

## 2 ANALYSES

### 2.1 DO NEWER TENANTS PAY HIGHER RENT?<sup>48</sup>

#### 2.1.1 Introduction

This analysis asks whether newer tenants, who only recently entered the Luxembourg housing market, pay higher rent than tenants with long-standing rental contracts. Using data from the Household Finance and Consumption Survey (HFCS), we find that long-term tenants pay significantly lower rents than “newer” tenants renting comparable accommodation.

In Luxembourg, as in many other European countries<sup>49</sup>, regulation fixes a maximum rent on residential property and limits rent increases for existing tenants.<sup>50</sup> In July 2020, the Luxembourg Minister of Housing presented a draft bill reviewing the law on renting residential property to clarify the calculation of the maximum rent<sup>51</sup>, to limit the rental deposit to 2 months’ rent, to ensure that agency fees are shared more equally between tenants and property owners, and to review other regulations in the rental market.<sup>52</sup>

According to current legislation<sup>53</sup>, rent cannot exceed 5% of the capital the owner invested in the property, which includes the purchase price, any construction costs and improvements carried out over the years. The capital investment can be updated (according to an official table) to account for increases in living costs, but cannot be adjusted to reflect unrealised capital gains. Since property prices in Luxembourg increase much faster than consumer prices, this may drive a wedge between rents on newer properties and rents on older properties (unless they changed hands recently). Rent adjustment is slowed further because existing contracts can only be adapted once every two years and because automatic adjustments are not enforceable.

The analysis that follows cannot claim to assess the effectiveness of rental regulation in Luxembourg. Instead, it focuses on one particular aspect, using survey data to explore the link between the level of rents and the duration of rental contracts. The empirical evidence confirms that long-term tenants pay less rent for comparable dwellings.

#### 2.1.2 Data and descriptive statistics

We use household level data collected in the 2010, 2014 and 2018 waves of the Luxembourg Household Finance and Consumption Survey (LU-HFCS). Households who rented their main residence represented 999 unweighted observations. Given the limited sample size, we pool data from all three HFCS

48 Written by Yiwen Chen, Paolo Guarda, Thomas Y. Mathä, Giuseppe Pulina and Michael Ziegelmeyer, economists in the Economics and Research Department. We thank research interns Barbara Schuster and Nicoleta Dicusar for their help during the preparatory stage.

49 OECD (2019): PH6.1 Rental regulation, OECD Affordable Housing Database, last updated 16/12/2019, <https://www.oecd.org/els/family/PH6-1-Rental-regulation.pdf>. According to Claveres et al. (2020) Luxembourg is characterised by relatively tight regulation compared to neighbouring countries and the OECD average.

50 Luxembourg, like Sweden, limits rents on all dwellings, while other European countries, such as France, Germany, Ireland and the Netherlands, only apply rent control to a portion of the housing stock.

51 The bill was presented following a well publicised court case that illustrated the confusion regarding the calculation of the maximum rent (<https://www.land.lu/page/article/918/336918/DEU/index.html>).

52 Le gouvernement luxembourgeois, communiqué 30 July 2020, [https://gouvernement.lu/fr/actualites/\\_toutes\\_actualites/\\_communiques/2020/07-juillet/30-kox-loyer.html](https://gouvernement.lu/fr/actualites/_toutes_actualites/_communiques/2020/07-juillet/30-kox-loyer.html)

53 Loi du 21 septembre 2006 sur le bail à loyer à usage d’habitation.

waves to increase the precision of our parameter estimates. All monetary variables are adjusted for inflation to the 2018 price level using the National Consumer Price Index published by STATEC.<sup>54</sup>

According to the LU-HFCS, the share of renters remained fairly stable over the years (see Table 1). In 2018, only 28% of households rented their household main residence (HMR).<sup>55</sup> Three quarters of these households rented an apartment, 22% rented a house and 3% rented other accommodation (e.g., farms). In 2018, the median surface of rented dwellings was 80 square meters, and the median monthly rent was 924 euros. This level of monthly rent may seem very low compared to the 1,467 euros average rent estimated by the *Observatoire de l'Habitat* using advertisements for vacant apartments in 2018<sup>56</sup>. However, the *Observatoire* only observes the rents requested by property owners, not the agreed rent actually written into a contract, which could be lower. In addition, the *Observatoire* does not observe rents for apartments that are filled through private networks without ever being advertised. Finally, the *Observatoire* only monitors rents for vacant apartments that are available on the market, while the HFCS only observes rents on currently occupied dwellings<sup>57</sup>, some subject to a long-standing contract.<sup>58</sup> According to the 2018 HFCS data, the rent-to-disposable income ratio was 29% for the median household and exceeded 40% for only 28% of tenant households.<sup>59</sup>

We split the population of tenants into three groups, according to the duration of the rental contract (see Table 1). Following Wulff and Maher (1998), we define “long-term tenants” as those with a rental contract that has been in effect at least 10 years, “medium-term tenants” as those with contract duration between 5 and 9 years, and the rest as “short-term tenants”. Pooling all three survey waves in our sample, short-term tenants account for 55% of observations, medium-term tenants for 23% and long-term tenants for 22%.

Table 1:  
**Households with short-, medium- or long-term rental contract by year  
 (percent)**

	2010	2014	2018	ALL WAVES
Share of renters	30	27	28	28
of which				
Short-term renters: < 4 years	54	57	55	55
Medium-term renters: 5-9 years	24	24	21	23
Long-term renters: > 10 years	22	19	24	22

Source: Own calculations based on the LU-HFCS data wave 1, 2 and 3 (2010, 2014 and 2018). Data are multiply imputed and weighted.

Figure 1 compares the monthly rent per square metre for tenants in the different groups. It suggests a negative relationship between the level of rent and the duration of the existing rental contract.

54 Monetary values for the 2010 and 2014 waves are multiplied with 1.149 and 1.043, respectively.

55 Based on LU-HFCS data, 69% of households are homeowners and 2.8% use their residence for free.

56 <http://observatoire.liser.lu>

57 The separate EU Survey on Income and Living Conditions also takes a household perspective and reports that average rent in Luxembourg was 1,158 euros in 2018, which is closer to the HFCS estimate.

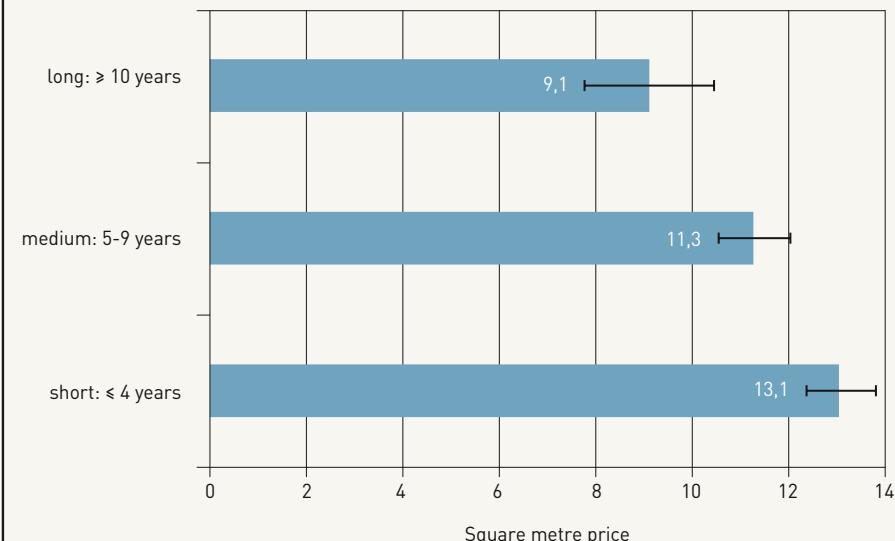
58 In addition, the *Observatoire* data is concentrated in the two largest cities, where the rental market is most active, while the HFCS is designed to be representative of the entire population in terms of sex, age and income class (not location). Thus the HFCS sample may be less representative of the population of tenants.

59 STATEC reported that low-income households spent 38% of their disposable income on rent and housing related expenses. See STATEC (2019): Rapport Travail et Cohésion Sociale, Analyses 2/2019

Long-term tenants pay significantly less rent per square metre compared to short- and medium-term tenants.

Table 2 shows that this result holds for each LU-HFCS wave separately. It is consistent with recent results from STATEC's "Loyer" survey on Luxembourg rents<sup>60</sup>, which found that most rents were not adjusted between 2014 and 2018. This could explain why the median rent per square metre in 2018 was significantly higher (in real terms) than the median rent in 2010 (Table 2).

Figure 1  
Median monthly rent by tenancy duration  
(in 2018 euros per square metre)



Source : Own calculations based on the LU-HFCS data wave 1, 2 and 3 [2010, 2014 and 2018].  
Data is multiply imputed and weighted.

Table 2:

**Median monthly rent by tenancy duration and HFCS wave**

(in 2018 euros per square meter)

	2010	2014	2018
All tenants	11.5	11.8	12.2***
Short-term (ref. cat.)	12.8	13.0	13.4
Medium-term	10.9	11.7	11.2
Long-term	8.0**	9.5***	10.4***

Note: In the top row we test for differences with respect to the reference year 2010. In the other rows, we test within each year whether the median rent of long- and medium-term tenants is statistically different from that of short-term tenants (reference category).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own calculations based on the LU-HFCS data wave 1, 2 and 3 (2010, 2014 and 2018). Data are multiply imputed and weighted.

Table 3 provides summary statistics of the main tenant characteristics, splitting the sample into three groups by contract duration.<sup>61</sup> As could be expected, the average tenant age increases with the duration of the contract. In other words, young tenants tend to belong to the group of short-term tenants and older tenants to the group of long-term tenants.

The share of foreign-born households is lower among long-term tenants (63%) than among short-term tenants (79%) or medium-term tenants (79%). Foreign-born residents are thus overrepresented in all three tenant groups, since they only account for 46% of the whole sample of surveyed households (pooling 2010, 2014 and 2018). This is not surprising, since most immigrants will probably become renters

<sup>60</sup> STATEC's «Loyer» survey is based on a rotating panel of dwellings. Dwellings are kept in the panel for 4 years. For each dwelling, the rent is observed twice per year (Le logement en chiffres, Nr. 8, 10/2019).

<sup>61</sup> Characteristics of individual household members refer to the reference person, which is defined as the Financially Knowledgable Person (FKP) of the household.

on arrival in Luxembourg, before eventually buying a home. Instead, native-born individuals of the same age may live with their parents for an extended period before buying directly without passing through the rental market.

The share of singles is highest among short-term tenants and lowest among long-term tenants. As could also be expected, widowed households are more common among long-term tenants.

The duration of the contract is also linked to educational attainment. Most long-term tenants have not attained a high level of education. Highly educated households are more common in the group of short-term tenants, possibly because many are recent arrivals from abroad or young adults moving out of their parent's house. Highly educated individuals are more likely to earn higher income, which will eventually allow them to become homeowners, moving out of rented accommodation. In fact, average yearly gross income decreases with the duration of the rental contract. In other words, those renting long-term generally have less income than short-term tenants.

Table 3:  
**Tenant characteristics by duration of contract**

	RENT DURATION		
	SHORT-TERM	MEDIUM-TERM	LONG-TERM
Gender (in %)			
Female	37	45*	42
Age in years (mean)	40.2	45.1***	56.1***
Foreign-born (in %)	79	79	63***
Civil status (in %)			
Single	42	31***	31**
Couple	31	44	28
Divorced	16	23*	20
Widowed	2	4	10***
Education (in %)			
Low	32	34	48***
Medium	31	35	35
High	37	31	17***
Annual gross income in 2018 euros (mean)	65,920	72,621	55,191**

Note: In the top row we test for differences with respect to the reference year 2010. In the other rows, we test within each year whether the median rent of long- and medium-term tenants is statistically different from that of short-term tenants (reference category).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Own calculations based on the LU-HFCS data wave 1, 2 and 3 (2010, 2014 and 2018). Data are multiply imputed and weighted.

### 2.1.3 Econometric specification and results

Table 4 reports the median results of a quantile regression examining the key determinants of monthly rent per square metre. In our most general specification, we estimate the following equation:

$$\text{rent} = \beta_0 + \beta_1 \text{duration} + \beta_2 \text{year} + \beta_3 \text{location} + \beta_3 X + \varepsilon$$

Column 1 of Table 4 reports coefficient estimates for a parsimonious specification including only the constant, the contract duration and the survey year. Column 2 reports the specification adding the vector of location characteristics. Column 3 reports the full specification also including the dwelling characteristics in vector X.

In all three specifications, the contract duration has a statistically significant negative impact on the rent per square metre. One additional year decreases the monthly rent by around 20 euros for 100 square meters. This means that if a household rents an apartment this size for five years and then moves out, then it will generally have to pay 100 euros more per month (in inflation-adjusted terms) to start renting a comparable apartment. The statistically significant coefficient for the survey year 2018 suggests that monthly rent for tenants observed in that year was generally 1 euro more per square metre (in real terms) than for tenants observed in 2010.

The specification reported in column 2 includes characteristics related to the dwelling location (vector X) as assessed subjectively by the survey interviewer. Rent per square meter in the suburbs averaged 2 euros less than in the town centre. In rural areas, rent per square meter was 3 euros lower than in the town centre.

The specification reported in column 3 considers additional dwelling characteristics, such as the type of accommodation (apartment, house, or other) and the total surface. It also includes a subjective rating of the surrounding buildings<sup>62</sup> by the survey interviewer. Estimates suggest that rent per square metre is lower for dwellings with a larger total surface. This reflects the fact that fixed costs are similar (installing heating and lighting, furnishing the kitchen or bathroom), so building costs per square metre decrease with the surface of the dwelling<sup>63</sup>. Comparing housing types, there is an additional effect by which rent per square metre for an apartment is around 1.30 euros higher than for a house. Finally, it is not surprising that the dwelling neighbourhood has an important impact on rent. Low ratings of surrounding buildings are associated with substantially lower rental costs (3.40 euros per square metre).

<sup>62</sup> In alternative specifications, we include interviewer assigned ratings on dwelling quality, outward appearance of the dwelling and dwelling quality compared to the neighbourhood. However, none of these factors were statistically significant.

<sup>63</sup> Fixed costs can also include the transactions costs involved in buying the dwelling, financing the acquisition and drawing up a rental contract.

Table 4:  
**Median regression: Determinants of rental price per square metre**

VARIABLES	[1]	[2]	[3]
Duration of rental contract	-0.206*** (0.034)	-0.217*** (0.034)	-0.189*** (0.029)
Survey year: 2010 (d)	{ref.}	{ref.}	{ref.}
Survey year: 2014 (d)	0.849 (0.617)	0.540 (0.593)	0.384 (0.466)
Survey year: 2018 (d)	1.113* (0.593)	1.004* (0.593)	1.346** (0.593)
Location: town centre (d)		{ref.}	{ref.}
Location: between town centre and suburbs (d)		-0.644 (0.576)	-0.299 (0.505)
Location: suburbs (d)		-2.068*** (0.617)	-0.802 (0.604)
Location: rural (d)		-3.173*** (0.798)	-2.876*** (0.828)
Surface of HMR			-0.055*** (0.007)
Type of HMR: house (d)			{ref.}
Type of HMR: apartment (d)			1.276** (0.559)
Type of HMR: other (d)			0.133 (1.729)
Rating of surrounding buildings: upscale (d)			{ref.}
Rating of surrounding buildings: midrange (d)			-1.437** (0.562)
Rating of surrounding buildings: modest (d)			-3.434*** (0.640)
Constant	12.448*** (0.521)	13.714*** (0.637)	18.753*** (1.301)
Observations	999	999	999

Note: Standard errors in parentheses. \*\*\*  $p<0.01$ , \*\*  $p<0.05$ , \*  $p<0.1$

Source: Own calculations based on the LU-HFCS data wave 1, 2 and 3 (2010, 2014 and 2018). Data is multiply imputed and weighted.

The 2018 LU-HFCS includes variables capturing additional dwelling characteristics that could influence rent. These include the number of bedrooms, the age of the dwelling and its energy rating. Adding these variables to the specification and re-estimating with only 2018 observations does not affect the conclusions. However, the number of bedrooms has a statistically significant negative impact on the rent per square metre. This confirms the negative effect of the total surface, as bigger dwellings typically have more bedrooms.

Notice that the coefficient estimate on the duration of the rental contract is relatively robust across the three specifications. An additional year lowers the monthly rent on 100 square meters by about 20 euros in real terms.

#### 2.1.4 Discussion and concluding remarks

Using data from the Luxembourg Household Finance and Consumption Survey, this analysis provides evidence that tenants with long-standing rental contracts pay lower rents per square metre, even after accounting for several dwelling characteristics. One additional year of tenancy decreases the monthly rent by around 20 euros per 100 square metres. Thus, if a household rents a 100 square metre apartment for five years and then moves out, it will generally have to pay 100 euros more per month (in inflation-adjusted terms) to start renting a comparable apartment. This result controls for other dwelling characteristics that influence rents, including total surface of the dwelling, location, and quality of the neighbourhood.

The gap between rents paid by short-term and long-term tenants suggests that property owners tend not to raise rents in existing contracts. This may seem puzzling, since legislation explicitly recognises that the maximum rent can be adjusted for consumer price inflation (by updating the invested capital) and that rent can be adapted every two years. For many new dwellings, owners may not adapt rent to changes in the maximum because their cost of land and construction was so high that the maximum rent for their property is already above what the market will bear. However, if population growth continues to outstrip housing supply, rents on new properties will continue to rise and as a property ages its fixed rent eventually falls below the new market rate. At this point, it is not clear why the property owner does not increase the rent in the existing contract. The owner may want to avoid the costs of negotiating with existing tenants, who may only accept a rent increase in exchange for an additional capital investment by the owner (new windows, refurbished kitchen or bathroom, etc.). Tenants may also simply refuse a rent increase, forcing the owner to wait for them to move out before raising the rent in a contract with a new tenant.

Information asymmetries may make it rational for property owners to ignore some increases in market rents. Until a tenant moves in, it may be impossible for the owner to distinguish a "good" tenant, who maintains the property and makes regular payments, from a "bad" tenant who deteriorates the property, insists on the owner paying for repairs and improvements, or simply stops paying rent. Search costs and transaction costs will add to the incentive for the owner to keep a "good" tenant by leaving rent unchanged in existing contracts, even if it is below the market rate. In addition, many owners may be satisfied if the rent is enough to cover mortgage costs, focussing instead on long-term capital gains from the rapid increase in property prices. However, rising property prices will also increase market rents, widening the gap with contracts that have not been adjusted. According to data from the EU Survey on Income and Living Conditions, between 2010 and 2018 nominal rents in Luxembourg increased by 4% per year, significantly faster than consumer price inflation (1.6%). In these conditions, it would seem natural for property owners to consider a change in tenant as an opportunity to increase rents, but eventually they may be constrained by the legal maximum on their property.

From a theoretical perspective, if regulation keeps rents on some dwellings below market rates then the outcome will be inefficient. According to Friedman and Stigler (1946), rent control may help current tenants, but it also creates artificial scarcity, making it difficult for others to find rental housing. First, rent control reduces the incentive for property developers to build new housing for the rental market. Second, rent control provides property owners with an incentive to sell property rather than rent it below its market value. Third, rent control leads to an inefficient allocation of rental space, because it provides tenants with a strong incentive not to move out of their current accommodation. This leads to "overconsumption," with tenants continuing to occupy larger dwellings, even if the household shrinks following a divorce, a death in the family, or children growing up and moving out.<sup>64</sup> Other forms of misal-

<sup>64</sup> According to the LU-HFCS data, long-term tenants occupy 47.5 square meters per person, nearly 10 square meters more than short-term tenants. The difference is statistically significant.

location can also occur, since available housing will not be occupied by those who value it most [see Olsen, 1972; Gyourko and Linneman, 1989]. Using data on rent control in New York City, Glaeser and Luttmer (2003) find that approximatively 20% of apartments are misallocated. Bulow and Klemperer (2012) find similar results in the UK. Diamond et al. (2019) extend these results to San Francisco and show that rent control policies reduce tenant mobility. They also show that property owners responded to the introduction of rent controls by reducing the supply of available rental housing, which contributes to the increase in rents.

However, the literature above also acknowledges that rent control provides tenants with insurance against rent increases, which can be particularly important for tenants who are engaged in the local community and have developed neighbourhood-specific capital (e.g., network of family and friends, proximity to a job or a local school).

This analysis has not established that Luxembourg regulation on rents restricts supply or leads to misallocation. Data is not even sufficient to estimate the share of existing contracts in which the legal maximum on rent is actually binding. However, this analysis did establish that long-term tenants in Luxembourg tend to pay less rent, even after controlling for several dwelling characteristics. It is not clear whether this was the intended effect of existing legislation.

### 2.1.5 References

- Bulow, J., and P. Klemperer (2012): Regulated prices, rent seeking, and consumer surplus. *Journal of Political Economy*, 120(1): 160-186.
- Claveres G., T.Y. Mathä, G. Pulina, J. Stráský, N. Woloszko and M. Ziegelmeyer (2020): Housing and inequality: The case of Luxembourg and its cross-border workers, OECD Working Paper no. 1608.
- Diamond, R., T. McQuade and F. Qian (2019): The Effects of rent control expansion on tenants, landlords, and inequality: Evidence from San Francisco. *American Economic Review*, 109(9): 3365-94.
- Friedman and Stigler (1946): *Roofs or ceilings? The current housing problem*, (The Foundation for Economic Education, Inc.: Irvington-on-Hudson, New York).
- Glaeser, E.L. and E.F.P. Luttmer (2003): The Misallocation of Housing under Rent Control. *American Economic Review*, 93(4): 1027-46.
- Gyourko, J., and P. Linneman (1989): Equity and efficiency aspects of rent control: An empirical study of New York City. *Journal of Urban Economics*, 26(1): 54-74.
- Olsen, E. (1972): An econometric analysis of rent control. *Journal of Political Economy*, 80(6): 1081-1100.
- Wulff, M., and C. Maher (1998): Long-term renters in the Australian housing market. *Housing Studies*, 13(1), 83-98.