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Preface

This work consists of two chapters, respectively investigating the role of women as policy-maker and consumer's behaviour under uncertainty.

The first chapter contributes to the literature on whether gender matters in politics. Specifically, it focuses on Italian municipalities and analyzes whether female presence in municipal council affects government stability. To address potential endogeneity concern regarding women in leadership positions, the analysis relies on two events far apart in time determining, respectively, an exogenous drop and an exogenous increase in the share of female councillors.

Government stability is measured exploiting early termination episodes: while the statutory duration of the city council legislature is five years, at least since 2000, anticipated elections can be called because of well defined reasons. Thus, focusing on early terminations due to political motivations, it is possible to investigate whether a change in the number of women has any effect on the intensity of political disagreement among local policymakers.

Findings show that a larger share of females among councillors reduces the probability of early termination of local governments for political reasons. The estimated effect is obtained controlling for a variety of councillors' characteristics (such as education, age, and occupation) and for the municipality level fixed effect. It does not hold when early terminations do not depend on councillors' behaviour and is reinforced when female councillors interact with a female Mayor. Taken together, results suggest more willingness of females to settle disagreements and foster cooperation.

The second chapter contributes to the literature investigating the existence and intensity of precautionary savings. Despite being a long-standing subject of analysis in the consumption-saving literature, the impact of uncertainty on household behaviour is still a relevant and debated topic.

The study identifies changes in consumption led by the precautionary motive first relying on the unexpected increase in income uncertainty following the 2008 financial crisis: being fueled by uncertainty, precautionary saving motive should be in place in the consumption

choices that followed the 2008 crisis. Secondly, given that the intensity of precautionary savings hinges on consumer's attitude towards risk, to further bring out the precautionary motive, differences in risk attitude linked to family structure are exploited. In fact, since scholars found parenthood to increase individuals' risk-aversion, precautionary motive should be stronger in households with dependent children. Hence, the observed difference in consumption choices between households with and without children, before and after the 2008 crisis, should accurately identify the precautionary saving motive.

The analysis uses data of the Italian Survey of Household Income and Wealth (SHIW). Results indeed show that the presence of dependent children depresses the nondurable consumption expenditure during the crisis; this evidence outlines the relevance of the precautionary saving motive in agents' consumption-saving decisions and, consequently, the importance of public policies aimed at reducing individuals' risk.

Contents

Part I

Women's Representation in Politics and Government Stability

1.1 Introduction

While women are still significantly underrepresented in politics, during the last decades their presence markedly increased both in developed and developing countries. Women parliamentarians worldwide have risen from 11.7% in 1997 to 24.9% in 2020; during the same period, women parliamentarians in Europe have increased by about 10 percentage points (EIGE, 2021; Women, 2020). The appointment of Kamala Harris as the 49th vice president of the United States—the first woman to achieve such top position—also contributed to the visibility of women as political leaders. Assessing the effects of higher women's political representation has thus become of interest, regardless of the fact that policy commitment to equality between man and women is relevant for its own sake (Duflo, 2012). In this paper, we look at Italian municipalities and provide evidence on the relationship between local government stability and the share of female councillors.

Elections of local governments in Italy provide a helpful framework to investigate whether more women as policymakers do make a difference. We may rely on two events far apart in time determining, respectively, an exogenous drop and an exogenous increase in the share of female councillors. The variations induced by these events allow to control for the plausible endogeneity regarding women in leadership positions: they tend to be sorted in organizations with poorer outcomes (Gagliarducci and Paserman, 2015), appointed to precarious leadership positions (Xing et al., 2020), and elected into office during difficult times (O'Brien, 2015), thus inducing the likely false conclusion that worst accomplishments are due to women. In particular, Law No. 215, 2012, issued to foster women's participation in local governments, determined a discrete jump in the share of female councillors (Baltrunaite et al., 2019); previously, the ruling of the Italian Constitutional Court in 1995 had, instead, determined a strong drop in this share. Moreover, we also notice that while the statutory duration of the city-council legislature is five years, at least since 2000, anticipated elections can be called because of well defined reasons. Information about such reasons allows to sort out episodes of early termination for political motivations from other ones. Therefore, we can investigate whether a change in the number of women has any effect on the intensity of

political disagreement among local policymakers.

Two main characteristics of Law No. 215 are particularly useful for our purpose. First, the gender quota only applies to municipalities with more than five thousands inhabitants and elections since 2013. Therefore, we can exploit temporal and spatial variations in the data (comparing municipalities above and below the threshold of inhabitants whose governments were elected before and after 2013). Second, people are entitled to vote for two candidates (instead of one) as long as of different gender. This contributed to increase women's political representation without forcing all voters to choose between men and women, thus overcoming potential gender discrimination. In other words, exercising the right of double preference does not undermine the possibility to vote for a valid woman even when voters have stronger preference for men as councillors.

Our results show that a larger share of women among councillors reduces the probability of early termination of local governments for political reasons. Specifically, increasing female representation by 10 percentage points—due to the gender quota—reduces the probability of early termination by 3 percentage points. For comparison, the average probability of early termination of municipal councils before the introduction of the 2012 law was about 8.1%. In particular, this effect holds true in addition to any potential effect due to the higher education of elected women and controlling for differences across municipalities in female labor supply, unemployment, and concentration of political parties. Therefore, it supports the idea that female policymakers are better suited to cooperate for a common goal (Gagliarducci and Paserman, 2016) and that females reveal to be more cooperative than males possibly due to gender difference in self-confidence (Kuhn and Villeval, 2015). Moreover, our finding that the stability of governance is reinforced when female councillors interact with female mayor is in line with evidence by Gagliarducci and Paserman (2012) and accords with conclusions by Eckel and Grossman (2001), Baskaran and Hessami (2018a), and Xing et al. (2020) overall suggesting that agreements among women are more easily achievable and that women cooperate more with women than with men.

Before Law No. 215, another law was already issued in 1993 to increase female political

representation in local governments. Differently from the more recent one, however, the 1993 gender quota characterized all municipalities.[1] In September 1995, the law was declared unconstitutional because prejudicial to the principle of equal access to elective offices. As expected, by comparing councils formed before September 1995 and those formed during the last three months of the year—when elections were no more characterized by the gender quota—a strong drop in the share of female councillors emerges: the abolition of the quota reduced female-elected councillors from more than 21% to less than 15%. In connection with this drop we find a clear increment in episodes of early termination.

The debate on whether gender matters in politics is ongoing (Hessami and da Fonseca, 2020). Previous results suggest that a higher share of female legislators increases electoral participation (De Paola et al., 2014), lowers numbers of low-educated elected men (Baltrunaite et al., 2014; Besley et al., 2017), positively affects adolescent girls ambitions (Beaman et al., 2012), and curbs the diffusion of corruption (Jha and Sarangi, 2018; Brollo and Troiano, 2016). Hence, beside ensuring equal opportunities and legitimate democracy, promoting women's presence in politics seems to be beneficial for governmental quality.[2] We contribute to this literature suggesting that the share of female council members also contributes to enhancing political stability: less women fuel episodes of early termination while more women curb them.

The rest of the paper is organized as follows. Section 1.2 describes the data. Section 1.3 introduces the econometric framework and how potential endogeneity is addressed. Section 1.4 presents the results. Section 1.5 concludes.

[1] The law was issued together with a change in the electoral regime.

[2] In general, less clear-cut results emerge regarding the supply of public services when more women are policymakers (Bagues and Campa, 2021; Ferreira and Gyourko, 2014; Geys and Sørensen, 2019). Yet, female politicians seems to better address women's needs, investing more in health and education (Chattopadhyay and Duflo, 2004; Clots-Figueras, 2011; Baskaran and Hessami, 2019; Casarico et al., 2019). Moreover, regarding private firms it has been found that those managed by women increase relative labor costs and employment levels (Matsa and Miller, 2013) while those with more gender-diverse boards allocate more effort to monitoring (Adams and Ferreira, 2009).

1.2 Institutional Details and Data

The municipal government administration in Italy is in the hands of a Mayor and two public bodies, the Council and the Executive Committee. The size of each body is statutory according to population of municipality. The Council is an administrative and political body whose members exercise the legislative authority and finance the affairs of the municipality. The Mayor is responsible for the governance of the local administration as well as for public order, civil defense, electoral and registry offices, and other duties delegated by higher-order political body. The Executive Committee is appointed by, and cooperates with the Mayor; usually, management powers on specific sectors are attributed to each member of this committee.[3] Since 1993, councillors are elected with an open list system; they are elected by the citizens together with the Mayor. Up to the introduction of the gender quota in 2013, voters had one vote for one council candidate. From 1986 to 2016 about fifty thousands municipal Councils have been elected in Italy.

The statutory duration of the municipal administration is five years, except for the period 1993-99 when it was four years. However, legislatures can terminate before the natural end of the term for a number of reasons. Table 1.1 shows that more than one third of all Italian municipalities experienced at least one episode of city-council early termination.[4] These municipalities are similar to the rest of the sample in terms of average education of their citizens and participation of females to the labor force. They, instead, differs in terms of average unemployment rate, which is higher among municipalities with greater government instability, and population. Table 1.2 also shows that the two groups of municipalities are quite different in terms of female presence among municipal councillors: a lower percentage of female councillors characterizes municipalities with at least one episode of early termination. In particular, females in municipalities that never experienced legislature early termination are about 20%, more than the presence in municipalities prematurely terminated only once which,

[3]For municipalities under 15 thousand inhabitants, the Executive Committee is nominated among the members of the Council, while for municipalities with 15 thousand inhabitants or more, the members of the Executive Committee can be also external to the Council.

[4]Since official information on early termination is available since 1990, local governments ruling previously have been considered prematurely dissolved if they lasted less than five years.

in turn, is larger than the presence of women elected in municipalities that experienced more than one episode of early termination. Both differences are statistically significant a 1 percent level. On average, in municipalities experiencing more than one episode of early termination the percentage of females drop to 13.4%. A similar view is suggested by Figure 1.1 showing the frequency of early terminations for different intensity of females in the Councils. Early terminations decreases monotonically from 20% to 6.6% as the number of females increases.

An inside look at characteristics of the councillors by gender is reported in Table 1.3. We regressed the Council-level percentage of females on characteristics of the Council and the municipality; evidence in columns 1 and 2 refers to municipalities whose local governments have always reached the statutory date while that in columns 3 and 4 to the rest of the sample. The main results are those related to the dummy Mayor and the Herfindahl index. The coefficient attached to the dummy Mayor is estimated positive not allowing for the municipality effect, otherwise it is negative. Therefore, municipalities characterized by more females among councillors also have more episodes of local governments headed by a female (see columns 1 and 3). However, a female mayor is associated with a *lower* number of females in the Council (see columns 2 and 4). This evidence applies to both groups of municipalities, even though it is stronger for municipalities not experiencing early terminations. It likely reflects the intent of political parties to balance their female mayoral candidate with predominantly male council candidates. Moreover, the Herfindahl index suggests a positive correlation with the presence of female councillors, that is more females are elected when the composition of the council is characterized by a lower number of political parties. Since councillors are elected according to both the received votes and the position in the party list, this result likely reflects women being placed at the bottom positions of party lists.[5] Finally, results also suggest that female councillors are significantly younger and more educated than males; slightly less females are elected in their birth-province and slightly more are unemployed at election.

As we mentioned, different motivations can be attributable to early terminations. Some of them are the natural consequence of formal acts by the councillors, others are due to

[5]Even when gender quotas are in place, their rules only refer to the number of women in the list, leaving the party free to place them at the bottom of the list. Thus, when many people are elected from the same party, it will be more likely to pick women.

mayor's decision, and some others are unrelated to political motivations. The group of our main interest is composed of early termination episodes due to formal acts by the councillors explicitly aimed at the dissolution of the legislature, arguably because of political disagreements, that is Councillors' Resignation and No-Confidence Vote. These circumstances realize when either more than 50% of total councillors resigned or explicitly voted to force Mayor's Resignation.[6] Therefore, they plainly depend on councillors' willingness to cooperate in the interest of preventing government instability and on their ability to settle disagreements. This group includes 2,700 cases, that is more than half of total number of episodes (see Table 1.4). Early terminations attributable to the Mayor are those due to Mayor's Resignation, Incompatibility, and Mayor's Removal. The residual group consists of the following categories plausibly unrelated to political motivations: Financial Statement Rejection, Mayor's Death, Mafia infiltration in city council, and not-coded reasons.

We recognize that sometimes the rejection of financial statement, formally related to technical assessments regarding the municipal budgetary situation, is achieved to ending the legislature because of disagreements among political parties. Therefore, in the following we check the robustness of our results by adding episodes of Financial Statement Rejection to our group of interest. Since they are few in numbers, our results are not at all due to the way they are considered. Moreover, we notice that early termination due to mafia infiltration is unrelated to councillors' decisions because it takes place when *"evidence emerges regarding direct or indirect links between members of the local government and criminal organisations [. . .] jeopardising the free will of the electoral body and the sound functioning of the municipal administration"* (D.L. 31/05/1991 No. 164). Therefore, this circumstance is unrelated to political disputes within the majority coalition or between the latter and the opposition coalition. Anyway, although there is no specific evidence on early termination for mafia we also notice that the relationship between early termination for corruption and women's presence in municipal bodies, if any, would be negative (Dollar et al., 2001; Jha and Sarangi,

[6] According to Law 267/2000, when more than 50% of the councillors resign simultaneously the legislature must be stopped. Formally, it ends up when the President of the Republic issues a decree upon recommendation of the Ministry of Interior; a commissioner rules the municipality until the next election. The election will take place in the first electoral round prescribed by the national schedule (usually in spring).

2018). Hence, not accounting for this relationship will penalize our main evidence.

All reasons together imply an average early termination probability of roughly 11%. In the following, we provide evidence on early terminations attributable to councillors and mayor, separately. In particular, for the baseline evidence we drop cases due to Mayor's Death, Mafia infiltration, and Financial Statement Rejection, while those without information on the reasons are considered part of the untreated group.

1.2.1 Gender Quota for Local Elections

Figure 1.2 depicts the yearly average of female councillors—as percentage of total councillors—across municipalities. Over the years 1985-2015, the percentage of females increased sixfold reaching more than 26% at the end of the sample, a value quite similar to female representation in municipal political bodies of European countries. In particular, women councillors sharply increased as a consequence of the two laws issued in 1993 and 2012, respectively, aiming to promote gender equality in local governments.

The number of females in local political bodies markedly increased in the last part of the sample. According to Law No. 215/2012, since 2013 constituents of councillors in municipalities with at least five thousand inhabitants are allowed to vote for two candidates of a given party list as long as of different gender, otherwise the second vote would be cancelled. Moreover, the same law also prescribes that no more than 2/3 of the candidates of an electoral list can be of the same sex. By mitigating voters' potential gender discrimination, this provision turned out to be particularly effective to raise the number of elected females. In particular, since the law only applies to a subset of municipalities we can implement an instrumental variable difference-in-differences strategy, to investigate the effect of a sudden increase in women's councillors on the stability of local government.

Law No. 81/1993 established that in municipalities with more than 15,000 inhabitants no more than 2/3 of candidates of a given party list to municipal Council could be of the same sex; in smaller municipalities the threshold was fixed at 3/4. While this law was formally addressed to change women's presence in electoral lists, its likely consequence was

to increase the number of elected women (De Paola et al., 2010). However, since it applied to all municipalities and overlapped with relevant changes in electoral system (from a party-ballot to an individual ballot election of the mayor), it is poorly suited to ascertain the causal effect of more woman on government stability.[7]

In September 1995, the Constitutional Court declared the gender quota unconstitutional because prejudicial to the equal access to elective offices (Art. 3 and 51 of the Italian Constitution) and it was repealed. Therefore, by relying on this very peculiar occurrence we can exploit the potential variation in the number of women elected soon after the abrogation of the gender quota. Actually, although in 1995 many municipalities voted during the period of validity of the quota, a relevant number of Councils were elected in the last part of the year.

1.3 Econometric Framework

To uncover the effect of gender composition in municipal government on early termination, we consider all city councils elected during the period 1986-2015 and estimate the following empirical specification:

$$EARLY_{i,t} = \sigma_i + \delta_t + \beta FEMALE_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \tag{1}$$

where $EARLY_{i,t}$ is a dummy variable whose value is 100 if the Council of municipality i elected in the year t terminated before the natural end of the legislature, and 0 otherwise; $FEMALE_{i,t}$ is the percentage of females among councillors; $X_{i,t}$ is a vector of time-varying control variables (and thus γ a vector of coefficients); σ_i is a municipality fixed effect; δ_t is a time fixed effect; $\varepsilon_{i,t}$ is an idiosyncratic error term.

In principle, two major controls need to be considered in our analysis. The degree of government stability is reputedly related to the distribution of councillors among parties or the size of the majority party in the Council. If, say, the majority party is characterized

[7] Moreover, at the time of the 1993 gender quota the well known set of judicial inquiries, called by the media 'Mani Pulite', revealed the massive diffusion of corruption within the Italian political and entrepreneurial system, determining the collapse of the leading parties.

by a relatively large share of women, then we may mistakenly attribute greater stability to large share of women. To control for this possibility, the empirical specification contains the Herfindahl index of party concentration within the Council. Another potential major issue is related to the education of the councillors. As pointed out by Table 1.3, female councillors in our sample are on average more qualified than their male colleagues. Since the quality of government and, eventually, its stability is also determined by the level of education (Glaeser et al., 2004; Fortunato and Panizza, 2015), a higher number of women among councillors might be correlated with the government stability.

In addition, we also include controls related to councillors' age and occupation, a dummy identifying councillors elected in their birth-province, a dummy picking the sex of the Mayor—given its suggested impact on the probability of early termination (Gagliarducci and Paserman, 2012)—and municipal-level regressors, that is labour-force participation rate of females, unemployment rate, percentage of educated citizens, and size of population. The panel structure of the data set allows to take into account systematic differences in government stability across municipalities as well as any time-specific shock affecting the election outcomes of a given year.[8]

1.3.1 Endogeneity and Gender Quota

In order to address the endogeneity characterizing our key regressor (Gagliarducci and Paserman, 2015; Xing et al., 2020), we mainly rely on the sharp increase in female councillors that followed the Law No. 215/2012. In particular, we identify local governments elected in municipalities with more than five thousand inhabitants after 2012 as the treated group and those elected before this year together with those related to smaller municipalities as the control.

Specifically, we recover the difference-in-difference variation in female councillors due to

[8] All results are robust to the exclusion of municipalities that were not part of the same province during the sample period.

the law by estimating the following first stage regression:

$$FEMALE_{i,t} = \sigma_i + \delta_t + \delta LAW2012_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \tag{2}$$

where $LAW2012_{i,t}$ is a dummy variable with values equal to one for treated observations and 0 otherwise. Hence, the 2SLS estimate of β in equation 1 provides our measure of the female effect on government stability.[9]

1.4 Results

Tables 1.5 and 1.6 present our basic results relative to the full sample. In particular, Table 1.5 presents the first stage while 1.6 the second stage; the first two columns refer to councillors-related early terminations, the rest of the table to mayor-related early terminations. In columns 1 and 3 we report results without controls for characteristics of the councillors.

As expected, the 2012 law was particularly effective in increasing female representation within municipal administrations: because of the gender law favoring female participation in local governments, the average percentage of females among councillors increased by about 10 percentage points, whatever the group considered. The t-statistics is extremely high, reassuring about weak instrument concern. Results relative to the control variables are clearly in line with what we observed above: female politicians have on average a higher level of education; their presence in the council tends to reduce when the mayor is female and to increase with parties concentration.

Focusing on the second stage, it follows an estimate of the key coefficient negative and statistically significant—at the 1% level—only in the case of early terminations related to councillors' decisions. Its magnitude implies that the increment of females determined a reduction in the probability of early termination by about 3 percentage points. This effect is robust to the inclusion of controls for council characteristics which only slightly affect the point estimate of the coefficient, from -0.29 to -0.33. Given the number of early terminations

[9] Chesher and Rosen (2013) show that with dummy outcome variable the 2SLS estimator is still consistent for the local average treatment response under the standard restrictions of Imbens and Angrist (1994).

in the sample, we conclude that the introduction of the double preference voting conditional on gender and the gender quota in electoral lists determined a reduction in the probability of early termination by about 30%.

Evidence on controls suggest that education of the councillors is positively correlated with the probability of early termination perhaps because more educated councillors have better outside options, thus they are less 'scared' to loose the role of public administrator. Age is negatively correlated with early termination that is, ceteris paribus, more stable governments are those with older councillors. We do not find any effect of the number of parties in the council. Hence, even when we control for a number of features of municipal council determined by the share of females, we still find a distinctive effect on early termination imputable to the variable Female.

For Italian city councils during 1993-2003, Gagliarducci and Paserman (2012) find higher probability of early termination when the mayor is female. Our evidence relative to the Mayor dummy is consistent with their result, though it implies a bit smaller effect. Quite relevant, controlling for the sex of the Mayor does not affect the coefficient on female councillors. According to our estimates, the stability effect to the governance induced by the 2012 law is stronger than the instability associated with a female mayor. In this sense, the law seems to have really contributed to increase local government stability. Consistent with this conclusion, we also notice that by interacting the variables Female and Mayor the attached coefficient is estimated negative and significant at 5 percent level—results not reported—suggesting a potential amplifying effect to the performance of an organization when women play different roles at the top echelons of an organization (Xing et al., 2020).

A completely different picture emerges when we look at episodes of early terminations related to the mayor. None of the main coefficients of the second stage regression is estimated statistically significant at the 5 percent level. In particular, the coefficient of the dummy Mayor is virtually zero; the coefficient of Female is even *positive*. Arguably, this evidence supports our conclusion that by increasing the presence of females in the council the 2012 law has contributed to the reduction of early terminations determined by councillors' political

decisions, consistent with potential differences by gender in the ability to foster cooperation and settle disagreements in a forum.

1.4.1 Further Results

In this section, we further investigate the properties of our empirical model. Specifically, we analyze the influence of special status regions and the implications of restricting our sample to municipalities more closely in terms of size and to recent years.

Five Italian regions, *Valle d'Aosta, Trentino-Alto Adige, Friuli-Venezia Giulia, Sicilia, and Sardegna*, are recognised by the Constitutional Chart as regions with special status which allows, among others, more independence in the governance of local institutions. In particular, circumstances leading to local government's early termination are regulated by regional laws. For instance, the official decree of local government's dissolution is issued by the President of the Region instead of the President of the Republic. Table 1.7, column 1, presents the 2SLS results when early terminations are related to councillors and regions with special status are dropped. Results are virtually unaffected.

In column 2, we further restrict the sample to municipalities whose population is in the range 3-15 thousands of people. Electoral rules in municipalities with more than 15 thousands people are a bit different compared to those legal in the rest of the country. Moreover, municipalities with less than 3 thousands people share a different rule relative to the election of the Executive Committee compared to all others.[10] Therefore, we drop these two groups of municipalities from the sample. Notice that in doing so we also restrict the sample to municipalities more closely in size to the threshold determining the 2012 gender law for local elections, in the spirit of a regression discontinuity analysis. Clearly, even in this case the key coefficient remains negative, statistically significant, and only slightly different in size. The main difference attains at the coefficient of the dummy Mayor which becomes insignificantly

[10]Municipalities with less than 15 thousands inhabitants follow a single-ballot rule, that is, the mayoral candidate who received the relative majority is elected; moreover, no coalition of electoral lists is allowed. Municipalities with more than 15 thousands inhabitants follow a dual-ballot rule: candidates can be supported by a plurality of lists and the candidate who gets an absolute majority is appointed to be the mayor. If no candidate receives more than 50% of the votes, then the two candidates who gets the higher number of votes face a second round. With reference to the Executive Committee, in municipalities with more than 3 thousands inhabitants no more than 60% of the members can be of the same sex (Law No. 56/2014).

different from zero.

In the last column of Table 1.7, we show the effects of restricting the sample to the shortest possible period to implement our analysis. Our main findings still hold. Overall, these results confirm our main conclusion regarding the impact of the 2012 gender law on government stability.[11]

1.4.2 The case of the 1993 Law

During 1993-94, all local governments in Italy were elected according to Law No. 81, 1993, which introduced a gender quota favouring females. However, in September 1995 the gender quota was abolished whereby elections during the last three months of the year were carried out without that provision. We rely on this circumstance to further investigate the impact of female participation in politics. In particular, we estimate equation (1) restricting the sample to 1995 and exploiting the following first stage regression:

$$FEMALE_i = \beta LAW1995_i + \gamma X_i + \varepsilon_i \tag{3}$$

where $LAW1995_i$ is a dummy variable accounting for municipalities that voted after the abolition of the gender quota.

Figure 1.3 summarizes the main evidence. As expected, revocation of gender quota had a relevant impact on women election: municipalities that voted without the gender quota show a markedly lower female representation in local councils compared to municipalities that voted before the revocation, that is 15.1% vs. 21.5%. Looking at the probability of early termination, the corresponding figures are roughly 20% and 7%.

A closer analysis of the municipalities that voted in 1995 after revocation of the quota reveals that 64% of them had elections not because the former government naturally ended but because it was dismissed. This finding could arise concerns related to the potential self-selection of municipalities inherently more unstable in the group that voted after September

[11] Table 1.8 shows results when early terminations are attributable to Mayor. Evidence is in line with that relative to the full sample.

1995. However, this concern does not find support in the data. In fact, comparing local governments elected in 1995 because the previous legislature naturally ended with the ones elected because the former administration was dismissed, it turns out that the difference in the probability of early termination between the two groups is not statistically significant. Therefore, the higher probability of early termination of local governments elected after the revocation of the gender quota—as shown in Figure 1.3—seems completely unrelated to the sizeable presence in this group of municipalities whose former government terminated early.

Table 1.9 and 1.10 present respectively first and second stage regression results. The first two columns refers to councillors-related early terminations, the rest of the table to all the remaining early termination episodes, including Mayor's Death, Financial Statement Rejection and Mafia. In columns 1 and 3 we report results without controls for characteristics of the councillors. In all regressions, standard errors are robust to heteroscedasticity. First stage estimations show that, regardless of the specification, local governments elected after the law repeal have a significantly lower female representation among councillors: about 5 percentage points fewer females including control variables. Second stage results deliver an estimate of the key coefficient which is negative and statistically significant only for councillor-related early terminations, suggesting that reducing female representation negatively affects the stability of the government. In particular, a 5 percentage points reduction in females tends to increase the probability of early termination by 5.5 percentage points. All other results are in line with those of the previous analysis. In particular, the coefficient on the sex of the Mayor is positive and significant (only for councillor-related early terminations); the average education level of the councillors has a positive and highly significant effect on the probability of early termination; the party concentration within the Council has no significant effect on government's probability of early termination.

1.5 Conclusion

We contribute to the debate on the impact of females in leadership positions by investigating the government stability in Italy at municipality level. A law issued in Italy to foster

female participation in politics determined a strong increase in the share of females elected as councillors of municipal governments. This discrete shift— by about 10 percentage points— determined a reduction in the probability of legislature's premature end by roughly 30%.

The estimated effect is obtained controlling for a variety of councillors' characteristics (such as education, age, and occupation) and for the municipality-level fixed effect. It does not hold when early terminations do not depend on councillors' behavior; it is reinforced when female councillors interact with a female Mayor. Taken together, these results point to the potential increase in cooperation due to females, as previously suggested by Gagliarducci and Paserman (2016) and Baskaran and Hessami (2018b), among others.

Since political instability decreases investment (Darby et al., 2004), worsens the quality of institutions (Aron, 2000), and ultimately reduces GDP growth (Alesina et al., 1996; Aisen and Veiga, 2013), our results have implications for the relationship between gender bias and the performance of an economy. The recent worldwide increasing trend in female political representation should be favorably seen on an economic ground, too.

References

Adams, Renée B. and Daniel Ferreira, "Women in the Boardroom and Their Impact on Governance and Performance," *Journal of Financial Economics*, 2009, *94* (2), 291–309.

Aisen, Ari and Francisco J. Veiga, "How Does Political Instability Affect Economic Growth?," *European Journal of Political Economy*, 2013, *29*, 151–167.

Alesina, Alberto, Sule Özler, Nouriel Roubini, and Phillip Swagel, "Political Instability and Economic Growth," *Journal of Economic Growth*, 1996, *1* (2), 189–211.

Aron, Janine, "Growth and Institutions: A Review of the Evidence," *The World Bank Research Observer*, 2000, *15* (1), 99–135.

Bagues, Manuel and Pamela Campa, "Can Gender Quotas in Candidate Lists Empower Women? Evidence from a Regression Discontinuity Design," *Journal of Public Economics*, 2021, *194*.

Baltrunaite, Audinga, Alessandra Casarico, Paola Profeta, and Giulia Savio, "Let the Voters Choose Women," *Journal of Public Economics*, 2019, *180*.

_ , Piera Bello, Alessandra Casarico, and Paola Profeta, "Gender Quotas and the Quality of Politicians," *Journal of Public Economics*, 2014, *118*, 62–74.

Baskaran, Thushyanthan and Zohal Hessami, "Does the Election of a Female Leader Clear the Way for More Women in Politics?," *American Economic Journal: Economic Policy*, 2018, *10* (3), 95–121.

_ and _ , "Does the Election of a Female Leader Clear the Way for More Women in Politics?," *American Economic Journal: Economic Policy*, 2018, *10* (3), 95–121.

_ and _ , "Competitively Elected Women as Policy Makers," Working Paper 8005, CESifo 2019.

Beaman, Lori, Esther Duflo, Rohini Pande, and Petia Topalova, "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India," *Science*, 2012, *335* (6068), 582–586.

Besley, Timothy, Olle Folke, Torsten Persson, and Johanna Rickne, "Gender Quotas and the Crisis of the Mediocre Man: Theory and Evidence from Sweden," *American Economic Review*, 2017, *107* (8), 2204–42.

Brollo, Fernanda and Ugo Troiano, "What Happens When a Woman Wins an election? Evidence from Close Races in Brazil," *Journal of Development Economics*, 2016, *122*, 28–45.

Casarico, Alessandra, Salvatore Lattanazio, and Paola Profeta, "Women, Local Public Finance and Fiscal Adjustment," Working Paper 133, Dondena 2019.

Chattopadhyay, Raghabendra and Esther Duflo, "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India," *Econometrica*, 2004, *72* (5), 1409–1443.

Chesher, Andrew and Adam M. Rosen, "What Do Instrumental Variable Models Deliver with Discrete Dependent Variables?," *American Economic Review: Papers and Proceedings*, May 2013, *103* (3), 557–62.

Clots-Figueras, Irma, "Women in Politics: Evidence from the Indian States," *Journal of Public Economics*, 2011, *95* (7-8), 664–690.

Darby, Julia, Chol-Won Li, and Anton V. Muscatelli, "Political Uncertainty, Public Expenditure and Growth," *European Journal of Political Economy*, March 2004, *20* (1), 153–179.

De Paola, Maria, Vincenzo Scoppa, and Marco A. De Benedetto, "The Impact of Gender Quotas on Electoral Participation: Evidence from Italian Municipalities," *European Journal of Political Economy*, 2014, *35*, 141 – 157.

_ , _ , **and Rosetta Lombardo**, "Can Gender Quotas Break Down Negative Stereotypes? Evidence from Changes in Electoral Rules," *Journal of Public Economics*, 2010, *94* (5), 344 – 353.

Dollar, David, Raymond Fisman, and Roberta Gatti, "Are Women Really the "Fairer" Sex? Corruption and Women in Government," *Journal of Economic Behavior & Organization*, 2001, *46* (4), 423–429.

Duflo, Esther, "Women Empowerment and Economic Development," *Journal of Economic literature*, 2012, *50* (4), 1051–79.

Eckel, Catherine C. and Philip J. Grossman, "Chivalry and Solidarity in Ultimatum Games," *Economic inquiry*, 2001, *39* (2), 171–188.

EIGE, "Quality Considerations for EIGE's Gender Statistics Database," *European Institute for Gender Equality*, 2021.

Ferreira, Fernando and Joseph Gyourko, "Does Gender Matter for Political Leadership? The Case of US Mayors," *Journal of Public Economics*, 2014, *112*, 24–39.

Fortunato, Piergiuseppe and Ugo Panizza, "Democracy, Education and the Quality of Government," *Journal of Economic Growth*, 2015, *20* (4), 333–363.

Gagliarducci, Stefano and Daniele M. Paserman, "Gender Interactions Within Hierarchies: Evidence from the Political Arena," *Review of Economic Studies*, 2012, *79* (3), 1021–1052.

_ **and** _ , "The Effect of Female Leadership on Establishment and Employee Outcomes: Evidence from Linked Employer-Employee Data," *Research in Labor Economics*, 2015, *41*, 343–375.

_ **and** _ , "Gender Differences in Cooperative Environments? Evidence from the US Congress," Working Paper 22488, National Bureau of Economic Research 2016.

Geys, Benny and Rune J. Sørensen, "The Impact of Women Above the Political Glass Ceiling: Evidence from a Norwegian Executive Gender Quota Reform," *Electoral Studies*, 2019, *60.*

Glaeser, Edward L., Rafael La Porta, Florencio Lopez de Silanes, and Andrei Shleifer, "Do Institutions Cause Growth?," *Journal of economic Growth*, 2004, *9* (3), 271–303.

Hessami, Zohal and Mariana Lopes da Fonseca, "Female Political Representation and Substantive Effects on Policies: A Literature Review," *European Journal of Political Economy*, 2020.

Imbens, Guido W. and Joshua D. Angrist, "Identification and Estimation of Local Average Treatment Effects," *Econometrica*, 1994, pp. 467–475.

Jha, Chandan K. and Sudipta Sarangi, "Women and Corruption: What Positions Must They Hold to Make a Difference?," *Journal of Economic Behavior & Organization*, 2018, *151*, 219–233.

Kuhn, Peter and Marie C. Villeval, "Are Women More Attracted to Co-operation than Men?," *Economic Journal*, 2015, *125* (582), 115–140.

Matsa, David A. and Amalia R. Miller, "A Female Style in Corporate Leadership? Evidence from Quotas," *American Economic Journal: Applied Economics*, 2013, *5* (3), 136–69.

O'Brien, Diana Z., "Rising to the Top: Gender, Political Performance, and Party Leadership in Parliamentary Democracies," *American Journal of Political Science*, 2015, *59* (4), 1022–1039.

Women, UN, "Review and Appraisal of the Implementation of the Beijing Declaration and Platform for Action and the Outcomes of the twenty-third Special Session of the General Assembly," *United Nations Women*, 2020.

Xing, Lu, Angelica Gonzalez, and Vathunyoo Sila, "Does Cooperation Among Women Enhance or Impede Firm Performance?," *The British Accounting Review*, 2020.

Appendix

List of Variables

In the following we specify the definition and the source of all the variables used in our paper.

Early: Dummy variable indicating if the local government terminated before the statutory end of the term. It takes value of 100 if the local government has been subject to early termination and 0 otherwise. Source: Ministry of Interior.

Female: Percentage of females among the councillors. It is computed as 100*(Number female councillors)/(Total number of seats in the Municipal Council). Source: Ministry of Interior.

Law2012: Dummy variable capturing the elections in which voters could express a double preference conditional on gender and electoral lists were subject to gender quotas; that is, the two main novelties introduced by law no. 215/2012. It takes value of 1 for local governments elected after December 2012 in municipalities with at least five thousand inhabitants, 0 otherwise.

Law1995: Dummy variable capturing the local governments elected after gender quota provision of law no. 81/1993 was repealed. It takes value of 1 for local governments elected after September 1995, and 0 for local governments elected before September 1995.

Education: Average education level of Municipal Council members. For each member of the local government, the years of education are computed considering the minimum number of years required to obtain her/his reported qualification: 0 if 'no qualification', 3 if 'three years of primary school', 5 if '5 years of primary school', 8 if 'secondary school, first level', 13 if 'secondary school, second level', 16 if 'bachelor's degree', 18 if 'master's degree', 21 if 'PhD degree'. Source: Ministry of Interior.

Age: Average age of Municipal Council members. Source: Ministry of Interior.

Herfindahl: Herfindahl index of political party concentration within the Council; it is computed by summing the squares of each party's share in the Council. It takes value from 0 to 1 where 1 stands for maximum concentration, that is all the councillors belong to the

same party. Source: Ministry of Interior.

Unemployment: Percentage of councillors that did not have an occupation (at election). Source: Ministry of Interior.

Birth-province: Percentage of councillors elected in their birth-province. Source: Ministry of Interior.

Municipal labour-force participation rate of females: Percentage rate of municipal labour force participation for women; that is, the percentage of active female population (employed or actively seeking employment) with respect to the whole female working-age population (aged 15-64). Source: Censuses data, National Institute of Statistics (ISTAT).

Municipal unemployment rate: Percentage rate of municipal unemployment. Source: Censuses data, National Institute of Statistics (ISTAT).

Percentage of educated citizens: In a municipality, it is the percentage of citizens with a qualification over the total population. Source: Censuses data, National Institute of Statistics (ISTAT).

Pop_5k: Dummy variable taking value of 1 for local government elected in municipalities with a population greater than or equal to five thousand inhabitants, and 0 otherwise. Source: National Institute of Statistics (ISTAT).

Population: Number of citizens of a municipality, in thousands. Source: National Institute of Statistics (ISTAT).

Early Termination Episodes

A legislature can terminate before the natural end of the term for several reasons, broadly classifiable in two groups: the ones related to political motivations and the ones unrelated to political motivation (Table A1). In the first group, early termination episodes can be driven by councillors' decision or Mayor's decision. Our main interest is on early terminations due to formal acts by the councillors explicitly aimed at the dissolution of the legislature, arguably because of political disagreements, that is Councillors' Resignation and No-Confidence Vote. These circumstances realize when either more than 50% of total councillors resigned or ex-

plicitly voted to force Mayor's Resignation. Therefore, they plainly depend on councillors' willingness to cooperate in the interest of preventing government instability and on their ability to settle disagreements. This group includes 2,700 cases, that is more than half of total number of episodes. Early terminations attributable to the Mayor are those due to Mayor's Resignation, Incompatibility, and Mayor's Removal, accounting for 1037 cases. In fact, these episodes result from a mayoral decision, respectively of stepping down, undertaking a different job and committing serious infringements.[12] The residual group consists of the following categories plausibly unrelated to political motivations: Financial Statement Rejection, Mayor's Death, Mafia infiltration in city council, and not-coded reasons. Financial Statement Rejection is mainly due to technical assessments regarding the municipal budgetary situation; Mafia infiltration realizes when "*evidence emerges regarding direct or indirect links between members of the local government and criminal organisations [. . .] jeopardising the free will of the electoral body and the sound functioning of the municipal administration*" (D.L. 31/05/1991 No. 164); lastly, there are 317 early termination episodes without any indication of the underlying reason.

[12] For example, the Mayor is removed whenever she/he is charged for a crime.

Table A1: Early Terminations

	Freq.	Percent	Description
Related to Political Motivations			
Councillors' Decision			
Councillors' Resignation	2,541	50.84	More than 50 percent of councillors resign.
No-Confidence Vote	159	3.18	The councillors vote to force the Mayor out from his office.
Mayor's Decision			
Mayor's Resignation	740	14.81	The Mayor steps down from her/his office.
Mayor's Removal	30	0.60	The Mayor is removed after committing serious infringements.
Incompatibility	267	5.34	The Mayor undertakes some activities not compatible with her/his office.
Unrelated to Political Motivations			
Mayor's Death	408	8.16	The Mayor dies.
Financial Statement Rejection	190	3.80	The councillors do not approve the final municipal budget.
Mafia	292	5.84	The administration is dismissed for suspected mafia infiltration.
Not-coded	371	7.42	Early termination episodes without any indication of the underlying reason.
Total	4998	100.00	

Notes: The percentages are relative to the total number of local governments terminated early.

Table 1.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Median
Panel A.			
Municipalities without early termination episodes: 4615			
Citizens with qualification (%)	89.2	6.0	91.3
Unemployment rate (%)	9.5	7.8	6.7
Labour force female participation (%)	37.7	8.7	38.3
Population (Total)	4,181.7	14,666.8	1,860
Panel B			
Municipalities with at least one early termination episode: 3105			
Citizens with qualification (%)	87.4	6.4	89.2
Unemployment rate (%)	13.5	9.5	10.5
Labour force female participation (%)	35.9	8.0	35.6
Population (Total)	12,236.0	65,194.3	3,976

Notes: Panel A refers to municipalities whose local governments have never been subject to early termination while Panel B refers to municipalities where at least one local government terminated early. *Citizens with qualification* is the percentage of citizens with a qualification with respect to the total municipal population. *Unemployment rate* is the municipal percentage rate of unemployment. *Labour force female participation* is the municipal percentage rate of labour force participation for women. *Population* is the number of citizens of a municipality.

Table 1.2: Mean Difference Tests

	Early Terminations per Municipality		
	0	1	> 1
Female	19.89%	17.47%	13.40%
Difference	2.42***	4.06***	

Notes: Municipalities are pooled according to the number of early termination episodes: zero, one, more than one. The first row reports the percentage of female councillors in each group; the second row reports the difference in the percentage of females between groups. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 1.3: Women in Local Governments

	(1)	(2)	(3)	(4)
	Municipalities with Early Termination			
	No	No	Yes	Yes
Mayor	0.87***	-1.85***	1.75***	-0.63*
	(3.36)	(-6.93)	(5.27)	(-2.02)
Education	0.54***	1.02***	0.10	0.97***
	(9.50)	(14.50)	(1.49)	(11.41)
Age	-0.41***	-0.43***	-0.45***	-0.47***
	(-19.48)	(-19.29)	(-17.12)	(-16.50)
Herfindahl	0.72*	1.74***	3.56***	2.40***
	(2.22)	(5.50)	(10.27)	(6.68)
Unemployment	1.09***	0.76***	1.40***	1.05***
	(5.00)	(3.53)	(5.83)	(4.67)
Municipality Effect	No	Yes	No	Yes
Observations	26,773	26,773	18,663	18,663

Notes: The table presents results of regressing the percentage of women among councillors on a number of covariates relative to the Council and the municipality. Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Unemployment is the percentage of councillors that did not have an occupation (at election); Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council. Further regressors are: a dummy identifying councillors elected in their birth-province, a dummy identifying municipalities with at least five thousands inhabitants, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. All empirical specifications control for year fixed effect. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 1.4: Reasons of Early Termination

	Attributable to		Other	All
	Councillors	Mayor		
Number	2,700	1,037	1,261	4,998
Percent	5.91	2.27	2.76	10.94

Notes: Reasons of early terminations attributable to councillors are to those caused by their political decisions and willingness to cooperate: Councillors' Resignation and No-Confidence Vote. Those attributable to Mayor are Mayor's Resignation, Mayor's Removal, Incompatibility. The residual group consists of the following categories: Financial Statement Rejection, Mayor's Death, Mafia infiltration in city council, and other not-coded reasons. Percent values are relative to the total number of local governments in the data set.

Table 1.5: Government Stability and Women

	(1)	(2)	(3)	(4)
	First Stage			
	Councillors		Mayor	
Law2012	10.38***	9.86***	10.47***	9.89***
	(26.37)	(25.37)	(26.41)	(25.28)
Mayor		-1.44***		-1.47***
		(-7.00)		(-6.89)
Education		1.03***		1.04***
		(18.97)		(18.57)
Age		-0.43***		-0.42***
		(-24.25)		(-23.41)
Herfindahl		1.69***		1.69***
		(6.81)		(6.59)
Unemployment		0.88***		0.81***
		(5.55)		(4.96)
Observations	43,661	43,636	42,050	42,010

Notes: The table presents results of first stage estimations. The first two columns refer to councillors-related early terminations, the rest of the table to mayor-related early terminations. In columns 1 and 3 we report results without controls for characteristics of the councillors. The dependent variable is the percentage of females among councillors; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further regressors are: a dummy identifying councillors elected in their birth-province, a dummy identifying municipalities with at least five thousands inhabitants, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. All empirical specifications control for municipality fixed effect and year fixed effect. Clustered t-statistics that account for within-municipality correlation are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 1.6: Government Stability and Women

	(1)	(2)	(3)	(4)
	Second Stage			
	Councillors		Mayor	
Female	-0.29***	-0.33***	0.11*	0.13*
	(-3.74)	(-3.95)	(1.80)	(1.91)
Mayor		1.75***		0.21
		(3.47)		(0.65)
Education		0.38**		-0.18*
		(2.63)		(-1.68)
Age		-0.19***		0.05
		(-3.62)		(1.36)
Herfindahl		-0.22		-0.60
		(-0.34)		(-1.47)
Unemployment		0.59		-0.31
		(1.42)		(-1.16)
Observations	43,661	43,636	42,050	42,010

Notes: The table presents results of second stage estimations. The first two columns refer to councillors-related early terminations, the rest of the table to mayor-related early terminations. In columns 1 and 3 we report results without controls for characteristics of the councillors. The dependent variable is a dummy equals to 100 if the council terminated before the natural end of the legislature; Female is the percentage of females among councillors; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further regressors are: a dummy identifying councillors elected in their birth-province, a dummy identifying municipalities with at least five thousands inhabitants, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. All empirical specifications control for municipality fixed effect and year fixed effect. Clustered t-statistics that account for within-municipality correlation are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 1.7: Further Results on Government Stability, A

	(1) Ordinary	(2) Population	(3) 2008-15
Female	-0.31***	-0.28**	-0.30**
	(-3.68)	(-2.75)	(-2.91)
Mayor	1.81***	1.31	1.20
	(3.41)	(1.46)	(1.10)
Education	0.40**	0.68*	-0.41
	(2.64)	(2.52)	(-1.34)
Age	-0.14**	-0.10	-0.29**
	(-2.61)	(-0.96)	(-2.71)
Herfindahl	-0.40	0.38	-0.03
	(-0.54)	(0.27)	(-0.01)
Unemployment	0.39	0.64	2.51
	(0.84)	(0.74)	(1.80)
Observations	38,582	13,520	8,717

Notes: The table presents second stage estimations when early terminations are related to councillors' decisions. Under the heading Ordinary we report results restricting to regions with special status; under the heading population we also restrict the sample to municipalities whose population is in the range 3-15 thousands of people; under the heading 2008-15 we further restrict the sample to the period 2008-2015. The dependent variable is a dummy equals to 100 if the council terminated before the natural end of the legislature; Female is the percentage of females among councillors; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further regressors are: a dummy identifying councillors elected in their birth-province, a dummy identifying municipalities with at least five thousands inhabitants, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. All empirical specifications control for municipality fixed effect and year fixed effect. Clustered t-statistics that account for within-municipality correlation are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 1.8: Further Results on Government Stability, B

	(1) Ordinary	(2) Population	(3) 2008-15
Female	0.13*	0.10	0.01
	(1.88)	(1.21)	(0.12)
Mayor	0.25	-0.35	-1.39
	(0.71)	(-0.70)	(-1.47)
Education	-0.20	-0.18	0.23
	(-1.72)	(-0.97)	(0.87)
Age	0.05	0.04	0.11
	(1.18)	(0.50)	(1.21)
Herfindahl	-0.58	0.13	2.60
	(-1.26)	(0.14)	(1.86)
Unemployment	-0.35	-0.16	0.72
	(-1.13)	(-0.30)	(0.67)
Observations	37,074	12,768	8,449

Notes: The table presents second stage estimations when early terminations are related to Mayor. Under the heading Ordinary we report results restricting to regions with special status; under the heading population we also restrict the sample to municipalities whose population is in the range 3-15 thousands of people; under the heading 2008-15 we further restrict the sample to the period 2008-2015. The dependent variable is a dummy equals to 100 if the council terminated before the natural end of the legislature; Female is the percentage of females among councillors; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further regressors are: a dummy identifying councillors elected in their birth-province, a dummy identifying municipalities with at least five thousands inhabitants, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. All empirical specifications control for municipality fixed effect and year fixed effect. Clustered t-statistics that account for within-municipality correlation are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 1.9: Early Termination and Women in 1995

	(1)	(2)	(3)	(4)
	First Stage			
	Councillors		Other	
Law1995	-5.79***	-5.07***	-5.75***	-4.96***
	(-6.21)	(-5.61)	(-5.91)	(-5.24)
Mayor		-0.36		-0.21
		(-0.66)		(-0.39)
Education		0.06		0.08
		(0.60)		(0.81)
Age		-0.45***		-0.43***
		(-11.32)		(-10.92)
Herfindahl		2.51***		2.43***
		(4.18)		(4.04)
Unemployment		0.16***		0.16***
		(4.45)		(4.38)
Observations	5,137	5,137	5,095	5,084

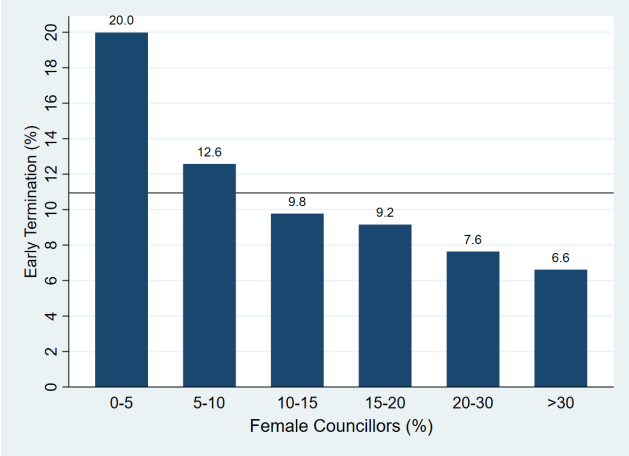
Notes: The table presents results of first stage estimations. The first two columns refers to councillors-related early terminations, the rest of the table to all the remaining early termination episodes, including Mayor's Death, Financial Statement Rejection and Mafia. In columns 1 and 3 we report results without controls for characteristics of the councillors. The dependent variable is the percentage of females among councillors; Law1995 is a dummy equals to 1 for local governments elected during the last three months of 1995; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further controls are: a dummy identifying councillors elected in their birth-province, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. Robust t-statistics are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 1.10: Early Termination and Women in 1995

	(1)	(2)	(3)	(4)
	Second Stage			
	Councillors		Other	
Female	-1.02*	-1.09*	-0.64	-0.76
	(-1.85)	(-1.72)	(-1.33)	(-1.35)
Mayor		2.83*		0.48
		(1.86)		(0.40)
Education		0.42**		0.41**
		(2.08)		(2.29)
Age		-0.40		-0.27
		(-1.34)		(-1.06)
Herfindahl		0.01		2.96
		(0.00)		(1.62)
Unemployment		-0.04		-0.01
		(-0.28)		(-0.05)
Observations	5,137	5,137	5,095	5,084

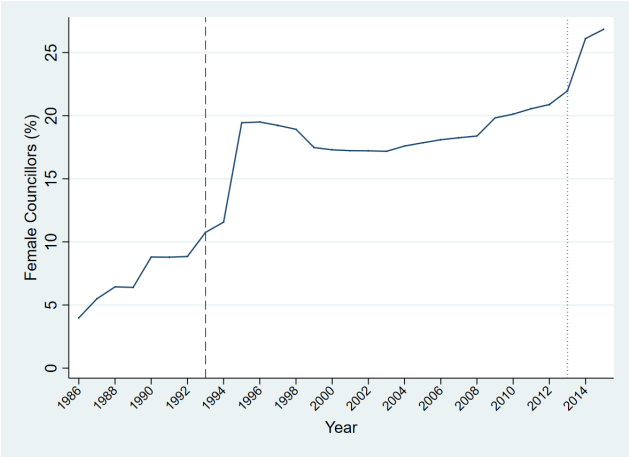
Notes: The table presents results of second stage estimations. The first two columns refers to councillors-related early terminations, the rest of the table to all the remaining early termination episodes, including Mayor's Death, Financial Statement Rejection and Mafia. In columns 1 and 3 we report results without controls for characteristics of the councillors. The dependent variable is a dummy equals to 100 if the council terminated before the natural end of the legislature; Female is the percentage of females among councillors; Mayor is a dummy equals to 1 for female Mayor; Education refers to the average years of education of councillors; Age is the average age of councillors; Herfindahl is the Herfindahl index of political party concentration in the Council; Unemployment is the percentage of councillors that did not have an occupation (at election). Further controls are: a dummy identifying councillors elected in their birth-province, municipal population, municipal labour-force participation rate of females, municipal unemployment rate, percentage of educated citizens in the municipality. Robust t-statistics are in parentheses. Significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Figure 1.1: Early Termination and Women in Local Governments



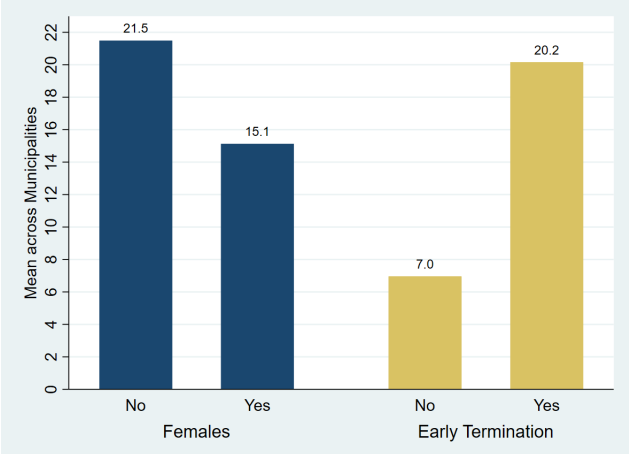
Notes: Percentage of early terminations in municipal administrations according to the percentage of females in their councils. The horizontal line represents the percentage of early terminations in the whole sample.

Figure 1.2: Women in Local Governments



Notes: The average percentage of females each year is computed across local councils of all the Italian municipalities. The dashed line and the dotted line mark the introduction of respectively the gender quota law and the double preference voting law, the two main reforms on female political representation over the considered time-frame.

Figure 1.3: Early Termination and Women in 1995



Notes: Local governments elected in 1995 have been divided in two groups: the first one (Treated= No) is made of local governments elected before gender quota abolition; the second one (Treated= Yes) is made of local governments appointed after law no. 81/1993 was abolished. The figure shows the percentage of early termination cases and the percentage of female councillors in local governments.

Part II

Parents' Risk Aversion and The Precautionary Saving Motive

2.1 Introduction

Understanding how consumers respond to changes in economic resources is crucial for evaluating the impact of macroeconomic policies, modelling macroeconomic trends and designing stabilization programmes. The remarkable increase in uncertainty following the economic, political and financial turmoil due to Covid-19 spreading, makes investigating consumers' response to uncertainty swings as relevant as ever. Indeed, shedding lights on this topic could direct future policy interventions in order to accelerate recovery.

The impact of uncertainty on households' behavior has been a long-standing subject of analysis in the consumption-saving literature (see e.g. Skinner, 1988; Deaton, 1991; Bertola et al., 2005). Under specific assumptions on the utility function (i.e. convexity of the marginal utility), life cycle models usually predict an increase in income uncertainty to reduce current consumption and raise precautionary saving.

Our work adds to this literature, enquiring into the existence and intensity of the precautionary saving motive. Studies seeking to disentangle among different saving motives (mainly liquidity constraints, precautionary savings, demographics) by relying only on the observed comovement between income and consumption, reach questionable conclusions due to the potential influence of omitted variable biases (Gourinchas and Parker, 2002).

To overcome this issue and identify changes in consumption plausibly led by precautionary saving, we firstly exploit the unexpected increase in income uncertainty resulted from the 2008 financial crisis: being fueled by uncertainty, precautionary saving motive should be in place in the consumption choices that followed the 2008 crisis. Secondly, given that the intensity of precautionary saving hinges on consumer's attitude towards risk, to further bring out the precautionary motive we exploit differences in risk attitude linked to family structure, in line with DeLeire and Levy (2004). Since scholars found parenthood to increase individuals' risk-aversion (Kettlewell, 2019; Görlitz and Tamm, 2020), precautionary motive should be stronger in households with dependent children. Therefore, the observed difference in consumption choices between households with and without children, before and after the 2008 crisis, should accurately identify the precautionary saving motive.

The analysis exploits data of the Italian Survey of Household Income and Wealth (SHIW), provided by the Bank of Italy, for every other year from 2006 to 2016. Results indeed show that the presence of dependent children depresses the nondurable consumption expenditure during the crisis; specifically, the point estimates imply that, during the crisis, the reduction in (per adult equivalent) nondurable consumption of households with dependent children is roughly 620 Euros. We show that findings are not driven by specific group composition; moreover, they are robust to the use of a different equivalence scale, to the exclusion of switching units and become even stronger by removing public sector employees. This evidence outlines the relevance of the precautionary saving motive in agents' consumption-saving decisions; hence, public policies aimed at lowering individual risk, such as insurance and tax programmes, could be implemented to increase welfare and speed recovery after economic crises.

The rest of the work is organized as follows. Section 2.2 describes the literature on parenthood and risk aversion. Section 2.3 reviews the theory on precautionary saving motive. Section 2.4 introduces the data and the econometric framework. Sections 2.5 and 2.6 present the results and some robustness checks. Section 2.7 concludes.

2.2 Parenthood and Risk Aversion

Risk attitude deeply affects agents' economic behaviour; indeed, consumer's preferences towards risk predict features of several market outcomes, such as labour, investment, health, fertility and migrations decisions (Barsky et al., 1997; Hong et al., 2004; Bonin et al., 2007; Schmidt, 2008; Anderson and Mellor, 2008; Jaeger et al., 2010; Dohmen and Falk, 2011). For instance, the higher the risk-aversion of an agent, the smaller the probability of being self-employed or investing in stocks, and countries with lower aggregate risk-tolerance have lower total factor productivity (Dohmen et al., 2011; Falk et al., 2018)

In standard economic models, risk preferences are regarded as innate and stable personality traits and therefore fixed across time and state-space (Stigler and Becker, 1977); thus, individual's willingness to take risk over the life-time is treated as constant. In contrast,

empirical literature revealed this assumption to be quite weak.

Whilst empirical analysis show that correlations of risk preferences over time are mainly positive and significant (Chuang and Schechter, 2015), hence risk attitude can be taught as a (at least moderately) stable agent's characteristic, the correlations are low enough to challenge the standard assumption of constant risk attitude throughout life (Schildberg-Hörisch, 2018).

On the one hand the genetic component of risk preferences is found to be quite low — around 20%—(Cesarini et al., 2009). On the other hand, risk attitudes is found to modify in response to macroeconomic shocks, such as natural disasters (Eckel et al., 2009; Hanaoka et al., 2018; Said et al., 2015) or financial crises (Guiso et al., 2018), but also according to individual experiences, such as diseases (Decker and Schmitz, 2016), financial conditions (Andersen et al., 2008), aging (Dohmen et al., 2017), bereavements and parenthood (Kettlewell, 2019; Görlitz and Tamm, 2020). Understanding the relationship between life events and risk attitude has relevant implications in terms of macroeconomic performance and political outcomes, such as labour market protection; for instance, given that risk aversion is found to increase with age, aging societies are likely to display less self-employment levels and more conservative saving, investment and voting decisions (Schildberg-Hörisch, 2018).

Focusing on parenthood, literature suggests that the birth of a child changes the emotional state of an individual. Parents are in charge of protecting their children from dangerous and risky events (Clutton-Brock, 2019). Being children unarmed against unsafe life circumstances, parents are prone to perceive the environment as a most threatening place; thus, in the decision-making process, they may become less risk-tolerant to shield children from potentially dangerous scenarios (Eibach and Mock, 2011). Overall, scholars found parenthood to raise risk-aversion (Browne et al., 2021, forthcoming), induce low risk investments in order to ensure basic "survival needs" (Xiao and Anderson, 1997) and increase willingness to pay to reduce health-risk (Cameron et al., 2010). Specifically, Görlitz and Tamm (2020) show that the increase in risk aversion for both mothers and fathers starts two years before becoming parents, is the largest right after giving birth and fades as children grow up; close to this study, Kettlewell (2019) also found parenthood strongest effect on risk attitude to be close to

the event and to disappear over time.

Literature suggests two potential channels through which parenthood could affects risk aversion. Chaulk et al. (2003), matching family development and prospect theory, hypothesize that parents will prefer certain to uncertain outcomes because they attach more weight to unexpected economic losses compared to potential gain; in fact, unexpected losses, draining households' resources, may undermine parents' ability to meet societal expectations, that is providing security, nourishing and socializing their children.

Another possible explanation is linked to the *risk-as-feelings* hypothesis. According to this hypothesis, *emotional reactions to risks sometimes diverge from cognitive evaluations and, when they do, the emotional reactions often exert a dominating influence on behavior. [..] emotions often produce behavioral responses that depart from what individuals view as the best course of action.* (Loewenstein et al., 2001, p. 270). Fear, being the emotional response experienced in risky situation, is found to play an important role when it comes to decision making under uncertainty. In short, it determines a state-contingent increase in the curvature of the utility function (Guiso et al., 2018), making the consumer more risk-averse. In our framework, the increase in income uncertainty may bring to parents an extra-fear, given their concern about protecting children and providing for them, leading to perceive an higher risk.

Therefore, in the analysis, we rely on the presence of dependent children to infer the risk tolerance of the household. Previous literature already used family structure as a proxy for individual's risk aversion. For example, DeLeire and Levy (2004) compare workers with and without children to test if agents with higher risk aversion sort into safer jobs; moreover, the authors investigate differences between single moms' and dads' willingness to trade wage for safety to gain insight into gender differences in risk attitude.

2.3 Precautionary Saving Motive

2.3.1 Overview

In the standard framework of the Life Cycle Hypothesis and Permanent Income Hypothesis, elaborated by Modigliani and Brumberg (1954) and Friedman (1957), individuals implement an intertemporal decision process: they maximize the utility deriving from their entire life consumption. Thus, consumption choice in a given period reflects consumers' wealth and income throughout their all life time. The solution to the mentioned maximization problem is an Euler equation highlighting that individuals wish to smooth their consumption over the life cycle. As a result, consumption should be mainly constant over time, responding only to unexpected income changes. Expected income changes, such as retirement, should have no impact on consumption decisions in the period they realize, because consumers would have already considered those income changes in the optimal consumption path.

Saving are used to keep consumption fairly constant over the life time. Thus, in the standard model, positive savings result from expected decrease in the future income and the amount of savings is inversely related to the distance between the current income and the average income; that is, savings should be positive when income is higher than the average income and viceversa. Moreover, under the standard models, there is no heterogeneity among consumers: they all react in a similar way to income shocks. On the contrary, models that introduce precautionary saving, bequest motives and liquidity constraints indicate heterogeneity in consumers' response to income shocks.

In modelling consumption-saving decisions under uncertainty, the assumptions on the utility function are key. Under quadratic utility function, the so-called certainty equivalence case (Campbell, 1987), the uncertainty on some variables affect consumption decision at time t as far as new information become available and consumer updates the optimal consumption plan. Hence, in the certainty equivalence case, agents' optimal consumption choices are the same under both certain and uncertain income: uncertainty does not affect consumers' saving behaviour. Scholars found this feature to hardly reflect the actual consumption-saving

decisions (Flavin, 1981; Deaton, 1987).

Indeed, agents facing uncertainty usually wish to shield themselves from risk, decreasing current consumption. This positive extra saving is known as precautionary saving. In modelling consumer behaviour, the key assumption to allow for precautionary saving motive is the convexity of the marginal utility, that is the third derivative of the utility function with respect to consumption must be positive. Specifically, under convexity of the marginal utility, increased uncertainty leads to higher savings and lowers the current consumption level (Aiyagari, 1994; Caballero, 1990; Dynan, 1993).

Despite being a long-standing subject of analysis in the consumption-saving literature (see e.g. Skinner, 1988; Deaton, 1991; Bertola et al., 2005), the impact of uncertainty on household behaviour is still a relevant and debated topic. Most empirical studies find evidence of precautionary savings, but there is no agreement about the strength of this saving motive (Christelis et al., 2020).

A main difficulty in analyzing consumption response to income shocks is isolating the exogenous shocks to income that affect consumption over time. To face this issue, researchers have explored three different approaches (Jappelli and Pistaferri, 2011). The first one seeks to identify unexpected changes in income and measures how consumers' responses to such changes; thus, in a quasi-experimental setting, scholars compare households before and after the shock (or households exposed or not to the shock) and assume that observed difference in consumption is due to the realization of the shock (see e.g. Souleles, 1999; Agarwal et al., 2007; Misra and Surico, 2014).

The second approach relies on covariance restrictions imposed by the theory on the joint behaviour of income and consumption growth to evaluate variations in the marginal propensity to consume following income shocks (see e.g. Blundell et al., 2008; Primiceri and van Rens, 2009). The last method exploits survey questions on consumers' expectations to infer the conditional distribution of future income and identifies the shock as the differences between income expectations and realizations (see e.g. Sahm et al., 2010; Jappelli and Pistaferri, 2014).

This paper follow the first approach, exploiting a quasi-experimental setting where the income shock was triggered by the 2008 financial crisis.

2.3.2 Risk Aversion and Prudence

According to the precautionary saving theory, individuals facing uncertainty lower current consumption levels in favour of future consumption. This behavior, that is raising savings when income uncertainty increases, has been labelled as prudence (Kimball, 1990). The theory of prudence follows in the theory of risk aversion; while the word prudence refers to the propensity to prepare to deal with uncertainty, risk aversion indicates how much a consumer dislike uncertainty (Lugilde et al., 2019).

Specifically, assuming $E(.)$ to be the expectation operator, c random consumption and $u(.)$ the utility associated with consumption, a consumer is risk-averse if $u[E(c)] > E[u(c)]$; that is, he will prefer the certain amount $E(c)$ instead of the realization of the lottery. It follows that risk-averse consumers have concave utility functions and the degree of concavity can be used to measure the degree of risk aversion.

The Arrow-Pratt measures of risk-aversion are computed as the ratio between the second and the first derivatives of the utility function. The absolute degree of risk aversion is a local measure — it may depend on the level of consumption— and it is equal to:

$$A(c) = -\frac{u''(c)}{u'(c)} \tag{4}$$

The relative degree of risk aversion takes into account the initial level of consumption:

$$a(c) = -c\frac{u''(c)}{u'(c)} \tag{5}$$

In order to have precautionary savings, utility functions need to present decreasing or constant risk aversion.[13] In fact, taking the derivative of the absolute risk aversion with respect to

[13] Consumer will accept higher (or equal) risk as consumption increases.

consumption, we get:

$$\frac{dA(c)}{dc} = \frac{-u'''(c)u'(c) + [u''(c)]^2}{[u'(c)]^2} \tag{6}$$

Thus, convex marginal utility is a necessary (not sufficient) condition for decreasing risk aversion, given that $u'(c) > 0$ and $u''(c) < 0$.

Similarly to the Arrow-Pratt measures of risk aversion, Kimball (1990) introduced an absolute and relative measures of prudence. These measures exploit the degree of convexity of the marginal utility to assess the intensity of the precautionary saving motive. The coefficient of absolute prudence is computed as:

$$P(c) = -\frac{u'''(c)}{u''(c)} \tag{7}$$

If absolute prudence is increasing, the marginal propensity to consume out of wealth will reduce following an increase in labour income uncertainty, at any specific level of consumption. When the level of consumption is explicitly considered, we obtain the coefficient of relative prudence:

$$p(c) = -c\frac{u'''(c)}{u''(c)} \tag{8}$$

The assumption on the form of the utility function is crucial to trace back the consumption path. Indeed, the choice on preference types in empirical models deeply changes consumer's attitude towards risk (evaluated through the four measures just described) and thus, individual's response to uncertainty about future income.

Quadratic, constant absolute risk aversion (CARA) and constant relative risk aversion (CRRA) are among the most frequently used utility functions in literature. Under quadratic utility function ($u'''(c) = 0$), the degree of uncertainty should have no impact on consumer's optimal savings; there is no place for precautionary motive (Leland, 1968). Under CARA preferences, consumer's optimal choice is affected by income uncertainty; however, consumer's reaction would be linear and independent from the wealth level. Thus, CARA preferences

bring the unrealistic assumption that individuals will equally respond to income uncertainty whether they are poor or rich (Miles, 1997). Instead, assuming CRRA preferences, the intensity of precautionary saving motive changes inversely to the initial level of wealth; for this reason, the CRRA preferences are considered the most realistic for modelling consumption-saving decisions in empirical works (Blundell and M. Stoker, 1999). Besides, with CRRA utility functions, the lower the wealth level, the higher the degree of absolute risk aversion (Caballero, 1990).

2.3.3 A Basic Model

To clarify how uncertainty may affect consumption decisions, in the following we report the model of Hansen and Singleton (1983). Considering an isoelastic utility function (CRRA) and assuming normality of the joint conditional probability distribution of consumption growth and interest rates, the authors obtain an explicit solution for consumption growth in the precautionary saving model. Consumer problem is:

$$\max E_t \sum_{t=0}^{T-\tau} (1+\delta)^{-t} \frac{c_{t+\tau}^{1-\gamma} - 1}{1-\gamma} \tag{9}$$

subject to the dynamic budget constraint:

$$a_{t+\tau+1} = (1 + r_{t+\tau+1}) (a_{t+\tau} + y_{t+\tau} - c_{t+\tau}) \tag{10}$$

where: c represents consumption, δ represents the intertemporal discount rate, r represents interest rate, a is wealth, y represents income and $1-\gamma$ is the degree of relative prudence. The Euler equation, given the terminal condition $a_{T+1} = 0$, is:

$$E_t \left[\left(\frac{c_{t+1}}{c_t} \right)^{-\gamma} \frac{1 + r_{t+1}}{1+\delta} \right] = 1 \tag{11}$$

Assume that the joint conditional distribution of consumption growth and interest rates is normal,

$$\begin{bmatrix} \Delta \ln c_{t+1} \\ \ln(1+r_{t+1}) \end{bmatrix} | I_t \sim N \left[\begin{pmatrix} \mu_c \\ \mu_r \end{pmatrix} ; \begin{pmatrix} \sigma_c^2 & \sigma_{cr} \\ \sigma_{cr} & \sigma_r^2 \end{pmatrix} \right] \tag{12}$$

Where the conditioning is on all the information available at time t.[14] Equation 11 can be rewritten as:

$$E_t \exp\left[-\gamma \Delta \ln c_{t+1} + \ln(1+r_{t+1}) - \ln(1+\delta)\right] = 1 \tag{13}$$

Applying the properties of log-normal distribution, last equation can be reformulate as:

$$\exp\left[-\gamma\mu_c + \mu_r + \frac{1}{2}\gamma^2\sigma_c^2 + \frac{1}{2}\sigma_r^2 - \gamma\sigma_{cr} - \ln(1+\delta)\right] = 1 \tag{14}$$

Taking logarithms leads to:

$$-\gamma\mu_c + \mu_r + \frac{1}{2}\gamma^2\sigma_c^2 + \frac{1}{2}\sigma_r^2 - \gamma\sigma_{cr} - \ln(1+\delta) = 0 \tag{15}$$

Using the approximation $ln(1+x) \cong x$, we get an explicit solution for expected consumption growth in the presence of precautionary savings:

$$E_t \Delta \ln c_{t+1} = \gamma^{-1}(E_t r_{t+1} - \delta) + \frac{\gamma}{2} var_t(\Delta \ln c_{t+1} - \gamma^{-1} r_{t+1}) \tag{16}$$

Since $\Delta \ln c_{t+1} = E_t \Delta \ln c_{t+1} + \varepsilon_{t+1}$, we have:

$$\Delta \ln c_{t+1} = \gamma^{-1}(E_t r_{t+1} - \delta) + \frac{\gamma}{2} var_t(\Delta \ln c_{t+1} - \gamma^{-1} r_{t+1}) + \varepsilon_{t+1} \tag{17}$$

The fist term on the right-hand-side, $\gamma^{-1}(E_t r_{t+1} - \delta)$, indicates the impact of the expected interest rate on the growth rate of consumption. This impact increases with γ^{-1}, that is the elasticity of intertemporal substitution (EIS).

[14] For example $\mu_c = E_t(\Delta \ln c_{t+1})$

The second term, $\frac{\gamma}{2} var_t(\Delta \ln c_{t+1} - \gamma^{-1} r_{t+1})$ is missing in the standard models with certainty equivalence, is always positive and proportional to the coefficient of prudence.[15] It measures the relevance of the precautionary saving motive and depends on the conditional variance of consumption growth, the variance of the interest rate and the covariance between the two. The conditional variance of the consumption growth may embody not only income uncertainty, but also uncertainty about other variables, for example demographics or health status.

In equilibrium a rise in uncertainty, that is an increase in the conditional variability of the consumption growth rate, raises the consumption growth. The consumer will reduce current consumption and increase next period consumption, thus increasing saving in period t. As in the certainty equivalence model, also in the model with precautionary saving consumption should not respond to expected income changes.

2.4 Data and Empirical Framework

To address our analysis, we rely on data from the Survey on Household Income and Wealth (SHIW). Provided by the Bank of Italy, this survey collects information on main aspects of households' economic behaviour, such as incomes, savings and wealth, as well as on more specific ones, such as the payment methods employed. The sample used comprises data on roughly eight thousands households for every other year in the time-span 2006-2016. Specifically, we look at household data on consumption expenditure (both in durable and nondurable goods), number of members, number of earners, income, region, year and householder's age, education and job.

Table 2.1 shows that the average household consumption expenditure amounts to roughly fifteen thousands Euros per year, of which nondurable consumption accounts for the 95%. The average income reaches more than nineteen thousands Euros per year, with a median of one earner per household. Both consumption and income are computed per equivalent adult,

[15] In the case of isoelastic utility function, the EIS, the coefficient of relative risk aversion and the coefficient of relative prudence all depend on the same parameter γ, being respectively equal to γ^{-1}, γ and $1 + \gamma$.

according to the OECD-modified equivalence scale.[16] Looking at householder's characteristics, householders have a median of sixty years and own middle school qualification.

Table 2.2 shows the average (per equivalent adult) consumption level before and after the 2008 crisis according to the presence of dependent children.[17] Households with dependent children have a lower consumption both before and after the crisis. Most relevant, the difference in differences is negative and highly significant, meaning that consumption expenditure of households with dependent children further decreases after 2008 (Panel A). Panel B and C decompose the consumption respectively in nondurables and durables expenditure: clearly, the differences in consumption between the two household types are driven by different consumption choices when it comes to nondurable goods. Indeed, panel C displays that the difference in differences between the two groups, pre and post crisis, is not statistically significant.

2.4.1 Empirical Framework

To assess the effect of household structure on consumption decisions during the economic recession following the 2008 financial crisis, we use a Difference in Differences technique and estimate the following empirical specification:

$$C_{i,t} = a + b(Children * Crisis)_{i,t} + cChildren_{i,t} + \gamma_t + dX_{i,t} + \varepsilon_{i,t} \tag{18}$$

where the left-hand side variable is household consumption divided by the number of equivalent adults (according to the OECD-modified scale); Children is a dummy variable equal to one for household with dependent children (that is, households with at least one non-earner child); Crisis is a dummy with values 1 for the years after the 2008 crisis, that are 2010, 2012, 2014 and 2016, and 0 otherwise; Children $\times$ Crisis is the interaction variable between the variables Children and Crisis; $X_{i,t}$ is a vector of control variables (and thus d a vector of

[16] The Statistical Office of the European Union (EUROSTAT) adopted in the late 1990s the so-called "OECD-modified equivalence scale". This scale, first proposed by Hagenaars et al. (1994), assigns a value of 1 to the household head, of 0.5 to each additional adult member and of 0.3 to each child.

[17] Households with dependent children are identified as households where there is at least one non-earner child.

coefficients); γ_t is a time fixed effect; $\varepsilon_{i,t}$ is an idiosyncratic error term. Empirical models also contain as further regressors the disposable income of the household divided by the number of equivalent adults, the age of the householder, fixed effects for years of education, work status and sector of the main employment, number of earners in the household, regions, and year. Standard errors are clustered and robust to heteroskedasticity and serial correlation at household level, to take into account that a number of individuals has been interviewed more than once.

The interaction coefficient, b, will therefore capture the investigated effect, that is the impact of having dependent children on consumption expenditure during the recession years.

Exploiting the difference-in-differences technique, our identification strategy relies on the idea that, without the crisis, treatment and control group of households would have followed the same trend. To investigate the plausibility of this assumption, we run a placebo regression restricting the sample to the pre-shock period (2006 and 2008) and fictitiously assuming the 2008 as the recession year. Specifically, we construct a dummy variable *Placebo* taking value of 1 in 2008 and 0 in 2006 and look at the coefficients of the interaction with the treatment variable *Children*. If the coefficients were statistically significant, this would imply that, before the recession, consumption expenditure of the treated group followed a different pattern compared to control group, thus failing the common trend assumption. Results are shown in table 2.3. For all the outcomes variables, interaction coefficients are never statistically significant (at 5% level), meaning that, in the pre-slump period, consumption expenditure of the two household groups followed a similar trend.

2.5 Results

Results are shown in table 2.4; column 1 refers to (per equivalent adult) consumption expenditure, column 2 and 3 respectively refers to nondurable and durable (per equivalent adult) consumption expenditure. All estimations control for (per equivalent adult) income, age, education, work status and sector of the householder, number of earners in the household, regions and years.

Overall, during the economic recession following the 2008 crisis, the presence of dependent children in the household depresses consumption expenditure per equivalent adult. In fact, looking at the consumption expenditure and nondurable expenditure, the key coefficients are negative and statistically significant, at the 1% level.

Specifically, in households with dependent children, consumption during recession years reduces by roughly 620 Euros. Disentangling consumption expenditure between nondurable and durable goods, it emerges that the reduction in consumption expenditure due to dependent children (after 2008) is entirely driven by the fall in nondurable consumption. Instead, the difference in durables is close to zero and not statistically significant.

Moreover, consumption increases with income level, mainly in nondurable goods; aging seems to have a positive effect on nondurable consumption, while it decreases durable consumption expenditure.

Overall, evidence confirms the existence of the precautionary saving motive and its relevance in explaining household consumption-saving decisions under uncertainty.

2.6 Robustness check

In this section, we undertake a set of checks in order to assess the robustness of our main results. We first verify that results are not driven by a specific gender composition of our treatment group. Then, we test that our findings are not affected by the equivalence scale employed. Finally, we replicate the main analysis excluding from the sample public sector employees and switching units.

2.6.1 Treatment Group Composition

To further strengthen the idea that the observed reduction in consumption following the 2008 crisis is solely due to the presence of dependent children, we control whether the sex of the household main earner does make a difference in consumption response to income uncertainty. In fact, being women more risk averse than man (Barsky et al., 1997; Eckel and Grossman, 2008a,b), results could be biased by a specific composition of main earners' gender in family

with children. To face this issue, we first compare consumption in households with dependent children according to the main earner's sex; that is, we exclude from the sample the control group of the main analysis according to the treatment variable *Children*. Of course, we also exclude households where the main earner is neither the householder nor his/her spouse.[18] Results show that, during the recession years, the gender of the main earner has no impact on consumption expenditure of family with dependent children (Table 2.5).

Afterwards, we further restrict the sample to households with only one earner, in order to better isolate families where resources are indeed earned and managed by different sexes. In fact, while identifying the decision-maker with the main earner could be questionable in households with two or more earners, in households with a single earner it is highly plausible that she/he will be the one truly making decisions. Results, displayed in table 2.6, confirm that householder's sex plays no role in consumption choices of family with dependent children made after 2008 crisis.

Taken together, findings support that, in the main analysis, the observed consumption reduction in the treated group during recession years can indeed be ascribed only to the presence of dependent children.

2.6.2 Equivalence Scale

So far, to take into account household dimension, we divided the total household consumption by the number of equivalent adults, according to the OECD - modified equivalence scale. Using this measure allows for the presence of economies of scale in consumption and to consider differences in consumption between adults and children.

As widely discussed in the literature (see, for example, Aaberge and Melby, 1998), picking one equivalence scale instead of another could sometimes affect estimation, making relevant to check the sensitivity of the findings to the choice made. Thus, to strengthen our results, we replicate the main analysis by using per-capita scale, that is dividing total household consumption by the number of household members. However, given the employed diff-in-

[18] As an example, the son/daughter could be the household main earner.

diff estimation strategy, we expect the coefficients of interest to be essentially unaffected by the kind of equivalence scale applied. Table 2.7 confirms our hypothesis, showing that the interaction coefficients roughly replicates the ones of the main analysis, in both magnitude and significance level.

2.6.3 Public Sector Employees

Being fuelled by uncertainty, precautionary savings should change according to the degree of security of the household members' job. For example, public sector jobs are relatively protected and uncertainty on earnings is very limited. Thus, in principle, the precautionary saving motive should not affect consumption choices of public sector employees.

To check this intuition we restrict the sample only to households where neither the householder nor his spouse work in the public sector.[19] Results are shown in table 2.8. As expected, focusing on households with none of the parents working in the public sector, the reduction in nondurables consumption during recession years is still highly significant and even greater in magnitude. This is in line with our hypothesis of a negligible (if any) increase in uncertainty for public workers following the 2008 financial crisis.

2.6.4 Switching Units

Another possible concern could be due to the existence of switching units, that is households shifting from the control group to the treatment group and viceversa. However, this is only a minor issue given that we are not dealing with panel data but with repeated cross-sections.

We check the relevance of this concern by excluding the switching units (roughly 10% of the observations) from the sample. As expected, results essentially replicate the ones of the main analysis, both in terms of magnitude and significance levels (Table 2.9).

[19] Public workers are identified as people whose main employment is in general government, defence, education, health and other public services.

2.7 Conclusion

We contribute to the literature on consumers' behaviour under uncertainty by investigating household consumption choices after the 2008 financial crisis. Specifically, we exploit the different degree of risk tolerance between households with and without children to properly identify the precautionary saving motive.

Results show that, during recession years, the presence of dependent children indeed depresses nondurable consumption expenditure, in line with a higher risk aversion of parents. Findings are achieved controlling for a variety of household characteristics (such as per capita income, number of earners, householder's job, age and education). Moreover, results are not driven by a possible peculiar gender composition of householders; in fact, during the slump, householder's sex is proved to play no role in consumption choices of family with children. Lastly, results are robust to the use of a different equivalence scale, to the exclusion of switching units and become even stronger by removing public sector employees.

Overall, our evidence corroborates the existence and relevance of the precautionary saving motive in household consumption decisions under uncertainty. Therefore, public policies designed to reduce agents' risk could be used to increase welfare and speed recovery after economic crises.

References

Aaberge, Rolf and Ingrid Melby, "The Sensitivity of Income Inequality to Choice of Equivalence Scales," *Review of Income and Wealth*, 1998, *44* (4), 565–569.

Agarwal, Sumit, Chunlin Liu, and Nicholas S. Souleles, "The Reaction of Consumer Spending and Debt to Tax Rebates-Evidence from Consumer Credit Data," *Journal of Political Economy*, December 2007, *115* (6), 986–1019.

Aiyagari, Rao S., "Uninsured Idiosyncratic Risk and Aggregate Saving," *The Quarterly Journal of Economics*, 1994, *109* (3), 659–684.

Andersen, Steffen, Glenn W. Harrison, Morten I. Lau, and Elisabet E. Rutström, "Lost In State Space: Are Preferences Stable?," *International Economic Review*, August 2008, *49* (3), 1091–1112.

Anderson, Lisa R. and Jennifer M. Mellor, "Predicting Health Behaviors with an Experimental Measure of Risk Preference," *Journal of Health Economics*, September 2008, *27* (5), 1260–1274.

Barsky, Robert B., Thomas F. Juster, Miles S. Kimball, and Matthew D. Shapiro, "Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study," *The Quarterly Journal of Economics*, 1997, *112* (2), 537–579.

Bertola, Giuseppe, Luigi Guiso, and Luigi Pistaferri, "Uncertainty and Consumer Durables Adjustment," *Review of Economic Studies*, 2005, *72* (4), 973–1007.

Blundell, Richard and Thomas M. Stoker, "Consumption and the Timing of Income Risk," *European Economic Review*, March 1999, *43* (3), 475–507.

_ , Luigi Pistaferri, and Ian Preston, "Consumption Inequality and Partial Insurance," *American Economic Review*, December 2008, *98* (5), 1887–1921.

Bonin, Holger, Thomas Dohmen, Armin Falk, David Huffman, and Uwe Sunde, "Cross-sectional Earnings Risk and Occupational Sorting: The Role of Risk Attitudes," *Labour Economics*, December 2007, *14* (6), 926–937.

Browne, Mark J., Verena Jaeger, Andreas Richter, and Petra Steinorth, "Familiy Transitions and Risk Attitude," *Journal of Risk and Insurance*, 2021, forthcoming.

Caballero, Ricardo J., "Consumption Puzzles and Precautionary Savings," *Journal of monetary economics*, 1990, *25* (1), 113–136.

Cameron, Trudy Ann, JR DeShazo, and Erica H. Johnson, "The Effect of Children on Adult Demands for Health-Risk Reductions," *Journal of Health Economics*, 2010, *29* (3), 364–376.

Campbell, John Y., "Does Saving Anticipate Declining Labor Income? An Alternative Test of the Permanent Income Hypothesis," *Econometrica*, November 1987, *55* (6), 1249–1273.

Cesarini, David, Christopher T. Dawes, Magnus Johannesson, Paul Lichtenstein, and Björn Wallace, "Genetic Variation in Preferences for Giving and Risk Taking," *The Quarterly Journal of Economics*, 2009, *124* (2), 809–842.

Chaulk, Barbara, Phyllis J. Johnson, and Richard Bulcroft, "Effects of Marriage and Children on Financial Risk Tolerance: A Synthesis of Family Development and Prospect Theory," *Journal of Family and Economic Issues*, 2003, *24* (3), 257–279.

Christelis, Dimitris, Dimitris Georgarakos, Tullio Jappelli, and Maarten van Rooij, "Consumption Uncertainty and Precautionary Saving," *Review of Economics and Statistics*, 2020, *102* (1), 148–161.

Chuang, Yating and Laura Schechter, "Stability of Experimental and Survey Measures of Risk, Time, and Social Preferences: A Review and Some New Results," *Journal of Development Economics*, 2015, *117*, 151–170.

Clutton-Brock, Tim H., *The evolution of Parental Care*, Princeton University Press, 2019.

Deaton, Angus, "Life-Cycle Models of Consumption: Is the Evidence Consistent with the Theory?," in "Advances in Econometrics," Vol. 2, Amsterdam: North-Holland, 1987, pp. 121–148.

_ , "Saving and Liquidity Constraints," *Econometrica*, September 1991, *59* (5), 1221–1248.

Decker, Simon and Hendrik Schmitz, "Health Shocks and Risk Aversion," *Journal of Health Economics*, 2016, *50* (C), 156–170.

DeLeire, Thomas and Helen Levy, "Worker Sorting and the Risk of Death on the Job," *Journal of Labor Economics*, 2004, *22* (4), 925–953.

Dohmen, Thomas and Armin Falk, "Performance Pay and Multidimensional Sorting: Productivity, Preferences, and Gender," *American Economic Review*, April 2011, *101* (2), 556–590.

_ , _ , Bart H. H. Golsteyn, David Huffman, and Uwe Sunde, "Risk Attitudes Across The Life Course," *Economic Journal*, October 2017, *127* (605), 95–116.

_ , _ , David Huffman, Uwe Sunde, Jürgen Schupp, and Gert G. Wagner, "Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences," *Journal of the European Economic Association*, June 2011, *9* (3), 522–550.

Dynan, Karen E., "How Prudent are Consumers?," *Journal of Political Economy*, 1993, *101* (6), 1104–1113.

Eckel, Catherine C. and Philip J. Grossman, "Forecasting Risk Attitudes: An Experimental Study using Actual and Forecast Gamble Choices," *Journal of Economic Behavior & Organization*, 2008, *68* (1), 1–17.

_ **and** _ , "Men, Women and Risk Aversion: Experimental Evidence," in Charles R. Plott and Vernon L. Smith, eds., *Handbook of Experimental Economics Results*, Vol. 1, Elsevier, March 2008, pp. 1061–1073.

_ , **Mahmoud A. El-Gamal, and Rick K. Wilson**, "Risk Loving After the Storm: A Bayesian-Network Study of Hurricane Katrina Evacuees," *Journal of Economic Behavior & Organization*, February 2009, *69* (2), 110–124.

Eibach, Richard P. and Steven E. Mock, "The Vigilant Parent: Parental Role Salience affects Parents' Risk Perceptions, Risk-Aversion, and Trust in Strangers," *Journal of Experimental Social Psychology*, 2011, *47* (3), 694–697.

Falk, Armin, Anke Becker, Thomas Dohmen, Benjamin Enke, David Huffman, and Uwe Sunde, "Global Evidence on Economic Preferences," *The Quarterly Journal of Economics*, 2018, *133* (4), 1645–1692.

Flavin, Marjorie A., "The Adjustment of Consumption to Changing Expectations about Future Income," *Journal of Political Economy*, October 1981, *89* (5), 974–1009.

Friedman, Milton, *Theory of the Consumption Function*, Princeton, NJ:Princeton University Press, 1957.

Görlitz, Katja and Marcus Tamm, "Parenthood, Risk Attitudes and Risky Behavior," *Journal of Economic Psychology*, 2020, *79*, 102189.

Gourinchas, Pierre-Olivier and Jonathan A. Parker, "Consumption over the Life Cycle," *Econometrica*, 2002, *70* (1), 47–89.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, "Time Varying Risk Aversion," *Journal of Financial Economics*, 2018, *128* (3), 403–421.

Hagenaars, Aldi, Klaas De Vos, and Asghar Zaidi, "Poverty Statistics in the Late 1980s: Research Based on Micro-Data," *Office for Official Publications of the European Communities. Luxembourg*, 1994.

Hanaoka, Chie, Hitoshi Shigeoka, and Yasutora Watanabe, "Do Risk Preferences Change? Evidence from the Great East Japan Earthquake," *American Economic Journal: Applied Economics*, April 2018, *10* (2), 298–330.

Hansen, Lars P. and Kenneth J. Singleton, "Stochastic Consumption, Risk Aversion, and the Temporal Behavior of Asset Returns," *Journal of Political Economy*, 1983, *91* (2), 249–265.

Hong, Harrison, Jeffrey D. Kubik, and Jeremy C. Stein, "Social Interaction and Stock-Market Participation," *Journal of Finance*, 2004, *59* (1), 137–163.

Jaeger, David A., Thomas Dohmen, Armin Falk, David Huffman, Uwe Sunde, and Holger Bonin, "Direct Evidence on Risk Attitudes and Migration," *The Review of Economics and Statistics*, August 2010, *92* (3), 684–689.

Jappelli, Tullio and Luigi Pistaferri, "The Consumption Response to Income Changes," *Annual Review of Economics*, September 2011, *2* (1), 479–506.

_ and _, "Fiscal Policy and MPC Heterogeneity," *American Economic Journal: Macroeconomics*, October 2014, *6* (4), 107–136.

Kettlewell, Nathan, "Risk Preference Dynamics around Life Events," *Journal of Economic Behavior & Organization*, 2019, *162*, 66–84.

Kimball, Miles S., "Precautionary Saving in the Small and in the Large," *Econometrica*, January 1990, *58* (1), 53–73.

Leland, Hayne E., "Saving and Uncertainty: The Precautionary Demand for Saving," *The Quarterly Journal of Economics*, 1968, *82* (3), 465–473.

Loewenstein, George, Elke U Weber, Christopher K. Hsee, and Ned Welch, "Risk as Feelings," *Psychological Bulletin*, 2001, *127* (2), 267.

Lugilde, Alba, Roberto Bande, and Dolores Riveiro, "Precautionary Saving: a Review of the Empirical Literature," *Journal of Economic Surveys*, 2019, *33* (2), 481–515.

Miles, David, "A Household Level Study of the Determinants of Incomes and Consumption," *Economic Journal*, January 1997, *107* (440), 1–25.

Misra, Kanishka and Paolo Surico, "Consumption, Income Changes, and Heterogeneity: Evidence from Two Fiscal Stimulus Programs," *American Economic Journal: Macroeconomics*, October 2014, *6* (4), 84–106.

Modigliani, Franco and Richard Brumberg, "Utility analysis and the consumption function: An interpretation of cross-section data," in "Post-Keynesians Economics," k kurihara ed., New Brunswick: Rutgers University Press, 1954, pp. 388–436.

Primiceri, Giorgio E. and Thijs van Rens, "Heterogeneous Life-Cycle Profiles, Income Risk and Consumption Inequality," *Journal of Monetary Economics*, January 2009, *56* (1), 20–39.

Sahm, Claudia R., Matthew D. Shapiro, and Joel Slemrod, "Household Response to the 2008 Tax Rebate: Survey Evidence and Aggregate Implications," in "Tax Policy and the Economy, Volume 24" NBER Chapters, National Bureau of Economic Research, Inc, January 2010, pp. 69–110.

Said, Farah, Uzma Afzal, and Ginger Turner, "Risk Taking and Risk Learning After a Rare Event: Evidence from a Field Experiment in Pakistan," *Journal of Economic Behavior & Organization*, 2015, *118*, 167–183. Economic Experiments in Developing Countries.

Schildberg-Hörisch, Hannah, "Are Risk Preferences Stable?," *Journal of Economic Perspectives*, 2018, *32* (2), 135–54.

Schmidt, Lucie, "Risk Preferences and the Timing of Marriage and Childbearing," *Demography*, 2008, *45* (2), 439–460.

Skinner, Jonathan, "Risky Income, Life Cycle Consumption, and Precautionary Savings," *Journal of Monetary Economics*, September 1988, *22* (2), 237–255.

Souleles, Nicholas S., "The Response of Household Consumption to Income Tax Refunds," *American Economic Review*, September 1999, *89* (4), 947–958.

Stigler, George J. and Gary S. Becker, "De Gustibus Non Est Disputandum," *American Economic Review*, March 1977, *67* (2), 76–90.

Xiao, Jing J. and Joan G. Anderson, "Hierarchical Financial Needs Reflected by Household Financial Asset Shares," *Journal of Family and Economic Issues*, 1997, *18* (4), 333–355.

Appendix

List of Variables

In the following we specify the definition and the source of all the variables used in our paper.

Consumption: Household consumption expenditure (both in durable and nondurable goods) divided by the number of equivalent adults.

Durables: Household consumption expenditure in durable goods divided by the number of equivalent adults.

Nondurables: Household consumption expenditure in nondurable goods divided by the number of equivalent adults.

Children: Dummy variable taking value of 1 in households where there is at least one dependent child.

Crisis: Dummy variables taking value of 1 for the years 2010, 2012, 2014 and 2016, 0 otherwise.

Female: Dummy variable taking value of 1 if the main earner of the household is a woman, 0 otherwise.

Income: Disposable income of the household divided by the number of equivalent adults.

Age: Age of the householder.

Education: Years of education of the householder, where 0 = none; 5 = elementary school; 8 = middle school; 13 = high school; 18 = master's degree; 20 = post-graduate qualification.

Number of Earners: Number of household's members who earn their own income.

Work Status: Main employment of the householder, where 1 = blue-collar worker or similar; 2 = office worker or school teacher; 3 = manager; 4 = member of the arts or professions; 5 = sole proprietor; 6 = free lance; 7= not employed (unpaid family member included).

Sector: Branch of activity of the householder's main employment, where: 1 = agriculture; 2 = manufacturing, building and construction; 3 = wholesale and retail trade, lodging and catering services; 4 = transport and communication; 5 = services of credit and insurance

institutions; 6 = general government, real estate and renting services, other professional, business activities and other private and public services; 7 = not employed.

Table 2.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Median
Consumption	15031.2	8566.8	13200
Nondurable Consumption	14264.8	7677.4	12800
Durable Consumption	766.4	2825.9	0
Income	19582.9	14066.1	17156.9
Number of Earners	1.6	0.7	1
Age	59.4	15.8	60
Education	9.3	4.6	8

Notes: Consumption is household consumption divided by the number of equivalent adults. Nondurable (Durable) Consumption is household consumption in nondurable (durable) goods divided by the number of of equivalent adults. Income is the total income of the household divided by the number of equivalent adults. Number of earners is the number of household's members who earn their own income. Age is the age of the householder. Education refers to the years of education of the householder.

Table 2.2: Descriptive Analysis on the Average Consumption Level

	Children=0	Children=1	Difference
Number of Observations	32,225	15,198	
Before	10,437	5,308	
After	21,788	9,890	
Panel A: Consumption			
Before	15392.99	12791.65	-2601.34***
se	(80.22)	(101.06)	(133.60)
After	16401.78	12831.87	-3569.91***
se	(61.91)	(75.33)	(104.98)
Difference in Differences			-968.57***
se			(174.89)
Panel B: Nondurables			
Before	14478.25	11753.62	-2724.63***
se	(68.24)	(85.36)	(113.41)
After	15759.74	12094.01	-3665.73***
se	(56.42)	(67.21)	(95.21)
Difference in Differences			-941.1***
se			(155.70)
Panel C: Durables			
Before	914.73	1038.02	123.29**
se	(32.37)	(42.13)	(54.44)
After	642.04	737.86	95.82***
se	(18.26)	(23.74)	(31.48)
Difference in Differences			-27.47
se			(58.61)

Notes: The table shows the average level of consumption (per equivalent adult) in households with and without dependent children (respectively, Children=1 and Children=0), before and after the economic recession following the 2008 crisis (that is, respectively, the years 2006 and 2008 and the years 2010, 2012, 2014 and 2016). Panel A shows the results for consumption, Panel B — for consumption in nondurable goods and Panel C — for consumption in durable goods. Standard errors are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.3: Placebo Regression

	(1) Consumption	(2) Nondurables	(3) Durables
Children*Placebo	2.68	-195.18	197.86*
	(0.02)	(-1.39)	(1.95)
Children	-1905.77***	-1605.35***	-300.42***
	(-6.87)	(-6.94)	(-3.13)
Income	0.25***	0.23***	0.03**
	(4.40)	(4.65)	(2.57)
Age	26.73**	45.56***	-18.83***
	(2.45)	(4.97)	(-6.17)
Observations	15744	15744	15744

Notes: Data are relative to the pre-shock period, that is 2006 and 2008. The left-hand side variable is household consumption divided by the number of equivalent adults (in the household). Column (1) refers to consumption, columns (2) and (3) respectively refers to nondurable and durable consumption. Children is a dummy identifying households with at least one child. Placebo is a dummy with values 1 for the 2008 and 0 for 2006. Children × Placebo is the interaction variable between Children and Placebo. Income is disposable income of the household divided by the number of equivalent adults. Age is the age of the householder. All empirical models also contain as further regressors fixed effects for years of education, work status and sector of the main employment, number of earners in the household, regions, and year. Clustered t-statistics that account for within-householdcorrelation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.4: Consumption and Households with Children

	(1) Consumption	(2) Nondurables	(3) Durables
Children*Crisis	-624.46***	-628.84***	4.38
	(-5.01)	(-6.05)	(0.07)
Children	-1198.68***	-1116.58***	-82.10
	(-6.58)	(-7.16)	(-1.27)
Income	0.37***	0.34***	0.03***
	(9.40)	(9.67)	(5.72)
Age	28.67***	44.08***	-15.41***
	(3.31)	(5.73)	(-9.04)
Observations	47405	47405	47405

Notes: Data are relative to every other year from 2006 to 2016. The left-hand side variable is household consumption divided by the number of equivalent adults (OECD-modified scale). Column (1) refers to consumption, columns (2) and (3) respectively refers to nondurable and durable consumption. Children is a dummy identifying households with at least one dependent child. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Children $\times$ Crisis is the interaction variable between Children and Crisis. Income is disposable income of the household divided by the number of equivalent adults (OECD-modified scale). Age is the age of the householder. All empirical models also contain as further regressors fixed effects for educational qualification, work status and sector of the main employment, number of earners in the household, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.5: Consumption and Main Earner's Sex

	(1) Consumption	(2) Nondurables	(3) Durables
Female*Crisis	-352.70*	-230.21	-122.49
	(-1.85)	(-1.48)	(-1.09)
Female	484.19***	494.15***	-9.96
	(2.91)	(3.79)	(-0.10)
Income	0.43***	0.39***	0.04***
	(21.89)	(22.28)	(6.41)
Age	14.08***	22.88***	-8.80***
	(2.85)	(5.20)	(-4.27)
Observations	14619	14619	14619

Notes: The table reports results restricting the sample to households with at least one dependent child and where the main earner is not a son/daughter. The left-hand side variable is household consumption divided by the number of equivalent adults in the household. Column (1) refers to consumption expenditure, columns (2) and (3) respectively refers to nondurable and durable consumption expenditure. Female is a dummy taking value of 1 if the main earner of the household is a woman. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Female × Crisis is the interaction variable between Female and Crisis. Income is disposable income of the household divided by the number of equivalent adults. Age is the age of the householder. All empirical models also contain as further regressors fixed effects for number of earners, educational qualification, work status and sector of the main employment, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.6: Consumption and Single Earner's Sex

	(1) Consumption	(2) Nondurables	(3) Durables
Female*Crisis	-244.95	-203.51	-41.43
	(-0.92)	(-0.94)	(-0.28)
Female	698.80***	741.24***	-42.44
	(2.85)	(3.86)	(-0.31)
Income	0.47***	0.44***	0.03***
	(9.62)	(9.83)	(4.13)
Age	5.40	13.24**	-7.84***
	(0.76)	(2.07)	(-3.40)
Observations	6389	6389	6389

Notes: The table reports results restricting the sample to households with only one earner (different from a son/daughter) and at least one dependent child. The left-hand side variable is household consumption divided by the number of equivalent adults in the household. Column (1) refers to consumption expenditure, columns (2) and (3) respectively refers to nondurable and durable consumption expenditure. Female is a dummy taking value of 1 if the household only earner is a woman. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Female × Crisis is the interaction variable between Female and Crisis. Income is disposable income of the household divided by the number equivalent adults. Age is the age of the householder. All empirical models also contain as further regressors fixed effects for educational qualification, work status and sector of the main employment, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.7: Per Capita Consumption and Households with Children

	(1) Consumption (PC)	(2) Nondurables (PC)	(3) Durables (PC)
Children*Crisis	-545.40***	-614.95***	69.55
	(-5.26)	(-6.94)	(1.58)
Children	-2333.81***	-2152.00***	-181.81***
	(-6.60)	(-6.91)	(-2.87)
Income (PC)	0.38***	0.35***	0.03***
	(7.03)	(7.25)	(4.36)
Age	30.99***	44.63***	-13.64***
	(2.94)	(4.77)	(-7.70)
Observations	47405	47405	47405

Notes: Data are relative to every other year from 2006 to 2016. The left-hand side variable is per capita consumption, that is household consumption divided by the number of members of the household. Column (1) refers to consumption, columns (2) and (3) respectively refers to nondurable and durable consumption. Children is a dummy identifying households with at least one dependent child. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Children × Crisis is the interaction variable between Children and Crisis. Income (PC) is disposable income of the household divided by the number of members of the household. Age is the age of the householder. All empirical models also contain as further regressors fixed effects for educational qualification, work status and sector of the main employment, number of earners in the household, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.8: Consumption and Householder's Employment

	(1) Consumption	(2) Nondurables	(3) Durables
Children*Crisis	-688.43***	-700.63***	12.20
	(-5.56)	(-6.80)	(0.19)
Children	-1048.81***	-986.51***	-62.31
	(-7.50)	(-8.24)	(-0.96)
Income	0.40***	0.37***	0.03***
	(15.07)	(14.87)	(8.02)
Age	22.57***	36.79***	-14.22***
	(3.87)	(6.83)	(-9.56)
Observations	40209	40209	40209

Notes: The table reports results restricting the sample to households where neither the householder and/or his spouse is a public worker. Data are relative to every other year from 2006 to 2016. The left-hand side variable is household consumption divided by the number of equivalent adults (OECD-modified scale). Column (1) refers to consumption, columns (2) and (3) respectively refers to nondurable and durable consumption. Children is a dummy identifying households with at least one dependent child. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Children × Crisis is the interaction variable between Children and Crisis. Income is disposable income of the household divided by the number of equivalent adults (OECD-modified scale). Age is the age of the householder. All empirical models also contain as further regressors fixed effects for educational qualification, work status and sector of the main employment, number of earners in the household, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.

Table 2.9: Further Results: Excluding Switching Units

	(1) Consumption	(2) Nondurables	(3) Durables
Children*Crisis	-607.05***	-612.72***	5.66
	(-4.58)	(-5.65)	(0.08)
Children	-1348.93***	-1245.92***	-103.01
	(-6.62)	(-7.25)	(-1.39)
Income	0.36***	0.32***	0.03***
	(8.58)	(8.86)	(5.20)
Age	28.03***	43.91***	-15.87***
	(3.11)	(5.54)	(-8.56)
Observations	41853	41853	41853

Notes: The table reports results excluding from the sample households switching from control to treatment group and viceversa. Data are relative to every other year from 2006 to 2016. The left-hand side variable is household consumption divided by the number of equivalent adults (OECD-modified scale). Column (1) refers to consumption, columns (2) and (3) respectively refers to nondurable and durable consumption. Children is a dummy identifying households with at least one dependent child. Crisis is a dummy with values 1 for the years 2010, 2012, 2014 and 2016 and 0 otherwise. Children × Crisis is the interaction variable between Children and Crisis. Income is disposable income of the household divided by the number of equivalent adults (OECD-modified scale). Age is the age of the householder. All empirical models also contain as further regressors fixed effects for educational qualification, work status and sector of the main employment, number of earners in the household, regions, and year. Clustered t-statistics that account for within-household correlation are in parentheses. Statistical significance is denoted as follows: * significant at the 10% level; ** significant at the 5% level; ***significant at the 1% level.