristics | All streets | Pure control | Letter only | Identity incentives | Individual extrinsic | Community extrinsic |
|--|--------------------|--------------------|---------------------|---------------------|----------------------|---------------------|
| Street length (m) | 224.53 [132.69] | 222.05 [134.83] | 258.91 [160.36] | 230.52 [135.33] | 200.21 [110.78] | 217.16 [124.59] |
| Number of addresses | 79.69 [68.94] | 77.10 [80.59] | 78.63 [64.40] | 81.47 [51.26] | 69.41 [62.61] | 91.22 [83.70] |
| Number of buildings | 57.14 [41.23] | 53.83 [43.79] | 60.90 [39.26] | 57.36 [38.49] | 51.62 [37.59] | 62.05 [47.56] |
| Proportion estate buildings | 0.01 [0.02] | 0.01 [0.01] | 0.01 [0.02] | 0.01 [0.02] | 0.01 [0.01] | 0.01 [0.02] |
| Average age | 34.46 [2.89] | 35.22 [3.33] | 34.18 [2.50] | 34.64 [2.72] | 34.70 [3.58] | 33.67** [2.01] |
| White British | 0.45 [0.14] | 0.44 [0.13] | 0.48 [0.16] | 0.48 [0.15] | 0.44 [0.12] | 0.44 [0.12] |
| Economic activity rate | 0.79 [0.07] | 0.77 [0.06] | 0.80 [0.06] | 0.79 [0.07] | 0.80 [0.07] | 0.78 [0.07] |
| Employment rate (given economically active) | 0.92 [0.04] | 0.91 [0.04] | 0.92 [0.04] | 0.92 [0.05] | 0.92 [0.05] | 0.91 [0.04] |
| Median house price (£000s) | 384.32 [126.12] | 357.04 [132.85] | 414.76* [120.37] | 376.22 [113.95] | 407.16 [156.30] | 366.79 [97.03] |
| House sales per year (within LSOA) | 27.03 [12.55] | 27.98 [11.34] | 25.44 [11.52] | 30.95 [16.59] | 25.32 [11.76] | 25.46 [9.97] |
| Anti-social crimes per year (per street) | 4.18 [10.88] | 3.83 [7.87] | 3.13 [6.84] | 2.14 [4.40] | 3.35 [8.21] | 8.14 [18.97] |
| Index of Multiple Deprivation (percentile rank) | 30.35 [11.04] | 30.26 [12.30] | 30.96 [12.79] | 29.56 [10.40] | 30.78 [8.76] | 30.26 [11.65] |
| Total cleanliness grade (pre-trial) | 0.88 [0.11] | 0.90 [0.13] | 0.89 [0.10] | 0.88 [0.11] | 0.86 [0.10] | 0.85 [0.13] |
| <i>Number of streets</i> | <i>170</i> | <i>30</i> | <i>30</i> | <i>36</i> | <i>37</i> | <i>37</i> |
| <i>Number of streets with pre-trial cleanliness data</i> | <i>126</i> | <i>21</i> | <i>22</i> | <i>28</i> | <i>29</i> | <i>26</i> |

Note: *** denotes significance at 1%, ** at 5% and * at 10% level, where differences are computed relative to the pure control. Standard deviations are shown in brackets. Total cleanliness grade is an index of street cleanliness scores based on the NI195 measures collected nationally by Keep Britain Tidy. The index aggregates gradings of the cleanliness of a section of the street (a randomly-chosen transect) along four dimensions: litter, detritus, graffiti and fly-posting. For each dimension, a street is defined as 'acceptably clean' or otherwise. The index used is the proportion of dimensions across all pre-scheme surveys for which the street was acceptably clean. Mean age of residents, proportion of residents who are of white British ethnicity, economic activity rate and employment rate are measured at the output area level (the lowest geographical level at which Census estimates are provided). Median house price, house sales and multiple deprivation rankings are at lower super output area (LSOA) level. Lower super output area is a Census categorisation defined as an area that represents a socially homogeneous community. In cases where streets lie in multiple output areas or lower super output areas, the street-level variable is defined as the average of the output area or lower super output area observations. All output area statistics are drawn from the most recent Census, which took place in 2011. Crime statistics are for June 2013 to June 2014, and house prices and sales numbers are for the calendar year 2013; in each case, they were the most recent data available at the time of the analysis.

controlled trial), including for the pre-trial measure of street cleanliness. However, it is important to make clear that this measure was not available for all streets (only 126 of the 170 trial streets).

There are only two cases where the difference between a treatment group and the pure control group is statistically significant (indicated by stars in the table). First, individuals in the community incentives group are slightly younger, on average, than all other groups. Second, house prices are higher within the letter control group. We think these differences are only a minor concern. With only a small number of streets and a large number of characteristics presented, we would always expect a small number of differences to be statistically significant. Nevertheless, we will seek to account for all the characteristics listed in Table 1 in our impact analysis (with the exception of pre-trial street cleanliness, as this is only defined for 126 out of 170 streets).

A further benefit of presenting these characteristics is that we can illustrate key characteristics about the streets involved in the trial. In general, these streets are relatively small, with only about 80 addresses. Intuitively, this feels like a feasible area of activity for Street Champions to have an impact on street cleanliness and to encourage others to contribute. Like Lambeth as a whole, we also see that people in these streets are relatively young (average age of just under 35), ethnically diverse (around 45% from a white British background) and relatively deprived (with streets ranking at the 30th percentile, on average, in terms of the Index of Multiple Deprivation). Despite high levels of deprivation, there are also high levels of wealth and economic activity, with house prices averaging around £384,000 and an economic activity rate of just under 80%. Finally, we also see that baseline levels of street cleanliness are relatively high, with just under 90% of streets achieving an acceptable grade at baseline. This is important. With such high levels of initial cleanliness, it is clearly going to be more challenging to find an overall effect of the scheme on street cleanliness.

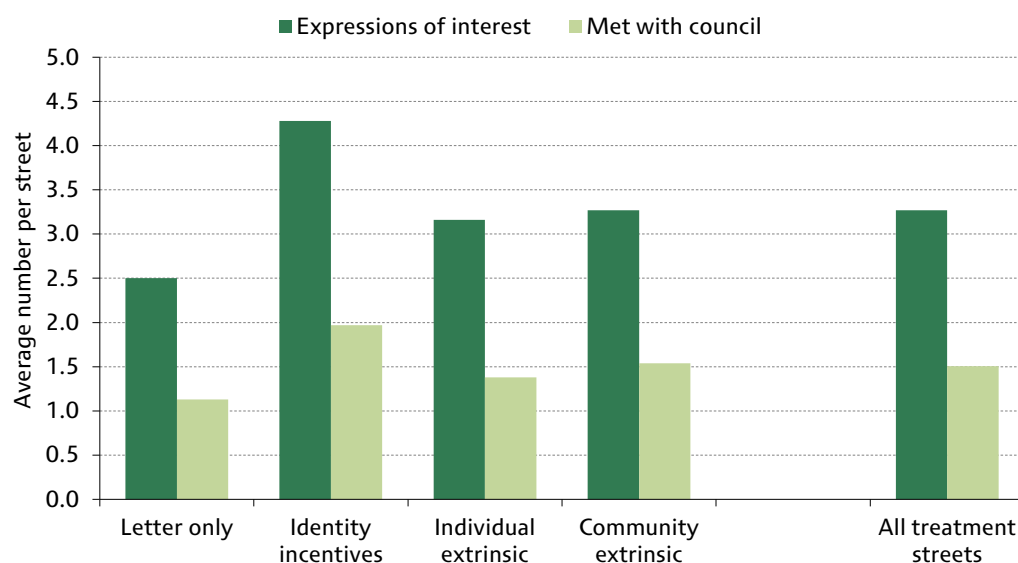
Participants

We now seek to address our first research question, which concerns how many people came forward and their level of activity. Letters to streets were sent in July 2014, with residents expressing an interest in the scheme through the summer and autumn. The council then sought to meet with

individuals who expressed an interest in the scheme and invited them to treatment-specific workshops.

Figure 1 illustrates the raw number of individuals per street who expressed an interest in becoming a Street Champion across treatment groups, as well as the average number per street whom the council were able to meet with.

Figure 1. Levels of initial interest and activity



Note: 'Met with council' refers to anyone recorded as having had a face-to-face meeting with Lambeth Council workers about their plans for being a Street Champion.

As this makes clear, the initial expressions of interest were relatively high, with just over three expressions of interest per street. Incentives also appeared to increase the level of interest, with expressions of interest higher in all the treatment groups receiving incentives than in the 'letter only' group. The highest number of expressions of interest came from the group receiving identity incentives.

Naturally, some of the initial interest faded away. However, there were still around 1.5 individuals per street who met with the council about their plans. The number of people who sustained their interest was higher when incentives were provided, with the highest number in the identity incentives group.

Within the group of active Street Champions, individuals ended up choosing to focus on different issues and operated in different ways, as was intended from the start. Lambeth Council have provided six case

studies of Street Champions on their website (<http://love.lambeth.gov.uk/do-the-right-thing/streetchampions/>). These include people who have created email lists, Facebook groups, surveys of their streets, community gardens, and posters to deter littering, organised litter picks or even recruited more Street Champions.

Table 2. Estimated effects of Street Champions scheme and incentives on participation and activities

| | <i>Outcomes</i> | | | |
|---|---|---|----------------------------------|---|
| | (1) Expressions of interest (per street) | (2) Meetings with council (per street) | (3) Held clean-up event | (4) Total no. of activities (per street) |
| Letter only (relative to pure control) | 2.39*** (0.43) | 1.11*** (0.22) | -0.01 (0.02) | 1.22*** (0.27) |
| Incentive groups (relative to letter only) | | | | |
| Identity incentives | 1.80*** (0.63) | 0.88** (0.41) | 0.15** (0.07) | 1.24** (0.52) |
| Individual extrinsic incentives | 0.95* (0.57) | 0.39 (0.28) | 0.07 (0.05) | 0.39 (0.35) |
| Community extrinsic incentives | 0.77 (0.54) | 0.48* (0.29) | 0.12** (0.06) | 0.74* (0.39) |
| <i>Mean of dependent variable</i> | <i>2.75</i> | <i>1.27</i> | <i>0.06</i> | <i>1.52</i> |
| <i>Street controls</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> |
| <i>Adjusted R-squared</i> | <i>0.32</i> | <i>0.18</i> | <i>0.00</i> | <i>0.16</i> |
| <i>Observations</i> | <i>170</i> | <i>170</i> | <i>170</i> | <i>170</i> |

Note: *** denotes significance at 1%, ** at 5% and * at 10% level. Robust standard errors are shown in parentheses. All columns report OLS estimates. The unit of analysis in all columns is the street. The dependent variable in column 1 is the total number of expressions of interest per street. The dependent variable in column 2 is a count of the number of meetings the street held with the council. The dependent variable in column 3 is a dummy of whether the street held any 'clean-up' events during the study period. The dependent variable in column 4 is the sum of the number of street meetings, meetings with the council and street 'clean-up' events the street held. Street controls are included in all specifications and are the same as those listed in Table 1 (with the exception of pre-trial street cleanliness).

We now examine the effects of the scheme and incentives on participation and activity levels in more detail (results shown in Table 2). We look across four outcomes:

- expressions of interest per street;
- number of follow-up meetings with the council per street;
- whether streets held a clean-up event;

- total number of activities per street (street meetings, meetings with council and clean-up events).

Across each outcome, we start by looking at the level of activity in the 'letter only' group relative to the control group, after controlling for street characteristics (those listed in Table 1, except pre-trial street cleanliness). This shows the overall effect of just offering the scheme without any incentives. We then estimate the difference between each of the incentive groups and the 'letter only' group, after controlling for the same set of street characteristics. This shows the effect of providing each type of incentive. In all cases, we indicate whether the differences compared with the control group are statistically significant (i.e. whether they are likely to have occurred by chance or are likely to be the result of the incentives offered).

The first row of Table 2 indicates that just sending the letter and offering the scheme led to around 2.4 people coming forward per street. About half of these expressions of interest were then sustained into meetings with the council. However, the simple offer still led to co-production activity, with about one measurable activity per street.

The next set of rows then illustrate that offering incentives clearly increased both expressions of interest and activity. The identity incentives had the largest impact. Relative to the 'letter only' group, streets offered identity rewards had an extra 1.8 expressions of interest and nearly one extra meeting with the council. This effectively doubled the level of interest and the level of activity as compared with just offering the scheme via a letter. Streets offered identity rewards were 15 percentage points more likely to hold a clean-up event. Based on an average of 6% of streets holding a clean-up event, this is a big effect. All these differences were statistically significant and are thus unlikely to have occurred by chance. Identity rewards had a strong effect on interest and activity.

Individual extrinsic rewards had the lowest overall impacts on participation. There is evidence of a higher level of expressions of interest, but this effect is only about half the size of that for identity rewards. However, the extra effect of individual extrinsic rewards on actual levels of activity is small relative to the 'letter only' group and not statistically significant.

The effects of community extrinsic incentives lie somewhere in between. These rewards had the lowest effect on initial expressions of interest relative to the 'letter only' group. However, more of these expressions of interest seemed to have been sustained, with small positive and statistically significant effects on the number of activities and meetings with the council. Indeed, these streets were 12 percentage points more likely to hold a clean-up event, on a par with streets given identity rewards.

In summary, significant numbers of people did come forward and express an interest in becoming a Street Champion, though only around half of these seem to have been sustained into actual levels of activity. Simply offering the scheme without any incentives does lead people to come forward and engage in a small level of activity. However, offering incentives led to even more expressions of interest and actual activity, with the identity rewards having the largest impact. Individual extrinsic rewards had the lowest impact, with community rewards somewhere in between the other two groups.

Street Champions' characteristics

It is of interest to know what sort of people came forward to become Street Champions, and how this differed across groups. To answer this question, we undertook online surveys of individuals who expressed an interest in becoming a Street Champion. Unfortunately, response rates were relatively low, making comparisons between groups infeasible. Nevertheless, we still present statistics on the characteristics of all Street Champions who filled out the surveys to provide a picture of what sorts of people were attracted to the scheme. The results are shown in Table 3 together with the sample size for each question and a benchmark (either based on Lambeth or England as a whole), though the latter is not available for all questions.

In terms of individual characteristics, Street Champions were more likely to come from a white British background (66% for Street Champions compared with 45% for all streets in the experiment), much more likely to be owner-occupiers and more likely to have a degree. Their employment rate was similar to that in Lambeth as a whole though.

Table 3. Street Champions’ characteristics

| Street Champions’ characteristics | Average | Number of responses | Benchmark |
|---|--------------------|---------------------|--------------------|
| White British | 0.661 [0.477] | 59 | 0.450 ^a |
| Owner-occupier | 0.806 [0.398] | 62 | 0.358 ^b |
| Length of residence (years) | 10.167 [10.578] | 60 | n/a |
| Proportion with degree or higher | 0.790 [0.410] | 62 | 0.623 ^b |
| Employed | 0.767 [0.427] | 60 | 0.802 ^b |
| Satisfied with street | 0.825 [0.383] | 63 | 0.86 ^c |
| Talk to people on street at least once a month (more than just ‘hello’) | 0.825 [0.383] | 63 | 0.79 ^c |
| Previous civic participation | 0.674 [0.474] | 43 | 0.30 ^c |
| Previous volunteering | 0.628 [0.489] | 43 | 0.47 ^c |

^a Taken from Table 1.

^b Taken from profile of Lambeth at <http://data.london.gov.uk/dataset/london-borough-profiles>.

^c Taken from English Community Life Survey, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447010/Community_Life_Survey_2014-15_Bulletin.pdf.

Note: Standard deviations are shown in brackets. ‘Previous civic participation’ refers to whether respondents have attended a public meeting, attended a public demonstration or signed a paper/online petition in the past 12 months. ‘Previous volunteering’ refers to whether individuals undertake formal or informal voluntary activities at least once a month.

In terms of satisfaction levels, Street Champions had similar levels of satisfaction with their local area to those in the country as a whole, suggesting that they were not particularly motivated by dissatisfaction. Just over 80% chatted to their neighbour more than just once a month, similar to the country as a whole. Street Champions were, however, much more likely to have volunteered in the past or demonstrated civic engagement. This suggests that Street Champions were, unsurprisingly, a selected sample of individuals predisposed to public and voluntary engagement.

Outcomes

We now analyse the effect of the Street Champions scheme and the different types of incentives on levels of street cleanliness and citizens’ perceptions of their neighbourhood.

Table 4. Estimated effects of Street Champions scheme and incentives on street cleanliness

| | <i>Outcomes</i> | | | | |
|---|---|------------------------|------------------------|------------------------|-----------------------|
| | (1) Overall street cleanliness | (2) Litter count | (3) Plant litter | (4) Fly- tipping | (5) Beautification |
| Letter only (relative to pure control) | -0.01 (0.02) | 2.54 (4.50) | -0.02 (0.02) | 0.00 (0.02) | -0.04 (0.07) |
| Incentive groups (relative to letter only) | | | | | |
| Identity incentives | 0.00 (0.02) | 8.32 (5.35) | -0.01 (0.03) | -0.03 (0.03) | 0.17** (0.08) |
| Individual extrinsic incentives | -0.01 (0.02) | 4.04 (5.11) | -0.01 (0.03) | 0.01 (0.02) | -0.05 (0.06) |
| Community extrinsic incentives | 0.01 (0.02) | 4.41 (4.71) | -0.01 (0.03) | 0.01 (0.02) | 0.12 (0.08) |
| <i>Mean of dependent variable</i> | <i>0.93</i> | <i>48</i> | <i>0.88</i> | <i>0.96</i> | <i>0.11</i> |
| <i>Street controls</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> |
| <i>Adjusted R-squared</i> | <i>0.03</i> | <i>0.08</i> | <i>0.00</i> | <i>0.07</i> | <i>0.02</i> |
| <i>Observations</i> | <i>170</i> | <i>170</i> | <i>170</i> | <i>170</i> | <i>170</i> |

Note: *** denotes significance at 1%, ** at 5% and * at 10% level. Robust standard errors are shown in parentheses. All columns report OLS estimates. The unit of analysis in all columns is the street. The dependent variable in column 1 is an index of street cleanliness scores based on the NI195 measures collected nationally by Keep Britain Tidy. The index aggregates gradings of the cleanliness of a section of the street (a randomly-chosen transect) along four dimensions: litter, detritus, graffiti and fly-posting. For each dimension, a street is defined as ‘acceptably clean’ or otherwise. The index used in column 1 is the proportion of dimensions across which the street was acceptably clean. The dependent variable in column 2 is a raw litter count within the transect studied. The dependent variables in columns 3 and 4 are measures of the number of Keep Britain Tidy surveys in which the amount and distribution of plant litter or the amount of fly-tipping respectively was deemed to be ‘acceptable’. The dependent variable in column 5 is a count of the maximum number of planter boxes observed on a street. Street controls are included in all specifications and are the same as those listed in Table 1 (with the exception of pre-trial street cleanliness).

In Table 4, we show the estimated impact on overall street cleanliness (the proportion of dimensions where streets gained an acceptable cleanliness score), the litter count and whether streets had acceptable levels of plant litter and fly-tipping. We also present the estimated impact on whether streets showed evidence of beautification activity. Again, we show the impact of the letter control versus the pure control to show the impact of just offering the scheme without any incentives. We then show the effect of the incentives relative to the letter control to isolate the impact of the

incentives. In all cases, we control for the street characteristics listed in Table 1 (with the exception of pre-trial street cleanliness).

The main results can be summarised relatively quickly. There is no evidence of an impact of the Street Champions scheme or different types of incentives on measures of street cleanliness across most dimensions. The effects are generally small and statistically insignificant.

Although somewhat disappointing, these results can be rationalised. For the overall measure of street cleanliness and its various dimensions, baseline levels of street cleanliness were relatively high. This makes it difficult for the Street Champions to have had a measurable impact on cleanliness. Second, the low sample sizes involved mean that we would only be able to detect relatively large effects. Third, our baseline characteristics explain relatively little of the variation in street cleanliness (as indicated by the adjusted R-squared statistic), making it even harder to detect an effect of a given size. As a result of these three factors, it was always going to be hard to detect a statistically significant effect on street cleanliness.

The exception to this story is that we are able to find a positive effect on street beautification, though this is only true for the identity and community rewards. The identity rewards group is 17 percentage points more likely to show evidence of beautification than the 'letter only' group and the difference for the community rewards group is 12 percentage points (although not statistically significant).

It was always more likely that we would find evidence of an effect of Street Champions on this margin. There was little evidence of street beautification in control streets. As a result, it was much easier for Street Champions to have a measurable impact on their streets in this dimension, and for us to detect a statistically significant impact. That said, it should be noted that the effects on beautification are relatively large, considering that only 11% of street showed evidence of beautification, on average.

In summary, there is no evidence that the Street Champions scheme had an impact on street cleanliness as recorded in the detailed data collected by Keep Britain Tidy. However, it is hard to know whether this is because the scheme had no effect or because it would be difficult to detect a small effect. Where we do see a positive impact is in the area of street

beautification, where there is evidence that the offer of identity rewards for being a Street Champion had a large positive effect.

The second piece of outcome data was the survey of residents by Lambeth Council that recorded residents' perceptions of the scheme and their neighbourhood. The primary purpose of this survey was to understand the views and perceptions of Lambeth residents across a number of different dimensions and across the borough as a whole. However, in order to better understand the Street Champions scheme, Lambeth added a number of questions relating to the scheme and sought to target streets in the trial. In the end, the survey managed to obtain 498 responses across 139 trial streets. Whilst not complete, this coverage of trial streets is relatively high.

Table 5 presents the estimated impact of the Street Champions scheme across a number of different perceptions by residents. Again, we show the impact of the letter control relative to the pure control and the effect of the incentive groups relative to the letter control. We also control throughout for the baseline characteristics listed in Table 1 (with the exception of pre-trial street cleanliness).

First, we look at the effects on whether people have heard of the Street Champions scheme. Being aware of the scheme is evidently an important first step to being able to build new social networks and involving others in co-production. Given that the data represent about three or four people chosen randomly from each street, it is also a stern test. Table 5 shows that the differences between the letter and pure controls are relatively small. However, individuals in the incentive streets were noticeably more likely to have heard of the scheme than people in the 'letter only' group, with the difference being largest for those on streets receiving community rewards (people in this group were 16 percentage points more likely to have heard of the Street Champions scheme, which is a very large effect considering that only 19% of people on all these streets had heard of the scheme). That the people on the incentives streets were more aware of the scheme is consistent with Street Champions being more active as a result of the incentives and potentially getting others involved.

Second, we see no difference in terms of satisfaction with the local area for the letter control relative to the pure control. However, we see significantly higher levels of satisfaction for people on streets where Street

Champions received identity rewards. Individuals on these streets were 9 percentage points more likely to say they were satisfied with their local area. The other incentive groups showed no large difference relative to the letter control.

Table 5. Estimated effects of Street Champions scheme and incentives on residents' perceptions of their neighbourhoods

| | <i>Outcomes</i> | | | | |
|---|---------------------------------|---|-----------------------------------|--|---|
| | (1) Heard of SC scheme | (2) Satisfied with local area | (3) Social capital index | (4) Perception of targeted anti-social behaviours | (5) Perception of non- targeted anti-social behaviours |
| Letter only (relative to pure control) | -0.07 (0.08) | 0.01 (0.06) | -0.01 (0.06) | -0.03 (0.05) | 0.02 (0.03) |
| Incentive groups (relative to letter only) | | | | | |
| Identity incentives | 0.09 (0.08) | 0.09* (0.05) | 0.02 (0.17) | -0.34* (0.18) | -0.12 (0.16) |
| Individual extrinsic incentives | 0.11 (0.08) | 0.01 (0.05) | 0.05 (0.18) | -0.29 (0.19) | -0.18 (0.14) |
| Community extrinsic incentives | 0.16* (0.08) | -0.03 (0.06) | 0.34* (0.18) | -0.16 (0.18) | 0.09 (0.16) |
| <i>Mean of dependent variable</i> | <i>0.19</i> | <i>0.90</i> | <i>0.75</i> | <i>0.25</i> | <i>0.12</i> |
| <i>Street controls</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> | <i>Yes</i> |
| <i>Adjusted R-squared</i> | <i>0.05</i> | <i>0.05</i> | <i>0.12</i> | <i>0.07</i> | <i>0.08</i> |
| <i>Observations (Streets)</i> | <i>498 (139)</i> | <i>498 (139)</i> | <i>498 (139)</i> | <i>498 (139)</i> | <i>498 (139)</i> |

Note: *** denotes significance at 1%, ** at 5% and * at 10% level. Standard errors clustered at the street level are shown in parentheses. All columns report OLS estimates. The unit of analysis in all columns is the citizen. The dependent variable in column 1 is a binary variable reflecting whether the citizen has heard of the Street Champions scheme, which takes the value 1 if they have heard of the scheme. The dependent variable in column 2 is a binary variable reflecting the degree of satisfaction the citizen expresses about their local area, which takes the value 1 if they state that they are 'very satisfied' or 'fairly satisfied' with their local area as a place to live. The dependent variable in column 3 is an index of social capital that is the sum of nine binary indicators reflecting different aspects of social capital on the street, such as 'belonging to the neighbourhood means a lot to me'. The dependent variable in column 4 is an index of anti-social behaviour targeted by the Street Champions scheme that is the sum of three binary indicators reflecting anti-social behaviour the scheme targeted, such as rubbish or litter lying around. The dependent variable in column 5 is an index of anti-social behaviour not targeted by the Street Champions scheme that is the sum of five binary indicators that reflect anti-social behaviour the scheme did not target, such as noisy neighbours. Street controls are included in all specifications and are the same as those listed in Table 1 (with the exception of pre-trial street cleanliness).

Third, we sought to measure social capital with an index capturing different elements of social capital. Here, we see no large differences amongst groups, with the exception that social capital is clearly higher in the community extrinsic rewards group. The effect is large. On average, residents in these streets thought that about one-third more features of social interaction were present in their street, equating to about an extra three out of nine features. This is consistent with the community rewards encouraging greater community activity.

Lastly, we sought to create an index of perceptions of anti-social behaviours, which we split into those targeted by the Street Champions scheme (e.g. rubbish or litter lying around) and those not targeted (e.g. noisy neighbours). We would expect the targeted perceptions to be reduced, but to see little effect on the latter (unless there were knock-on effects from improved social capital).

In Table 5, we see that perceptions of targeted anti-social behaviours were not significantly different in the letter control compared with the pure control. However, they were noticeably lower for the incentive groups than for those just receiving a letter, with the difference largest and statistically significant for the identity rewards group. The estimated impact corresponds to about one-third fewer of the problems being identified as problems (in this case, one fewer out of three problems asked about). Interestingly, we see much smaller differences in perceptions of the behaviours that were not an explicit target of the scheme.

This pattern of results from the residents' survey is encouraging for the Street Champions scheme and the incentives offered. We see that offering incentives means that residents on the street are more aware of the scheme, suggesting that the higher levels of activity seen earlier were also being observed by neighbours on the streets. We also see a generally positive effect of offering identity rewards, with significant effects on overall satisfaction and targeted anti-social behaviours (which are not seen for non-targeted ones). Other incentives do not have as large an impact on these perceptions, but we do see that community rewards have a significant and positive effect on measures of social capital.

5. Conclusion and policy implications

There are three main sets of conclusions from this evaluation. First, it is possible to run a randomised controlled trial with a local council and produce findings that are both of scientific merit and relevant to policymakers. We have worked closely with Lambeth Council over the last two years to develop the design of the experiment and to analyse the data coming out of the experiment. Our study provides new evidence on ways to encourage greater levels of co-production on a sustained basis, which is of interest to both the academic community and policymakers interested in increasing co-production. This experience could be repeated by other researchers to provide further robust empirical evidence on effective ways to deliver public services at a local level.

Second, citizens are interested and willing to co-produce public services, but incentives help ensure initial enthusiasm is sustained to actual activity. When simply offered the opportunity to become a Street Champion, around two people per street expressed an interest, though this only translated into about one active Street Champion per street. These effects increased substantially when incentives were provided. However, the different types of incentives led to different types of activities and outcomes. Incentives that focused on the individual's identity as a Street Champion (e.g. hi-vis jacket or a Meet the Mayor day) led to more street beautification and greater satisfaction with the local area. Community-wide incentives led to more people being aware of the scheme and improved perceptions of social interaction. Individual extrinsic incentives had the weakest impact across the board.

Third, the trial also shows the potential limits of citizen involvement, as there was no evidence of any improvement in litter or other negative aspects as recorded by the street cleanliness surveys. This could be because the streets were already quite clean to begin with or it may indicate that the delivery model is not suited to regular, labour-intensive services such as street cleansing. Our empirical analysis provides no evidence that citizens can be used as a replacement for such services, but they could certainly be a complement and addition to such services.

This evaluation does, however, leave some important questions for future research in this area. First, it will be interesting to know whether the effects of the scheme persist over time. This will be somewhat difficult to

judge, as Lambeth Council rolled the scheme out in June 2015 with a focus on the identity-type rewards. However, it will be interesting to examine how groups subject to extrinsic incentives in our trial respond to receiving a new type of incentive. Second, it would be interesting to examine what factors contribute to effective co-production levels in the Street Champion scheme. For example, is it easier for individuals to have an impact when there is more than one Street Champion and how does the context affect co-production (e.g. is it easier with more homogeneous communities)? Third, we have examined co-production in one particular context (street cleansing). It would be interesting to know whether co-production can be sustained in other contexts and whether the sets of incentives have the same effects.

Appendix

Table A1. Incentives across control and treatment groups

| | Incentives |
|---------------------------------|---|
| Control groups | |
| Control group | None |
| Letter control group | Letter and public role |
| Treatment groups | |
| Individual extrinsic incentives | Letter and public role Access to specialist inputs, tools and services tailored to the individual Council training for the individual Free garden waste collection |
| Community extrinsic incentives | Letter and public role Access to specialist inputs, tools and services tailored to the street Council training for the street Street accreditation on borough website |
| Identity incentives | Letter and public role Council training for the individual Street Champion pack to identify the individual as a Street Champion (including hi-vis vest and polo shirt) Membership of the council's Do The Right Thing campaign Public recognition for the individual's contribution with a Meet the Mayor day |