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The outsourcing of household tasks and labour contract in domestic work[1]

Abstract

This paper empirically illustrates that flexible work arrangements may be found unsuitable for outsourcing certain household tasks. For this purpose we analyse the relationship between tasks performed by domestic workers and the nature of the labour contract. Our study draws on a dataset from a sample of Portuguese domestic workers, and uses a fuzzy clustering approach to identify bundles of tasks together with contract features. The results achieved suggest a segmentation of domestic workers into four groups: two comprising carers, who enjoy a standard type of contract, and another two groups of cleaners with flexible and informal work arrangements. However, there is no distinct boundary between these groups. The overlapping that occurs between tasks and contracts justifies the use of the fuzzy approach to data analysis.

Key words: domestic work, labour contracts, labour market segmentation, fuzzy clustering
JEL: J40, J41, J42

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1. INTRODUCTION

In recent years much has been written on the outsourcing of household tasks and the increasing employment of domestic workers worldwide. The studies and statistics document the rising demand for workers, namely non-family members, to perform household tasks (Brück et al., 2003; Bittman et al., 1999; Suen, 1994). Paid domestic work is also the growing concern of international institutions that try to regulate the use of this kind of labour services (ILO, 2010). In Europe, this demand should be seen in the context of an ageing population, the growing participation of women in the labour force, and dual-earner couples which have lead to an increasing need for care work as well as for general household work. Despite this increasing demand, poor working conditions and social recognition still persists.

Domestic workers generally have informal and flexible contracts and are paid on an hourly basis. Domestic work is looked upon as unskilled work for which women's innate abilities make them particularly suited. Moreover, studies report poor working conditions and call for the legal regulation and social recognition of domestic work (Anderson, 2001; Sarkar, 2005). However, studies have not yet addressed important questions relating to the outsourcing of domestic tasks in the context of flexible work arrangements. In this paper, we are particularly interested to examine if there are potential constraints or disadvantages that hamper the use of flexible contracts. By doing so, our study attempts to discuss the suitability of such relationships for outsourcing of household tasks and implicitly the limits of flexibility in the labour market.

The problem of fit has been studied in relation to the congruence between human resource management and firm strategy (Lengnick-Hall and Lengnick-Hall, 1988; Wright and McMahan, 1992; Wright and Snell, 1998); to the regulatory framework in the context of changing employment relationship patterns (Dickens, 2004); to the factors that affect the use of externalised workers (Davis-Blake and Uzzi, 1993); or to the employees responses to different types of relationship (Tsui et al., 1997). In the context of domestic work, we must emphasise the role of households, acting as employers, while discussing their options regarding the nature of employment relationship they are willing to develop. Our paper focuses on this topic which is not yet fully explored in the literature. We provide empirical evidence on the motivation behind households' option to set standard like contract in a labour market characterised by flexibility and informality.

We use an original dataset collected from a sample of Portuguese domestic workers to analyse the relationship between the tasks performed by domestic workers and the particular features of their labour contracts. According to Sarkar (2005), the tasks performed by Indian domestic workers in any type of contract, whether part-time or full-time, live-in or live-out, are similar but the working conditions are different. We recognise that further analysis must be made of the tasks performed by domestic workers, and their contracts, before reaching a

definitive conclusion. For this purpose, an appropriated statistical tool must be used which can identify specific tasks and the tasks that might be (or not) assigned within flexible work arrangements. We therefore use a fuzzy clustering approach, namely a grade of membership (GoM) representation of the data, so as to simultaneously identify task typologies and the grade of membership scores in each typology for every worker in the sample. These scores are used in a post-hoc analysis to evaluate the interactions between typologies, and consequently to account for tasks that overlap.

The contribution of this study is threefold. First, it offers a picture of the heterogeneity of domestic workers which resulted in their segmentation into two groups of carers and two groups of cleaners. Second, it clarifies the relationship between segments and labour contracts. Finally, it allows a specific model to be established for the domestic labour market in Portugal, which could also shed light on this labour market in other countries.

It should be noted that this is an exploratory study and the results obtained should be interpreted with circumspection. However, it offers insights into the factors that may contribute to change domestic workers' working conditions, and help the discussion about implementing domestic worker's labour market policy.

The remainder of the paper is organised as follows. Section 2 presents the international occupational structure of domestic work. Section 3 discusses the related employment contract literature. Section 4 is devoted to the dataset and related variables. The multivariate statistical analysis is presented in Section 5 and the analysis of heterogeneity appears in Section 6. Finally, we present some concluding remarks in Section 7.

2. THE OCCUPATIONAL STRUCTURE OF DOMESTIC WORK

The lack of job descriptions (Anderson, 2000), as well as the ambiguous classification of occupations (Stigler, 1946), makes it difficult to give a precise definition of the domestic work concept. Generally speaking, it means the *"performance of household work by non-family members"* (Moya, 2007; 559) or the *"work done primarily to maintain households"* (ILO Thesaurus).

Several job titles contribute to its baffling designations: domestic helpers (Huang and Yeoh, 1996); domestic service/servant (Stigler, 1946; Suen, 1994; Lee, 2005; Moya, 2007); home working women (Cinar, 1994); working at home (Lee, 2005); housekeepers (Horn, 2001). The titles portray the different underlying perspectives of domestic work. It essentially appears to be giving assistance to someone, generally a woman, who is not in a position to perform the duties herself. It is therefore the provision of help or service.

Domestic work is a low status job positioned at the bottom of the occupational structure; it is labelled as a non-qualified job, and, as stated by Dill, wrongly perceived as not requiring

any specialised training or skill (Dill, 1987 cited by Meagher, 1997). It is performed predominately by women and notably those in underprivileged groups such as immigrants or those belonging to lower social status groups (Moya, 2007).

However, the available literature offers an interesting picture of the occupational structure of domestic work. It falls under a series of occupational titles worldwide which reveal the performance of differentiated tasks. Lee (2005), for example, reports an occupational classification of domestic work in the 19th-20th century[2]. More recently, the International Standard Classification of Occupations (ISCO) has established two major levels of work. On one hand, it considers the service side of domestic work and distinguishes: i) "*domestic housekeepers*", namely housekeepers, emphasising the supervisory tasks of the housekeepers; ii) "*child carers*", which defines tasks related to looking after children; and iii) "*home-based personal care workers*" that includes personal care in the employer's house. On the other hand, the Classification positions "*domestic helpers and cleaners*" in the lowest occupational group and defines them as people who perform simple tasks such as sweeping, vacuuming, washing and polishing, taking care of household linen, purchasing household supplies, preparing food, serving meals and performing various other domestic duties (ILO, 2010).

Empirical research in country-based studies reinforces the degree of specialisation. The occupational net[3] (O*net) reports "*light cleaning duties*" and care tasks in the United States of America. Cleaning tasks are performed by maids and cleaners and the child care by nannies; on the other hand, adult care is done by personal and home care workers. Raghuram (2001) reports general home-help, water provider and house cleaners in India. In United Kingdom, Cox (2006) refers to cleaners, nannies, au pairs, chauffeurs, gardeners, cooks, butlers, maternity nurses, housekeepers and carers. Lastly, Anderson (2001) stresses the increasing demand for domestic work in the European Union both as cleaners and carers. While it is true that domestic workers are engaged in either simple or specialised tasks, they do have to perform different tasks simultaneously as Anderson underlines. The reported occupational titles suggest the hierarchical nature of the domestic worker's labour market structure and provide clues about the overlapping tasks of the different groups. However, despite the heterogeneity of tasks involved and baffling job titles, it should not be perceived as an undifferentiated job and it is far from fungible.

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[2] In the 1861 and 1871 census in England and Wales the general occupational structure of domestic service distinguished housekeepers; general domestic servant; cooks; housemaids; laundry maid; nurse; hospital nurse; charwoman; inn servant; and companions. Later, in 1911 new category of "day-girls" was added (Lee, 2005).
[3] See: http://www.onetcenter.org/dataCollection.html

3. EMPLOYMENT RELATIONSHIP

Historically, domestic work has its root in either international slavery or general servitude in various countries worldwide (ILO, 2010; Moya, 2007). It later entailed paternalist relations between employer and worker which involved care, education and training rather than wages (Nagata, 2005). In the contemporary labour market, domestic workers have become wage earners and are quite often engaged in a non-standard employment contract (Anderson, 1997) and a privatised and individualised transaction that operates under rules different from other jobs (Meagher, 1997). Flexibility, externalisation and informality of labour contracts raise concern among international institutions, which try to foster "decent work" for domestic workers (ILO, 2010).

Sarkar (2005) found four types of employment contracts in India: hourly-based workers that could work for more than one employer, depending on his/her efficiency and capability; full-time workers that work only for one employer; residential workers that live in the employer's home; and occasional or emergency workers that assist employers in particular situations. Sarkar also underscores the fact that despite the similarity of the tasks performed in each type of contract, the working conditions are substantially different[4]. ILO report (2010) insists on the informality and job insecurity of employment relationship involving domestic workers. The question that arises is whether the flexible work arrangements are compatible with the increasing outsourcing of some household tasks, most notably care work.

The employment relationship in paid domestic work is not a simple employment contract and by no means the easy selling of labour Anderson (2001). It involves specific risks which make domestic work different from other economic activities. Of course, all occupations have specificities and the employment relationship involves risks. However, taking into account the specificities of domestic work, the risks loom large for households[5].

The over-riding risk is undoubtedly due to the fact that the worker comes into the private domain of a household. In this study, we consider the form of outsourcing that implies workers performing tasks within the household and hence involving trust issues (Ruijter *et al*., 2003). These may be related to the absence of employers when workers perform domestic tasks, uncertainty about the quality of work and tasks performed, and the risk of opportunistic behaviour.

Other particularities are discussed when caring tasks are at stake. Himmelweit (2007) notes that the quality of care work is not directly visible and it cannot be separated from the

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[4] While part-time workers are engaged in fragmented contracts, the live-in workers could be involved in unsocial working hours such as working on evenings, week-ends and holidays (Sarkar, 2005). Furthermore, any holiday is deducted from the wages (Raghuram, 2001). Raghuram also insists on differentiated benefits for men and women in India.

[5] In this paper, we focus on the demand-side. Of course, we are aware of risks for domestic workers within the private sphere of employers' house and in the context of unregulated labour market (see, for instance, Sarkar 2005 for common problems faced by female domestic workers).

person who is delivering it. Additionally, care work implies the development of a personal relationship because it involves "emotional labour" leading to an affective relationship, and/or "body work" that entails further intimacy concerns (Anderson, 2001; Dyer *et al*., 2008).

These particularities raise doubts as to the suitability of a flexible work arrangement or poorer working conditions and the outsourcing of care tasks. In the past it was difficult to recruit and hold on to domestic workers. And Himmelweit (2007) questions to what extent care givers can remain at the bottom of pay hierarchy. The increasing demand for care workers is hardly compatible with low wages and, should this be the case, the caring industry would be a job opportunity for workers with fewer job alternatives. The author insists it is not viable to offer poor conditions to workers in a growing industry (Himmelweit, 2007). Carroll *et al*. (2008) underscore the limited career opportunities of childcare workers and report the decreasing supply due to the educational achievement and career aspirations of women. Rubery and Urwin (2011) call attention to the attitudes, skills and commitment of care providers which demand appropriate workforce strategies (in social care). Finally, care work involves availability concerns. Domestic workers involved in caring tasks should be "ready to assist" which means they should be available at any time and do not enjoy a bounded working time (Rubery and Urwin, 2011).

Even where there is a modest level of skill requirements, the trade in labour services is far from a straightforward form of transaction. We believe employers/families could protect themselves from the risks of outsourcing by offering better working conditions. This improvement could attract and retain workers in an industry characterised by growing demand but also by high turnover and instability.

4. THE DATA

The studies on the historical working conditions of domestic workers use official statistics (Duffy, 2007; Hionidou, 2005; Lee, 2005; Sager, 2007), explore historical qualitative data (Jacob, 2007; Nagata, 2005), or are supported by country-based case studies (Cinar, 1994; Huang and Yeoh, 1996; Raghuram, 2001; Sarkar, 2005). Like Stigler (1946) or Sarkar (2005), our data are quantitative. They were compiled from a survey conducted in five countries: Portugal, Brazil, Mozambique, United Kingdom, and India. The survey took place between 2009 and 2010, and the data were collected by face-to-face interviews with domestic workers. A standard inquiry was applied in all these countries but the sample sizes were not the same. Given the specificity of the occupation, we used a snowball sampling strategy to obtain the contacts of domestic workers resorting to domestic work unions, immigration-related institutions, and personal acquaintance. The amount of data collected is limited and, as we might expect, it is far from random. The results must therefore be interpreted with care.

In this study, our empirical analysis is restricted to the sample of Portuguese domestic workers, which represents the largest sample of the research. It covers geographically dispersed domestic workers[6]. Almost 700 interviewees, more precisely 684 only two of whom are male, offer detailed information on socio-demographic characteristics, labour market experience, tenure in domestic work, migration history, required skills, self-perception of relevant skills, additional skills, assigned tasks, payoff – the type of payment, earnings – the amount received, working hours, working conditions, the nature of the employment contract, tax and social security contributions, employers' characteristics, and domestic workers' family background. The inquiry also includes questions about their self-perception of domestic work and formal contracts, and the individual relation to labour market institutions (e.g. union membership).

We use a subset of variables to analyse the relationship between the outsourced tasks and the type of labour contract. It should be stressed that the options of households, acting as employers, were inferred from domestic workers' statements about tasks they perform as well as their working conditions such as the payoff.

Fama (1991), for example, proposes four different payoffs in labour contracts: time-based that lead to an hourly wage; salary when the contract specifies the weekly or monthly salary; piecework when the payoff is tied to individual output; and profit sharing when the payoff is determined by team or organisation output. Within domestic work, Sarkar (2005), for his part, reports four specific contract types: hourly, full time, occasional, and live-in workers. Following this literature and our day-to-day experience of domestic work in Portugal[7], we considered time-based as hourly and daily, and salary as monthly and others (e.g. weekly). The hourly and daily pay indicate a flexible work arrangement whereas a stable contract is signalled by monthly payoff.

We now give a detailed account of the variables in the analysis. These are split into two groups: task and non-task variables. Task variables involve house cleaning, washing and ironing clothes, cooking, child and adult care, and organising activities. The 19 task-related variables, all with Yes/No type outcome, are listed as follows: 1: House Cleaning; 2: Room Cleaning; 3: Washing Clothes; 4: Ironing; 5: Cooking; 6: Deciding on Meals; 7: Washing up; 8: Taking Care of Child; 9: Taking Child to School; 10: Cooking for Child; 11: Cooking for Adults, 12: Administering Medication to Adult; 13: Keeping Adults Company; 14: Animal/Plant Care; 15:

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[6] The sample was collected in six major Portuguese regions: North – 10.7%; Oporto – 21.1%; Centre – 6.4%; Lisbon – 53.2%; Alentejo – 4.5%; and Algarve – 4.1%.

[7] Portugal has a tradition of hiring domestic workers to perform household tasks. From a historical perspective, we should consider internal full time workers, called "criadas", generally young girls coming from rural areas who live in the employer's house and work for them. Nowadays, the general designation is "mulher a dias" and they earn an hourly or daily wage. Additionally, there are now new kinds of "criada" involving workers from different countries worldwide.

Preparing Shopping List; 16: Shopping; 17: Welcoming Guests; 18: Organising Parties; and 19: Answering the Telephone.

The non-task variables enable the characterisation of contracts, employers and workers. They focus on:

- Pay-off: whether the worker has an hourly, daily, monthly or other wage;
- Formal labour contract: whether the worker has written contract;
- Social protection: whether the domestic worker is registered with the social security institution;
- Tax: whether the domestic worker pays income tax;
- Power and control: whether the employer is present to control the worker;
- Trust issues: whether the domestic work has the key to the house; the employer has demanded references when recruiting; the network for references;
- Employment status: living-in or external worker;
- Employer's characteristics:
    - Type of house: apartment or detached;
    - Household: number of family members;
- Socio-demographic features: schooling, nationality, civil status.

The details on non-task variables are found in Table 1.

Table 1 - Non-task variables

Variable	Categories					
Payoff	1: Hourly	2: Daily	3: Monthly	4: Other		
Employer Present	1: Never	2: Rare	3: Very Often	4: Always		
House Key	1: No	2: Yes				
Living In	1: No	2: Yes				
Marital Status	1: Single	2: Married	3: Cohabiting	4: Divorced	5: Separated	6: Widow
Nationality	1: African	2: Brazilian	3: European	4: Portuguese	5: Other	
Education	1: Not at all	2: Read/Write	3: Basic	4: 6 years	5: 9 years	6: 11 years

	7: Secondary	8: Bachelor	9: Higher			
Written Contract	1: No	2: Yes				
Social Security	1: No	2: Yes				
Fiscal Tax	1: No	2: Yes				
Requirements	1: No	2: Yes				
Household	1: 1 People	2: 2 People	3: 3 People	4: 4 People	5: 5 People	6: 6 People
	7: 7 or more					
Type of House	1: Flat	2: Detached				
Meal Subsidy	1: No	2: Yes				
X'Mas Subsidy	1: No	2: Yes				
Health Subsidy	1: No	2: Yes				
Network	1: Family	2: Friends	3:Personal acquaintance	4.: Employer	5: Agency	6: Other
Tenure	1: < 1 year	2: 1-4 years	3: 5-9 years	4: 10-14 years	5: 15-19 years	6: 20+ years

5. MULTIVARIATE STATISTICAL ANALYSIS

As reported earlier, domestic workers are involved in a variety of tasks which must generally be performed simultaneously. With many tasks and the possibility of multiple category combinations, we can reasonably expect these workers to be very heterogeneous. Common cluster techniques can hardly describe how workers are distributed across such combinations. However, we can assume that there are a small number of domestic task clusters or typologies associated with contract types, although the workers may belong to more than one cluster. The

workers who do not fit into any cluster would be allowed to have partial membership in two or more clusters at the same time, which would give account for the interaction, i.e. overlapping, between clusters. The distribution of individuals in such a typological structure would then be used to model the domestic worker labour market. This approach to data analysis is referred to as fuzzy clustering. A fuzzy cluster member is therefore represented by an index together with his / her grade of membership in that cluster. The grade of membership is a number between 0 and 1, where 1 represents full membership and 0 no membership at all. The numbers between these two extremes account for the extent of partial membership, i.e. the degree of belongingness to the cluster. For example, a worker indexed by the number 3 and having a grade of membership of 0.4 in a given fuzzy cluster is represented in that fuzzy cluster by the ordered pair (3; 0.4). This worker is further away from this cluster than 5 for example, represented by (5; 0.9). The use of fuzzy analysis in social sciences has already been reported in literature (e.g. Smithson and Verkuilen, 2006) and has proven a useful tool to model heterogeneous populations (e.g. Suleman and Suleman, 2012).

In order to decompose the data into fuzzy clusters, we used the grade of membership (GoM) model introduced by Woodbury and Clive (1974). The model output not only allows the identification of typologies that potentially cluster distinctive task categories prevailing in the dataset, but also the grades of membership in each cluster for every worker in the sample. In addition to these core outputs, the model can also reveal how clusters are characterised by other variables, such as non-task variables (Table 1), provided these variables are tagged as external. The nineteen task variables used to profile contract types should be tagged as internal. It must be emphasised that the number of clusters in the GoM model must be specified a priori. Readers interested in more details about the GoM model may consult Manton *et al*., (1994) where the subject is treated in great depth. In Appendix A we briefly describe it in analytical terms.

The typologies and grades under GoM model were estimated using DsiGoM software (Decision System, Inc., 1999). Initially, we ran this software on a trial basis, specifying a different number of typologies successively, i.e. 2, 3 and 4. All resultant GoM models were a good fit to data and do not differ substantively from the statistical standpoint. Our choice was the model with 4 fuzzy clusters because it allows a meaningful interpretation of the universe under study. Formally, we use a fuzzy 4-partition to model the Portuguese domestic worker labour market. To facilitate reference, we label the emerging fuzzy clusters or typologies as I, II, III and IV, although this numbering does not indicate an order among them. Prior to running the computational software, the task variables were tagged as internal and the non-task as external. In Appendix B, we provide a partial GoM model output. Full results, as well as the accessory files required to run DsiGoM software, including sample data, are available upon request.

Although the data analysis based on the GoM model gave no clear-cut evidence of different payoffs (see Appendix B for numerical results), Hourly payoff is predominant in Clusters I and II, whereas Monthly payoff prevails in Clusters III and IV. Although Other payoff also prevails in Clusters I and IV, it is not very expressive and represents only 2.5% of the sample. It is worth noting that Daily payoff does not outline any cluster. Even though there are workers in the sample with Daily payoff, the fuzzy approach to data analysis gives no evidence of its importance among the labour contract types under study. It must be said that this is in line with our day-to-day experience of domestic work in Portugal. Despite the current designation of domestic workers as "mulher a dias", i.e. a woman working on day-based contract, the payoff is commonly hourly-based. Our study proceeds with a summary of the distinctive task combinations that prevail in each fuzzy cluster together with the associated payoff (Table 2).

Table 2 - Predominant task categories on fuzzy clusters, based on numerical results presented in Appendix B (X means Yes; blank means No).

Task	Cluster I On Demand	Cluster II General	Cluster III Adult Care	Cluster IV Child Care
(Payoff)	**Hourly**	**Hourly**	**Monthly**	**Monthly**
House Cleaning		X	X	X
Room Cleaning		X	X	X
Washing Clothes		X	X	X
Ironing		X	X	X
Cooking		X	X	X
Decide on Meals			X	X
Washing up			X	X
Taking Care of Child				X
Taking Child to School				X
Cooking for Child				X
Cooking for Adults			X	
Administrating Medication to Adult			X	

Keeping Adults Company			X	
Animals/Plants Care			X	X
Preparing Shopping List			X	X
Shopping			X	X
Welcome Guests			X	X
Organising Parties			X	X
Telephone Answer		X	X	X

We label Cluster I "On Demand" but it may be also referred to as "Null" cluster. It has no particular task assigned and suggests the domestic worker is a helper that is available to do any required task. The Cluster II, labelled "General", gathers general household tasks like cleaning and washing but also includes cooking tasks. It is different from the "On Demand" cluster in that the domestic worker is presumably not hired for any specific task but rather honours a regular contract agreement. Although the hallmark of Cluster III is adult care, it also includes many different general tasks, like cooking or cleaning. Finally, there is a "Child Care" cluster that is quite similar to that of "Adult Care". Essentially, the former cluster results from the latter by replacing adult care with child care tasks. As for the discussion on occupational titles, we consider workers in Cluster I as "helpers" who assist with any household tasks whenever required; Cluster II are "helpers and cleaners"; Cluster III are "home care workers"; and Cluster IV "nannies".

We now turn to the characterisation of typologies by analysing the distribution of external variables. Although the GoM model output is very detailed, Table 3 outlines the most relevant features of each cluster. We must emphasise that this table displays the estimated prevalent categories of external variables in each cluster. Prevalent category means it is substantively more frequent than the sample average, i.e. a condition that discriminates the cluster from the sample as whole. In Appendix B we provide an explanation about how to tag a prevalent or discriminant condition.

Table 3 - Relevant features of homogeneous clusters accounted for through external variables, based on numerical results presented in Appendix B (----- means no relevant feature found).

Variable	Group			
	On Demand (Null)	General	Adult Care	Child Care
Payoff	Hourly	Hourly	Monthly	Monthly
Employer Present	Always or Never	Rarely	Always	Often
House Key	No	------	------	Yes
Living In	No	No	Yes	Yes
Marital Status	Unmarried or Separated	Cohabitation or Widow	Divorced or Separated	Single
Nationality	Other	------	Brazilian or European	------
Education	9 years	Illiterate or Literate or Higher Education	Illiterate or 11 years or Higher Educations	6 years or 9 years
Tenure	15 or more years	------	More than 20 years	Between 1 to 5 or 10 to 15 years
Written Contract	No	No	Yes	Yes
Social Security	No	No	Yes	------
Fiscal Tax	No	------	Yes	Yes
Requirements	------	No	Yes	Yes
Household	Less than 4 people or 6 people	------	Less than 3 or more than 5 people	Between 4 and 6 people
Type of House	------	------	Detached	Detached
Meal Subsidy	------	------	Yes	Yes

Christmas Subsidy	No	------	Yes	Yes
Health Subsidy	------	------	Yes	Yes
Network	Family or Agency	------	Other	Agency

This table reveals that the two care clusters have some common features that put them in opposition to the other two clusters. The additional features associated with care workers clearly diverge from the flexible and informal contracts that characterise helpers and cleaners. Indeed, workers that belong to care clusters are likely to benefit from the privileges of a stable employment relationship. In addition to monthly payoff, carers are expected to have a formal written contract and pay income tax and social security. Furthermore, they benefit from a Christmas bonus and holiday allowance. At this stage, we can conclude that domestic work is compatible with a standard employment relationship, particularly when it concerns care tasks.

Now we may ask why households are willing to provide domestic workers with a formalised contract. This question can be addressed by examining the risks of outsourcing household tasks (Ruijter *et al*., 2003) and, in particular, the specificity of care tasks (Anderson, 2001; Dyer *et al*., 2008; Himmelweit, 2007). There is some evidence that households are concerned about trust issues. Families entrust their children or older people to someone, but would like to prevent their members being unprotected. It should be stressed that domestic workers in care tasks are predominately live-in workers, working for wealthy employers, and are expected to work under the employers' control. Additionally, it is no surprise that households take steps to collect information on domestic workers during the hiring process. As reported in Table 3, households demand references before recruiting a care worker and may take advantage of job agencies to ensure the recruitment of the right person.

We now turn to the external variables not yet analysed, notably the categories that prevail in each typology as displayed in Table 3.

On Demand Cluster: This group has the following characteristics: small household (less than 4 people), high tenure, recruitment through family information or agency and the worker marital status is divorced or in a civil partnership. The workers possess a good level of education (9 years). The presence of the employer can fall into either of the two extreme cases: always present or always absent.

General Tasks Cluster: This group has the least specific features. It is rare for the employer to be at home during the work period. Contrary to care workers, the performance of general tasks entails far less control. The level of education can be very low or high.

Adult Care Cluster: The domestic workers in this group may be Portuguese, Brazilian or European, work in small or big households, have high tenure, and possess either the highest levels of education or no education at all. The marital status in this group is very likely to be divorced or separated.

Child Care Cluster: This group shares almost all the characteristics of the previous one. Here there is less demand for education, and the workers are generally recruited from temporary work agencies. This is the only group where it is usual to possess the house key, thus demonstrating twofold trust in the domestic workers: they are entrusted with the children and the home.

6. ANALYSIS OF HETEROGENEITY

The fuzzy clustering approach provides a clearer picture of the data structure. For example, a fuzzy 4-partition can be illustrated graphically by a tetrahedron or a triangular pyramid as shown in Figure 1. The workers with full membership in fuzzy clusters lie at the vertices and the ones who share exactly two clusters are found on the edges; on the faces we find workers who precisely share three clusters; all the remaining lie in the interior of the tetrahedron. Figure 1 portrays the distribution of Portuguese domestic workers on a fuzzy 4-partition, as given by the GoM model application to our dataset. It is constructed by depicting the individual grade of membership estimates in each typology.

Figure 1: A fuzzy 4-partition of domestic workers in Portugal.
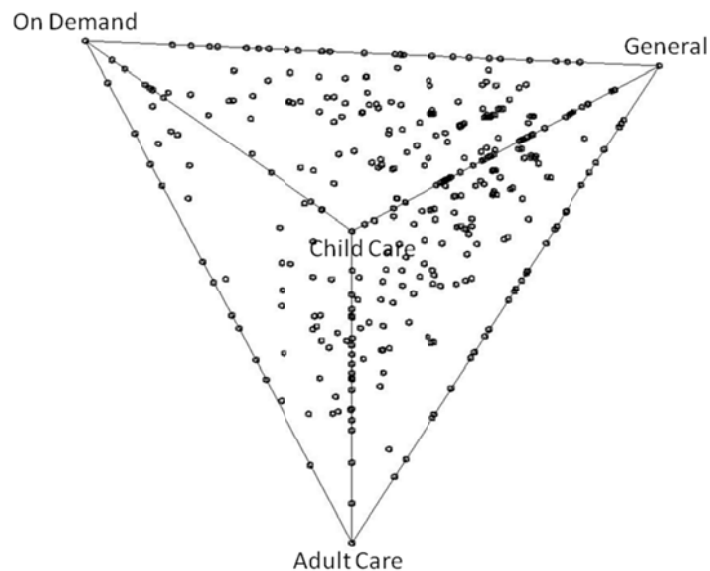
Besides this graphical analysis of domestic workers distribution, the estimates can also be used to quantify the heterogeneity present in the dataset. The figures in Table 4 show how many domestic workers were found in different parts of the tetrahedron. This table shows that 9.8% of domestic workers lie at the vertices. In other words, more than 90% are partial members of two or more clusters at the same time. Among them, more than 60% (54.7% of the sample) share

exactly two clusters i.e. lie at the edges. If we fix our attention on the figures at the edges, we see that Cluster I workers are hardly called to do care tasks as very few were found on the edges connecting Cluster I and III (2.2%) or Cluster I and IV (1.5%). The most relevant overlapping occurs between On Demand and General task clusters (22.8%). It is also curious to note the almost total absence of overlapping between care task clusters (III-IV: 2.9%). These two clusters seem to be separated by a distinct boundary. However, statistical evidence reveals a non-negligible amount of interaction between General cluster and either two care clusters (II-III: 16.7%; II-IV: 8.6%).

Table 4 - Distribution of domestic workers over a fuzzy 4-partition

Part of Tetrahedron						Total (N=684)
Vertices						67 (9.8%)
I - On Demand	II - General	III - Adult Care	IV - Child Care			
20 (2.9%)	19 (2.8%)	9 (1.3%)	19 (2.8%)			
Edges						374 (54.7%)
I - II	I - III	I - IV	II - III	II - IV	III - IV	
156 (22.8%)	15 (2.2%)	10 (1.5%)	114 (16.7%)	59 (8.6%)	20 (2.9%)	
Faces						216 (31.6%)
I - II – III	I - II - IV	I - III - IV	II - III - IV			
111 (16.2%)	33 (4.8%)	14 (2.0%)	58 (8.5%)			
Interior						27 (3.9%)

Having said this, we can infer that the Portuguese domestic worker labour market is segmented into two major groups, each with its own features: one group comprises care workers, and the other consists of workers for general tasks (Fig. 2). Each group is broken down into two clusters. The care workers clusters are likely to be crisply separated in the same way as we might expect in a classical clustering analysis. However, the general worker clusters overlap. This interaction between these two clusters becomes apparent due to the fuzzy approach to data analysis. As care work also involves some tasks assigned to general workers (e.g. cooking),

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there is also interaction between care and general clusters, although to a lesser extent. We try to illustrate these empirical findings graphically in Figure 2, which provides some insight into the Portuguese domestic worker labour market.

Figure 2: A segmentation of the Portuguese domestic worker labour market.
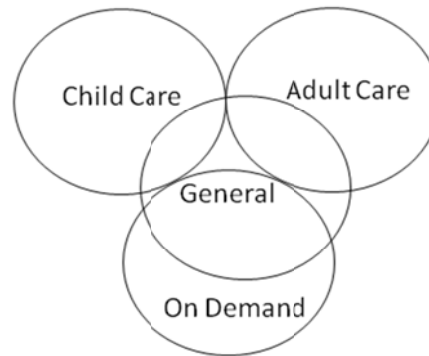
Despite the light shed by these results, we would like to understand whether any particular factors, i.e. tasks, influence employers to offer stable employment conditions. We therefore proceed with a detailed examination of tasks and labour contracts involving workers between Cluster II, composed of General household tasks and hourly wage, and Cluster III including Adult care tasks and Monthly payoff. For this purpose, we return to the task clustering reported in Table 2.

We now consider a subset of adult care related variables (Table 5), for which the prevalent outcome is *No* in Cluster II and *Yes* in Cluster III, and analyse the extent to which these patterns were changed to keep domestic workers apart from typologies. Out of the workers estimated to be positioned on the edge II-III, we have selected those with hourly (29) or monthly payoff (76), totalising 105 individuals. The remaining 9 individuals with different payoff have been omitted from this analysis. Table 5 displays a cross-tabulation between Payoff and the subset of variables referred above. Missing values are not displayed.

Table 5 - Domestic workers on edge II - III (105)

Task	Hourly (29) (%)		Monthly (76) (%)	
Answer	No	Yes	No	Yes
Deciding on Meals	58.6	37.9	40.8	57.9
Cooking for Adults	**82.8**	17.2	64.5	35.5
Adm. Medicaments to Adults	**93.1**	3.4	60.5	39.5
Keeping Adults Company	62.1	34.5	47.4	50.0

It needs no more than a glance at this table to see that the II-III edge is almost a one-way flow, from III to II, in the following sense. No rate above 50% is found in any adult care task performed by workers on hourly pay. It is more likely that workers on monthly pay lying at the referred edge are moved away from the Adult Care cluster because they are exempted from performing one or more of the set of tasks assigned to the respective typology. In addition, the empirical evidence suggests that cooking for adults and particularly administering medication to adults represent critical tasks that are rarely outsourced to workers paid on an hourly basis, e.g. to workers engaged in flexible contracts (see boldface figures in Table 5). Our attention is also been drawn by the number of workers estimated on the I-II-III face (111; 16.2%). A brief descriptive analysis of the interaction among On Demand (I), General (II) and Adult Care (III) reinforces the limits of outsourcing domestic tasks within flexible work arrangements, in the same way as reported.

We have performed a similar analysis for workers who were estimated to be positioned on II-IV edge, that is, the edge connecting General and Child Care typologies. In this case, we did not find any task that was exclusively linked to the child care activity. Empirical evidence reveals domestic workers in this segment perform one or more child care tasks, but not all. However, those who accomplish child care tasks are more likely to be involved in a monthly payoff. From 59 domestic workers who were estimated to be positioned on II-IV edge, 55 have either hourly (11) or monthly (44) payoff. Table 6 shows how child care tasks are distributed among them.

Table 6 - Distribution of child care tasks in edge II-IV (55)

Task	Hourly payoff	Monthly payoff
Taking Care of Child	10 (16.9%)	32 (58.1%)
Taking Child to School	6 (10.9%)	15 (27.2%)
Cooking for Child	10 (16.9%)	33 (60.0%)

The result achieved reinforce what had already been said regarding household concerns about the mechanisms for preventing and insuring against the risks of outsourcing.

It can be concluded from these results, and those presented earlier in the context of the description of fuzzy clusters, that households seem to be aware of the specificities of domestic tasks, notably the work involving the care of adults, and the incremental risks of using flexible work arrangements to obtain such services.

7. CONCLUDING REMARKS

This paper focused in particular on the constraints or disadvantages related to the use of flexible work arrangements in domestic work from employers side. We explored the relationship between outsourced household tasks and the labour contract and submitted two arguments for empirical testing. We assumed that domestic work is far from a fungible job and it involves complex transactions. Following Anderson (2001), we assumed that the employment relationship in paid domestic work is not a simple employment contract and is far from the easy selling of labour. In line with these arguments, we empirically explored the relationship between tasks performed by domestic workers and the nature of their labour contract.

Fuzzy clustering proved suitable for the segmentation of domestic workers in the sample according to performed tasks, and to associate these segments to contract characteristics. The four estimated clusters and the overlapped or between clusters cases illustrate the extreme heterogeneity of domestic work while introducing specific jobs to the conventional dichotomy between cleaners and carers. The fuzzy cluster labelled as "On Demand" meets the category of "helpers" who are expected to perform any task that might be required. No task prevails in that cluster. On the other hand, there are two clusters of carers: child care and adult care. It is worth stressing that there is little room for overlapping between these clusters. In other words, adult carers are not likely to perform tasks of child care and vice-versa. Moreover, carers are also expected to perform general household tasks.

As regards the associated contract features, the estimated fuzzy clusters suggest a broad segmentation of domestic workers, specially based on the cleaning/caring tasks and informal-flexible versus formal-stable contracts. While domestic workers engaged in general tasks like cleaning and washing are hired predominantly on an informal and flexible basis, carers' employment relationship is based on a formal and stable contract.

These empirical findings contribute to the debate on this matter in that the nature of the labour contract is not independent from the type of household tasks being outsourced. The estimated typologies as well as the interaction among them, as provided by the fuzzy approach to data analysis, show that the nature of domestic work may place limits on flexible arrangements.

We consider that domestic workers may be able to have stable and formal contracts when their work involves specific tasks and inherent risks. According to Ruijter et al. (2003), households can protect themselves by looking for reliable suppliers or by demanding certain guarantees and protection that entail additional costs. Our results indicate that the nature of the labour contract offered to domestic workers is, among others, a mechanism that allows employers to structure the transaction. The additional wages, tax and social security contributions imply higher costs for the households. This is to say, households are willing to pay

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a risk premium to workers performing specific tasks. In this context, a formalised employment relationship seems to be a guarantee against the risks of outsourcing caring tasks. This also corroborates our assumption that the employment relationship in paid domestic work involves a complex transaction. Furthermore, our results indicate that there are jobs within domestic work that operate under the same rules as other jobs.

Despite the interest of our empirical evidence, the findings must be analysed with circumspection. In fact, the sample is far from random. It is indeed difficult to build up a random sample from a "hidden" population that involves a huge number of employers and workers. Nevertheless, our results are useful to support international discussion on domestic work and its connection with other relevant political topics such as informality and flexibility in the labour market. These findings have special relevance to the factors that could encourage "decent" work for domestic workers. The importance of outsourced tasks reported in this study furthers our knowledge of these factors. This study also contributes to enhance our understanding of the limits on the use of flexible work arrangements in the labour market.

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Appendix A: A Brief Description of GoM Model

Suppose we want to study a universe or population of individuals, and assume it can be decomposed in $K \geq 2$ fuzzy clusters that form a fuzzy partition or a fuzzy K-partition. This means, each individual, say individual i, is represented in the universe by his/her grade of membership vector

$$\boldsymbol{g}_i = (g_{i1}, g_{i2}, \dots, g_{iK})$$

where the generic coordinate g_{ik}, $1 \leq k \leq K$, represents the grade of membership or membership degree or degree of belongingness of individual i in fuzzy cluster (indexed by the letter) k, and accounts for the possible partial membership in fuzzy clusters. The vector $\boldsymbol{g}_i$ belongs to the unit simplex S_K,

$$S_K = \left\{ \boldsymbol{g}_i = (g_{i1}, g_{i2}, \dots, g_{iK}): g_{ik} \geq 0 \text{ and } \sum_{k=1}^{K} g_{ik} = 1 \right\}$$

We will additionally assume that every fuzzy cluster has at least one full member. The GoM model can be stated as follows. Let $\boldsymbol{X}_i = (X_{i1}, X_{i2}, \dots, X_{iJ})$ be the vector of outcomes of individual i in J measurement variables, where $X_{ij} \in \{1, 2, \dots, L_j\}$, $1 \leq i \leq N$; $1 \leq j \leq J$, is a categorical variable and can assume $L_j \geq 2$ categories, and N is the sample size. In our study $N = 684$ and $J = J_I + J_E = 19 + 13 = 32$ variables, where J_I and J_E are, respectively, the number of internal and external variables. The meaning given to the concept of internal and external variable will become clear shortly.

Let λ_{kjl} be the probability of a full member of fuzzy cluster k has the outcome l in variable j. So, the quantities λ_{kjl} account for the prevalence of different categories in fuzzy clusters. When grouped together, they play a crucial role in the cluster features selection process, i.e. to identify the typologies associated with fuzzy clusters. In Appendix B we show how it works in practice with actual data.

Given a fixed value of the number of fuzzy partition clusters K, the GoM criterion function can be written as follows (Wachter, 1999)

$$\mathbf{L}_K = \prod_{i=1}^{N} \prod_{j=1}^{J} \prod_{l=1}^{L_j} \left(\sum_{k=1}^{K} g_{ik} \lambda_{kjl} \right)^{y_{ijl}}$$

where y_{ijl} is a Bernoulli variable which is equal to 1 if $X_{ij} = l$ and is equal to 0 otherwise. The model parameters estimation process is based on the maximum likelihood principal. This process is carried out in two steps. First, both sets of parameters, g_{ik} and λ_{kjl}, are estimated using the variables that, by its nature, are considered potentially important to profile fuzzy clusters. These variables are tagged as internal, and are $J_I = 19$ in number here. In the second step, additional λ_{kjl} are estimated using only the external variables totalling, in this study,

$J_E = 13$. This later process aims to provide a more insightful characterisation of fuzzy clusters (e.g. socio-demographic characteristics). The choice of internal and external variables is rather subjective, and in most cases it is context dependent. Readers interested in more details about GoM model may wish to consult Manton *et al*. (1994).

Appendix B: Partial GoM Model Output

The estimates of the parameters λ_{kjl}, i.e. $\hat{\lambda}_{kjl}$, are presented for fuzzy clusters I, II, III and IV, from column 4 to 7. Column 3, labelled f_{jl}, displays the observed relative frequency in each variable category. All figures are in percentage format. The characterisation of fuzzy clusters follow the criteria similar to those presented in Berkman *et al*. (1989). With the possible exception of high frequencies, the variable-category pair (j,l) is said to substantively contribute to discriminate a fuzzy cluster if the corresponding estimate $\hat{\lambda}_{kjl}$ is at least $(1 + \delta)$ times the observed frequency f_{jl}. In our study we subjectively set $\delta = 0.2$. For high frequencies, the pair (j,l) is tagged as a discriminant condition whenever the conjunction $(\hat{\lambda}_{kjl} > f_{jl}) \wedge (\hat{\lambda}_{kjl} > 0.9)$ is true. The discriminant conditions are boldfaced.

Variable	Category	f_{jl}	I Null	II General	III Adult	IV Child
Pay-off	Missing	0.58	0.00	1.15	0.00	0.42
	Hourly	34.56	**57.20**	**43.37**	5.37	12.59
	Daily	6.18	6.27	6.75	4.38	6.56
	Monthly	56.76	32.71	47.61	**90.25**	**76.57**
	Other	2.50	**3.83**	2.28	0.00	**4.27**
House Cleaning	Missing	0.15	0.67	0.00	0.00	0.00
	No	2.05	**9.82**	0.00	0.00	0.00
	Yes	97.95	90.18	**100.00**	**100.00**	**100.00**
Room Cleaning	Missing	0.15	0.67	0.00	0.00	0.00
	No	5.12	**26.28**	0.00	0.00	0.00
	Yes	94.88	73.72	**100.00**	**100.00**	**100.00**
Washing Clothes	Missing	0.15	0.67	0.00	0.00	0.00
	No	20.35	**100.00**	0.00	0.00	0.00
	Yes	79.65	0.00	**100.00**	**100.00**	**100.00**
Ironing	No	8.33	**43.42**	0.00	0.00	0.00
	Yes	91.67	56.58	**100.00**	**100.00**	**100.00**
Cooking	Missing	0.58	0.00	0.00	3.36	0.00
	No	38.82	**100.00**	0.00	0.00	0.00

	Yes	61.18	0.00	**100.00**	**100.00**	**100.00**
Deciding on Meals	Missing	0.88	0.00	0.00	**3.17**	**2.08**
	No	70.35	**100.00**	**100.00**	0.00	40.76
	Yes	29.65	0.00	0.00	**100.00**	**59.24**
Washing up	No	19.59	**100.00**	0.00	0.00	0.00
	Yes	80.41	0.00	**100.00**	**100.00**	**100.00**
Taking Care of Child	Missing	0.44	0.00	0.00	2.52	0.00
	No	72.83	**100.00**	**100.00**	**100.00**	0.00
	Yes	27.17	0.00	0.00	0.00	**100.00**
Taking Child to School	Missing	0.58	0.00	0.00	3.36	0.00
	No	86.18	**100.00**	**100.00**	**100.00**	0.00
	Yes	13.82	0.00	0.00	0.00	**100.00**
Cooking for Child	Missing	0.73	0.00	0.42	3.12	0.00
	No	73.78	**100.00**	**100.00**	**100.00**	0.00
	Yes	26.22	0.00	0.00	0.00	**100.00**
Cooking for Adults	Missing	0.15	0.67	0.00	0.00	0.00
	No	83.16	**100.00**	**100.00**	0.00	**100.00**
	Yes	16.84	0.00	0.00	**100.00**	0.00
Administrating Medication to Adult	Missing	0.29	0.67	0.32	0.00	0.00
	No	83.28	**100.00**	**100.00**	0.00	**100.00**
	Yes	16.72	0.00	0.00	**100.00**	0.00
Keeping Adults Company	Missing	0.58	0.00	0.00	3.36	0.00
	No	70.59	**100.00**	**100.00**	0.00	**100.00**
	Yes	29.41	0.00	0.00	**100.00**	0.00
Animal/Plant Care	Missing	0.58	0.01	0.00	1.92	1.61
	No	51.62	**100.00**	46.34	15.44	33.95
	Yes	48.38	0.00	53.66	**84.56**	**66.05**
Preparing Shopping List	Missing	0.44	0.00	0.00	1.27	1.40
	No	72.10	**100.00**	**100.00**	0.00	36.89
	Yes	27.90	0.00	0.00	**100.00**	**63.11**
Shopping	Missing	0.58	0.00	0.52	2.02	0.00
	No	62.65	**100.00**	84.44	0.00	0.00
	Yes	37.35	0.00	15.56	**100.00**	**100.00**
Welcome Guests	Missing	0.58	0.00	0.00	3.36	0.00
	No	77.35	**100.00**	**100.00**	0.00	43.36

	Yes	22.65	0.00	0.00	**100.00**	**56.64**
Organising Parties	Missing	0.73	0.00	0.00	4.20	0.00
	No	73.05	**100.00**	**100.00**	0.00	31.24
	Yes	26.95	0.00	0.00	**100.00**	**68.76**
Telephone Answer	No	23.39	**100.00**	0.00	0.00	0.00
	Yes	76.61	0.00	**100.00**	**100.00**	**100.00**
Employer Present	Missing	0.73	1.01	0.00	2.93	0.00
	Never	13.40	**30.65**	8.16	9.51	9.70
	Rarely	46.24	30.87	**57.30**	28.13	53.70
	Often	25.04	17.68	27.04	17.25	**36.59**
	Always	15.32	**20.81**	7.50	**45.10**	0.00
House Key	Missing	0.73	1.84	0.73	0.00	0.00
	No	24.74	**46.87**	20.89	23.67	6.70
	Yes	75.26	53.13	79.11	76.33	**93.30**
Living In	Missing	0.44	0.00	0.32	0.00	1.88
	No	87.52	**97.15**	**97.23**	64.53	71.67
	Yes	12.48	2.85	2.77	**35.47**	**28.33**
Marital Status	Missing	0.29	1.68	0.41	0.37	0.21
	Single	26.39	23.94	23.92	27.57	**35.85**
	Married	50.00	58.70	48.26	41.19	52.44
	Unmarried Partner	6.16	**8.31**	**8.16**	0.00	3.88
	Divorced	8.21	3.73	8.97	**19.58**	0.00
	Separated	2.49	**4.57**	0.37	**5.50**	2.61
	Widow	6.74	0.76	**10.31**	6.16	5.22
Nationality	Missing	0.29	0.47	0.00	1.08	0.00
	African	12.46	13.37	12.04	11.82	13.10
	Brazilian	12.17	8.47	10.25	**23.37**	10.27
	European	8.36	7.09	10.01	**10.27**	3.38
	Portuguese	66.86	70.40	67.69	54.53	73.25
	Other	0.15	**0.67**	0.00	0.00	0.00
Education	Missing	10.53	7.01	11.79	13.84	8.13
	Illiterate	1.63	0.00	**2.60**	**2.48**	0.46
	Literate	5.23	2.61	**6.41**	5.70	5.32
	4 years	33.66	33.79	34.80	30.58	33.64
	6 years	16.01	14.30	16.40	13.70	**19.90**

	9 years	19.12	**24.91**	13.65	17.61	**27.21**
	11 years	6.86	8.23	4.68	**9.65**	7.86
	12 years	11.11	13.28	12.98	8.53	5.62
	Bachelor	0.82	0.00	0.75	**2.86**	0.00
	Higher	5.56	2.88	**7.72**	**8.89**	0.00
Tenure (in years)	Missing	0.73	0.00	1.07	1.42	0.00
	Up to 1	19.73	21.37	17.36	20.84	23.04
	1 to 5	30.93	28.42	33.85	20.88	**37.44**
	5 to 10	27.98	22.71	32.49	27.01	23.44
	10 to 15	10.46	11.98	7.94	12.49	**13.27**
	15 to 20	2.21	**4.58**	1.17	2.44	1.64
	20++	8.69	**10.95**	7.19	**16.35**	1.16
Written Contract	No	71.05	81.48	83.15	43.47	52.66
	Yes	28.95	18.52	16.85	**56.53**	**47.34**
Social Security	Missing	0.88	0.00	0.60	2.30	1.32
	No	30.24	**39.10**	**36.63**	6.54	27.30
	Yes	69.76	60.90	63.37	**93.46**	72.70
Fiscal Tax	Missing	3.36	3.69	4.18	0.10	4.17
	No	58.70	**82.05**	69.73	25.43	34.32
	Yes	41.30	17.95	30.27	**74.57**	**65.68**
Requirements	Missing	0.73	0.00	0.59	**2.68**	0.00
	No	72.61	75.15	**89.85**	43.99	49.39
	Yes	27.39	24.85	10.15	**56.01**	**50.61**
Household	Missing	4.68	7.31	0.71	13.35	2.75
	1 people	7.82	**11.46**	2.80	**26.68**	0.00
	2 people	22.39	**26.96**	25.66	**28.01**	4.42
	3 people	21.93	**30.81**	23.60	9.72	17.55
	4 people	31.60	21.12	33.72	23.46	**45.61**
	5 people	12.12	4.07	13.50	4.33	**24.76**
	6 people	3.07	**4.56**	0.00	**4.34**	7.67
	7 or more	1.07	1.01	0.73	**3.45**	0.00
Type of House	Missing	1.17	4.11	0.59	0.00	0.00
	Apartment	63.31	75.05	67.87	52.63	46.06
	Detached	36.69	24.95	32.13	**47.37**	**53.94**
Meal Subsidy	Missing	4.82	2.12	5.69	4.65	**6.33**
	Yes	15.21	10.55	11.22	**24.58**	**23.08**

	No	84.79	89.45	88.78	75.42	76.92
Holidays Subsidy	Missing	4.24	7.46	4.09	0.17	4.68
	Yes	59.54	24.34	54.68	**92.42**	**86.79**
	No	40.46	**75.66**	45.32	7.58	13.21
Christmas Subsidy	Missing	3.51	3.56	3.25	1.99	5.90
	Yes	62.88	28.02	59.15	**95.17**	**85.99**
	No	37.12	**71.98**	40.85	4.83	14.01
Health Subsidy	Missing	12.28	8.43	10.08	18.32	17.33
	Yes	20.17	15.53	13.61	**35.52**	**29.23**
	No	79.83	84.47	86.39	64.48	70.77
Network	Missing	2.34	0.66	2.14	3.77	3.69
	Family	5.39	**15.61**	4.06	0.00	0.05
	Friends	21.56	24.12	23.32	18.82	15.93
	Acquaintance	24.10	17.80	27.07	21.85	27.81
	Employers	10.93	9.42	12.99	7.27	11.63
	Agency	10.78	**13.16**	7.72	9.30	**17.55**
	Other	27.25	19.89	24.86	**42.76**	27.03