

**William Voorberg**  
Erasmus University Rotterdam  
**Sebastian Jilke**  
Rutgers University–Newark

**Lars Tummars**  
Utrecht University  
**Victor Bekkers**  
Erasmus University Rotterdam

## Research Article Financial Rewards Do Not Stimulate Coproduction: Evidence from Two Experiments

**William Voorberg** is a postdoctoral researcher in the Department of Public Administration and Sociology at Erasmus University Rotterdam, where he coordinates the Erasmus Governance Design Studio.  
**E-mail:** voorberg@essb.eur.nl

**Sebastian Jilke** is assistant professor in the School of Public Affairs and Administration at Rutgers University–Newark, where he is codirector of the Center for Experimental and Behavioral Public Administration.  
**E-mail:** sebastian.jilke@rutgers.edu

**Lars Tummars** is associate professor in the School of Governance at Utrecht University. His research interests are public management, leadership, and citizen-state interactions. Related to this, he has developed an interdisciplinary field combining psychology and public administration, called behavioral public administration.  
**E-mail:** l.g.tummars@uu.nl

**Victor Bekkers** is professor of public administration and public policy at Erasmus University Rotterdam. His research interest primarily focuses on the how the introduction of information communication technology and media as well as (co-creative) innovation processes influence the shaping of different public policy processes and public services. He is also dean of the Erasmus School of Social and Behavioral Sciences.  
**E-mail:** bekkers@essb.eur.nl

**Abstract:** *Western governments are increasingly trying to stimulate citizens to coproduce public services by, among other strategies, offering them financial incentives. However, there are competing views on whether financial incentives stimulate coproduction. While some argue that financial incentives increase citizens' willingness to coproduce, others suggest that incentives decrease their willingness (i.e., crowding out). To test these competing expectations, the authors designed a set of experiments that offered subjects a financial incentive to assist municipalities in helping refugees integrate. The experiment was first conducted among university students within a laboratory setting. Then, the initial findings were replicated and extended among a general adult sample. Results suggest that small financial rewards have no effect: they neither increase nor decrease people's willingness to coproduce. When the offered amount is increased substantially, willingness to coproduce increases only marginally. Hence, financial incentives are not a very cost-efficient instrument to stimulate coproduction.*

### Evidence for Practice

- This research shows that *modest* compensation (2 euros per hour, similar to a time-bank voucher) does not have a significant effect on people's willingness to coproduce public services. Therefore, governments should be cautious in offering financial incentives to stimulate people to coproduce.
- Even *substantial* financial incentives (10 euros per hour, comparable to the net income of a professional teacher) have only very small effects (6 percentage points) on people's willingness to coproduce. Therefore, governments are well advised to explore alternative possibilities for stimulating citizens' willingness to coproduce.
- This research indicates that people's motivation to coproduce is not crowded out by financial incentives. However, given the relatively small effect of financial incentives on people's willingness to coproduce, governments are advised to strengthen intrinsic public service and prosocial motivations (e.g., solidarity, charity, etc.) of potential coproducers instead of promoting coproduction by introducing financial incentives.

To keep public services maintainable and affordable, governments are increasingly asking citizens to “pitch in and help ensure the quality of life” (Brudney and England 1983, 59). This constitutes a fundamental change in the relationship between the state and its inhabitants, in that citizens are no longer passive receivers of public services. Instead, they are seen as valuable participants in the process of delivering public services (Osborne and Brown 2011). As such, coproduction between public organizations and citizens has become an important element in the discussion about how the quality of public service delivery can be improved. Citizens have specific resources (such as time, expertise, and local knowledge) that can be used in response to contemporary problems facing the public sector. To date, this has resulted in a variety of policy domains in which citizens participate in public service delivery,

such as public transport (Gebauer, Johnson, and Enquist 2010), health care (Leone et al. 2012; Pestoff 2012), and education (Jakobsen 2013; Ostrom 1996). Given the increasing importance of service delivery, governments explore how citizens can be motivated to step in and coproduce important public services (e.g., Alford 2002).

The literature on coproduction describes various ways to stimulate public participation in service delivery, for example, by sanctions, material rewards, intrinsic rewards, solidary incentives, and expressive values (e.g., Alford 2002; Lindahl, Lidén, and Lindblad 2011; Ostrom 1996; Pestoff 2006). In this article, we pay specific attention to the effectiveness of offering citizens financial rewards as a way to increase their extrinsic motivation to coproduce. Whether financial rewards stimulate coproduction is unclear.

Scholars have debated the effectiveness of such incentives (e.g., Alford 2002, 2009; Collom 2008; Rosentraub and Sharp 1981; Seyfang and Smith 2002; Sharp 1978), but without clear consensus. While it has been argued that financial rewards are well suited to increase coproduction (Collom 2008; Pestoff 2009; Weinberger and Jütting 2001), others, such as Alford (2002, 51), argue that material rewards are “ineffective in eliciting the requisite client contribution for all but the simplest of tasks.” Some authors even argue that adding an extrinsic reward might dilute the intrinsic motivation through a *crowding-out effect* (Frey and Jegen 1999). Consequently, offering a financial reward might have the opposite effect to that intended: decreasing citizens’ willingness to coproduce. By conducting a series of experiments, we add causal evidence to the debate on whether financial rewards are an effective incentive for stimulating coproduction. We therefore aim to experimentally investigating the effects of financial rewards on citizens’ willingness coproduce important public services.

In sum, the literature on coproduction shows diverging stands with regard to the effectiveness of financial incentives in stimulating citizens’ willingness to coproduce. Our contribution to the literature is twofold. Alford (2002) was one of the first to study the potential impact of material rewards—money, goods, or services—on coproduction. Using four case studies, he showed that such rewards are ineffective in eliciting coproduction, especially when that work is difficult to specify and monitor (2002, 43). In our study, we offer, to the best of our knowledge, the first experimental test of whether citizens can be motivated to coproduce by offering them one specific type of material rewards: money. The advantage of the case study approach by Alford is that it is located in real environments and uses multiple cases. The experimental setup we use is beneficial as it can make a stronger causal claim because the independent variables are exogenously manipulated (James, Jilke, and Van Ryzin 2017). Furthermore, we not only test the effectiveness of financial rewards per se but also look the effects of different levels of financial incentives. Doing so allows us to extend initial insights by studying the extent to which the degree of financial incentives matters.

From a methodological point of view, correlational research, including case studies, may have difficulty identifying the causal effect of financial rewards on citizens’ willingness to coproduce. For example, coproduction initiatives in which financial incentives are used versus coproduction initiatives in which financial incentives are not used can differ in a variety of ways. They can start at a different time of the year, be set up in different types of neighborhoods, or tackle a different societal issue. Hence, it would be difficult to conclude that a difference in willingness arises from the difference in financial incentives offered and is not due to any other unobserved factor. This is known as an endogeneity problem. Such problems of endogeneity can be tackled using an experimental approach (James, Jilke, and Van Ryzin 2017). Therefore, we designed two experiments to test whether financial rewards increase or decrease citizens’ motivation and subsequent willingness to coproduce.

In the first experiment, we tested in a laboratory setting whether Dutch students’ ( $n = 160$ ) willingness to coproduce language courses for refugees could be influenced by a financial incentive. In order to enhance the external validity of our initial findings, we replicated and extended our initial experiment in a random probability sample

of 1,359 Dutch citizens. In both settings, we studied subjects’ stated *and* revealed preferences regarding their willingness to coproduce. More specifically, we investigated citizens’ willingness to coproduce (on a scale of 0–10) and included a second behavioral outcome measure to assess their revealed preferences (asking them to provide their email address to be contacted by their local government to coproduce).

The remainder of this article is structured as follows: We first introduce the main concepts and show how various streams of literature have produced contradictory views on the effectiveness of financial rewards. The section concludes with theoretical predications for subsequent empirical testing. We then discuss our research design. The following sections present the results of our study, and then we draw conclusions and consider the implications of our findings.

## Theoretical Framework

### *Coproduction*

In the public administration literature, coproduction is often used as a “magic concept” (Pollitt and Hupe 2011) that relates to different ways that citizens can be involved in the production of public services. In order to define coproduction, authors typically refer to Ostrom’s (1996, 1073) definition of coproduction as “the process through which inputs used to produce a good or service are contributed by individuals who are not ‘in’ the same organization.” Others use the more specific definition of Parks et al. (1981, paraphrased in Pestoff 2006, 506), referring explicitly to the relationship between citizens and public service agents: “the mix of activities that both public service agents and citizens contribute to the provision of public services.” By focusing specifically on citizens, this definition distinguishes coproduction from public-private partnerships or other forms of interorganizational collaboration (Brandsen and Honingh 2015; Loeffler and Bovaird 2016). Recent attention to the involvement of citizens in public service delivery is based on an awareness that the efforts of citizens are required to keep public service provision maintainable. The general conviction is that citizens possess specific resources to address societal challenges (Alford and Yates 2015; Bovaird 2007). Consequently, the concept of “citizen” is altered as it supersedes the boundaries with other concepts, such as volunteers and service users. Traditionally, citizens express their aspirations through “voice” mechanisms, such as voting (Alford 2002). However, coproduction changes this, requiring a mutually dependent relationship between public organizations and citizens. This relationship is captured in the recent definition of Brandsen and Honingh (2015, 431), to which we adhere, stating, “Coproduction is a relationship between a paid employee of an organization and (groups of) individual citizens that requires a direct and active contribution from these citizens to the work of the organization.”

Coproduction can be differently typified. For instance, Brudney and England (1983) make a distinction between individual, group, and collective coproduction. This allows us to distinguish different kinds of consequences for the beneficiaries of coproduction outcomes (see also Bovaird et al. 2015). However, in this article, our focus does not lie with who benefits from coproduction but rather how citizens can be motivated to participate in coproduction (whether individually

or in groups). Therefore, we use in this research the typology of Voorberg, Bekkers, and Tummers (2015), which distinguishes three ways citizens can be involved: (1) as the initiator of coproduction projects, (2) as the designer of coproduction projects, or (3) as the ones who carry out the coproduction project. The first kind of involvement includes, for example, projects in which citizens take the initiative to improve their neighborhood. More specifically, we are interested in motivation to coproduce. Therefore, we focus on the individual level of coproduction (Alford 2009; Loeffler and Bovaird 2016), since in the end, it is the individual who coproduces. We focus specifically on the kind that consists of active, voluntary behaviors (as opposed to “captured” coproduction, which implies that people do not have a choice than to coproduce (Brudney and England 1983). This individual form of coproduction is prompted by both material and solidary incentives (Alford 2002, 35), which implies that both intrinsic and extrinsic motives affect people’s willingness to coproduce. In the provision of language courses, solidary motives based on people’s intrinsic motivations, as well as extrinsic motives fostered through financial rewards as the one we study here, play a role. It is important to distinguish both types of motives because of the differential effects financial rewards may have on them.

### **Motivators to Boost Willingness to Coproduce**

The question then becomes *how* citizen’s willingness to coproduce can be strengthened. Examining possible motivators to boost people’s willingness to coproduce has been an important topic of study in coproduction (Alford 2009). We categorize identified motivators broadly into *intrinsic* and *extrinsic* motivators (Loeffler and Bovaird 2016). Intrinsic motivators touch on the desire to achieve one’s ethical values (Alford 2002), such as loyalty, solidarity, and a feeling of civic duty (Wise, Paton, and Gegenhuber 2012). The coproduction literature shows numerous examples where coproduction efforts of citizens are based on intrinsic motivators, ranging from supporting Roma (Schafft and Brown 2000), participating in child care services (Pestoff 2006), or promoting asylum seeker integration (Strokosch and Osborne 2017).

Scholars have argued that extrinsic motivators—an activity done in order to attain some separable outcome (Ryan and Deci 2000, 60)—may be effective stimuli to motivate citizens to participate in coproduction processes, referring to either lowering participation costs (Weinberger and Jütting 2001) or increasing the financial benefits for participants (Pestoff, Osborne, and Brandsen 2006). A current trend sees the implementation of “time banks” and “complementary currencies” as external incentives for people to coproduce (e.g., Collom 2008; Glynos and Speed 2012; Lasker et al. 2011; Seyfang and Smith 2002). Time-banking practices reward people who offer their services to others in the form of time credits. These credits can be exchanged for services offered by other members of the time-banking network, such as small shops, cinemas, and theaters (Glynos and Speed 2012, 405).

Relatedly, scholars from different disciplines have shown how extrinsic motivators may affect intrinsic motivation (Deci, Koestner, and Ryan 1999; Frey and Götte 1999; Perry 1996; Weibel, Rost, and Osterloh 2010). Some authors argue that intrinsic motivation may be “crowded out” by external rewards. This occurs when people

who are paid to perform a task, which they did previously for its own sake, reduce their effort (Frey and Götte 1999). The underlying reason is that people would previously perform the task because they are *intrinsically* motivated to do so, for instance, because they consider it morally good or right to do so. However, when being paid, the choice of performing these tasks is dependent on whether people consider the reward sufficient. Therefore, extrinsic rewards may undermine intrinsic motivations (Weibel, Rost, and Osterloh 2010). An illustration is provided by Titmuss (1970) in his book *The Gift Relationship*. He noted that paying for blood undermines social values and therefore reduces the number of donors. A field experiment indeed confirmed this relationship—although only for women. Mellström and Johannesson (2008) show that the supply of female blood donors decreased by almost half when a monetary payment was introduced.

This crowding-out effect is an important anomaly in microeconomics, as it goes against the most fundamental economic law: that raising financial incentives increases people’s productivity (Frey and Jegen 1999, 590). The notion of crowding out is specifically important for coproduction when intrinsic motivation is an important part of why people coproduce (e.g., Alford 2002; Loeffler and Bovaird 2016). Given the importance of intrinsic motivators, the occurrence of a crowding-out effect would be particularly problematic in coproduction. That is why Elinor Ostrom (2000) studied the conditions under which extrinsic elements may increase the willingness to increase productivity and labor intensity, that is, creating a *crowding-in effect* rather than a *crowding-out effect*. She argues that intrinsic motivators need to be backed up by institutions that enable those motivated to solve problems while protecting them from free riders and untrustworthy partners. If this is the case, then extrinsic elements might even enhance intrinsic motivation and cause a *crowding-in effect*. Further, it could be argued that a reversed crowding-out effect might occur if governments withdraw external incentives from a specific policy domain or issue rather than adding them to induce participation. De Wit and Bekkers (2016) find that affluent citizens in the Netherlands are more likely to donate money if government subsidies to nonprofit organizations are reduced. Hence, it is important to understand whether a crowding-out effect may occur in coproduction as well.

To sum up, motivation crowding theory suggests that an extrinsic incentive can undermine someone’s intrinsic motivation to show certain behavior. When one focuses on a specific extrinsic motivator (in this article, financial rewards), the first expectation is that citizens’ willingness to coproduce will be increased through offering them financial incentives (economic incentives hypothesis). Consequently, the willingness to coproduce will increase. The second expectation is that citizens’ willingness to coproduce will be decreased through offering them financial incentives (crowding-out hypothesis). Therefore, the willingness to coproduce will decrease. What becomes clear is that the motivator (financial incentive) impacts extrinsic motivation (potentially increasing it) and intrinsic motivation (potentially decreasing it). Extrinsic motivation and intrinsic motivation then impact willingness (the intention to act and behavior). Consequently, we test two competing theoretical expectations: one based on economic incentives and one on the crowding-out effect.

**Hypothesis 1a:** Citizens' willingness to coproduce will be increased through offering them financial incentives (economic-incentives hypothesis).

**Hypothesis 1b:** Citizens' willingness to coproduce will be decreased through offering them financial incentives (crowding-out hypothesis).

We now discuss the methods and results of the two studies undertaken to test these two competing expectations.

### Study 1

In the first experiment, we used a sample of Dutch university students. We tested whether offering a financial reward would change their willingness to teach Dutch language courses to refugees. This case forms an exemplary coproduction situation, since most coproduction projects are initiated in the public welfare domain (Voorberg, Bekkers, and Tummers 2015). In these initiatives, participation is assumed to be based on a feeling of solidarity (see, e.g., Schafft and Brown 2000).

The study contained two outcome measures. The first one was students' stated willingness to provide language courses to refugees. This was measured on an 11-point scale (0–10), where the participants were asked how much they agreed/disagreed with the following statement: "I would be willing to help the municipality by teaching Dutch language classes to refugees." The second dependent variable examined students' *revealed* preferences by asking them to provide their email address so that they could be approached by the municipality ("If you would like to be contacted by your municipality to teach Dutch language classes to refugees, please enter your email address (it will not be provided to any third parties)").

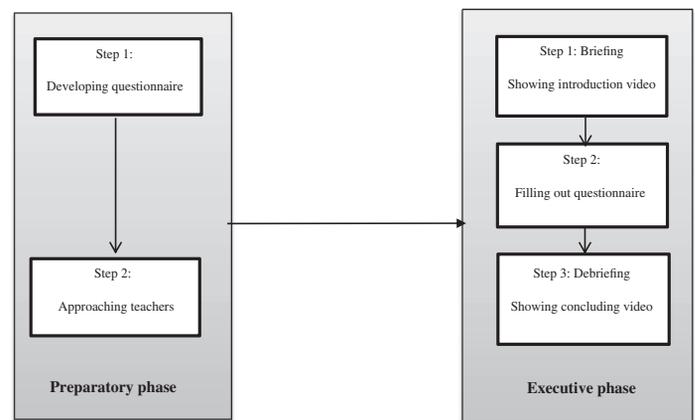
### Method

**Participants.** The experiment was conducted on in May 2015. Subjects were second-year bachelor's degree students of public administration at a large Dutch University. All students in this cohort who were willing to participate in the experiment were accepted (there were no other criteria), resulting in 160 participants in total. Whether a student would receive the treatment (i.e., be offered a financial reward) was assigned before the actual study by randomly ordering the treatment and control questionnaires. This resulted in a treatment group with 94 students and 66 students in the control group. Descriptive statistics of the sample are shown in table 1.

**Treatment.** The experimental manipulation included a financial incentive that was offered to the treatment group. This financial incentive amounted to a voucher worth 2 euros for each hour spent teaching language courses. The control group members were not offered any incentive. The value of the voucher was chosen as representative of the typical voluntary sector compensation in the Netherlands (Belastingdienst 2015). These coupons could be accumulated and exchanged for other services (tickets to the cinema, to the swimming pool, etc.) but not for cash. In doing so, this voucher is similar to time-bank vouchers as described in our theoretical framework (e.g., Lasker et al. 2011).

**Table 1** Descriptives: Sample 1 Participants

Variable	Value (%)	Mean (SD)	Min., Max.
<i>Experimental Conditions</i>			
Treatment	94 (58.8%)		
Control	66 (41.3%)		
<i>Email provided</i>			
Yes	69 (43.1%)		
No	91 (56.9%)		
<i>Gender</i>			
Male	81 (50.6%)		
Female	79 (49.4%)		
<i>Ethnicity</i>			
Dutch	154 (96.2%)		
Non-Dutch	4 (2.5%)		
No info provided	2 (1.3%)		
<i>Volunteer</i>			
Yes	106 (66.3%)		
No	54 (33.8%)		
<i>Willingness to coproduce</i>		5.18 (2.91)	0, 10
<i>Age</i>		20.61 (2.11)	18, 31
<i>Partisan orientation</i>		5.49 (2.07)	0, 10



**Figure 1** Experimental Procedure

**Procedure.** The procedure for carrying out this study contained five steps split into two phases, shown in figure 1. The first, the preparation phase, contained two steps. The first step involved developing the questionnaire. In the questionnaire, a fictional case was described (see Appendix A in the Supporting Information online) in which it was explained that because an increased number of refugees, official integration offices were not able to offer every refugee an integration trajectory. Therefore, Dutch municipalities asked citizens to give Dutch language courses. Students were asked how willing they were to give a weekly language course of one to two hours per week for a period of three months. In the second step, 10 university lecturers were approached and asked whether they were willing to conduct the experiment within their seminars on a stipulated day. Such small-scale seminars are well suited for conducting experiments because they offer good internal control.

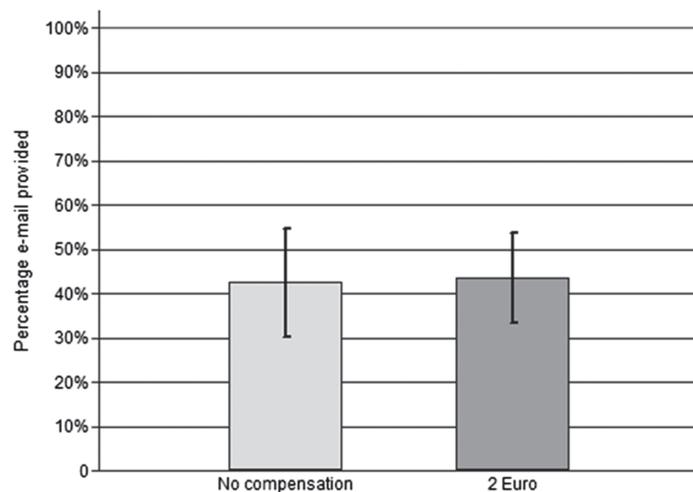
The second phase involved the distribution of the questionnaire. The first step (briefing) involved showing a short instruction video to respondents, in which the topic of the study was introduced (i.e., the interest of municipalities in using students to help refugees), and students were asked to complete the questionnaire (see Online Appendix 1). In this way, we ensured that all students received the same explanation and instructions. It was also stressed

in the introduction video that students should not communicate with each other. In the second step of the second phase, students were given the questionnaire in which they were asked to rate the statement: "I would be willing to help the municipality and teach Dutch language classes to refugees." Subsequently, in an attempt to measure actual behavior, the questionnaire asked, "If you would like to be contacted by the municipality to teach Dutch language classes to refugees, please enter your email address (it will be not provided to any third parties)." If respondents were willing to offer language courses, they had the opportunity to have their email address forwarded to the municipality. Additionally, they were asked to provide information about their socioeconomic characteristics. Two scholars supervised this process to ensure that the questionnaires were filled out independently. In the third and final step (debriefing), another video was shown in which it was explained to the students that the study involved a hypothetical situation and that no email addresses would be forwarded. They were reassured that their anonymity was guaranteed.

### Results

Figure 2 displays the average treatment effect of a 2 euro compensation on students' willingness to coproduce ( $n = 159$ ). Members of the treatment group (who were offered a 2 euro compensation) were slightly more willing to coproduce (about 5.3 percentage points; Cohen's  $d = 0.21$ ) than the respondents who were not offered any incentive (the control condition). However, the difference (using an independent  $t$ -test) between both conditions is not statistically significant ( $p = .204$ ).

We then examined students' propensity to provide their email address ( $n = 160$ ). Figure 3 shows the average treatment effect on students providing their email address. Here the percentages of respondents who included their email address were almost the same in both the treatment and the control conditions (56.4 percent and 57.6 percent, respectively). The difference between the experimental conditions is not only small in magnitude (1.2 percentage points) but also statistically insignificant ( $\chi^2(1) = 0.023, p = .881$ ).



Notes: No statistically significant difference between control and treatment group (chi-square test);  $n = 160$  (control group = 94; treatment group = 66).

**Figure 3 Percentage of Each Sample Providing an Email Address (Percentage and 95% Confidence Intervals)**

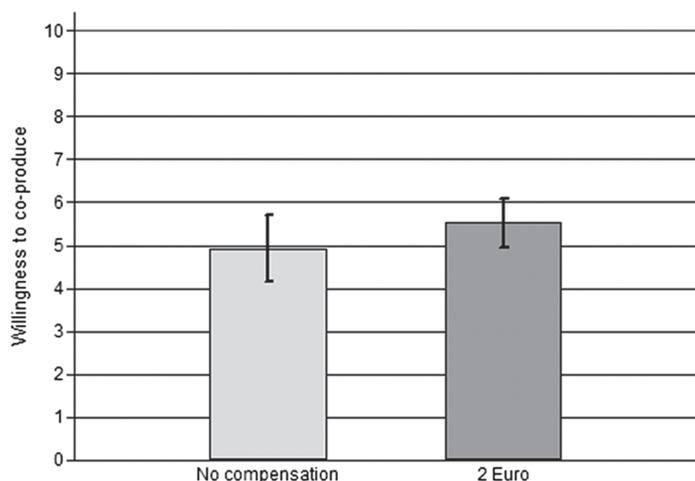
**Table 2** Descriptives: Participants Sample 2 and Dutch Totals (CBS Statline 2015 Combinational File)

	Sample (N = 1,359)	Dutch Population
<i>Gender</i>		
Male	662 (48.7%)	49.50%
Female	697 (51.3%)	51.50%
<i>Age</i>		
<20	64 (4.7%)	22.90%
20–39	312 (22.9%)	24.50%
40–64	606 (44.6%)	35.30%
65–80	339 (25%)	13.10%
>80	38 (2.8%)	4.30%
<i>Education</i>		
Lower professional education	353 (26%)	51.80%
Higher professional education	323 (23.8%)	31.30%
University	128 (9.4%)	16.80%
Other	551 (40.5%)	—
<i>Ethnicity</i>		
Dutch	1,096 (80.6%)	78.60%
Non-Dutch	202 (14.9%)	21.40%
No info provided	61 (4.9%)	—
<i>Experimental conditions</i>		
Treatment 1	473 (34.8%)	—
Treatment 2	438 (32.2%)	—
Control	448 (33.0%)	—
<i>Willingness to coproduce (mean (SD); Min, Max)</i>	4.15 (3.18); 0, 10	—
<i>Email provided</i>		
Yes	320 (23.6%)	—
No	1,039 (76.5%)	—
<i>Trust (mean (SD); Min, Max)</i>	3.81 (2.55); 0, 10	—
<i>Degree of urbanity (mean (SD); Min, Max)</i>	3.00 (1.28); 1, 5	—

Notes: The national figures include students in 2014 at each educational level; the "other" category covers those who have not studied beyond secondary education.

### Discussion

Our null findings for the effect of financial rewards on students' willingness to provide language courses to refugees suggest that the effectiveness of financial incentives as stimuli for boosting coproduction is questionable. This view was supported by our second dependent variable (students' propensity to provide their email address), where, again, the treatment failed to have



Notes: No statistically significant difference between control and treatment group ( $t$ -test);  $n = 159$  (control group = 94; treatment group = 65).

**Figure 2 Willingness to Coproduce (Mean and 95% Confidence Interval)**

a significant and substantive effect. However, this study has its limitations. Our failure to find a significant effect might be related to the relatively small sample size of 160 participants. Moreover, the relatively small reward on offer (2 euros per hour) could be an additional factor. Student could be more willing to coproduce when offered more. Therefore, we replicated our initial experiment, using a larger sample and including a second treatment with a higher financial incentive (10 euros per hour).

## Study 2

We used a Dutch probability-based internet panel known as the Longitudinal Internet Studies for the Social Sciences (LISS). The LISS panel is an internet panel established for academic use that consists of 8,000 individuals living in the Netherlands. It is an accurate probability sample drawn from the Dutch population register—including people without an internet connection who are given access to appropriate equipment (for more information about LISS, see Scherpenzeel 2009). Given our concern that the insignificant results in study 1 were due to it being underpowered (i.e., the sample size being too small relative to the effect size), we conducted a power analysis based on the estimates found in study 1. This provides an estimate of the required sample size for study 2 to statistically validate an actual effect of the magnitude of that suggested in study 1 (with 80 percent power using a two-sided 5 percent significance test). It showed that we would need a sample of 764 subjects, with 382 in each group. Further, because we add an additional experimental condition (a larger incentive) in study 2, we would require a total of 1,146 participants (382 for each scenario). On our behalf, the LISS organizers sent our revised questionnaire to 1,699 panelists. Of these, 340 respondents (20 percent) did not return the questionnaire, resulting in 1,359 respondents. Therefore, our sample was 15 percent larger than required, thereby overpowering our replication experiment.

We used the same outcome measures as in study 1, but, since it involved an internet panel, for the second dependent variable we asked respondents to indicate (yes/no) whether their email address could be forwarded to their municipality rather than asking them to supply a contactable address. In order to test whether an increase in the level of the financial incentive would boost people's willingness to coproduce, we included an additional treatment condition (10 euros per hour) alongside the original treatment of 2 euros per hour. This higher value is comparable to the hourly net income of a professional teacher in secondary education in the Netherlands (CNVO 2014).

## Methods

**Participants.** Characteristics of the sample are shown in table 4 and compared with the wider population of the Netherlands (data derived from the Dutch Bureau for Statistics). Although in many respects, our panel sample is representative, we note that young people are underrepresented and, although the figures are not directly comparable, that the mix of education levels in our sample seems to diverge from the Dutch averages. Therefore, although the external validity of our second study is much higher than in the first experiment, we need to be cautious when generalizing toward the entire Dutch population.

The respondents were randomly assigned to three experimental conditions, resulting in a control group of 438 respondents who

received no compensation, a first treatment group of 473 who were offered compensation of 2 euros per hour, and a second treatment group of 438 subjects offered 10 euros compensation per hour.

**Procedure.** The procedure for this study contained a similar set of steps (figure 4) to the earlier one. In the preparation phase, the first step was to approach the panel to seek their agreement to repeating our experiment within a larger sample. After approval, the second step was to slightly adapt the questionnaire so that it fitted within the panel study process (adapting the language and layout of the questionnaire, see Appendix B in the Supporting Information online). In the second phase, the experiment was executed. In the first (briefing) step, the respondents were invited to participate and provided with an opportunity to read the introduction to the questionnaire. The questionnaire was similar to the questionnaire used in the first study and was distributed on in October 2015 by email (a reminder was sent two weeks later). For practical reasons, we were unable to show the video introduction used in the first experiment.

In the second step, respondents were again asked to rate (on a scale of 0–10) the following statement: “I would be willing to help the municipality by teaching Dutch language classes to refugees.” The subsequent question, regarding the forwarding of email addresses to the municipality, was rephrased to read as follows: “If you would like to be approached by the municipality to provide Dutch language courses to refugees, please click ‘yes.’ We will exclusively use the email address known to us.”

In the third (debriefing) step, participants were informed about the specifics of the study, and it was explained that, in fact, no email addresses would be forwarded to the municipalities.

## Results

Figure 5 shows the effects of the two treatments on respondents' willingness to coproduce. The null finding of the first study has been replicated. Offering a small financial reward to respondents only marginally, and statistically insignificantly, increased their willingness to coproduce (mean difference 0.03; Cohen's  $d = 0.01$ ;  $p = .904$ ). However, the second treatment showed a greater, and statistically significant, increase in their willingness to coproduce with the municipality: if people are offered an incentive of 10 euros

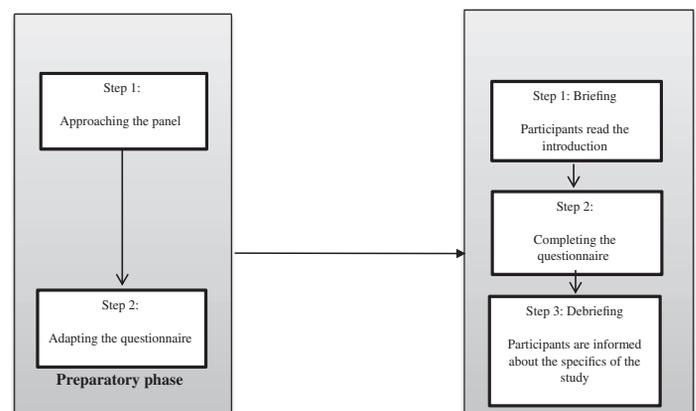
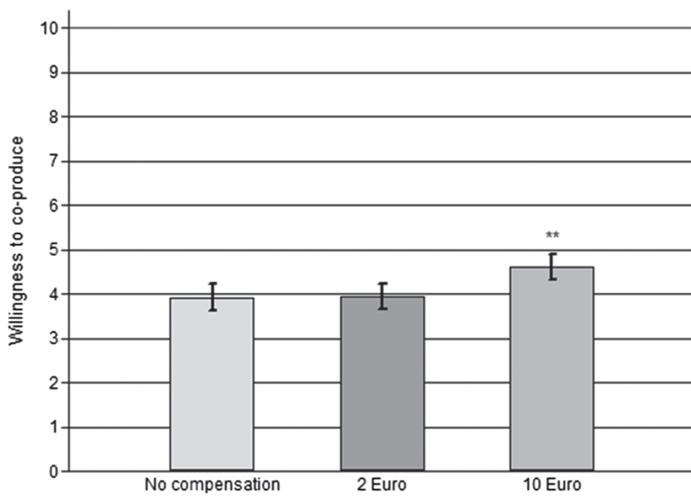


Figure 4 Procedure for Study 2



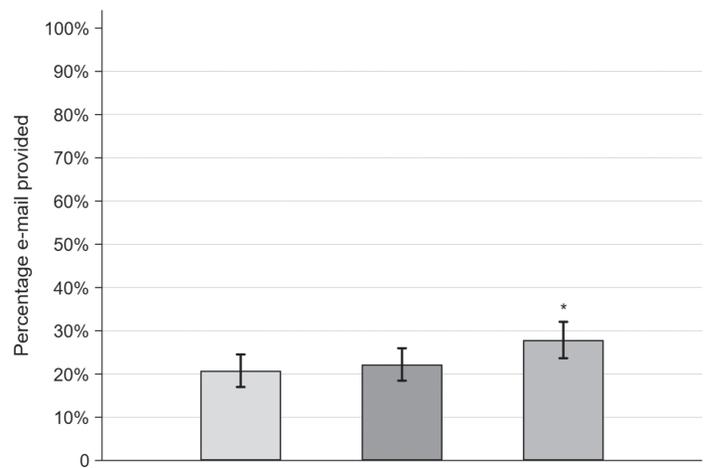
Notes: No statistically significant difference between control and treatment group 2 euro, statistically significant difference at  $p < .01$  between control group and treatment group 10 euros and between treatment group 2 euros and treatment group 10 euros (ANOVA);  $n = 1,359$  (control group = 438; treatment group 2 euros = 473; treatment group 10 euros = 438).

**Figure 5 Willingness to Coproduce (Mean and 95% Confidence Interval)**

per hour, they are about 6.3 percentage points (mean difference of 0.69; Cohen's  $d = .21$ ;  $p < .01$ ) more willing to provide language courses to refugees than if no financial incentive is available. In addition, both treatment conditions are statistically different from each other. If respondents were offered 10 euros compensation, instead of 2 euros, they were 6 percentage points more willing to coproduce (mean difference of 0.66; Cohen's  $d = 0.21$ ;  $p < .01$ ).

The conclusions based on the first outcome measure are supported when looking at whether respondents agreed that their email address could be shared with the municipality ( $n = 1,359$ ) (see figure 6). Just as in study 1, people were slightly more willing to provide their email address if they were to receive 2 euros per hour for coproducing compared with the control condition (22.2 percent and 20.8 percent, respectively—a difference of 1.44 percentage points). Again, this finding is not statistically significant ( $\chi^2(1) = 0.283$ ,  $p = .595$ ). However, when the compensation is raised to 10 euros per hour, people's propensity to share their email address increases significantly by 7.1 percentage points (27.9 percent in total) compared with the control condition ( $\chi^2(1) = 6.066$ ,  $p < .05$ ). In addition, the difference between both treatment conditions is also statistically significant ( $\chi^2(1) = 3.887$ ,  $p < .05$ ). This means that providing 10 euros compensation, instead of 2 euros, leads to an increase of 5.7 percentage points in respondents' willingness to provide their contact details.

Next to studying the average treatment effects, we performed exploratory analyses to assess whether the uncovered effect varies by personal characteristics. We examined the effect of respondents' gender, age, place of residence (i.e., self-assessed degree of urbanity), and their confidence in government to cope with the inflow of refugees without the help of citizens. None of these factors had a significant effect. We find, however, that ethnicity and level of education both had heterogeneous effects on respondents' willingness to coproduce (as well as willingness to share their email



Notes: No statistically significant difference between control and treatment group 2 euros, statistically significant difference at  $p < .01$  between control group and treatment group 10 euros and between treatment group 2 euros and treatment group 10 euros (chi square);  $n = 1,359$  (control group = 438; treatment group 2 euros = 473; treatment group 10 euros = 438).

**Figure 6 Percentage of Each Sample Providing an Email Address (Percentage and 95% Confidence Intervals)**

address). The average treatment effect of a 10 euro compensation not only turns statistically insignificant for non-Dutch respondents ( $n = 202$ ) but also exhibits a negative effect direction (mean difference of 0.21; Cohen's  $d = 0.06$ ;  $p = .699$ ). Dutch respondents ( $n = 1,096$ ) in contrast, exhibit a positive and statistically significant effect (mean difference of 0.76; Cohen's  $d = 0.24$ ;  $p < .01$ ). Taken together, this leads us to suggest that the 10 euro compensation offered to non-Dutch citizens is not an effective measure to increase coproduction of immigrant language classes.

With regard to educational attainment, we find that while respondents with lower professional education ( $n = 353$ ) were more likely to coproduce when offered a 10 euro compensation, this effect was statistically insignificant (mean difference of 0.58; Cohen's  $d = 0.20$ ;  $p = .141$ ). Respondents in the 10 euro condition, who had completed higher professional education ( $n = 323$ ), were more willing to coproduce (mean difference of 1.34; Cohen's  $d = 0.46$ ;  $p < .01$ ) compared with those in the control group. Similarly, those with a university degree ( $n = 128$ ) exhibit a positive treatment effect, albeit being statistically insignificant, possibly because of the relative small sample size of this subgroup (mean difference of 0.82; Cohen's  $d = 0.28$ ;  $p = .202$ ). Respondents who fell into the "other" category ( $n = 551$ ), like those who have no professional education or current students, exhibit a positive treatment effect, albeit small in effect size and statistically insignificant (mean difference of 0.31; Cohen's  $d = 0.10$ ;  $p = .366$ ). In sum, offering compensation of 10 euros seems to be less effective for citizens with lower levels of education.

## Conclusion and Discussion

The study tested whether citizens can be stimulated to coproduce through a financial (extrinsic) incentive. The literature has opposing views on whether financial incentives can be considered effective motivators of citizen coproduction. The economic incentives hypothesis states that financial rewards increase people's willingness to coproduce, whereas the crowding-out hypothesis predicts that

such incentives distract from people's intrinsic motivations and thereby reduce their overall willingness to coproduce.

Based on a set of experiments, we conclude that compensation of 2 euros per hour (typical of voluntary compensation levels in the Netherlands) does not effectively increase people's willingness to coproduce—neither in stated nor in revealed preferences. However, a compensation of 10 euros per hour (similar to the take-home pay of a teacher in secondary education) does increase, albeit only slightly, people's willingness to coproduce.

However, we stress some important nuances to this finding. In the first place, although statistically significant, the willingness of people to coproduce on being offered 10 euros per hour increased by only 6.3 percentage points. These findings seem to suggest that if 1,000 people offer to provide one hour of language classes per week for free, then the offer of 10 euros per hour is likely only to raise the number of people providing the class to 1,063. Hence, for an expenditure of 10,630 euros, the government will get only about 63 hours of extra classes. This amounts to a very substantial cost of 171 euros for each extra hour of classes.<sup>1</sup> In terms of the validity of the economic incentives expectation (citizens' willingness to coproduce is increased through offering financial incentives), we can conclude that the willingness to coproduce can be enhanced by financial incentives, but this depends on the amount offered and is not expected to be very high, even for substantial amounts offered. In addition, our experiments show that offering a financial incentive does not decrease coproduction willingness, and therefore we reject the crowding-out perspective within this specific policy context. Next, further exploratory analysis showed that people's ethnicity and level of education affect to what extent they are sensitive to financial incentives.

Our study has important implications in that it shows that financial incentives can be considered an effective measure to stimulate people to coproduce, but only to a limited degree. We offer two important nuances regarding the claims of those authors who argue that extrinsic rewards are an effective stimulus for coproduction (e.g., Collom 2008; Glynos and Speed 2012; Lasker et al. 2011; Seyfang and Smith 2002). First, our study shows that compensation at the level "paid" by voluntary organizations is not enough to motivate people's willingness. However, our analysis shows that if enough money is offered, it can moderately increase people's willingness to coproduce. In so doing, we make an important addition to the conclusions of Alford (2002, 51), who concluded that material rewards are "ineffective in eliciting the requisite client contribution for all but the simplest of tasks." This is also important for those increasingly proposing offering pseudo-currencies as stimuli for coproduction since the value of these incentives is usually significantly less than 10 euro per hour (e.g., Collom 2008; Glynos and Speed 2012). Our exploratory analysis nuanced this even further. In our studies, the 10 euro compensation had a significant effect only on people of Dutch nationality. Therefore, we conclude that the question of whether financial incentives are an effective instrument to boost people's willingness to coproduce is not a simple question, but a layered one, depending on the level of compensation.

The second important outcome of this study is that we find no evidence of a crowding-out effect. If a crowding-out effect had

existed, then the effect of a financial incentive would not increase as its value increased (Frey and Jegen 1999; Frey and Götte 1999). Rather, it would have a negative effect on subjects' willingness to coproduce. A possible explanation why no crowding-out effect was found when investigating coproduction could be that, in coproduction, backup from effective institutions, such as governmental support, is available for intrinsic motivators (Ostrom 2000). As such, Ostrom considered intrinsic motivators and external support (such as offering financial incentives) as complementary rather than as competing. Our research indicates that offering a financial incentive could be a form of external support that strengthens rather than crowds out intrinsic motivation, even in a case in which motivation to coproduce is based on solidarity and is complicated (Alford 2002).

It is important to also acknowledge the limitations of our study. The experimental design offers robust evidence as to whether a financial incentive is a successful instrument to stimulate coproduction in this particular policy field. In our study, we asked our respondents to indicate how willing they were to contribute on a very specific issue (language courses for refugees). This topic was chosen because of the political salience of this issue, and therefore it formed a recognizable case for our respondents. However, the backdrop of this choice is that the results may have been very different if we had chosen another kind of coproduction. The current refugee crisis in Europe has led to a polarized debate on refugees that may have influenced the experimental outcomes. In order to make generalized claims about the influence of financial rewards on the willingness to coproduce, scholars should replicate our design in other policy domains.

In addition, this research was focused on the effectiveness of financial rewards on people's willingness. As such, we tested one specific extrinsic motivator. Hence, we should be careful with generalizing our results to other extrinsic, nonfinancial motivators. Another limitation is that although we went beyond stated preferences by including a second outcome measure that aimed to reveal true intentions, our experiment did not extend to actually providing language courses, so we cannot know whether study participants would really contribute.

Future research could extend our findings by, for example, studying other coproduction domains, other incentives and other aspects of coproduction behavior, such as people's willingness to visit or organize an information event about coproduction, as outcome measures. In addition, it would be useful to see whether a financial incentive is also effective in the long run or whether it merely must be considered as a one-time boost to activate people to coproduce (see, e.g., Hussam, Rabbani, Reggiani, and Rigol 2016). In addition, our research indicates that a 2 euro compensation does not have a statistically significant effect on people's willingness, but a 10 euro compensation does. It would be interesting to examine where the exact tipping point lies where unwillingness to coproduce switches to willingness (and what the substantial effect is, as significant effects are not by definition large effects). Our exploratory analysis reveals that subgroup analyses show some significant differences among these subgroups (i.e., ethnicity and level of education). Future research could therefore also focus on explaining *why* specific target groups within a city/neighborhood may react differently on extrinsic rewards.

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## Resources

Badges earned for open practices: Open Data and Open Materials. Experiment materials and data are available at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/HMCRD7>.

## Note

1 We thank an anonymous reviewer for pointing this out and offering this example.

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## Supporting Information

A supplementary appendix may be found in the online version of this article at [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1540-6210](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1540-6210)