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Rethinking paid domestic services in modern societies – Experimental evidence on the effect of quality and professionalisation on service demand

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Abstract

Purpose – Although essential to social welfare, unpaid domestic and care work is an increasingly scarce resource in modern societies. Despite the growing need, many households refrain from outsourcing their domestic chores to the market. Simultaneously, the household service sector is mostly characterised by low-qualification, informal jobs lacking quality and professional standards. Drawing on transaction cost theory, the present study aims to examine how trust problems deriving from the quality and professionalisation of domestic services can be overcome by also exploring the role of state subsidies in this context.

Design/methodology/approach – A factorial survey experiment in Germany ($N = 4024$) causally explores the effect of state-subsidised service vouchers, quality signals and professionalisation on preferences and willingness-to-pay for domestic services. The data were analysed using multilevel modelling techniques.

Findings – Hypotheses are mostly confirmed: strong quality signals help overcome trust problems, thus facilitating the demand for household services. Further, service vouchers can generate better pay for domestic workers while simultaneously reducing the costs for households.

Research limitations/implications – The relevance of professionalisation and quality of service as important determinants of domestic service demand is revealed. However, the experimental survey design involves hypothetical scenarios.

Originality/value – The analysis offers insights into how to stimulate demand for household services and increase formal employment in a sector currently largely characterised by informal arrangements. It further shows how social policies can help secure quality and foster professionalisation by shifting paid domestic work from the informal to the formal economy.

Keywords Domestic outsourcing, Trust, Transaction costs, Professionalisation, Formalisation, Factorial survey experiment, Service vouchers, Gender

Paper type Research paper

Introduction

The management of everyday life – including cooking, cleaning, and caring for dependents– is essential to human biological and social reproduction, and an integral part of societal

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welfare production. In fact, the estimated value added by unpaid work in private households exceeds that of the manufacturing sector in Germany (Schwarz and Schwahn, 2016, p. 46). Yet both unpaid care and domestic work – undertaken predominantly by women Nisic and Trübner (In press)– are becoming an increasingly scarce resource in modern societies: Rising female employment rates, the prevalence of dual-earner couples and higher occupational intensity have exacerbated time pressures in private households.

Against this background, the outsourcing of domestic and care services for pay is increasingly considered to represent one solution to the impending care crisis. In fact, employment in paid domestic and care services has steadily risen over the past decades in almost all post-industrial countries (Cancedda, 2001; Farvaque, 2015). However, in most economies, the household service sector is characterised by informal employment (i.e. work which, while legal, is not declared to the state (Pfau-Effinger, 2017, p. 387)) and precarious conditions. Several countries have, thus, introduced policy schemes to further develop the care and domestic service sector (Farvaque, 2015), for instance, by introducing tax relief programs or subsidised service vouchers that enable households to buy services at reduced prices (OECD, 2021). Such policies aim to increase the employment rates of the low-skilled and unemployed (Brück *et al.*, 2006), counteracting irregular employment (Windebank, 2004; Williams *et al.*, 2017), as well as reintegrating (more highly-skilled) women into the labour market by allowing them to better reconcile work and family obligations (Morel, 2015). Although some policy schemes such as subsidised service vouchers or generous tax relief schemes are deemed successful in increasing labour market participation and formalising the household service sector, low-paid and unskilled jobs prevail. Moreover, despite the considerable growth of the domestic service industries, the demand for paid household services still lags behind expectations – in particular given the needs and time pressures of households outlined above (e.g. Windebank, 2010; Ruijter *et al.*, 2003).

Research on outsourcing domestic and care work has proposed different explanations as to why households refrain from purchasing domestic services and, if they do, often resort to informal, undeclared work arrangements. Economic approaches emphasise financial constraints that prevent households from outsourcing (Bittman *et al.*, 1999; Oropesa, 1993; Michael and Becker, 1973) and increase the likelihood of informal employment to reduce labour costs. Sociological approaches have additionally focused on gender stereotypes and family values (Oropesa, 1993; van der Lippe *et al.*, 2013; Ruijter *et al.*, 2005; Pfau-Effinger, 2005); cultural ideas about privacy in families explain the reluctance to outsource care and domestic tasks to paid workers outside the family (Ruijter *et al.*, 2005; Geissler, 2010).

Yet an aspect that has received much less attention to date is the role of trust and the quality of services as important determinants of outsourcing decisions (Ruijter and van der Lippe, 2009; Nisic, 2018; Ruijter *et al.*, 2003; Raz-Yurovich, 2014). In the case of outsourcing, an outsider enters the privacy of the home and takes on paid care and domestic tasks that are essential for the family's well-being. Whereas unpaid domestic work provided by household members is embedded in family loyalties, contributing directly to the household's well-being, a paid domestic worker will be less immediately concerned with the household's welfare, pursuing their own economic self-interests (Ruijter *et al.*, 2003). Consequently, substantial trust problems may arise from the potential for opportunism and uncertainties about the workers' future performance. In particular, quality is subject to considerable uncertainty, as domestic services often cannot be fully assessed and observed directly (Ruijter *et al.*, 2003, p. 474). Research has shown that anticipated trust problems reduce the attractiveness of outsourcing and affect the impact of time and monetary constraints (Ruijter and van der Lippe, 2009; Nisic, 2018).

Against this background, this paper explicitly focuses on the neglected role of trust and the quality of services for outsourcing domestic and care tasks. In addition to previous

sociological and economic approaches, we use *transaction cost theory* to systematically conceptualise how trust problems associated with quality issues can be overcome with the help of professionalisation strategies. By proposing this broader theoretical framework, we argue that a more profound understanding of household outsourcing decisions and the demand for domestic services needs to take into account the specificities of domestic work, reconsidering the widely held assumption that domestic service work is low-qualified work anybody can perform.

By drawing on experimental data from a factorial survey conducted in Germany in April 2020, we investigate the effects of the quality of cleaning services and varying levels of professionalisation on respondents' hiring preferences (HP) and willingness-to-pay (WTP) for cleaning services. We examine how different levels of formal and informal qualifications and the professionalisation of domestic services can help increase demand by reducing the transaction costs related to trust and quality problems. Furthermore, service vouchers, in particular, enable households to buy domestic services at reduced prices, while simultaneously formalising and professionalising the market by tying its use to legal and professional providers (Meier-Gräwe, 2018; OECD, 2021). By introducing state-subsidised service vouchers in our vignette design, our study allows us to overcome methodological problems related to the presence of budget constraints and to further examine demand in situations where all social groups are able to afford outsourcing. Our results shed light on the relevance of quality and professionalisation in general, and service vouchers in particular, for developing and formalising a domestic labour sector characterised by acceptable employment conditions.

Outsourcing domestic work

The existing literature on domestic outsourcing mainly follows research on the division of domestic labour and focuses on household economics and gender approaches to explain outsourcing behaviour; however, the evidence remains inconclusive. Several studies find that economic and structural factors exert significant influence on households' outsourcing decisions, in particular for (women's) income, employment status, age and education (Craig and Baxter, 2016; van der Lippe *et al.*, 2004; Nisic, 2018; Oropesa, 1993). Yet in many studies, these effects remain small (Ruijter *et al.*, 2003; Ruijter and van der Lippe, 2009) or negligible (Kornrich and Roberts, 2018, p. 163). Moreover, empirical evidence shows that even among high-income households with severe time restrictions, a large proportion is reluctant to outsource domestic tasks for pay (Windebank, 2007, 2010; Farvaque, 2015; Geissler, 2010). Sociological research has shown that gender roles and identity may play a role here, preventing women from outsourcing female-typed household tasks (Oropesa, 1993; Ruijter *et al.*, 2005), but still, a large part of the variation in outsourcing decisions remains unexplained. However, both strands of literature mostly neglect that hiring a domestic worker constitutes an economic relationship inside the family home and makes the household an employer who additionally faces transaction costs resulting from trust and control problems (Ruijter and van der Lippe, 2009; Nisic, 2018; Ruijter *et al.*, 2003).

Overcoming trust problems: qualifications and professionalisation

Transaction cost theory (Coase, 1937; Williamson, 1981) frames households' outsourcing decision-making as make-or-buy decisions in exchange relationships (Nisic, 2018; Ruijter *et al.*, 2003; Pollak, 1985). Analogous to the make-or-buy decisions of firms, households are assumed to weigh the costs associated with buying a service or good on the market against those of producing the "commodities" in-home. When costs for outsourcing outweigh those of

in-home production, families will decide to "make" rather than to "buy" and vice versa (Nisic, 2018; Ruijter *et al.*, 2003; Ruijter and van der Lippe, 2009).

The costs of in-home production comprise mostly the opportunity costs of time devoted to the labour market and forgone leisure time, whereas the costs of outsourcing tasks to the market involve monetary expenses for the service. However, another major determinant of total costs is transaction costs, i.e. costs of carrying out the transaction via either market exchange or internal production. The transaction costs of in-home production, for example, include efforts to balance and coordinate different life activities (labour market participation, private life and domestic work) or to negotiate tasks among household members, including potential conflicts about the division of (unpaid) domestic labour.

The transaction costs from market exchange mostly result from uncertainties due to information asymmetries between the household and the worker; they are largely related to a worker's productivity and the quality of the service. For the most part, a cleaner's productivity in the home is not directly observable and it is difficult to continuously assess how much diligence they invest in their tasks. Moreover, potential damages to valuable objects (e.g. due to insufficient care) might only become visible much later, and compliance with hygiene standards (e.g. regularly changing cleaning rags, using appropriate chemicals) might not be verifiable at all. Finally, the quality of the services largely depends on the worker's competences and quality standards, which can differ from the household's standards. These uncertainties are enhanced by the fact that domestic tasks are diverse and complex and lack standardisation due to the individual needs of households (Cox, 1997).

Households will anticipate these problems and the transaction costs associated with either preventing the problems *ex ante* or dealing with them *ex post*. *Ex ante* households have to invest in precautionary measures and control mechanisms, such as intensive background checks, coming to acceptable agreements and monitoring the domestic worker (e.g. Ruijter *et al.*, 2003). Monitoring especially increases costs by reducing the very time gains outsourcing domestic work should provide (e.g. Ruijter and van der Lippe, 2009). *Ex post* costs include paying for potential damages or taking legal action if agreements are violated; the legal enforcement of domestic labour contracts is made more difficult by the tasks' aforementioned complexity and individuality. Consequently, many households refrain from outsourcing despite their actual need.

By contrast, the domestic worker's experience and skills are likely to reduce transaction costs by creating certainties and trust about their performance. Equally, the perceived trustworthiness of a worker and their quality standards should increase a household's willingness to outsource, by reducing uncertainties and thus transaction costs. A worker's perceived professional attitude and skills can be crucial in overcoming these issues. In fact, *ability,* often measured via competences, has been defined as a key component in creating trustworthiness (alongside benevolence and integrity) (Mayer *et al.*, 1995). Contrary to conventional, deeply-engrained beliefs in the gender culture of post-industrial societies – that care and domestic work are simple tasks and more an expression of women's "nature" rather than competences that have to be learned (Bock and Duden, 2007–1980); Windebank, 2007) – a broad array of skills are needed for performing domestic tasks effectively. Domestic work requires a complex knowledge of physics, chemistry and mechanics, as well as organisational skills to efficiently coordinate the various tasks (Cox, 1997). Formal housekeeping training can hence be expected to increase a worker's skills and productivity. Formal qualifications also help reduce uncertainty regarding a worker's productivity and appropriate pay. Experience working in other households can consolidate these competences.

Because at present domestic work is largely characterised by informality and a low degree of professionalisation (ILO, 2016; Meier-Gräwe, 2018; OECD, 2021), informal indicators of

quality, productivity and trustworthiness can also be expected to influence households' willingness to outsource. Apart from the female gender as a signal for informal, "natural" competences due to traditional gender stereotyping (e.g. Eagly and Wood, 2012), a provider's age should positively affect demand. Unpaid private domestic and care work is one of the few spheres where specific work experience can be gained outside the labour market. Lastly, the possibility to assess a workers' trustworthiness in advance should reduce anticipated problems. The labour market literature has shown that information and recommendations from social networks are effective ways for employers to find reliable employees in situations where uncertainty about workers' characteristics and potential opportunistic behaviour exists (Marsden and Gorman, 2001). In the case of household services, common ways to acquire such information are referrals by friends and acquaintances, advertisements and more recently also ratings and reviews of the services provided on online platforms for household services.

Moreover, households have very different ideas and preferences about the frequency and quality of tasks. This necessitates constant communication and coordination, and flexible scheduling on the part of the domestic worker. A worker's language proficiency and professional flexibility should, therefore, significantly facilitate coordination and reduce transaction costs.

In a nutshell, we expect signals of a worker's quality and productivity, as well as their trustworthiness, to increase potential clients' acceptance and thus demand for household services (cf. Spence, 1973). Signals primarily comprise formal training and work experience (formal qualifications), but also a worker's gender, age and language skills (informal qualifications), as well as their time flexibility and recommendations through social networks. We also assume that households are willing to pay more for workers with favourable characteristics because both the transaction costs of monitoring the work and the opportunity costs of doing the work themselves are higher.

H1. Signals for workers' formal and informal skills and trustworthiness will increase households' (a) willingness to hire a domestic worker and (b) their willingness to pay for the service.

Budget constraints: the use of service vouchers

Clearly, budget constraints also limit demand. Currently, domestic services are mostly bought by high-income and highly educated earners (e.g. Windebank, 2010; Marx and Vandelannoote, 2015; Kirchmann *et al.*, 2019; Raz-Yurovich and Marx, 2019), and financial restrictions render outsourcing irrelevant for many households.

By introducing voucher systems that subsidise household services, like in France or Belgium (e.g. Raz-Yurovich and Marx, 2019, 2018; Windebank, 2004, 2007), or by generous tax reductions on legally provided household services like in Sweden (OECD, 2021), social policymakers have made outsourcing domestic chores more affordable and more formalised, thereby contributing to the professionalisation of domestic services (for an overview on PHS policies in various countries see OECD, 2021; also Morel, 2015). Additionally, the introduction of a voucher scheme in Germany was envisioned in 2018 and included in the government's 2021 coalition agreement (Bundesregierung, 2018, p. 25; Bundesregierung, 2021, p. 70), albeit yet to be implemented.

Various studies investigating the introduction of vouchers in Belgium and France based on observational data find evidence that the schemes have effectively created new jobs, have expanded the service sector and have been successful in terms of increasing the number of users (Windebank, 2007; ILO, 2016). However, there is little consensus as to the effects on specific social groups among users and providers (Marx and Vandelannoote, 2015; Raz-Yurovich and Marx, 2018, 2019; Windebank, 2007, 2004).

In the present experimental study, we utilise (fictitious) state-subsidised service vouchers to reduce and exogenously vary the budget constraints of individuals. In this way, we can examine demand effects in the broader population and disentangle monetary constraints from transaction costs. This approach allows us to solve the methodological problems related to the selectivity of the outsourcing decision by preventing dropout in respondents unable to afford outsourcing.

In general, we expect the introduction of service vouchers, by relieving financial constraints, to increase the ability and WTP for domestic services. We are furthermore able to test whether such vouchers affect respondents' decision-making rationale, i.e. whether the WTP for domestic labour differs when respondents are presented with state-subsided vouchers. As transaction costs are assumed to be independent determinants of the outsourcing decision, they are expected to remain unaffected by (changes in) budget constraints. Hence, we test the following hypothesis:

H2. Vouchers will increase respondents' willingness to accept higher pay demands from domestic workers.

Data and methods

To address the roles of trust and budget constraints in domestic outsourcing, we conducted an online factorial survey experiment (FSE) in Germany in early 2020. Respondents were each presented with a random set of eight hypothetical profiles of domestic workers and then asked to evaluate the profiles in terms of their HP and WTP. The multidimensional worker profiles meant respondents evaluated several traits simultaneously, as in real life. Moreover, by varying these traits experimentally, we ensured the orthogonality of the dimensions (Auspurg and Hinz, 2015, p. 10, 24). With observational data, conversely, the effects of such variables are difficult to separate; some combinations of characteristics are highly correlated (e.g. experience and age) or rarely found in the labour market (e.g. men working as domestic cleaners). Thus, with the decompositional vignette approach, the relative importance of a variety of domestic worker characteristics can be assessed simultaneously (also see Auspurg and Liebe, 2011, p. 303), and – and at the same time – a comparatively high degree of external validity can be achieved (Auspurg and Hinz, 2015, pp. 10–13).

Factorial surveys measure respondents' judgement principles based on hypothetical situations and not actual behaviour, so our study does not represent an evaluation of policy. Still, we are confident that the study depicts a realistic scenario relevant to our target population and that the stated preferences conform to real-life situations. In fact, Fishbein and Ajzen (2010) have shown that attitudes and intentions correlate highly with behaviour. Especially, the relative importance of workers' characteristics for respondents' HP and WTP are likely to be reflected in actual decisions.

The overview in Table 1 shows all seven vignette dimensions and levels. Each vignette offers information on a fictitious worker's gender, age and language skills. They also indicate whether the candidate has formal training, has experience working in private households and the flexibility in their schedule. Lastly, information about the worker's references was provided, with varying degrees of trustworthiness and the credibility of the referral itself. The worker was either referred by a friend who was very or only moderately satisfied or via a digital care-work platform where the worker had a very good reputation based on 100 ratings. We assume that a very good reference from a friend – indicating high trustworthiness from a credible source – will increase the demand the most, but we do not have clear hypotheses about the order of the other two levels; this remains exploratory.

We employed a vignette split to experimentally vary the introduction of state-subsidised vouchers worth €10 per hour (see Table S1). The vignette split was introduced after 50% of the vignettes ($n = 4$), so each respondent evaluated four vignettes where vouchers were present and four without. The vouchers' introduction was randomised and the legal employment options were held constant across all conditions.

The vouchers' value was chosen to facilitate respondents' calculations when evaluating the vignettes and is based on the middle price category used in a non-experimental pilot study conducted in the German state of Baden-Württemberg from 2017 to 2019 (starting off with €8 with a subsequent increase to €12; Kirchmann *et al.* (2019)). Moreover, in 2020, it was above the minimum wage of €9.35 (Destatis, 2022).

The full factorial consists of 288 vignettes, resulting from seven dimensions with two to three levels each. The vignettes were randomly assigned to 72 decks with four vignettes each; the full factorial (and the total set of decks) was used in both vignette splits, allowing us to estimate all main and interaction effects without confounding parameters (see Figure S1 for a vignette example).

The dependent variables are acceptance of domestic help, measured via respondents' HP and their WTP. Respondents were asked to give their HP on an 11-point scale ranging from 0 *not at all* to 10 *definitely* ("*Regardless of money: How well can you imagine hiring this cleaner? ")*. HP was a mandatory item – respondents indicating a number larger than 0 were then asked about their WTP, representing a two-stage decision process. WTP had slightly different wordings in the two experimental splits ("*What is the* ***maximum*** *hourly pay that the cleaner could ask for* ***in addition to the €10 voucher*** *so that you would still hire them?"* ("with voucher" condition) and "*What is the* ***maximum*** *hourly pay that the cleaner could ask for so you would still hire them*? ("status quo" condition, i.e. without vouchers). Respondents were asked to fill in the respective amount in an open field. Where respondents indicated 0 HP in the first question, they were allowed to skip the question on WTP and asked to insert an "x" instead of a number in the open field. In this way, we straightforwardly implement the assumed two-stage decision process and do not force respondents to estimate how much they would be willing to pay for a service they do not need or want (which would also potentially be harmful to data quality). With this no-choice alternative, we can thus accurately differentiate

Table 1.
Overview of vignette dimensions

Dimensions		Levels
Gender	1	Male
	2	Female
Age	1	25
	2	43
German language skills	1	German native speaker
	2	Non-native speaker: speaks fluent German
	3	Non-native speaker: speaks simple sentences German
Professional training as domestic worker	1	No
	2	Yes
Cleaning experiences in household	1	9 months
	2	5 years
Availability	1	S/he works flexibly
	2	S/he can only work on a fixed day of the week
Referral	1	Via Internet platform for cleaners. Rating 5/5 stars with 100 ratings total
	2	Friend, very satisfied
	3	Friend, moderately satisfied

between those who are not willing to spend (additional) money on domestic help and those who do not want to employ domestic help at all. This is another advantage over conventional observational studies of household consumption, where observed zero or unobserved expenses are difficult to disentangle from budget constraints and the lack of need for the service [1].

Note that although our experimental design does not require control variables, we further adjusted the models for respondents' household income and education, as well as the family situation, which included having a partner, children and/or a household help and whether household income had been affected through the COVID-19 pandemic (see Model 2 in Tables S3 and S4).

Data collection

The data were collected in April 2020 by means of an online access panel conducted by a survey institute. To ensure high data quality, panellists were only able to take part in the survey on invitation. Moreover, the sociodemographic structure of the panel is compared regularly with the general population, and hard-to-reach populations are recruited systematically. Additionally, we included several validity checks (via fake questions) that allowed us to screen out dishonest respondents. The sampling frame included panellists aged between 30 and 60 years, to target those individuals in the primary workforce most challenged by combining work, family and private life. The response rate was 29%.

As the survey was conducted in April 2020, shortly after the beginning of the first COVID-19 lockdown in Germany, we explicitly reminded respondents at several points in the questionnaire to base their answers on pre-pandemic circumstances, in order to avoid biases due to health fears or changes in budget constraints.

Sample and analysis

The analytical sample comprises 503 respondents, whose socio-demographic characteristics are shown in Table S2. Our analytical vignette samples comprise 4,024 vignette observations for HP and a reduced sample of 3,312 vignette observations for WTP. Given the hierarchical data structure, with vignettes nested within respondents, we estimated multilevel linear models (random intercept, fixed slope) to adequately account for autocorrelation within respondents' vignette responses (Auspurg and Hinz, 2015).

Results

Figure 1 shows the distribution of respondents' HP and WTP by voucher condition. Respondents' mean HP scored at the middle value of 5.3-scale point (with 5.4-scale point when vouchers were present and 5.2-scale point in the status quo condition) and a median value of 6-scale point in both conditions. The respondents rejected almost 20% of the vignettes; 7% of the respondents rejected all eight vignettes they had to evaluate (i.e. evaluated the vignettes with zero-scale point). This might reflect determinants of the outsourcing decision that are not covered in our study, such as gender and family norms, or a general reluctance to accept status differences – or premodern master-servant relationships – within the private sphere (Bittman *et al.*, 1999; Windebank, 2010, p. 391).

The mean amount that respondents were willing to pay for a worker without any subsidies was €11.4 per hour (median €12). Respondents with vouchers were willing to pay on average €5 additionally to the €10 voucher (with median pay also €15). Vouchers thus encourage respondents to pay extra, instead of just using the voucher, increasing domestic workers' average pay to €15.1 per hour. This is substantially higher than what they would

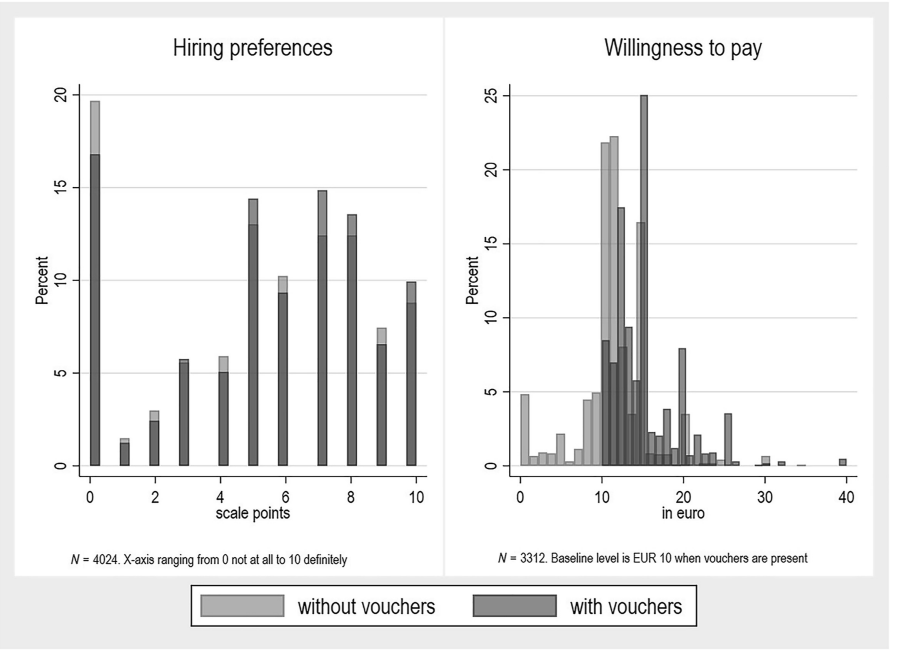

Figure 1.
HP and WTP by voucher condition

earn without vouchers. In essence, both parties tend to benefit from the introduction of a subsidised voucher: Workers earn more while clients save money.

Hiring preferences

The results from the multilevel analysis are shown graphically in the coefficient plot (Figure 2; see Table S3 for regression tables). The left panel shows the regression coefficients for HP. As hypothesised, both formal and informal qualifications positively affect HP. A formal apprenticeship increases HP by 0.41-scale point; this finding lends credence to our assumptions regarding the professionalisation of domestic services. Similarly, five years' work experience positively affects HP by 0.3-scale point, compared to only 9 months. Strikingly, we also find a relatively strong effect on informal qualifications. Being female increases respondents' HP by 1-scale point compared to male workers. This lends support to our theory, since gender likely functions as an informal signal for competence via gender roles and stereotyping. Unexpectedly, the age coefficient is not significant: This dimension may capture different signals based on, for example, negative age stereotypes, nullifying a worker's accumulated experiences within their own household.

Assuming that communication is key to working in private homes and that language proficiency reduces transaction costs, we find that HP is substantially higher for a native speaker compared to someone with basic German language skills (1.1-scale point). Likewise, fluent speakers are clearly preferred to the less fluent (0.72-scale point). In a separate analysis, we found that native speakers were also preferred over fluent speakers (results available upon request), assuming comparable language competences: Whether these differential preferences constitute discriminatory behaviour or are due to cultural differences cannot be established here. Our hypothesis is further supported by the positive effect of flexible

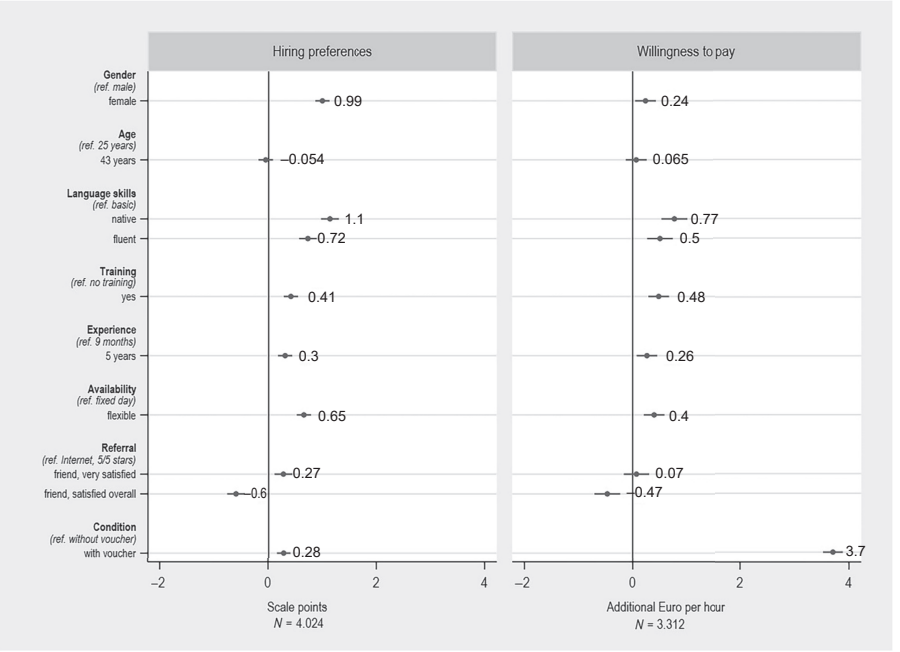

Figure 2.
Coefficient plot

scheduling (0.65-scale point): Clients' transaction costs are considerably reduced when domestic workers can work when needed. Lastly, we tested the influence of a worker's degree of trustworthiness on HP. A recommendation by a friend who was very satisfied significantly increases respondents' HP by 0.27-scale point compared to a very good Internet reputation, whereas a referral by a friend who was only moderately satisfied exerts a negative effect of−0.6-scale point. A very good digital reputation thus trumps a moderately satisfied friend's recommendation, while a very satisfied friend's recommendation outweighs the digital referral. In light of the increasing trend to trade services via Internet platforms, this is an important finding, confirming the results of earlier studies on the relevance of reputation for stabilising digital markets (e.g. Diekmann *et al.*, 2014). Overall, our hypothesis H1a – on the effects of formal and informal qualifications and trustworthiness on HP – can be confirmed, with the exception of age.

The predictive margins reveal that a female worker with an apprenticeship, longer working experience and a recommendation from a very satisfied friend scores 6.52-scale point compared to only 3.95-scale point for a male worker with no apprenticeship, little work experience and only a moderate recommendation from a friend.

Willingness to pay

The right-hand panel of Figure 2 reveals a similar general pattern, suggesting that respondents' preferences translate into WTP for these desirable traits.

First and foremost, formal qualifications (an apprenticeship) have a fairly strong positive effect on WTP, adding nearly €0.50 per hour. Similarly, work experience adds another €0.26 to the worker's hourly pay. In line with our hypotheses on informal competences and gender stereotyping, being female adds another €0.24 per hour compared to men – revealing that domestic services are one of the few labour market segments where women can apparently

earn more than their male counterparts. However, while women are clearly preferred over men in terms of being hired, and being female is the second most important predictor of hiring, this does not translate equally into monetary value. By comparison, formal qualifications pay much more than being female, and a female worker with formal training and considerable work experience can earn €1 more per hour than a male worker without training or work experience. Again, age does not yield a significant effect.

With respect to transaction costs related to communication in the home, we find that native speakers earn €0.27 more per hour than fluent, non-native speakers. Fluency in the language is worth €0.50 compared to a basic level of German, meaning language fluency is roughly equal in value to formal training (compared to no formal training). Again, our additional analyses also show that native German language skills translate into €0.40 per hour compared to fluency (results available upon request), suggesting discriminatory practices or the relevance of cultural attributes as signals of shared quality standards and trustworthiness. In line with our hypothesis, flexible schedules come with a bonus of €0.40 per hour compared to an inflexible work schedule.

Interestingly, we do not find statistically significant WTP differences between a good recommendation from a friend or a very good Internet reputation. Although clients prefer a good recommendation from a friend when it comes to hiring, this does not translate into increased pay for workers. However, we do find that a recommendation from a moderately satisfied friend is considerably worse than a very good reputation on a digital care-work platform and is penalised with €0.47 per hour. With the exception of age, hypothesis H1b, on the positive influence on the pay of formal and informal qualifications and trustworthiness, can thus be confirmed.

The predictive margins further show that WTP for a female worker with an apprenticeship, longer working experience and a recommendation from a very satisfied friend translates into an hourly pay of €13.77 compared to the €12.26 respondents are willing to pay for a male worker without apprenticeship, less work experience and only a moderate recommendation from a friend.

Regarding the effect of the voucher on WTP, note that we recoded the variable by adding a constant amount equal to the value of the voucher (€10) to improve the presentation and interpretation of the results. Remarkably, the introduction of vouchers results in an additional €3.71 per hour, which supports H2. This is a substantial increase in workers' pay and shows that respondents are willing to pay extra instead of simply using the voucher. In the presence of vouchers, workers' pay could increase to a total of €13.70 per hour. At the same time, clients would save as much as €6.30 were they able to use a voucher. We interpret this finding to mean that service vouchers can assist both families and domestic workers. The idea that quality issues and trust problems can be overcome by reducing transaction costs is largely confirmed, as are our corresponding hypotheses.

Additional analyses and robustness checks

Interaction effects

To test whether the underlying decision-making process and the rating of single vignette characteristics remain unaffected by the introduction of service vouchers, we calculated additional models with interaction terms between vignette characteristics and vouchers (Tables S5 and S6). None of the interaction effects were significant, except the effect on HP between a friend who was very satisfied and the voucher. The decision-making rationale underlying respondents' evaluation of single-worker characteristics does not change substantially with the introduction of service vouchers. As expected, transaction costs remain effective in the presence of vouchers and budget constraints do not lead to selective responses.

Order effects

Despite randomisation, we tested whether there were differences between respondents in the voucher condition first and those in the status quo condition first. There is no significant effect of the voucher order on respondents' HP. However, we find that respondents' WTP decreased by more than €1.30 per hour when the voucher condition was presented first (Tables S7 and S8): Perhaps the voucher functions as a guideline for appropriate pay.

Between-subject analyses

We, therefore, restricted our analyses to a subsample of vignette evaluations from the respondents' first experimental voucher condition (i.e. the first four vignettes they were asked to evaluate), with both voucher conditions included. The coefficients in the model on HP remain stable in direction and significance, with the exception of the coefficient for the voucher, which (in accordance with our theoretical expectation) is no longer significant. Also, with respect to WTP, the coefficients largely remain stable in terms of direction and significance. Only the effect size of the voucher is reduced to about €2.40 per hour, roughly reflecting the negative order effect of €1.30 when vouchers were presented first (see Tables S9 and S10).

Conclusion

In the context of the impending care crisis, social policymakers have increasingly proposed outsourcing domestic chores to the market. Yet demand still lags behind households' needs, and the household services sector is characterised by informality and unskilled work. Going beyond common sociological and economic approaches, we use transaction cost theory to examine the role of trust, professionalisation and quality of services in combination with the use of subsidised service vouchers for increasing demand and improving working conditions in the household services sector.

The findings support the theoretical reasoning that the trust problems associated with transaction costs in exchange relationships can be reduced with the help of qualification and professionalisation strategies. Strong quality signals such as formal training and work experience, but also informal signals such as language skills and gender, reduce uncertainty and foster trust. Ultimately, clients are more willing "to buy" (and pay more) rather than "to make" when meaningful formal and informal quality indicators are available.

Moreover, by also experimentally introducing subsidised service vouchers and considerably reducing budget constraints, our study avoids selective responses and allows for higher generalisability to the broader population. We can also show that households are willing to pay an extra €3.70 in addition to a €10 subsidy, meaning an hourly wage of almost €14 for domestic workers. While workers' pay increases, households save more than €6 compared to hiring someone without state-subsidised vouchers. These findings suggest that domestic workers and households could both benefit from such a subsidy. The present study has exclusively focused on (paid) cleaning services, while the various kinds of care provided in private homes, such as childcare or elderly care, were outside the scope of the study. We do, however, assume that the proposed theoretical mechanisms and empirical results also hold for paid care services in private homes. Trust problems and quality issues are likely to exist as well and might be even more pronounced when it comes to personal care due to the vulnerability of the care recipient (see also Ruijter and van der Lippe (2009) and Nisic (2018)). Furthermore, care services have also been targeted by policymakers who seek to formalise and professionalise the personal and household services sector to stimulate demand: the Swedish tax relief scheme or the French voucher system, for instance, cover both care and other domestic services (see OECD (2021) or Nisic and Molitor (2022)).

The private home is a unique workplace, and care and domestic labour is often regarded as a low-skill, low-status work, which remains "invisible" and devalued (England, 2005). However, our study emphasises the role of professionalisation for both increasing demand for services and securing a supply of well-paid and legal service jobs. Professionalisation, for example, via improved training, could increase quality by standardising the services provided in the domestic sphere, thereby creating career opportunities through the revaluation and recognition of domestic work (Steiner *et al.*, 2012). By professionalising the domestic services industries, undeclared work in private households could be reduced (Kirchmann *et al.*, 2019). In this way, the rights and working conditions of domestic workers could be improved by setting standards for tasks, minimum pay, skills and working hour regulations. Such initiatives can be very well combined with, for example, state-subsidised vouchers tied to legal and qualified work (ILO, 2016). While the present study is not a policy evaluation *per se*, we are confident that we have created a realistic scenario that respondents could relate to.

With respect to the use of service vouchers, our study provides important insights into how households make use of a subsidised voucher scheme that ultimately increases demand and possibly reduces undeclared or informal work. More critical studies on the effect of the Belgian or French scheme (e.g. Windebank, 2004; Lens *et al.*, 2021) underline the importance of carefully designing and introducing an approach that benefits all parties involved. Our study can inform policy evaluations and policymakers concerned with developing and formalising the personal and household services sector, in line with both the public and academic calls for the professionalisation of domestic services and the introduction of service vouchers (ILO, 2016; Meier-Gräwe, 2015, 2018), and the emphasis on professionalisation and quality assurance in domestic labour advocated by organisations representing domestic workers like the *Deutsche Gesellschaft für Hauswirtschaft* or the *Kompetenzzentrum PQDH*[2] (Meier-Gräwe, 2015; for France see, e.g. https://www.fepem.fr/). Service vouchers can thus be part of a broader social policy strategy to counteract the care crisis.

Notes

1. Please note that in studies on consumption relying on observational data about actual expenditures on goods and services, Tobit- or Heckman-type regressions are often implemented in order to account and correct for the censoring of data or sample selection bias (see e.g. Cohen, 1998). However, in our case, such models are superfluous, as our study implements the assumed two-stage decision process by design and allows for separate analyses of the decision to hire and the WTP. For the analysis of WTP, we are interested in the WTP of those who are willing to hire domestic help (for a more in-depth discussion of assumptions and appropriate models, see also Sigelman and Zeng (2000)).
2. Kompetenzzentrum "Professionalisierung und Qualitätssicherung haushaltsnaher Dienstleistungen".

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(The Appendix follows overleaf)

Supplementary materials

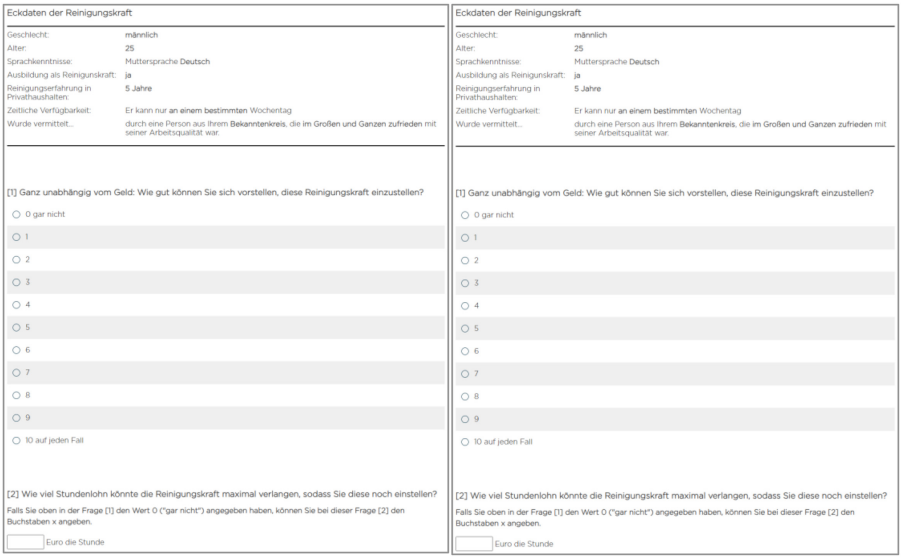

Figure S1.
Exemplary vignette for status quo condition (left) and voucher condition (right)

Version 1 (first status quo condition, second voucher condition)	
Status quo condition	Please imagine the following for the first five situations: You are looking for a cleaner for your private household, who cleans regularly at your place. The employment is legal, i.e. socially insured. Below you can see the characteristics of possible cleaners
Voucher condition	For the next four situations, please now imagine the following: In contrast to the previous situations, the state has now introduced a voucher program for cleaners. Hereby you get vouchers worth EUR 10 per working hour for a cleaner as a gift if you hire a cleaner for your household. These vouchers cover the statutory minimum wage, including social security, for a cleaner. However, in addition to the EUR 10 voucher per working hour, cleaners can charge more for their services. You would have to pay this amount additionally out of your own pocket. Below you can see the characteristics of possible cleaners
Version 2 (first voucher condition, second status quo condition)	
Voucher condition	Please imagine the following for the first five situations: You are looking for a cleaner for your private household who will clean your home on a regular basis. The state has introduced a voucher program for cleaners. You get vouchers worth EUR 10 per working hour for a cleaner as a gift if you hire a cleaner for your household. These vouchers cover the statutory minimum wage, including social security, for a cleaner. However, in addition to the EUR 10 voucher per working hour, cleaners can charge more for their services. You would have to pay this amount additionally out of your own pocket. Below you can see the characteristics of possible cleaners
Status quo condition	Now please imagine the following for the next four situations: Unlike the previous situations, you are now not receiving vouchers from the government. You are still looking for a cleaner for your private household. The employment is legal, i.e. socially insured. Below you can see the key data of possible cleaners

Table S1.
Introductions to vignettes depending on the order of the experimental splits

	Percent *or* mean (SD)
Gender	
Female	49.5%
Male	50.5%
Age	44.6 (8.8)
Education	
ISCED 2	46.7%
ISCED 3	24.1%
ISCED 6–7	29.2%
Household Net Income (€)	
1st quintile	12.7%
2nd quintile	18.9%
3rd quintile	25.5%
4th quintile	25.5%
5th quintile	17.5%
Changes in HH net income due to COVID-19 (1 = yes, HH has experienced income changes since start of pandemic; 0 = no)	29%
Partner (1 = yes, currently partnered; 0 = no)	70.6%
Children (1 = yes, children living in HH; 0 = no)	40.6%
Household help (1 = yes, has hired household help; 0 = no)	11.9%

Note(s): N = 503 respondents aged between 30 and 60 years

Table S2. Respondent characteristics and household context

	Model 1		Model 2	
Hiring preferences	b	se	b	se
Gender: Female (ref. male)	0.990***	0.067	0.990***	0.067
Age: 43 years (ref. 25 years)	−0.054	0.068	−0.054	0.068
Language skills (ref. basic)				
Native	1.129***	0.084	1.131***	0.084
Fluent	0.722***	0.083	0.724***	0.083
Training: Yes (ref. no training)	0.409***	0.067	0.410***	0.067
Working experiences: 5 years (ref. 9 months)	0.303***	0.067	0.305***	0.067
Availability: Flexible (ref. fixed day)	0.648***	0.067	0.647***	0.067
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.271**	0.083	0.268**	0.083
Friend, moderately satisfied	−0.602***	0.083	−0.604***	0.083
Condition: With voucher (ref. without voucher)	0.276***	0.064	0.276***	0.064
Cons	3.501***	0.153	3.357***	0.355
var(_cons)	5.622***	0.387	5.356***	0.370
var(Residual)	4.075***	0.097	4.075***	0.097
N	4024		4024	

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Table S3. Random intercept, fixed slopes model (HP)

Willingness to pay	Model 1 b	Model 1 se	Model 2 b	Model 2 se
Gender: Female (ref. male)	0.237*	0.098	0.238*	0.098
Age: 43 years (ref. 25 years)	0.065	0.099	0.067	0.099
Language skills (ref. basic)				
Native	0.770***	0.122	0.774***	0.122
Fluent	0.504***	0.121	0.506***	0.121
Training: Yes (ref. no training)	0.480***	0.097	0.480***	0.097
Working experiences: 5 years (ref. 9 months)	0.263**	0.097	0.267**	0.097
Availability: Flexible (ref. fixed day)	0.395***	0.097	0.392***	0.097
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.070	0.119	0.070	0.119
Friend, moderately satisfied	−0.468***	0.121	−0.469***	0.121
Condition: With voucher (ref. without voucher)	3.706***	0.093	3.706***	0.093
Cons	10.202***	0.229	10.058***	0.543
var(_cons)	12.177***	0.860	11.653***	0.826
var(Residual)	6.857***	0.182	6.857***	0.182
N	3312		3312	

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19. The value of 10 (EUR) was added to the dependent variable "Willingness to pay" in the experimental condition "with voucher" for ease of interpretation. When using the original coding, the "voucher" coefficient is simply reversed and amounts to −6.29 (EUR/hour). That is, when vouchers are present, respondents pay on average 6.29 EUR less. Given the experimental condition of a voucher worth EUR 10, cleaners would earn 10–6.29 = 3.71 EUR more than without vouchers

Table S4.
Random intercept, fixed slopes model (WTP)

Hiring preferences	Model 1 b	Model 1 se	Model 2 b	Model 2 se
Gender: Female (ref. male)	0.911***	(0.095)	0.909***	(0.095)
Condition: With voucher (ref. without voucher)	0.533*	(0.212)	0.521*	(0.212)
*Gender*With voucher*	0.153	(0.134)	0.157	(0.134)
Age: 43 years (ref. 25 years)	−0.077	(0.098)	−0.079	(0.098)
*Age*with voucher*	0.050	(0.139)	0.054	(0.139)
Language skills (ref. basic)				
Native	1.190***	(0.117)	1.188***	(0.117)
Fluent	0.767***	(0.116)	0.767***	(0.116)
*Native*with voucher*	−0.122	(0.165)	−0.114	(0.165)
*Fluent*With voucher*	−0.095	(0.167)	−0.093	(0.167)
Training: Yes (ref. no training)	0.375***	(0.095)	0.373***	(0.095)
*Training*with voucher*	0.074	(0.135)	0.081	(0.135)
Working experiences: 5 years (ref. 9 months)	0.405***	(0.096)	0.408***	(0.096)
*Experience*with voucher*	−0.204	(0.135)	−0.206	(0.135)
Availability. Flexible (ref. fixed day)	0.707***	(0.095)	0.705***	(0.095)
Flexible With voucher*	−0.109	(0.134)	−0.109	(0.134)
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.466***	(0.116)	0.459***	(0.116)
Friend, moderately satisfied	−0.550***	(0.116)	−0.554***	(0.116)
*Friend, very satisfied*with voucher*	−0.395*	(0.164)	−0.390*	(0.164)
*Friend, moderately satisfied*with voucher*	−0.108	(0.165)	−0.105	(0.165)
_cons	3.372***	(0.183)	3.235***	(0.368)
var(_cons)	5.630***	(0.387)	5.364***	(0.371)
var(Residual)	4.060***	(0.097)	4.060***	(0.097)
N	4024		4024	

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Table S5. Interaction between vouchers and vignette characteristics (HP)

Willingness to pay	Model 1 b	Model 1 se	Model 2 b	Model 2 se
Gender: Female (ref. male)	0.233	(0.138)	0.232	(0.138)
Condition: With voucher (ref. without voucher)	4.072***	(0.311)	4.063***	(0.311)
*Gender*With voucher*	0.005	(0.194)	0.008	(0.194)
Age: 43 years (ref. 25 years)	0.146	(0.142)	0.146	(0.142)
*Age*with voucher*	−0.158	(0.201)	−0.154	(0.201)
Language skills (ref. basic)				
Native	0.895***	(0.170)	0.900***	(0.170)
Fluent	0.510**	(0.170)	0.511**	(0.170)
*Native*with voucher*	−0.255	(0.240)	−0.255	(0.240)
*Fluent*With voucher*	−0.010	(0.243)	−0.007	(0.243)
Training: Yes (ref. no training)	0.300*	(0.138)	0.298*	(0.138)
*Training*with voucher*	0.365	(0.197)	0.371	(0.197)
Working experiences: 5 years (ref. 9 months)	0.400**	(0.138)	0.405**	(0.138)
*Experience*with voucher*	−0.269	(0.195)	−0.271	(0.195)
Availability: Flexible (ref. fixed day)	0.503***	(0.138)	0.499***	(0.138)
Flexibe With voucher*	−0.202	(0.193)	−0.200	(0.193)
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.118	(0.167)	0.117	(0.167)
Friend, moderately satisfied	−0.309	(0.170)	−0.311	(0.170)
*Friend, very satisfied*with voucher*	−0.119	(0.237)	−0.118	(0.237)
*Friend, moderately satisfied*with voucher*	−0.336	(0.240)	−0.334	(0.240)
_cons	10.020***	(0.273)	9.882***	(0.563)
var(_cons)	12.200***	(0.862)	11.673***	(0.828)
var(Residual)	6.830***	(0.181)	6.830***	(0.181)
N	3312		3312	

Table S6.
Interaction between vouchers and vignette characteristics (WTP)

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Hiring preferences	Model 1 b	Model 1 se	Model 2 b	Model 2 se
Gender: Female (ref. male)	0.990***	0.067	0.991***	0.067
Age: 43 years (ref. 25 years)	−0.053	0.068	−0.054	0.068
Language skills (ref. basic)				
Native	1.129***	0.084	1.131***	0.084
Fluent	0.722***	0.083	0.724***	0.083
Training: Yes (ref. no training)	0.409***	0.067	0.409***	0.067
Working experiences: 5 years (ref. 9 months)	0.304***	0.067	0.305***	0.067
Availability: Flexible (ref. fixed day)	0.649***	0.067	0.647***	0.067
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.271**	0.083	0.268**	0.083
Friend, moderately satisfied	−0.601***	0.083	−0.604***	0.083
Condition: With voucher (ref. without voucher)	0.276***	0.064	0.276***	0.064
Voucher first (ref. voucher second)	−0.253	0.221	−0.218	0.218
Cons	3.625***	0.187	3.458***	0.368
var(_cons)	5.606***	0.386	5.344***	0.369
var(Residual)	4.075***	0.097	4.075***	0.097
N	4024		4024	

Table S7.
Order effects (HP)

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Willingness to pay	Model 1 b	se	Model 2 b	se
Gender: Female (ref. male)	0.239*	0.098	0.240*	0.098
Age: 43 years (ref. 25 years)	0.066	0.099	0.068	0.099
Language skills (ref. basic)				
Native	0.770***	0.122	0.775***	0.122
Fluent	0.500***	0.121	0.503***	0.121
Training: Yes (ref. no training)	0.479***	0.097	0.480***	0.097
Working experiences: 5 years (ref. 9 months)	0.265**	0.097	0.269**	0.097
Availability: Flexible (ref. fixed day)	0.399***	0.097	0.396***	0.097
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.074	0.119	0.073	0.119
Friend, moderately satisfied	−0.465***	0.121	−0.466***	0.121
Condition: With voucher (ref. without voucher)	3.709***	0.093	3.709***	0.093
Voucher first (ref. voucher second)	−1.305***	0.329	−1.310***	0.326
Cons	10.832***	0.277	10.652***	0.555
var(_cons)	11.756***	0.832	11.240***	0.799
var(Residual)	6.857***	0.182	6.857***	0.182
N	3312		3312	

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Table S8.
Order effects (WTP)

Hiring preferences	Model 1 b	se	Model 2 b	se
Gender: Female (ref. male)	1.061***	0.095	1.062***	0.095
Age: 43 years (ref. 25 years)	0.002	0.101	0.007	0.101
Language skills (ref. basic)				
Native	1.135***	0.121	1.139***	0.121
Fluent	0.823***	0.119	0.827***	0.119
Training: Yes (ref. no training)	0.660***	0.097	0.661***	0.097
Working experiences: 5 years (ref. 9 months)	0.470***	0.096	0.469***	0.096
Availability: Flexible (ref. fixed day)	0.701***	0.096	0.701***	0.096
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.324**	0.119	0.319**	0.119
Friend, moderately satisfied	−0.710***	0.121	−0.715***	0.121
Condition: With voucher (ref. without voucher)	0.028	0.227	0.061	0.226
Cons	3.428***	0.216	3.474***	0.395
var(_cons)	5.556***	0.412	5.350***	0.399
var(Residual)	3.762***	0.137	3.762***	0.137
N	2012		2012	

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

Table S9.
Between analysis: voucher first vs. status quo first (HP)

Willingness to pay	Model 1 b	Model 1 se	Model 2 b	Model 2 se
Gender: Female (ref. male)	0.178*	0.086	0.182*	0.086
Age: 43 years (ref. 25 years)	0.061	0.091	0.065	0.091
Language skills (ref. basic)				
Native	0.795***	0.111	0.800***	0.110
Fluent	0.525***	0.109	0.528***	0.109
Training: Yes (ref. no training)	0.636***	0.088	0.637***	0.088
Working experiences: 5 years (ref. 9 months)	0.329***	0.087	0.333***	0.087
Availability: Flexible (ref. fixed day)	0.365***	0.086	0.362***	0.086
Referral (ref. Internet, 5/5 stars)				
Friend, very satisfied	0.037	0.106	0.036	0.106
Friend, moderately satisfied	−0.474***	0.110	−0.472***	0.110
Condition: With voucher (ref. without voucher)	2.432***	0.322	2.372***	0.319
Cons	10.595***	0.263	10.799***	0.544
var(_cons)	11.394***	0.792	10.862***	0.757
var(Residual)	2.393***	0.097	2.392***	0.097
N	1687		1687	

Table S10.
Between analysis: voucher first vs. status quo first (WTP)

Note(s): Model 2 adjusted for respondent characteristics: Education, household income, partner, children, household help and income changes due to COVID-19

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