Housing Allowances Alone Cannot Prevent Rent Arrears

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Abstract – This article examines the extent to which housing allowances ensure continued access to affordable housing in France. According to data from the 2013 Housing Survey (*enquête Logement*, Insee), the most recent national housing survey available, one in four recipients of housing allowances experienced financial difficulties during a 24-month period (compared to one in ten non-recipients). The safety net role of housing allowances is studied through their effect in the event of job loss. The analysis is based on two points of discontinuity in terms of income: the eligibility threshold and the ceiling for the maximum rate of allowance. Probit regression results show that recipients of housing allowances are not significantly better protected. Housing allowances also fail to correct inherent disadvantages across households. In fact, the risk of difficulties in paying rent appears to be linked to a combination of factors: low income, unexpected events, certain family composition and places of residence increases the risk.

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Housing allowances are now one of the most widely used housing instrument in OECD countries (Kemp, 2007). They are mainly designed to promote adequate and affordable housing, often with the aim to internalize externalities from poor housing (fire risk, violence, social exclusion and social instability). These policies have also been used to lift low-income households out of poverty or to redistribute income (Grigsby & Bourassa, 2003). Recently the issue of declining affordability has been high on the research agenda (Chen, 2010; Ben-Shahar, 2015; Lens, 2017; Dewilde, 2017; Wetzstein, 2017). A gap seems to exist between discourses of housing affordability and effective affordability. The challenge is therefore to identify the sources of unaffordability. This research seeks to contribute to this literature by reviewing potential shortfalls in the design of housing allowances and their implementation. Its aim is also to analyze and test whether housing allowances cushion households against negative income shocks.

The analysis is focused on the French case, a country where housing allowances (*allocations logement*, or AL) are the main policy instrument (accounting for more than three-quarters of the housing assistance budget to the consumers with a cost of 18 billion euros in 2017). Approximately six and a half million households receive housing allowances. In addition, in France the right to housing is inscribed in the Constitution of 1946. This entitlement was reinforced with the Act of March 5th, 2007, as "an enforceable right to housing" (*droit au logement opposable*). The strategic priority given to the program 109 in the French finance law is to help "low-income households to gain access to housing and to maintain it". With this strong priority given to affordability, it is interesting to use it as a case study. Its interest goes beyond the French case for an international audience, because many characteristics of the French housing allowance system exist in other countries as well. Therefore, identified causes of unaffordability and weaknesses in the French case are likely to be relevant for other countries as well. This paper also contributes more generally to the research agenda on the optimal design and implementation of housing allowances.

The rest of the paper is organized as follows. In the next section, housing allowance impacts are critically analyzed by drawing on the existing literature. Then, probit regressions are used to assess the role of socio-economic factors in housing-related financial difficulties and the role of housing allowances as a safety net. Finally, we conclude with some policy implications.

Analytical Framework

Defining Affordability

Hancock (1993) argues that "any rent will be affordable which leaves the consumer with a socially acceptable standard of both housing and non-housing consumption after the rent is paid". In practice, this is difficult to guarantee as there is no coordination on how much overall benefits a welfare recipient receives (housing assistance is typically calculated without any reference to other possible assistance for transportation or school meals, for example).

Other indicators have been suggested to define affordability (recently Lux, 2007). However, there are also difficult to implement. In this context, it is not surprising that policymakers rely most of the time on easy to use ratios. It is considered that housing expenditures exceeding 30% of the household budget can endanger housing stability (Heylen & Haffner, 2013). However, there is no clear threshold for unbearable housing burden because a high rent-to-income ratio may be acceptable on a high income but unbearable on a low income. Australian researchers use the 30% threshold only for the households in the lowest 40% income (Rowley *et al.*, 2015).

Our main objective is to assess whether households can afford to pay their rent. Therefore, we will report (gross and net) rent-to-income ratio and the probability of difficulties paying the rent for the analysis.

OECD Countries Background Information

Direct rental assistance lowers the effective cost of a household's housing burden. It aims at increasing the willingness and ability of households to enjoy better housing. Many countries have entitlement housing allowances. In the USA on the contrary, vouchers are not an entitlement. Housing policies can be included in social policies. In France or in the United Kingdom however they are treated

as specific housing assistance for low-income households (Kemp & Kofner, 2010).

In 2015, public spending on housing allowances was the highest in the United Kingdom with 1.4% of GDP, followed by France (0.8% of GDP).[1] In countries such as Denmark, Germany, the Netherlands, New Zealand or Sweden the proportion was close to 0.5%. It was lower (between 0.1 and 0.3%) in other OECD countries such as Australia, Austria, Bulgaria, Croatia, Czech Republic, Ireland, Japan and the United States. The proportion of households receiving housing assistance in OECD countries is the highest in France at 25% and the lowest in Germany at 2%, see Haffner (2009). However, the lowest tenth-percentile-income-households receive lower allowances in France than in OECD countries (Salvi del Pero *et al.*, 2016). The French housing allowance program has probably been stretched to its limit. The French Court of Auditors (Cour des comptes, 2015) warned about rising costs due to the increasing number of eligible households (from approximately one and a half million households in 1970 to six and a half million today), due to people living apart (children moving out, people divorcing) and to unemployment (which tripled since the 1970s). This research seeks to understand the existing weaknesses of housing allowances and the causes of unaffordability.

Expected Effects of Housing Allowances

Housing Consumption

The fact that housing subsidies are used rather than simple redistribution measures suggests that governments believe that housing is a merit good. Musgrave (1957) defines a merit good as a good or service, such as education or health, that is regarded by society as deserving public finance. One way to ensure decent housing is to set minimum standards for eligible subsidized dwellings. In this case, households are constrained to consume minimum amounts of some housing attributes (size, bathroom, kitchen, safety norms, heating system, etc.). Some households who do not have access to decent housing without the housing subsidy will be able to do so with the allowance, but they are forced to increase their consumption. Hence, the rent-to-income ratio is not necessarily reduced. For the other households, there is not necessarily an impact on quality. Grislain-Letrémy & Trevien (2014) conclude that housing subsidies had almost no effect on housing quality and none on the number of rental dwellings available in France. To understand why, it is useful to go back to the economic effects of housing allowances. The budget constraint becomes non-linear with housing allowances. In fact, below a minimum housing expense, the household is not eligible to housing benefits, leaving the budget constraint unchanged. Above that minimum, which gives access to a "decent dwelling", the subsidy acts as a price reduction if the rent is inferior to the rent ceiling and as a supplement of income otherwise. If housing consumption is quite irresponsive to price and income changes, the rent to income ratio is reduced. The impact depends, in fact, mainly on the price and income elasticity of demand. For most households, the price elasticity of demand is low, around 0.5 (Chauvin & Muellbauer, 2018, for France and for other countries Arrazola *et al.*, 2015). Therefore, even with subsidized housing, households will not increase their housing consumption proportionally with the net decrease in relative price. The second effect, the income effect, is also small in general. Fallis (1990) has estimated the marginal propensity to consume housing out of one dollar of unearned income to be equal to 0.17. Cornuel & Calcoen (2005) found that for households able to access decent housing without the allowance, the effect is equal to 0.15. They did not provide estimates for the less well-off for which housing consumption must increase in order to access decent housing.

Society can consider it a moral hazard issue and an inefficient outcome if households consume more than the "fair" quantity or quality of housing. Despite low elasticity, this concern is acute, if the allowance scheme totally shields households from any variation in the level of the rent of the dwellings they occupy. When this is the case, households have no incentive to limit their housing consumption. This is rather limited in France because housing expenditure is capped in the allowance schedule and rent ceilings are low (see below). In fact, 87% of the households in the private housing sector and 52% in the social housing sector (Cour des comptes, 2015) pay more in rent than the imposed cap. For the households who are not on income-support or whose rent

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1. *https://www.oecd.org/els/family/PH3-1-Public-spending-on-housing-allowances.pdf*

exceeds the rent ceiling, the housing allowance does not act anymore as price subsidy (percent-of-rent payment) but rather as a welfare payment which depends on income, family composition and housing zone (1, 2 or 3). Households then face trade-offs between paying food or children's activities on the one hand and housing on the other hand. Some may then face financial difficulties if they do not allocate enough for housing expenditure.

Rent Levels

Landlords can demand direct payment of housing allowances (in case of unpaid rent, for example) to prevent rent arrears. This is increasingly the case in France. It is then possible that housing allowances are captured, at least partially, by landlords, through inflated market prices. The estimates for France range between 70% and 100%. Fack (2006) provided evidence that one euro of housing allowance caused an increase of 78 cents of rent. Grislain-Letremy & Trevien (2014) showed that for housing of similar characteristics in zones 2 and 3, one euro of housing allowance is fully captured by landlord. Inflationary effects have been observed in different places (Kangasharju, 2010; Gibbons, 2006; Susin, 2002). Thus, recipients benefit only partially from their housing subsidies, as part of it is being captured by landlords through higher rents. The effect seems to be particularly high in France as it is characterized by low supply elasticity (see also Laferrère & Le Blanc, 2004). Indeed, according to Caldera-Sánchez & Johansson (2011), the price elasticity of supply is close to 0.36 in France, much lower than in the USA at 2.01. It reflects the difficulty to find available land to build housing in France as well as constraints in the housing market. The incidence of housing allowances on price can be reinforced in France by the fact that landlords can request direct payment of the housing allowances and by the large number of people eligible to housing assistance relative to other countries. As a result, in the French Finance Law of 2016, housing allowance generosity has been reduced. The objectives are to reduce public expenses and to curb the inflationary effects of housing benefits.[2] The French government has communicated on this reform by inviting landlords to reduce rents. The United Kingdom introduced a similar reform in 2011-2012. Reduced housing allowances mainly benefited renters, albeit to different extents and with the exception of people living in the suburbs of London and in the East Midlands (Brewer *et al*., 2014).

Experienced Financial Difficulties

Below a certain income threshold, households are unable to save. They are also likely to be constrained in their credit ability. The recipients of housing allowances are typically more likely to fall in this category because housing allowances are awarded on the basis of income.[3]

They are thus more vulnerable to income or expenditure volatility. Furthermore, the design of the housing allowance scheme itself amplifies the effect of unexpected difficulties for households at risk: low-income households are near the maximum allowance and that maximum cannot be increased if income falls. These households are thus less protected against loss of income than wealthier ones. In addition, in France, there is a shortage of low-rent accommodation and moving costs are high, limiting adjustment when conditions change. Finally, the income used for the calculation is the disposable income earned two years ago (*infra*). If the household has lost its employment income the housing allowance is not immediately revised and therefore does not act immediately as a safety net. On the contrary, if the household experiences an increase in income the housing allowance will need to be reimbursed later on when the corrections are made. To sum up, it is not necessarily the case that housing allowances automatically reduce housing-related financial difficulties (because of the trade-offs with non-housing goods, shortage of low-rent accommodation, minimum housing standards and rent increases). Secondly, risk factors are more common for low-income households (typically the recipients) than for other households. Thirdly, the design of the housing allowance scheme itself amplifies the effect of unexpected difficulties for households at risk. These factors illustrate the difficulties involved in using only housing allowances to achieve the goal of housing sustainability and a guaranteed right to housing.

These shortcomings have been pointed out by various researchers. Berger *et al*. (2008) show

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2. *The Finance Law of 2018, posterior to the period studied, goes in the same direction, reducing the rents and subsequent allowances in the social housing sector.*
3. *In France, most of the recipients (75%) belong to the three lowest income deciles. The majority of them (60% for the households without children) are below the poverty line.*

that, in the USA, single-mothers tend to suffer a little bit more difficulty paying rent or utilities when they receive housing allowances than when they do not. They hypothesize that it is caused by an increase in housing consumption (because households desire more or better dwellings or because they are forced to reach a minimum standard to be eligible to housing assistance). Haffner & Boumeester (2014) provide evidence that despite housing assistance in practice almost 37% of tenants are overburdened by housing costs in the Netherlands. They even find that 6% of "tenants, who based on the norms, have sufficient income, do not overconsume, live in a rent-controlled dwelling owned by a social landlord, and receive a housing allowance, still cannot afford their housing costs." (Haffner & Boumeester, 2014, p. 135). Stone *et al.* (2015), conclude that in Australia some households need additional housing assistance in order to remain housed despite rental assistance. Life events and periods of transition are more frequent and have more consequences on housing for low-income households than for more wealthy ones.

Descriptive Approach to Unaffordability

The French System of Housing Allowances

To understand the determinants of affordability (or lack thereof), we must first clarify who is eligible and how the allowances are calculated in France. A household may be eligible for one of two main allowances: housing allowances and personalized housing allowances (*aide personnalisée au logement*, or APL). The latter is for subsidized or rent-controlled housing units. These allowances are received by all eligible households who apply and qualify (it is an entitlement).[4]

Housing allowances are means-tested by reference to households' net adjusted income (adjusted in the sense that taxes and other welfare benefits are deducted from the taxable income). The adjusted taxable income of year *t* is used for the calculation of the allowance for July of year *t*+1 to June of year *t*+2. Allowances can be retrospectively adjusted for changes in circumstances (income, family composition or place of residence). Any revision of household composition and rent is carried out once a year.

Housing allowances are progressive so that households have to cover a larger proportion of their housing expenditure as their income increases (from 8.5% to nearly the full rent). The cost of living is taken into account in the calculation based on two criteria: the number of persons in the family and the location of the dwelling.[5] The household can qualify for the housing allowances only if the dwelling is considered decent, conditioned by size and quality.

Based on the criteria described above, the housing subsidy is calculated as follows:

$$subsidy = 0.915 * (Min\{R; \overline{R}\} + C)$$
$$- T * (I - I_0) \text{ if } I \geq I_0$$
$$subsidy = 0.915 * (Min\{R; \overline{R}\} + C) \text{ if } I < I_0$$

$$(1)$$

where I is the adjusted income, R is the rent (excluding utilities and other charges) and $\overline{R}$ is the ceiling set by the government on housing expenditure (its value depends on family size and geographical location). C is a lump sum fixed by the government to account for rental charges (monthly payments charged by landlords for maintenance, garbage disposal and security services). This lump sum depends on family size. T is a parameter set by the authorities which depends on family size and rent, and increases with income, I. This means that the allowance decreases as income rises.[6] The participation of the households may also vary if their situation changes (family type, location) and is not by construction limited to 30% percent of their income. Therefore, compared to other systems such as the American one, the French system does not guarantee affordability in terms of a rent-to-income ratio.

In the French scheme, the resource condition is tested by comparing I and I_0, which corresponds approximately to the guaranteed minimum income (*revenu de solidarité active*, or RSA) minus family benefits and a base rent

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4. Homeowners are also eligible to housing allowances. However, they are not included in the analysis. The objective of the article is to study the impacts of housing allowances on difficulty paying the rent (for renters).
5. Three zones are considered in the calculation of housing allowances. The Paris metropolitan area, a sub-region of the larger Ile-de-France (IDF) forms zone 1. The remaining towns in IDF and cities of more than 100,000 inhabitants form zone 2. All towns not included in zone 1 and 2 are in zone 3.
6. This mechanism is not applied in all countries; for instance in the United States, housing vouchers cover expenses beyond 30% of income (adjusted for family size and up to a fair market rent). In practice, those receiving this form of assistance have a net housing expense of 30% of their income. Therefore they are protected from changes in both the rent and the household's own income (Carlson et al., 2011). This is not the case in France.

set by the government. For income below I_0 the allowance is set at its flat rate maximum which covers 91.5% of the rent R and a lump sum amount for other housing expenses C. The allowance decreases as income increases (Diagram). The calculation of the housing allowance is complex because parameters depend on the spatial-socio-economic characteristics of the household. All households contribute to the rent (with a minimum of 34.53 euros or 8.5% of R) which increases in line with income growth and decreases in line with family size. This contribution limits moral hazard issues. However, a one euro increase in rent is nearly completely offset by the allowance increase of 0.915 cents close to I_0 if the rent R is below the maximum eligible rent $\bar{R}$. Incentives are high for landlords to increase rent (Laferrère & Le Blanc, 2002; Fack, 2005) up to the rent ceiling in this case. Only 13% of renters pay less that the maximum rent in the private sector.

Data

Conducted by the French Institute of Statistics (Insee), the Housing Survey (*enquête Logement*) provides a representative sample of all dwellings. In 2013,[7] 27,137 dwellings (households) and 65,034 individuals have been surveyed between June 2013 and June 2014. The survey provides information on dwellings and their features, household characteristics, occupancy status, housing costs (rent level or mortgage payments) and housing allowances among others. There are also retrospective questions about the dwelling or household (past 12 months, last 24 months, last 4 years). We use a self-declared variable about financial difficulties experienced by the household over the last 24 months to pay rent or housing service charges. As control variables, we use information about family type, income level, group age of the most educated person in the household, location of the dwelling, amount of housing allowance received, remaining housing expense and the nationality of the reference person among others.

Profile of the Recipients and Indicator of Affordability

Approximately, one out of five households in France benefits from housing allowances. In 2013, 95% of them are tenants, half of them living in dwellings managed by the public sector. Single-parent families and households from the first two income quartiles are overrepresented among housing allowance recipients.

We focus here on tenants who earn less than the median income. The rent is considered unaffordable if it takes up more than 30% of the household's income (measured as the total

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7. *It is the most recent survey available at the time this research was carried out.*

Diagram
Housing Allowance as a Function of Household Income
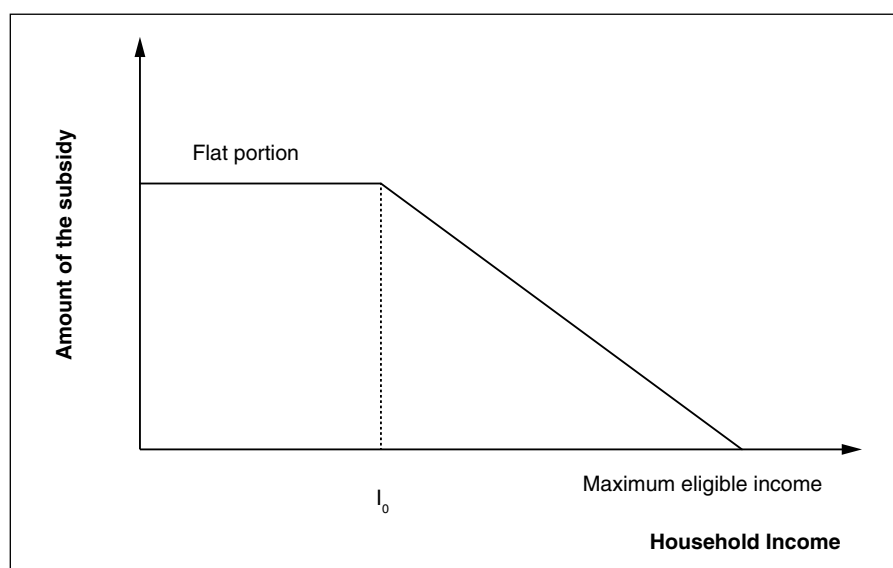
amount of labor income, capital income and welfare benefits). Table 1 shows measures of the rent-to-income ratio, or gross and net housing burden and the share of households reporting difficulties paying rent; note that for nearly three percent of the renters, the ratio exceeds 100 % showing a critical situation (these observations are excluded from the statistics presented in Tables 1 and 2).

Recipients of housing allowances spend just 18% of their income on rent with the housing allowances (vs 49% without assistance). Table 1 shows that APL recipients who get the maximum assistance benefit from a lower net housing burden at 18% than AL recipients at 23% (the APL is for subsidized or rent-controlled housing units). Households who benefit from APL enjoy lower rents but typically have lower incomes than households renting in the private sector. When adding the other housing expenditures (water, electricity, heating, service charges in collective buildings and local housing taxes) to the rent, the net total housing burden is much higher, at 38% for all recipients (cf. Table 1). Households are impacted by this lack of affordability as evidenced by the fact that one out of four dealt with financial difficulties over the last two years preceding the survey.

The average hides large differences across them, depending on the household composition, income level and place of residence. Households of the three lowest income deciles face a net housing total burden of 48% (Table 2). However, their probability of financial difficulties does not differ much from the average of all recipients at 24%.

Two categories of households, single parent families on the one hand and those living in the metropolitan area of Paris on the other hand report financial difficulties more often than the others (36 and 37% respectively, cf. Table 2). And, before the deduction of housing allowances, some groups of recipients spend much more than 30% of their income on rent. The housing burden is considerably reduced by housing allowances and does not exceed 30% on average for the categories of households described in Table 2. Households for which housing allowances play a larger role in reducing housing expenditures are single-parent families, single persons, low-income households, tenants in the private housing sector. This illustrates the goal of redistribution towards low-income families. However, even those receiving the highest amount of assistance (category 10 in Table 2, for whom the housing burden is zero once the allowances are taken into account) remain at high risk, with a third of them having difficulties paying their rent or charges during the two years preceding the survey.

The Insee Housing Survey allows quantifying the consequences of financial difficulties. A proportion of 3% of tenants-recipients are at risk of being forced to move because of financial difficulties or judicial decision of eviction, and 6% have directly been impacted following late payments (e.g. suffered from cold because electricity has been cut, lost the discretionary use of the allowance with payments being made directly to the landlord, or had their housing allowances suspended or their renting guarantee compromised). Lack of access to affordable housing can also lead to

Table 1
Housing Burden and Financial Difficulties of Renters

(In %)

	Housing burden (rent)	Net Housing burden (rent)	Net Housing burden (rent and utilities)	Net Housing burden (rent, utilities, taxes)	Difficulties paying over last 24 months
Recipients of HA	58.5	22.5	39.6	40.4	23.4
Recipients of personalized housing allowance (APL)	48.3	17.7	36.1	37.2	26.0
All recipients	49.5	18.2	36.5	37.6	25.7
Non-recipients	23.7	23.7	31.5	33.0	11.5
All renters	34.3	21.5	33.6	34.9	17.4

Note: Housing burden is the ratio of the gross housing cost divided by the income of the household. Net housing burden is the ratio of the gross housing cost minus housing allowances divided by the income of the household. The income is the total annual income (based on the variable mrtota2, which includes all types of perceived incomes, including from financial investments or welfare benefits). Observations with net burden in excess of 100% were dropped for the calculation (they represent 311 observations or 2.90% of the renters who were clearly in a situation of unaffordable rent at the time of the survey).
Sources: Insee, *enquête Logement* 2013.

Table 2

Housing Burden and Financial Difficulties by Family Types and Income Level of Housing Allowance Recipients[a]

(In %)

	Gross Housing Burden (rent)	Net Housing burden (rent)	Net total Housing burden (rent, utilities, taxes)	Difficulties paying over last 24 months
1. Single persons	56.1	23.0	43.4	19.5
Single parent				
2. 1-2 children	51.8	14.3	36.1	36.0
3. 3+ children	62.9	10.6	37.8	37.6
Couple				
4. Without children	38.7	17.8	32.1	25.4
5. 1-2 children	39.1	14.0	31.2	28.8
6. 3+ children	35.1	11.8	26.7	28.6
7. Other in a dwelling	46.2	20.9	39.2	21.6
8. Three lowest income deciles	68.3	21.7	48.02	23.9
9. Five lowest income deciles	58.3	20.1	42.7	24.7
10. NHB=0 and 5-lowest deciles	64.3	0	31.9	33.7
11. Zone 1 bis (Paris)	54.6	26.0	45.6	28.5
12. Zone 1	48.6	18.1	39.5	37.0
13. Zone 2	52.6	19.1	38.7	25.0
14. Zone 3	45.9	16.2	34.9	23.8
15. Renting in the private sector	55.53	24.58	40.78	23.10
2+8+15+(11 or 12)	75.30	30.46	49.37	32.28
All renters-recipients	49.5	18.2	37.6	17.37
As a benchmark: whole population	17.9	12.8	25.9	17.2

[a] Including the recipients of the APL.
Note: For these sub-categories, observations with net burden in excess of 100% were dropped for the calculation of average housing burden.
Coverage: Households with an income below the median.
Sources: Insee, *enquête Logement* 2013.

homelessness, which the Housing Survey cannot measure (the survey covers only housed people). Foundation Abbé Pierre (2017) estimates that in 2017 in France, 4 million people are homeless or without any regular dwelling and that 12.1 million are suffering either from very high housing burden, fuel poverty, eviction risk or overcrowding.

Statistical Analysis of the Impact of Housing Allowances

To assess the effect of the allowance, one would ideally wish to compare households receiving it to households not receiving it but otherwise identical. This is not possible in the French context, since housing allowances are an entitlement (cf. *supra*). Instead, we will use two discontinuities of the housing allowance scheme (cf. Diagram). Firstly, we will compare recipients with the maximum level of

assistance (close to I_0 on the Diagram) to those who receive slightly less (in the ninth highest decile of allowance). Secondly, another regression is conducted on households who barely qualify (and are in the three lowest deciles of allowance, close to the maximum eligible income on the Diagram) compared to those who do not qualify. This strategy is based on the assumption that small differences might matter a lot for low-income people.

We especially analyse whether housing allowances make it easier for households to deal with job loss close to these discontinuity points. Job loss represents a quarter of the adverse events faced by households in 2013 (and unemployment in France has tripled since the creation of housing allowances).

The dependent variable is a binary variable that is equal to 1 if the household reported having encountered financial difficulties in the two

years preceding the survey. Independent variables are: net total housing expense, household characteristics and whether the recipient receives maximum assistance "MaxHA" or barely qualifies "JustHA", location of the dwelling and a variable controlling for job loss. An interaction term for being a recipient and having lost one's job ("Loss-Max" or "Loss-Just") measures the impact of housing allowances in the change of probability to experience financial difficulties after job loss (the variables are detailed in Appendix).

Results

The estimation results (probit model) are reported in Table 3. First, the regression is run on the subset of recipients whose income is close to the discontinuity point I_0, then on that of recipients close to the income level to be eligible to the housing allowance.

The probability of financial difficulties appears higher for those who perceive a low amount of housing allowance than for their counterparts who are not eligible (coefficient "JustHA" is positive and significant at a 0.5% threshold). Near the other discontinuity point, households who perceive the maximum rate of housing allowance are not better off or worse off than those who perceive a high rate of assistance (coefficient "MaxHA" is positive and significant only at the 8% threshold). This finding is consistent with the fact that the amount of housing allowances falls as income rises.

People who lost their jobs recently (coefficient of "JobLoss" in Table 3) are also more vulnerable. The net total housing burden ("NBurden") increases the probability of financial difficulties for households with a high rate of housing allowance (by definition, those on low income) but has no significant effect for those with a low rate of housing allowance (the coefficient is significant only at a threshold of 8%). The probability of financial difficulties is higher for single families with 1 or 2 children ("Fam_sf12") – who by definition, can rely only on a single earner – and for foreigners ("Foreign"). Financial difficulties are relatively lower for people over 65 years old ("Age_>64"). A possible explanation is that their income is more stable.

The interaction effect[8] between job loss and the status vis-à-vis housing allowances ("Loss-Max" or "Loss-Just") is not statistically significant in the regressions at all levels of the probability of financial difficulties. In fact, the effect depends on all the covariates of the model, as shown by Ai & Norton (2003). Therefore receiving (different levels of) housing allowance does not change significantly the probability to face financial difficulties in the event of job loss near the two discontinuity points. In the first regression, the allowance cannot increase any further for those on "MaxHA" (other welfare benefits can adjust but clearly not by enough to prevent higher housing unaffordability risk). The coefficient "Loss-Max" is not significant, which means that those at "MaxHA" are not significantly better or less protected than those close to but not exactly at the maximum. In the second case, households who receive a low amount of housing allowances should be protected by the increase in allowance following income loss. But in practice, the coefficient "Loss-Just" is not significant. The implementation of the housing allowance certainly plays a role here. The protection might be inadequate because the income used to calculate the benefit is the income earned in the two years preceding the calculation. Even though the amount of housing allowance is adjusted to account for changes in income, the estimation result suggests that it fails to reduce the probability of financial difficulties, at least close to these two discontinuity points.

Additional effects are worth noting in the second regression for those close to the maximum eligible income. The risk of financial difficulties is lower for those who do not live in Paris or the surroundings (out of zone 1), showing the incapacity of the housing allowance to counterbalance the higher prices in the Paris region despite more generous benefits. This result is consistent with Wetzstein's (2017) observation that there is a lack of affordable dwellings in cities.

Tables 2 and 3 give evidence of the Schwabe law as also observed by Haffner & Boumeester (2014): the lower the income, the higher the housing burden. This empirical law can be extended by saying the lower the income, the higher the unaffordability risk for those on low rate of allowance (coefficient "JustHA"). Housing allowances fail either to counterbalance inherent financial disadvantage or to bring people to the same risk level for these

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8. Computed using Stata macro "inteff".

Table 3
Determinants of Difficulties Paying Rent or Charges Over the Last Two Years

	Max HA vs High level of HA	Low level of HA vs no HA
JobLoss	0.56** (0.14)	0.53** (0.09)
MaxHA	0.25 (0.14)	
Loss-Max	-0.22 (0.20)	
JustHA		0.22** (0.08)
Loss-Just		0.09 (0.16)
NBurden/10,000	0.63* (0.31)	0.21 (0.12)
Age_<30	0.24 (0.15)	-0.00 (0.11)
Age_3039	Ref.	Ref.
Age_4049	-0.13 (0.12)	-0.04 (0.10)
Age_5064	0.07 (0.16)	-0.09 (0.10)
Age_>64	-0.58* (0.26)	-0.51** (0.12)
Income_Support	0.05 (0.10)	0.24 (0.13)
Ed_0	Ref.	Ref.
Ed_1	0.09 (0.19)	-0.04 (0.13)
Ed_2	0.13 (0.12)	-0.08 (0.08)
Ed_3	-0.04 (0.16)	-0.18 (0.10)
Ed_4	-0.27 (0.24)	-0.33 (0.13)
Ed_5	-0.44* (0.21)	-0.17 (0.12)
Fam_couple	Ref.	Ref.
Fam_single	0.35 (0.26)	0.03 (0.09)
Fam_sf12	0.49* (0.24)	0.34** (0.12)
Fam_sf3	0.59* (0.27)	-0.12 (0.29)
Fam_child12	0.29 (0.25)	-0.11 (0.10)
Fam_child3	0.23 (0.25)	-0.03 (0.15)
Fam_other	0.29 (0.30)	-0.07 (0.14)
French	Ref.	Ref.
Foreign	0.35** (0.12)	0.26** (0.09)
Became French	-0.01 (0.17)	-0.01 (0.11)
Social H	0.04 (0.12)	0.11 (0.07)
Private Sector	Ref.	Ref.
Zone_1	Ref.	Ref.
zone_21	0.01 (0.12)	-0.17* (0.07)
zone_22	-0.07 (0.38)	-0.30 (0.23)
zone_23	omitted[a]	-0.25 (0.43)
Zone_31	-0.20 (0.18)	-0.36** (0.11)
zone_32	0.17 (0.18)	-0.34** (0.11)
zone_33	-0.22 (0.19)	-0.26* (0.11)
Arrival_1	-0.52** (0.17)	-0.15 (0.10)
Arrival_2	-0.23 (0.14)	0.10 (0.09)
Arrival_3	0.25 (0.15)	0.13 (0.09)
Arrival_4	0.04** (0.16)	0.29** (0.11)
Arrival_5	Ref.	Ref.
Intercept	-1.29** (0.33)	-1.02** (0.18)
Interaction term	JobLoss × MaxHA	JobLoss × JustHA
Coefficient (min, max)	(-0.09; -0.00)	(0.00; 0.06)
Std Error (min, max)	(0.01; 0.08)	(0.03; 0.06)
Z (min, max)	(-1.42; -0.32)	(0.00; 1.36)
Number of observations	1,503	4,398
Log Likelihood	-666,039	-1,887,439
Pseudo R^2	0.0819	0.0852

[a] Failure predicted, observations dropped
Note: *** $p<0.001$, ** $p<0.01$, * $p<0.05$. Robust standard errors are in parenthesis. See in Appendix the definition of the variables.
Reading Note: For a continuous variable (such as the net housing burden) a positive coefficient can be interpreted as an increase in the probability of difficulties in paying rent when the value of the regressor, holding all other covariates constant, increases. A positive coefficient for a categorical variable signals that the probability of financial difficulties for this particular category is higher than for the reference category; for example, the positive coefficient for "Fam_sf3" shows single families with three children are more at risk than the reference category which is a couple with no children.

households (near "JustHA"). Unforeseen events (job loss here) increase the probability of financial difficulties for all households who earn less than the median income (in the two regressions, the coefficient "JobLoss" is positive and significant).

The median income level per consumption unit,[9] housing allowances and net housing burden are presented in Table 4 for the four groups of households studied in the regressions (respectively for those near "JustHA"; not eligible; with a high coverage rate and with the maximum coverage rate). The median monthly housing allowances (column 2) are lower for households who perceive the maximum HA rate than for those who perceive a high rate of HA. The latter pay higher monthly rents than the former.[10]

The last column of Table 4 shows that the probability of encountering financial difficulties is much higher for the recipients who perceive high level of housing allowances than for those who perceive just few (0.33 compared to 0.21).

Robustness checks

To check for the robustness of these results, the impacts of the housing allowances on difficulties paying rent were estimated using propensity-score matching.[11] This technique, first introduced by Roseubaum & Rubin (1983), will allow estimating the effect of receiving housing allowances accounting for the households' characteristics. The difference in financial difficulties between the two groups (recipients and non-recipient households) depends both on the characteristics that determine eligibility and on the benefits of the

policy per se. The treatment effect is estimated by matching each observation which benefits from the policy with another one comparable on all observed covariates but which does not benefit from it. The average treatment effect (ATE) is calculated by taking the average of the difference between the observed and potential outcomes for each observation. The average treatment effect on the treated (ATT) is the same indicator calculated on the group of recipients. We estimated treatment effects for all households who earn less than the median income. The measures (ATE and ATT) are not significantly different from zero. We also ran the estimation, on the one hand on households who experienced a job loss, and on the other hand on the sub-sample of households from the three-lowest income deciles. The conclusions are unchanged. The average treatment effect and average treatment on the treated (ATE and ATT) on financial difficulties are still not significantly different from zero.

In summary, risk factors of housing unaffordability are low-income ("JustHA"), high housing burden for low-income families ("NBurden"), living in cities with low housing allowance rate (zone 1 relative to zone 3, for households in the second regression) and being less senior in the dwelling (relative to "Arrival_5"). The likelihood of difficulties paying rent is also increased if the reference person is of working age (relative to "Age_>64") or a foreigner ("Foreign"), or if the household is a single-parent family ("Fam_sf12", "Fam_sf3"). Unemployed low-income households are not

9. We also calculated the mean. The mean and median are in fact not very different for this sample. We have chosen to report median, that are known to be less sensitive to extreme values.
10. The monthly median rent is 364 euros for high HA and 307 euros for "MaxHA". The proportion of people living in subsidized dwellings (with typically lower rents) is higher for "MaxHA" than for "HighHA".
11. Stata command "teffects psmatch".

Table 4
Median of the Monthly Financial Variables by Level of Housing Allowance Rate

Housing Allowance	Net Monthly Housing Burden	Monthly Housing Allowance (in euros)	Overall Monthly Income per Consumption Unit (in euros)	Probability of difficulty paying rent
Maximum rate	0	322	520	0.34
High rate	147	377	610	0.33
Low rate	273	100	1,010	0.21
Not eligible[a]	420	0	1,260	0.16

[a] For households who earn less than the median income.
Note: The number of consumption units is calculated with the Oecd-modified equivalence scale used for EU statistics.
Sources: Insee, *enquête Logement* 2013; author's computation.

better protected than employed ones (interaction effects "Loss-Max" and "Loss-Just" are not significant). Therefore, the housing allowances do not cushion low-income households from financial difficulties in the event of job loss. All in all, housing allowances improve housing affordability (cf. Table 2) but not to the extent that housing allowance recipients are better protected against financial difficulties (as shown by the results of probit regression and propensity score matching results).

Policy Implications

From a public policy perspective, the issue of (in)affordable housing can be analysed in three ways: poverty, consumption and protection from adverse events.

If the issue is analysed as a poverty issue (an income that is too low) then redistributive policies are the most direct response to the problem. Even though housing allowance policies have increasingly been given the role of redistributive instruments (Griggs & Kemp, 2012), they are probably not cost effective for this purpose. In France, housing allowances are not even included in social policies, so that income from different sources is treated differently in the calculation of overall benefits (resulting for instance in a less favorable treatment for the working poor, those receiving a mix of labor and social welfare benefits). Indeed, French economists have recently called for a better coordination of social policies to improve the effectiveness of government support (Bozio *et al.*, 2015).

The response would be different if the issue was a consumption issue (with income large enough to cover basic needs). If consumption of other goods and services is above the socially accepted standard level at the expense of rent payment, a solution can be to pay directly the housing allowances to landlords. Households then lose the discretion of trade-offs between different essential goods and services. If alternatively the minimum quantity of housing which is considered as desirable by the society (the "decent" dwelling) is unsustainable for low income households then the norm of decency or the assistance level should be revised.

Note that it is also possible to question the calibration of the housing scheme parameters rather than the housing policy design. Rent ceilings or lump sum charges paid to households can be too low relative to actual costs especially in collective buildings. Indeed, in France at least, under indexation is a measure that has been used to lower public expenditure. It is clear that two contradictory objectives (affordability and reduction in public spending) cannot be reached simultaneously. Unaffordability can also be caused by housing overconsumption (the dwelling is under occupied or equipped with a higher than average level). If it is an individual choice, then it is not a policy issue. However, if the household is forced to rent such a dwelling by lack of affordable and adequate dwelling then it is a market failure. With low supply elasticity, housing allowances are not likely to solve that last issue alone. Subsidizing supply (if it does not crowd out private investment) would be a better response. The literature has blamed the reduced affordability also on the inflationary effect of housing allowances on rent (a price effect, rather than just a consumption effect). In the French case, it is particularly acute with a large share of the population who benefits from housing allowances, the possibility for landlords to claim direct payment of housing allowances and a low elasticity of supply. Reform is therefore needed here. A larger elasticity of supply should be promoted by reducing the structural constraints of the real estate market (on land and construction). Compared to the other European countries, a larger proportion of the population is covered by this assistance and this might be worth reassessing. Social policies are complementary. As shown by Griggs & Kemp (2012), housing allowances are very generous in England but because other benefits are not, residual incomes of recipients are low compared to other European countries. Revising housing allowances certainly means reconsidering new grounds for different social policies. For instance, redistributive policies could offset the decrease in housing allowances. Reducing the number of beneficiaries could then reduce the existing inflationary effect on rent.

Finally, housing unaffordability can be triggered by an adverse event. The potential role of housing allowances as a *shock* absorber following job loss was raised. Employment insurance should make up for part of the loss of income but not all households are eligible (if they had to quit their jobs or did not contribute enough to the employment insurance before, for example). Therefore, it raises the question of how ear-marked policies should deal with

events like that. Temporary emergency grants could be used. But the question of when and how to adjust the housing allowances remains an important one and is far from being obvious. One could argue that housing allowances should be calculated on a smoothed average of the past income levels to avoid high dependence on income at one moment in time. It would then act as a permanent source of income and households would be able to rely on a relatively constant amount. Any adjustment in housing consumption (size, quality, location, etc.) is costly because moving is costly. Housing therefore requires a long-term commitment. But the regression results and the discussion above also raise another aspect of the problem. When income drops, housing expenditure might become unaffordable, implying financial difficulties and adverse consequences. If society values access to housing and its stability, then effective policies should provide mechanisms to make up (at least partially) for the lost labor income. This result can be achieved through adjusting housing allowances quickly (and not retrospectively with an important time lag), negative income tax or a coordination of different social policies. It is up to future research to analyze how the design of the housing allowance schemes (or a coordination with other policies) should be revised to improve its effectiveness with respect to the housing right.

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We have examined in this article whether housing allowances ensure continued affordability. Their role as safety net was investigated by their impact in the case of job loss: do housing allowances reduce the probability to experience financial difficulties? To answer this question, an interaction term is introduced in the probit regression between (the level of) housing allowances and job loss to assess the role of housing allowances in preventing difficulties in paying rent. This interaction term is not significant when other household characteristics are controlled for. Housing allowances therefore do not help to reduce financial difficulties for those experiencing job loss. Ferey (2018) shows that housing subsidies also do not encourage people to return to work, due to the substitutability of unemployment benefits and means-tested benefits. Finally, they introduce significant disparities between households with similar incomes. Thus, the households with the lowest tax rates, with equal income, are those that do not receive housing allowances or the RSA.

In fact, it is a daunting challenge for housing allowances alone to ensure the right to stable and decent housing. Long-term affordability requires redistributive (or well-integrated social) policies to address the poverty issue. Flexible social policies or temporary emergency subsidies should be able to respond to sudden income volatility when insurance or savings are not enough. Availability of low-rent housing also requires a healthy housing market where supply meets housing demand. Housing allowances, here again, cannot solve this issue alone, especially with their adverse inflationary effect.

In the French case, several caveats have been identified. Housing allowances have a large coverage relative to other OECD countries. The lowest ten percentile income households therefore enjoy a relative lower level of protection. The large coverage combined with housing market constraints has fueled rent increases. Housing allowances have been increasingly costly. To limit this cost, rent ceilings, lump sum payments for charges and other parameters have not been fully indexed on inflation eroding affordability. The econometric results also show that horizontal and vertical equity are not re-established by housing allowances. A solution could be to revise the parameters (and lump sum charges) for single parent families, households on the lowest incomes and those in the Paris metropolitan area. However, it is difficult to say if indeed it is housing allowances or if it is the other social policies (including the redistribution itself) which are not well tailored in the first two cases. The question of how to respond to income volatility is not clear. Job loss increases the probability to face financial difficulties. There is a trade-off between offering a stable benefit favorable to long-term housing commitment and a flexible one, which adjusts to the household's need. In France, housing allowances are not part of social policies. This is therefore a challenge for quick and efficient coordination of social policies when the household situation changes. In this context, it is not surprising to find that low-income households are not well protected against income fluctuation.

In France, there is a "right to housing": every household must have access to and remain

in a decent dwelling. In practice, this is however difficult to achieve, particularly in a context of tight public budgets, high unemployment and a shortage of affordable housing. Housing allowances alone cannot solve the problem, and it certainly calls for a more comprehensive approach to address the affordability issue. If this article has contributed towards this research agenda, important outstanding questions remain. Specifically, it is very difficult to disentangle the different causes mentioned along the paper. It would require calculating a poverty line corrected for the spatial-socio-economic characteristics of the households, information on the consumption of other goods and services of households, estimating whether over-consumption was imposed on the households by market failures, etc., which is beyond the scope of this research. □

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APPENDIX ⎯⎯⎯

Control Variables for the Econometric Analysis

Variable name	Description
JobLoss	Job loss over the last four years
MaxHA	HA brings net housing burden to 0
Loss-Max	Interaction term (job loss and HA bring net housing burden to 0)
JustHA	Just recipient of HA
Loss-Just	Interaction term (job loss and just recipient of HA)
NBurden	Net Housing burden (rent, utilities and housing taxes)
Age	Age of the most educated person of the household by age groups
Income_Support	Minimum guaranteed income support ("Revenu Solidarité Active")
Ed_0	No diploma or former primary school certificate (reference)
Ed_1	Middle school certificate ("BEPC" or "BE")
Ed_2	Vocational high school certificate ("CAP" or "BEP")
Ed_3	High school graduate ("Baccalauréat")
Ed_4	Two years of postsecondary education
Ed_5	More than two years of postsecondary education
Fam_couple	Couple without children
Fam_single	Single person
Fam_sf12	Single family with 1 or 2 children
Fam_sf3	Single family with 3 or more children
Fam_child12	Couple with 1 or 2 children
Fam_child3	Couple with 3 children or more
Fam_other	Other family type
Foreign	Does not have the French nationality
Became French	Acquired the French nationality
Social H	Household living in subsidized dwelling (social sector)
zone_21	Zone 2 in urban unit of [100,000; 1,999,999[inhabitants
zone_22	Zone 2 in urban unit of [10,000; 99,999[inhabitants
zone_23	Zone 2 in urban unit of less than 10,000 inhabitants
zone_32	Zone 3 in urban unit of [10,000; 99,999[inhabitants
zone_33	Zone 3 in urban unit of less than 10,000 inhabitants
Arrival	A dummy taking into account the arrival date in the housing unit
Arrival_1	Less than one year in the dwelling
Arrival_2	1 to 4 years in the dwelling
Arrival_3	4 to 8 years in the dwelling
Arrival_4	8 to 12 years in the dwelling
Arrival_5	More than 12 years in dwelling (reference)
Formal Education	Category variable for the formal education levels
Family type	Category variable for each family type: single person, single family, couple with children, other (family) type
zone	Category variable for housing price levels. 3 zones are interacted with population
zone 1	Paris agglomeration, in the Ile-de-France region (IDF)
zone 2	Other in IDF and cities of more than 100,000 inhabitants
zone 3	Cities not in zone 1 and 2