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Abstract

The problem of access to housing is particularly acute in Luxembourg. High prices and a high demand for new housing prevail. Speculation on building land in particular is displacing the long-established population and preventing many people from accessing housing. 'Baulücken' serve as means for solving the crisis. In this work, 'Baulücken' are defined as areas that can be built on directly, i.e. that are connected to the necessary infrastructure and do not need to be reclassified in the development plan. However, these 'Baulücken' are currently being held back by private individuals who are also the main owners of these areas, which is why the following research questions arise:

1. What are the strategies and motives of landowners for hoarding their land?
2. Can types of owners be distinguished and do they differ in terms of their exploitation strategies?
3. Are there location- and landowner specific differences in possible housing policies?

In this context, qualitative interviews were conducted with the private 'Baulücken' owners to find out their views. There are already some instruments abroad for the mobilisation of 'Baulücken', which were put together with the existing measures in Luxembourg and their effectiveness was finally assigned to the different categories. As a result, three groups of owners have emerged: The conservative landownership doesn't want to give up their 'Baulücken' under any circumstances, because the land has a special value for the family or it is partly used for agricultural purposes. The only instrument available here is expropriation or a re-evaluation of the use in the case of inheritance. The reluctant ownership is not dependent on possible money through a sale, wants to own property and is affected by the nimby effect. Measures to mobilise these 'Baulücken' include different tax rates, financial incentives and public relations. The latter two instruments are also suitable for the observant landownership, as is a municipal land manager. This group is actually willing to develop the 'Baulücken', but there have been administrative barriers or problems with promoters. Ultimately, there are few geographical differences for the implementation of the measures, although hiring a communal land manager is a financial hurdle for the less affluent communities in the rural north of the country.

Zusammenfassung

Das Problem des Zugangs zu Wohnraum ist in Luxemburg besonders akut. Das Preisniveau ist extrem hoch und es liegt eine starke Nachfrage an Wohnungen vor. Besonders die Spekulation mit Bauland verdrängt die alteingesessene Einwohnerschaft und verhindert vielen

Menschen den Zugriff auf eine Wohnung. 'Baulücken' werden als Mittel zur Lösung der Wohnungskrise angesehen. Als 'Baulücken' werden in dieser Arbeit Flächen bezeichnet, die direkt bebaubar sind, also an die nötige Infrastruktur angeschlossen sind und keine Umwidmung im Bebauungsplan brauchen. Doch eben diese 'Baulücken' werden aktuell von Privatpersonen zurückgehalten, die auch die Haupteigentümer dieser Flächen sind, weshalb sich folgende Forschungsfragen stellen:

1. Was sind die Strategien und Motive von Landbesitzern für das Horten ihres Landes?
2. Lassen sich Eigentübertypen herausarbeiten und unterscheiden sie sich in ihren Verwertungsstrategien?
3. Gibt es Standort- und Grundbesitzer-spezifische Unterschiede in der möglichen Wohnungspolitik?

In diesem Zusammenhang wurden qualitative Interviews mit privaten 'Baulücken'-Besitzern geführt, um deren Ansichten zu eruieren. Im Ausland gibt es bereits einige Instrumente zur Mobilisierung von 'Baulücken', die verglichen wurden mit den bestehenden Maßnahmen in Luxemburg und deren Effektivität schließlich verschiedenen Kategorien von Eigentümern zugeordnet wurden. Als Resultat haben sich drei Gruppen von Eigentümer herausgebildet: Die konservative Eigentümergruppe, die ihre 'Baulücke' keinesfalls abgeben will, wobei das Land einen besonderen Wert für die Familie hat oder es teilweise für landwirtschaftliche Zwecke genutzt wird. Als Instrument bietet sich hier nur die Enteignung an oder eine Neuauswertung der Nutzung im Rahmen einer weiteren Vererbung. Die zurückhaltende Eigentümergruppe ist nicht auf einen finanziellen Gewinn durch einen Verkauf angewiesen, will Eigentum besitzen und ist vom denimby Effekt betroffen. Als Maßnahme für die Mobilisierung dieser 'Baulücken' bietet sich die Einführung verschiedene Steuersätze an genauso wie finanzielle Anreize und Öffentlichkeitsarbeit. Beide letztgenannte Instrumente eignen sich auch für die abwartende Eigentümergruppe an, genauso wie ein kommunaler Landverwalter. Diese letzte Gruppe zieht in Erwägung die 'Baulücke' zu entwickeln, doch administrative Barrieren oder Probleme mit den Promotern haben bisher eine Verwertung verhindert. Letztlich gibt es nur wenig geographische Unterschiede für die Implementierung der Maßnahmen in Luxemburg, wenngleich die Einstellung eines kommunalen Landverwalters eine finanzielle Hürde für die weniger wohlhabenden Gemeinden im ruralen Norden des Landes darstellt.

1. Introduction

The question of housing is at the same time a philosophical and political issue, according to the principle 'housing as a fundamental right', recognized as an elementary need that every human being is entitled to, according to Article 25 of the UN Universal Declaration of Human Rights(1948). Adequate housing is actually considered a prerequisite for participating in social life. Homelessness drives people into isolation and dislocation. The issue of housing is difficult to grasp in its complexity, and yet it affects every individual of our society. This leads us directly to the topic of this paper.

This research study deals with the mobilisation of 'Baulücken' in Luxembourg. The focus is directed on the realisation of concrete optimization proposals based on interviews with 'Baulücken' landowners. The topicality and relevance of the study results from its inherent various economic, demographic and political implications. This is an indication of the importance of dealing with spatial planning elements in geography and finding solutions to current social problems. According to estimates, 100 000 inhabitants could be accommodated in 50 000 to 80 000 dwellings, if the areas designated for residential buildings in the development plan were actually built on (Hertweck 2020: 371).

My own motivation for writing a Master's thesis on this topic stems from the fact that I myself will also be affected by the housing issue in the future, just like the rest of my social network. The aim of this thesis is to make a contribution so that not only the future but also the current generation of the population of Luxembourg will have access to housing. Social issues within society have been my passion for a long time and I think geography can be a decisive factor in solving social problems. Science and research have always served to address social challenges and propose solutions for policy makers.

Research ethics

The result of the study is to suggest societal changes. Such a claim is always subject to the author's subjective perception to a certain extent. Nevertheless, an attempt is made to ensure research independence. To this end, the criteria of scientific quality and independence of the researcher are ensured. The work contains content-related objectivity in that standardised procedures were carried out. In its qualitative examination, the work also provides a certain degree of representativeness and expert validity. In addition, the data should achieve a certain reliability, so that other researchers in a similar study come to the same results. With the work,

no person will be harmed by the anonymity of the empirical investigation, which is also based on voluntariness and informed consent.

Regarding the researcher's reflectiveness and positionality, it must be said that although the researcher is currently not looking for housing, he will be affected by the housing issue in the future. Due to the academic training at the university in geography, the researcher also has a specific position in society and a specific knowledge and thus a certain privilege in relation to the research.

1.1. Problem setting

1.1.1. The commodification of land

Land as common property to private property

The housing issue is a land issue and therefore the land must also be addressed. 'Land is not something that can be created, but is a scarce resource, one whose distribution and redistribution is an important economic and political concern' (Elden 2010: 806). A look at the history of the free market and capitalism, makes it clear how the current situation in the housing market came about. All current capitalist societies have gone through mercantilist, industrial and post-industrial phases, while economic activities have led directly to land and property and exploitation. Extraction of raw materials, real estate development, construction, real estate agents, renting and so on have become economic material. Capitalism has taken over land (Lefebvre 1994: 323-342). However, this raises the question of who actually owns the land.

The apparent natural law of land as private property and tradable commodity has a long history, stretching from Imperial Rome to the dissolution of the rights of the commons or Enclosure of the Commons in 18th century England to the canonisation of land ownership by Catholic bishops in the 19th century (Eberstadt 1920: 21-22). In ancient times, the sale of land was forbidden. Settlers who participated in the establishment of a settlement were allocated a piece of land. Others could only lease and thus no real estate market existed. The quasi-equality of the citizen concept was reflected in the urban planning of Hippodamos and Milet. This spatialisation of a quasi-egalitarian conception of society was later again taken up by Ildefons Cerdà in the 19th century for Barcelona (Onken 2020: 19). The medieval German city is often used as a model for urban development without land speculation: the merchants owned larger sites on the market and the main street, the craftsmen and pure agrarians owned

smaller sites, while an area in front of the city was jointly cultivated by commons as a basis for food (Bernoulli 1949: 24).

In early liberalism, ownership of land was seen as the guarantor of economic security for the citizen striving for freedom. Property is linked to ideas of freedom. With the French Revolution, a great wave of privatisation began. 'Liberté' outshone 'égalité'. During the Second Empire, planning by property owners was pushed by the Saint-Simonians (Paccoud 2019). Banks were set up for the new speculative ventures, the beginning of a banking industry specialised in real estate loans. In Berlin for example, it was up to the 'Terraingesellschaftler' who acquired land and resold it to developers (Onken 2020: 11-14).

After the Second World War, the dream of perpetual prosperity continued to exist due to the lack of taxation, the conversion of agricultural land into building land and the high demand for housing in the suburbanisation wave (Lutz 1984). Any regulation was at this time devalued as communist devilry (Onken 2020: 15). In the 1980s, the neoliberal turn in the US and the UK initiated privatisation of public sector land and housing stock. This was supported by influential economists such as Friedrich August von Hayek or Milton Friedmann (Kockelkorn 2017). Few countries are characterised by strong public intervention in land markets, even though public institutions have been proved to play a crucial role in providing land to industrial actors (Baker 1995).

The times of local autonomy of urban economies are long past. The economic basis of many cities consists of an exchange with other cities. Important actors from companies, chambers of commerce, trade unions and political parties see the city as a 'growth machine' (Molotch 1976/ Wachsmuth 2017). The mobilisation of financial values is followed by the large-scale valuation of real estate, as a consequence of which local living environments are increasingly coming under pressure to be exploited (Hesse 2020: 131).

The importance of land in capitalism

Land is one of the three factors of production, along with capital and labour. That is why land is conceptualised and theorised and measured (Hubacek & Van den Bergh 2006: 6). Land thus also serves the accumulation of capital. All classical economists – Adam Smith, Karl Marx, David Ricardo, John Stuart – Mill – recognised land as a key factor of production without production costs since nature is offering it for free (Macfarlane 2019: 25). As Henry George put it, land only acquires value through communal contributions. No owner created the value of the land alone (Kölke 2020: 57). Land has the very specific character of being immobile (Li

2014: 589) and is a geographical keyword alongside space, time, scale and so on (Christophers 2016: 135).

The importance of land has been grossly underestimated in the past, as it is one of the main factors in the enrichment of the capitalist class today (Harvey 2010: 180-182). Thomas Piketty (2014) also shows in his book 'Capital in the 21st Century' how income from capital investments, which is disproportionately high in real estate, is growing much faster than the economy as a whole, making wealthy people richer and richer through unearned gains. Harvey emphasises that land is actually a purely fictitious capital. Polany takes the same line with his concept of land as a fictitious commodity. This can be seen, for example, in the financial crisis, where land played a central role as a form of housing (Haiven 2011). At the same time, this fictitious land induces some dangers. One of them, as Harvey has just mentioned, is that land is theoretically underestimated in its importance (Christophers 2016: 137). From an empirical point of view, several studies take a very in-depth look at the problem of land ownership. These bear witness to how land can be enormously profited from, but the specific use of this land is not a main point, as can be seen from the 'Baulücken'. This is why there is this paradox that the importance of land is overlooked on one hand (theoretically) and on the other hand it is emphasised on very strongly (empirically) (ebd.: 13).

1.1.2. Dimensions of the housing crisis

High prices for accommodation in Luxembourg

Property bubbles are actually land price bubbles. 80 % of the price increases since the Second World War have been in the land component (Knoll et al. 2018). The problem of housing is particularly acute in Luxembourg, as the sale price of flats has risen by an average of 5.6% from 2010-2019. Conversely, this means that the figures calculated by STATEC suggest a price increase of 63.5 % between the first trimester of 2010 and the fourth trimester of 2019 (Housing Observatory 2021a: 19). This corresponds to the resumption of sustained activity on the residential property market after the economic and financial crisis of 2008 and 2009 (Housing Observatory 2020: 5). Compared between 2007 and 2020, Luxembourg (and the UK) saw the largest increase in house prices of all EU countries, with a doubling (94.1 %) (Eurostat 2020). The current figures during the Covid19 pandemic shed an even darker light on the issue: the housing price has risen by 17 % over one year in the first quarter of 2021 (RTL 2021a: 2). The evolution of rental flat prices also rose strongly, although less exponentially than purchase prices. From 2010 up to 2019, the rental price of a new apartment increased by 47.7 % while the rental price of a house increased by 31.1 %.

While this increase in house prices is fairly homogeneous across the different segments (existing market and sales of flats and houses), it has been much stronger in the most urban areas than in the more rural areas of the north and west of the country (figure 1). This suggests that it is land prices that have made the strongest contribution to changes in newly built house prices, and consequently to changes in old property prices. The annual increase in building land prices averaged +7.0 % between 2010-2019. This corresponds to a cumulative increase of 83.3 % in building land prices between 2010-2019. The increase in land prices has been much higher than the increase in prices of existing and new housing (the cumulative increase having reached +65.3 % and +61.8 % respectively in these two segments). Finally, the construction price index increased by a much smaller amount: +19.7 % in total between 2010-2019, or only +2.0 % per year, a figure quite similar to that of consumer price inflation. This shows that the main reason for the rise in house prices is the rise in the price of building land, rather than the rise in construction costs (Housing Observatory 2020: 5).

Returning to Figure 1, in Luxembourg, building land prices in the urban area around the capital are over 125 000 per are, while in the semi-peripheral areas in the east and west, prices vary between 50 000 and 70 000 euros per are. Only in the peripheral north are there prices below 50 000 euros per are. There is a centre-periphery scale effect here. The municipalities of Luxembourg City and Esch-sur-Alzette form the centres with high purchase prices. While the neighbouring municipalities also show soaring prices, the prices decrease the further one moves away from these centres. For comparison, in the Viennese district of Döbling, the average price for building land is 143 000 euros per are, which is the highest value in Vienna compared to the lowest value of 60,000 euros per are in Simmering. In other Austrian provincial capitals, however, the values are significantly lower. In St. Pölten, the value is only just over 10 000 euros per are, while it is 13 800 in Klagenfurt or 40 000 in Linz. Only Innsbruck, as the second most expensive city in Austria, comes close to the values of Vienna and Luxembourg with a value of 100 000 euros per are (Statistik Austria 2021).

Période du 1^{er} janvier 2018 au 31 décembre 2020

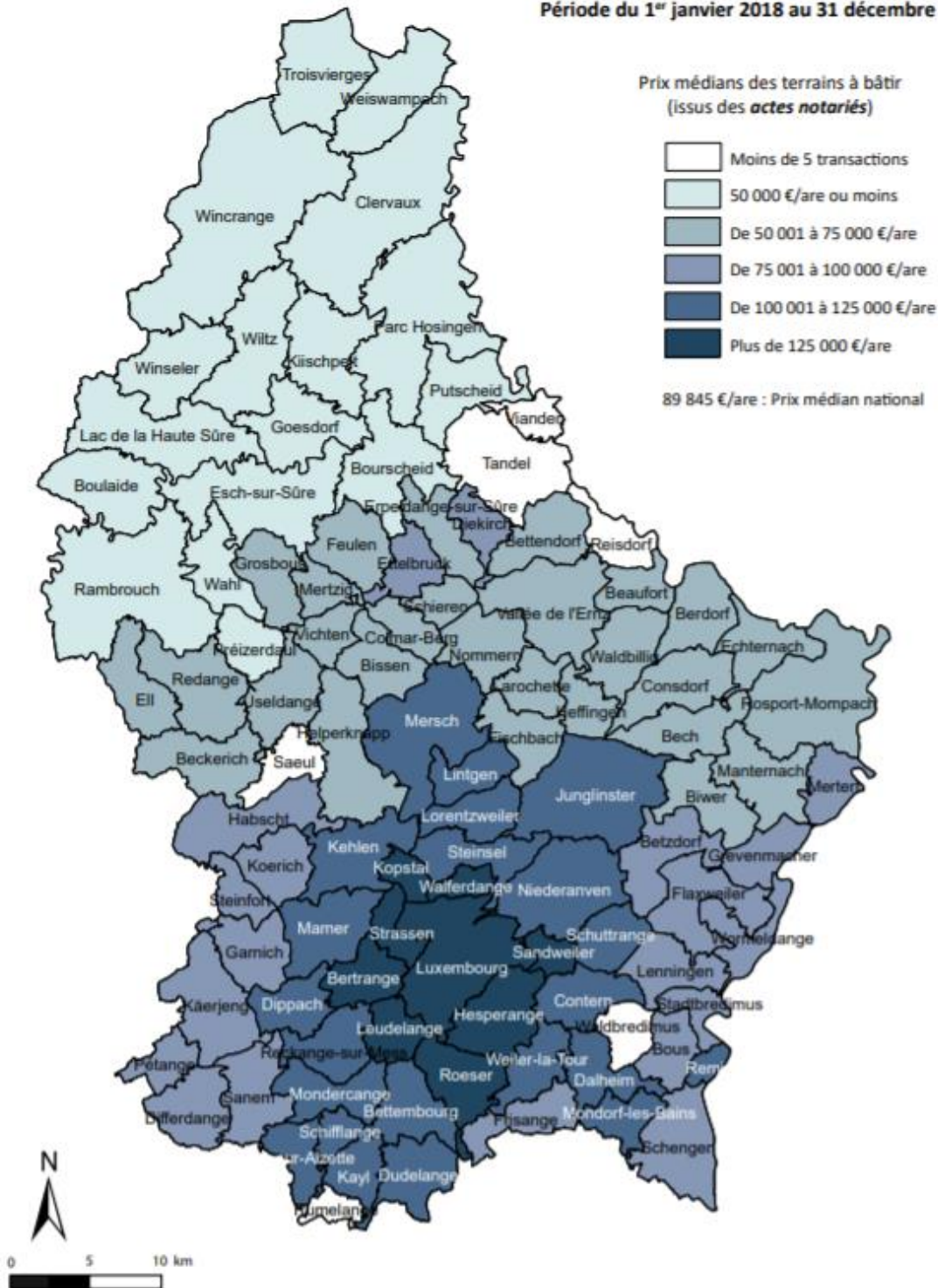


Figure 1: Median price of residential land per municipality (in Euro/acre) (Licheron 2021)

Gentrification

In many urbanised regions in North America and Europe, the rise in house prices has limited access to housing for middle and poorer households (Beer et al. 2007/ Bramley 1994). In a historical perspective, this is due, among other things, to neoliberal housing policies and the

privatisation of public assistance in Western countries (Beer et al. 2007/ Bramley 1994/ Marom & Carmon 2015/ Hackworth 2007). In these countries, the 2007 financial crisis also led to a significant decline in house building (Marom & Carmon 2015). City councils increasingly have to raise their own tax revenues and deal with the profit maximising interests of property, investors, builders, developers and real estate agents. This is evident in the increasing financial speculation and speculation with urban land (Aalbers 2012; Ward and Swyngedouw 2018), land banking practices by public and private actors (Anderson 2014), and the transformation of central urban spaces into sanitised entertainment and spectacles for affluent populations (Smith 1996, 2002).

Projects exhausting every square metre of the development plan with living space are being set up by the real estate developers. The developer offers for sale cheaply built flats at a high price in order to optimise his profit from the expensive retail price. Land trading has a negative impact on the quality of urban design, open space, and architecture. Despite the demand for 10% affordable housing in Luxembourg, a special stratum of the population that can still afford this housing will be concentrated here. While commuters are obliged to settle deeper and deeper in the hinterland, depending on their income, there will be foreclosed, exclusive residential residences and the spread of gigantic office districts and shopping centres, as can be seen in the latest example of the Cloche d'Or. At the same time, the social gap between the centre and the periphery is increasing sharply (Onken 2020: 9-10).

The need for new accommodations

This explains the relevance of research studies as well for theory as for practice. The issue will become increasingly relevant in the future because of the country's current population growth. Compared to the 433 000 inhabitants in 2000 and the 502 066 inhabitants in 2010, 643 730 people lived in Luxembourg on January 1st 2021 (STATEC 2021). The reasons for this upswing lie in natural demographic growth and mainly migration flows (OECD 2019: 79). The population density in Luxembourg is 250 persons per square kilometre, which is significantly higher than the European average of 112 persons per square kilometre (World Bank 2020). As a result, the demand for accommodations increases more rapidly than the offer. The rising number of people living alone aggravates the situation (OECD 2019: 76/ Stieß 2011: 10). In addition, the living space per owner-occupied dwelling in Luxembourg is 69.9 sqm (STATEC 2013), while in Austria, for example, this figure hovers significantly lower at 45.3 sqm (STATISTA 2021a), similar to Germany, which has a value of 47.7 sqm (Umweltbundesamt 2021).

The latest Housing Observatory report (2019: 1/ Peltier 2011: 27) shows that between 2010 and 2030, 6 500 new dwellings per year would have to be built to meet the population's needs. Currently, however, the figure has stabilised at 2 900 new dwellings per year. However, there is already evidence that these figures are outdated and that an even greater number of new dwellings are needed (Licheron et al. 2017: 32).

Monopolisation of the housing market

'It is quite true that land monopoly is not the only monopoly which exists, but it is by far the greatest of monopolies - it is a perpetual monopoly, and it is the mother of all other forms of monopoly' (Churchill 1909).

More than a century ago, people were already aware of the problem of monopolising the housing market. But nowhere the problem has been tackled and solved. The monopolisation of the housing market is certainly one of the biggest challenges that society is facing today, as will be explained later in this paper. During the preparation of this study, new journal articles have been published in Luxembourg dealing with the issue of the monopolisation of the housing market. A study published by the academic journal *Housing Studies* titled: 'Land and the housing affordability crisis: landowner and developer strategies in Luxembourg's facilitative planning context' has created a great deal of heat. The authors were able to prove that a high concentration of land ownership in Luxembourg affects the affordability of housing (Paccoud et al. 2021a). The problem of the monopoly on the housing market consists in the fact that landowners are free to decide when and on what terms they want to develop each area. This allows them to keep supply artificially tight and maximise profits, as Antoine Paccoud tells *Reporter.lu* in an interview (2021: 3). 1 000 individuals and 20 real estate actors could build one third of the potential housing units which should be built in the next five years by themselves (Housing Observatory 2021b: 23).

The housing crisis as a spatial problem

The housing market in Luxembourg is very unique and specific. The country profits of huge economic power due to a complex set of political and socio-economic relations both at regional and global levels (Hesse & Becker 2021: 148). The imbalance between Luxembourg's small size and its high economic growth results in fierce pressure on land, infrastructure and the built environment (Paccoud 2020).

Spatially, the topic of this work concerns rural areas as well as urban and semi-urban areas. Most of the population growth has taken place in the rural-peripheral regions of Luxembourg

(Chilla & Schulz 2011: 18-19). However, a large part of the activities and jobs are located in the capital city, which leads to the following problems away from the metropolitan areas:

- The regionally varying housing costs disadvantage low-income groups and lead to segregation
- The predominant growth in peripheral locations leads to high land consumption (Housing Observatory 2013: 14)
- The discrepancy between living and working locations leads to an increased volume of traffic (MDDI 2012: 22).

1.1.3. Historic economic and political development of Luxembourg

In order to better understand the current situation on the housing market in Luxembourg, it is necessary to take a look at the country's economic and political past. In this way, the emergence of some current housing market related problems can be illuminated.

1.1.3.1. The early beginnings of economic development since independence

After gaining independence in 1839, the main concern was to build an economic foundation for the country. At that time, Luxembourg was a rural country and was completely isolated from the outside world, both geographically and economically. A situation by which the population was strongly affected (Thewes 2017: 13). In the middle of the 19th century, iron ore deposits were discovered in the south of the country. Initially, the necessary money was lacking to mine the resource, but the situation changed when the country joined the German Customs Union in 1842. In addition to the access to the German market, Germany also supported the Grand Duchy financially in the development of its iron industry. Railway lines were built, allowing access to foreign countries as well as the exchange of goods and workers (ebd.: 13/ Heintel et al. 2017: 211).

From 1870 onwards, large ironworks were built in the 'Minette Basin'. Steel could be produced from the phosphorus-rich pig iron. In 1911, several companies merged to form ARBED (Aciéries réunies de Burbach, Eich et Dudelange - United Ironworks of Burbach, Eich and Dudelange), which became the most important player in the Luxembourg iron and steel

industry. Until the economic crisis in the mid-1970s, the iron industry remained the backbone of the Luxembourg economy. It employed a quarter of the working population and accounted for almost two-thirds of the industrial production. As the country's most important source of economic value added, it formed the basis for the high standard of living of Luxembourgers in the Industrial Age. Various kinds of jobs attracted waves of migration of Italians and Portuguese, who also needed a place to stay and who settled mainly near work in the Minette Basin. This dependence of Luxembourg's economy on foreign labour, markets, and capital runs throughout its history, from the birth of the Grand Duchy to the present day (Thewes 2017: 14).

1.1.3.2. The economic turnaround

Luxembourg as a financial centre

The Luxembourg government was aware that a one-sided economy would bring great dangers with it and so, from 1945 onwards, attempts were made to build up a second mainstay. The foundation for this transition was laid back in the heyday of the steel industry, when a national law was passed in 1920 that allowed foreign companies to establish themselves in the country (Christmann et al. 2017: 45). The country also turned to banking, which already had a longer tradition in Luxembourg (Thewes 2017: 40). Promoting the financial centre was a political priority and it was not long before the service sector became the dominant economic force of the country. Luxembourg's population underwent another profound change only a century after the Industrial Revolution (Franz 2005: 149 & 155/ Sohn & Walther 2010: 5). The decline of the old industries opened up new reserves of land in the interior of the cities, which could be tapped for lucrative development projects. In Luxembourg-Kirchberg, the space served to locate new service businesses. The rapid growth of the service sector inducted a high demand for office space (Hesse 2020: 133-134). It is not only the companies that are increasing the demand for office space with their location in Luxembourg, but also the meanwhile 4 000 registered investment funds that are driving speculation on the housing market in the financial centre Luxembourg (Hertweck 2020: 371)

Luxembourg established itself as the second most important financial centre in Europe after London (Franz 2005: 159/ Dörry & Musil 2015). These high-quality services were mainly concentrated in the capital city of Luxembourg, which today offers one and a half times as many jobs as it counts inhabitants (Walther & Schulz 2009). This development also attracted financially well-off persons, who can afford buying expensive flats, to the country. Many companies still relocate their headquarters to Luxembourg because of important tax advantages and the favourable legal framework (Franz 2005: 56). Currently, for example, the

company Google will move a data centre to Luxembourg, where again well-paid workers will be attracted (Decoville et al. 2018: 84). Today, the country de facto forms a kind of city-state formation and, with its recent development trajectory of finance, economy and technology, resembles rather Asian or Arab city-states than states in Central European territorial countries (Hesse 2020: 140-142). Finance and advanced business services contribute directly and indirectly to over 35 % of the country's GDP (Dörry 2015).

Structural change in agriculture

Agriculture plays a vital role with respect to the research question in view of land use distribution in Luxembourg. In 2017, 52.28 % of the land was used for agricultural activities, 37.19 % was forested, 10.05 % were constituted by built and manufactured surfaces leaving 0.48 % for water bodies and wetlands (Ministry for Sustainable Development and Infrastructure 2019: 473). The agricultural sector has undergone some profound changes in the past century.

The stronger demand for food and technical progress brought about a structural change in agriculture in the second half of the 20th century. Since that time, the number of farms and the number of people employed in agriculture has decreased continuously, while the amount of land and livestock per farm have increased sharply. The rising costs of labour, land and capital pushed many farmers out of the sector (Etgen 2018: 5). In agriculture, soil is the basic foundation for the farm and is therefore an indispensable resource. However, more and more actors are interested in speculative land acquisitions, making this precious commodity unaffordable for farmers, who are henceforth being deprived of their livelihoods. Although farmland is cheaper than building land and less affected by price increases, farmland is also considered a safe economic investment, principally when a property is reclassified as building land, the investment is undoubtedly very profitable. An increasing number of farmers have to switch to rented land, with the result of huge price surges, mainly in an agricultural sector focusing primarily on land-based production, especially in the dairy and beef cattle sectors. In the future it will be difficult to extend a farm, which would have to go hand in hand with an expansion of the building perimeter. Land is both a habitat worthy of protection and a production factor for agricultural production (Ministry of Agriculture, Viticulture and Consumer Protection 2018).

Liberal policy and ownership rate

This historical review shows that Luxembourg has always given priority to economic decisions (Faber 2020: 32). The lax legal framework and tax advantages are evidence of a liberal political approach. The land issue is treated by the authorities in a very liberal non-ideological way. On the other hand, the state is ubiquitous: politics and administration act in more or less recognisable coalition with private landowners and secure their creation of surplus value through calculated, if not cultivated, scarcity (Hesse 2020: 140-142).

The importance of ownership is reflected in the distribution of the ownership rate and the rental rate in Luxembourg. Home ownership has a long tradition in Luxembourg. Since the 1980s at the latest, this has been actively promoted by politics. The aim of this housing policy is to help middle-class families to possess their own homes, ideally in the style of a detached house (Bousch 2009: 335-336). This dream of a privately owned family home has always been the dream in Luxembourg, but fewer and fewer families can afford to run it (Christmann et al. 2017: 45). This dream has come to an end and the trend has turned into the opposite in recent years.

In fact, the burden ratio of tenants in the private market has changed from 31 to 37 % since 2016, reaching as high as 50 % on average for the 21 056 tenants belonging to the 20 % of least affluent households. (Housing Observatory 2021a: 16).

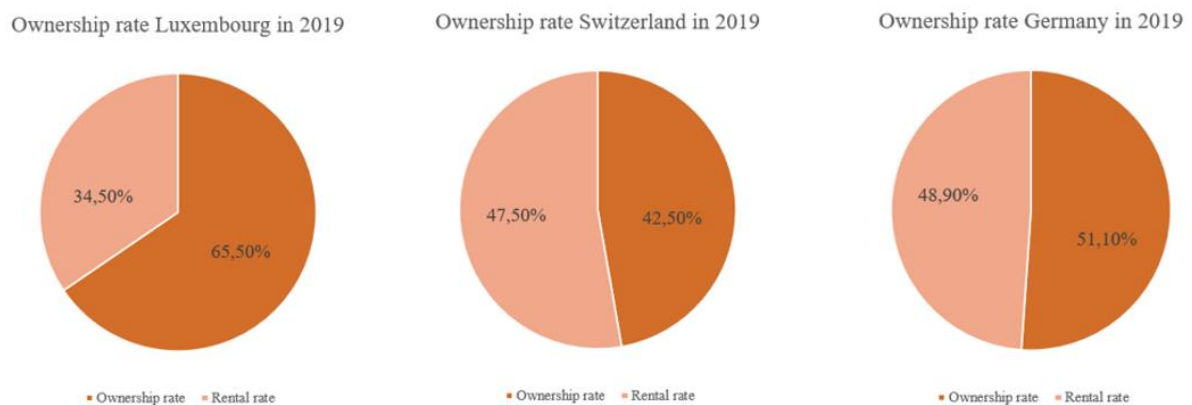


Figure 2: Ownership rate in comparison (Housing Observatory 2021a:7 & STATISTA 2019)

The comparison with Switzerland and Germany (figure 2) aims to illustrate that Luxembourg has a relatively high ownership rate. Compared to other Western European countries, Luxembourg is ahead, although some other EU member states have a higher ownership rate than Switzerland and Germany.

In addition, as already mentioned previously, the traditional household image in Luxembourg is fading. The demand for single or two-person households is growing, while the policy,

however, maintains its support for families to facilitate housing (Bausch 2009: 338). Single people often live in flats that are far too large, if they can afford one at all. There are no adequate solutions for this group of people, even though they make up the largest part of all households in Luxembourg (Heinz et al. 2013). One could say that while housing as a practice has changed, the planning has remained the same (Dell 2013: 164). Those seeking housing have to adapt to a housing market that is not adapted to them and are ultimately at its mercy (Faber 2020: 85). This inevitably brings us back to the question of who provides housing and, accordingly, controls the supply on the housing market? Well, as also mentioned above, it is the private actors who own over 90 % of the building land (Ministry of Housing 2016: 3). The housing market is left to the free market.

1.1.3.3. Luxembourg as the centre of the European Union

When Schuman launched his plan to establish a European Coal and Steel Community (ECSC) in 1950, Luxembourg was involved. With a great deal of skill, the Luxembourg diplomats achieved that Luxembourg City became the provisional seat of the ECSC High Authority in 1952. The founding of the ECSC meant that the Grand Duchy's most important economic sector, the iron and steel industry, was placed under the control of a supranational authority (Thewes 2017: 16). The 1965 Treaty on the merger of the executive bodies of the various Communities consolidated the position of Luxembourg City as one of the three European capitals alongside Brussels and Strasbourg. The Luxembourgish capital is home to important community institutions: The General Secretariat of the European Parliament, the Court of Justice, the European Investment Bank and various other services. For these institutions, the Luxembourgish government has created a European Quarter on the Kirchberg Plateau (ebd.: 20). At the same time, one must keep in mind that such attractive institutions always do attract qualified and well-paid workers who need accommodation. However, not only highly skilled workers, but also ordinary labourers found their way to Luxembourg in large waves of immigration in the 19th and 20th centuries (STATEC 2019: 5). Today, this is reflected in a rate of 47.3 % of the population with foreign citizenship (STATEC 2020).

Luxembourg is far from being a global city, but in terms of international connectivity, it ranks in the beta level of the Globalization and World Cities Group (GaWC) - alongside capitals such as Helsinki, Oslo or Budapest, but also much larger metropolises like Manchester (UK), Seattle or Minneapolis (USA) (Christmann et al. 2017: 41)

1.1.3.4. Luxembourg as a cross-border metropolitan region

A cohesive network

In contrast to nominalist approaches, which consider the existence of border regions to be obvious and taking into account the actual or potential existence of functional interactions or historical, cultural, economic or political affinities, a constructivist approach is emphasised in this thesis. This considers the emergence of cross-border metropolitan regions as a historically specific process of social development (Perkmann 2003).

Luxembourg shares a common history with its neighbours: the Saarland, Lorraine, Rhineland-Palatinate and Wallonia. Today, these historical relations find their continuation in the Greater Region, an area of transnational and interregional cooperation of more than 65000 km² with 11.5 million inhabitants and a gross domestic product of more than 350 billion euros. Every day, more than 180,000 French, Belgian and German cross-border workers come to Luxembourg to work (Thewes 2017: 21/ Sohn & Walther 2011).

Luxembourg as the economic centre of a heterogeneous metropolitan region

In Europe today, borders are more like interfaces and no longer function as territorial demarcations (O'Dowd 2003). The emergence of cross-border regions is closely related to the process of European integration and is embedded in a multi-level institutionalisation strategy across several levels (Sohn & Walther 2011: 1). The permeability of borders and the opening of labour markets to all EU participating countries has had an enormous impact on cross-border regions. Permanent crossing is made possible, i.e. any border-specific spatial crossing costs no longer exist. The centrality or the market catchment area of the border town grows across the border in this case. The border location can also bring specific advantages that go beyond the spatially expanded centrality. This is the case if the border represents a significant economic fault line, for example due to different price or tax levels (Musil 2017: 97).

It has been found that in European cross-border, there is a positive correlation between the GDP/capita differential and the intensity of commuter links, with the extent of language barriers providing an important explanation for the correlation (Decoville et al. 2013: 228). In Luxembourg, this GDP/capita differential is enormous with very low language barriers. In the metropolitan region and the greater SaarLorLux region, 90 % of commuter flows go in one direction, namely to Luxembourg (Chilla et al. 2013: 37).

The cross-border potential of a city is thus based on a certain contradiction. On one hand, this concerns the heterogeneity of the border area. This should have a high degree of permeability

of the border or low transaction costs of crossing the border. On the other hand, the functional in cross-border urban regions depend on the heterogeneity (wage, price, equipment differentials) of the areas connected by the border (Sohn & Walther 2011). The second contradiction arises from the potential of heterogeneity, which influences the dynamics of functional interdependence, but which is contrary to the EU's territorial cohesion objective. Cross-border spaces are seen as an important driver of convergence (European Commission 2014), although their dynamics are based on divergence, and the increase in interdependencies by no means connotes that cross-border disparities are decreasing: 'the development of cross-border economic relations does not necessarily imply any reduction in disparities or associated increase in territorial cohesion' (Decoville et al. 2013: 221). This should once again illustrate (figure 3) how the dynamics of the border region led to price increases and pressure on the housing market in Luxembourg.

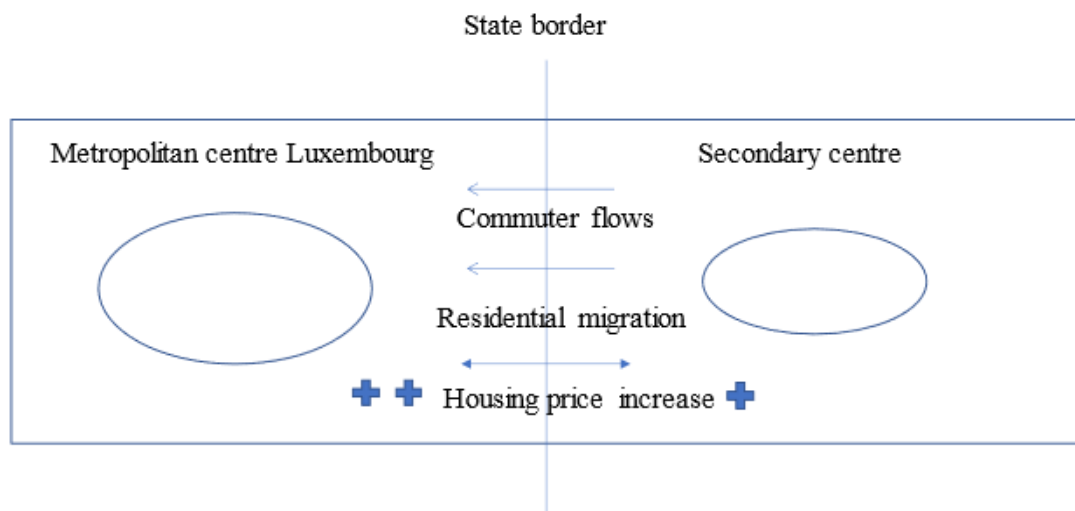


Figure 3: Polarising border flows in the Luxembourg metropolitan region (own figure, changed according to Sohn 2010)

Sohn and Walther (2010) argue that the presence of a border can take advantage of land resources, as Carpentier (2010) also argues for Luxembourg, households wishing to purchase land may be able to find a plot that is more readily available and cheaper in the neighbouring border area. However, there is a risk that an increase in the price of land will also slope across territorial borders. As can already be seen from the Rhineland-Palatinate Land Market Report from 2015, the price level for land on the German side of the border area is rising sharply. According to the report, this is due in particular to the lively influx from Luxembourg (Ministry of the Interior, Sports and Infrastructure 2015). Carpentier (2010) provides similar evidence with regard to territorial dynamics: border areas benefit from a much better availability of land and real estate than in Luxembourg. As a result, several thousand households do move from

Luxembourg to the neighbouring countries but continue to work in their home country. To come back to figure 6, building land prices are therefore not only rising in Luxembourg, but in the entire border region, even if prices in the border region are rising less rapidly. This is all due to the heterogeneous border situation.

The high land prices lead to a slowdown in the resettlement of new foreign workers, which automatically exacerbates the problems of mobility between home and workplace. The differences in the attractiveness of residential locations contribute to a process of functional division, on the one hand with a metropolitan centre where activities and employment are concentrated, and on the other hand, peripheral areas that become dormitory towns. This functional division is compounded by mechanisms of social segregation through residential segregation, which contribute to cross-border differences and, in the long term, endanger the social and territorial cohesion of the cross-border metropolitan region in the long term (Sohn & Walther 2011: 9).

1.2. 'Baulücken' as a way out of the crisis

Currently there is no uniform translation of the term 'Baulücken' to English and also in the French language texts of the Luxembourg Housing Observatory, the German term 'Baulücke' is used. Therefore, the German term 'Baulücke' is also being used in the present paper.

In literature, 'Baulücken' are seen as an alternative to increasing the housing provision. Since 2004, the Housing Observatory has been investigating areas that could potentially be available for housing construction. Since then, reports on the housing stock in Luxembourg have been published every three years, with the most recent report in 2019. According to this last report (2019: 12), there have been 941 ha of 'Baulücken' available in Luxembourg in 2016. This figure is likely to have changed, but it gives an indication that there is still a high potential for housing creation. However, the figures on how many flats can actually be built are relatively imprecise. The calculations are partly based on the assumption that only one flat can be built on 'Baulücken' of up to eight ares each. In reality, however, there could also be two-family houses or small apartment buildings built (Ministry of Housing 2021: 66). The Raum+ data show great differences between categories of owners, both in terms of interest in developing a plot of land and in the time needed to start building. They confirm that the high degree of concentration in private ownership of residential land is reflected in the potential production of housing. These analyses also show that a non-negligible number of dwellings could be built relatively quickly by their private owners. If the construction of all these potential dwellings

were effectively started in the next five years, this would lead to an almost doubling of the dwellings produced per year in the medium term (Housing Observatory 2021b: 1).

From a spatial planning point of view, it makes sense to start with the mobilisation of 'Baulücken', then to develop the inner development potentials and only in a final stage to develop the outer reserves according to an assessment by the Raum+ Group, which is a mature method for creating overviews of settlement reserves by the chair of Landscape and Urban Systems Planning at ETH Zurich. Within the respective municipalities, there are areas that should be developed with priority over others. Interior over exterior development plays a decisive role in sustainable urban development from an ecological, urban planning and economic point of view. From an ecological point of view, refraining from using outside areas (even within the building perimeter) limits the fragmentation of the landscape and reduces land consumption within natural spaces. Furthermore, the recreational and landscape qualities at the edge of the settlement are preserved and the agricultural land is protected. From an urban development perspective, priority development of the town centres increases their attractiveness and thus the quality of life in the town, and thus also improves social life. Mobilising the 'Baulücken' helps to use the infrastructure more efficiently. Also, from an economic point of view, an inner development and especially a development of the existing 'Baulücken' makes sense, since the costs for development and technical infrastructure are usually not incurred because these are already available within the town. Furthermore, mobilising the existing 'Baulücken' helps to avoid additional follow-up costs. It therefore makes sense to first use the existing 'Baulücken', then the other inner development potentials and only when these potentials have been used up, the outer reserves (Ministry of Housing 2021: 30, 68).

The mobilisation of 'Baulücken' increases the customer potential for inner-city shops and services and can contribute to an image improvement with new, attractive buildings (Bavarian State Ministry for Environment and Health 2010: 10). As far as the investors are concerned, the mobilisation of 'Baulücken' goes hand in hand with savings on development costs and a calculable location quality. Potential residents of 'Baulücken' would know in advance which neighbourhood to expect and often find established structures in a central location (Ministry of Housing 2016: 5). The mobilisation of 'Baulücken' can thus be seen as a component of measures to positively influence the quality of growth in Luxembourg.

1.3. Research objective & State of the Art

1.3.1. Research objective

The land issue is still about, as Peter Conradi (1997: 31) demanded decades ago, 'making land speculation more difficult, reducing unprofitable profits from land sales, making hoarding of buildable plots more difficult and promoting the use of building land in accordance with planning'. The following research questions for the thesis arise from the problems just described:

1. What are the strategies and motivations of landowners for hoarding their land?
2. Can various types of owners be distinguished and do they differ in terms of their exploitation strategies?
3. Are there location- and landowner specific differences in possible housing policies?

The objective of the paper is focused in three different but related aspects: The first question is directly derived from the empirical investigation, where the 'Baulücken' owners are asked what their intentions are to retain their land. The second question relates to the categorisation of landowners, based on a literature review and their own statements. The third question is about the policies that could be taken to mobilise the 'Baulücken' and whether there are different instruments and geographical specificities for the different categories of landowners.

The focus of the study as well as the empirical investigation and the literature research were carried out in close consultation with the LISER research centre, especially Antoine Paccoud, coordinator of the Housing Observatory.

1.3.2. State of the Art

This topic has been dealt with not only since the newly emerging Human Geography sub-discipline of Real Estate Geography at the University of Vienna by Robert Musil. However, the topic has been treated in its full complexity in recent years, having previously been embedded in Economic Geography and Settlement Geography according to the organisational scheme of Geography from the 1970s by Gebhardt et al. (2011: 75). The successive differentiation of sub-disciplines has induced further studies of various social problems in Human Geography. The current research primarily deals with the concept of land. Being subject to dynamic price development through privatisation and financialisation, debates about land ownership and state options are rather motivated by social politics (Hesse 2018).

The geographical approach of the topic of 'Baulücken' differs from other disciplines by its theoretical and conceptual focus on space. This includes the interactions of different scale levels, such as the activities of international investors or national regulations. Furthermore, housing market-related questions are subject to the perspective of different spatial theoretical concepts. Developed economies are characterised by the fact that the building stock is one of the largest stores of wealth, and thus having a significant influence on the distribution of wealth in a country as well as on economic stability (Musil 2019: 9).

In Luxembourg, the Housing Observatory is primarily concerned with the housing situation. The Raum+ programme provides qualitative information on building land, including the interest of owners in developing their land and the number of dwellings that could potentially be built on it (Housing Observatory 2021b: 1). The LISER research institute regularly publishes reports and articles on the subject. In particular, a number of studies stand out, such as 'Land and the housing affordability crisis: landowner and developer strategies in Luxembourg's facilitative planning context' (Paccoud et al. 2021a) or 'the top tail of the property wealth distribution and the production of the residential environment' (Paccoud 2020). However, these mainly deal with big landowners and their interests and strategies in Luxembourg, while private individual landowners are still less researched on, and a research gap exists on this subject. Furthermore, the OECD issues reports on the housing situation in Luxembourg at a certain rhythm, but overall, it must be said that Luxembourg, due to its size, does not represent a centre of interest for international research.

As early as 1978, Massey and Catalano identified the first types of landowners, and Haila 1991 developed these ideas further. This typification is taken up again and again in research, but it seems somewhat outdated for this study. Nevertheless, the two typifications are used again and again in the further progress of the study and Paccoud et al. (2021b) also try to expand on this typification.

There is the Raum+ method for surveying settlement areas. The Raum+ method was developed at the University of Karlsruhe and further developed at the Swiss Federal Institute of Technology in Zurich. In addition to a purely quantitative survey of the areas, it also allows a qualitative analysis to be carried out by providing a municipal perspective and a practical assessment of the development reserves is made possible. A GIS analysis to record the potential residential areas is followed by a survey interview with the aim of incorporating the local knowledge of the communities. This method was adopted for Luxembourg during the survey time from 2019 to 2021 (Ministry of Housing 2021:8).

Furthermore, some instruments for the mobilisation of 'Baulücken' already exist in Luxembourg as well as in other countries, which will be presented in the course of the work and serve as inspiration to finally present policies for Luxembourg.

1.3.3. Structure of the thesis and research design

The following figure gives an overview of the methodological approach on which this work is based:

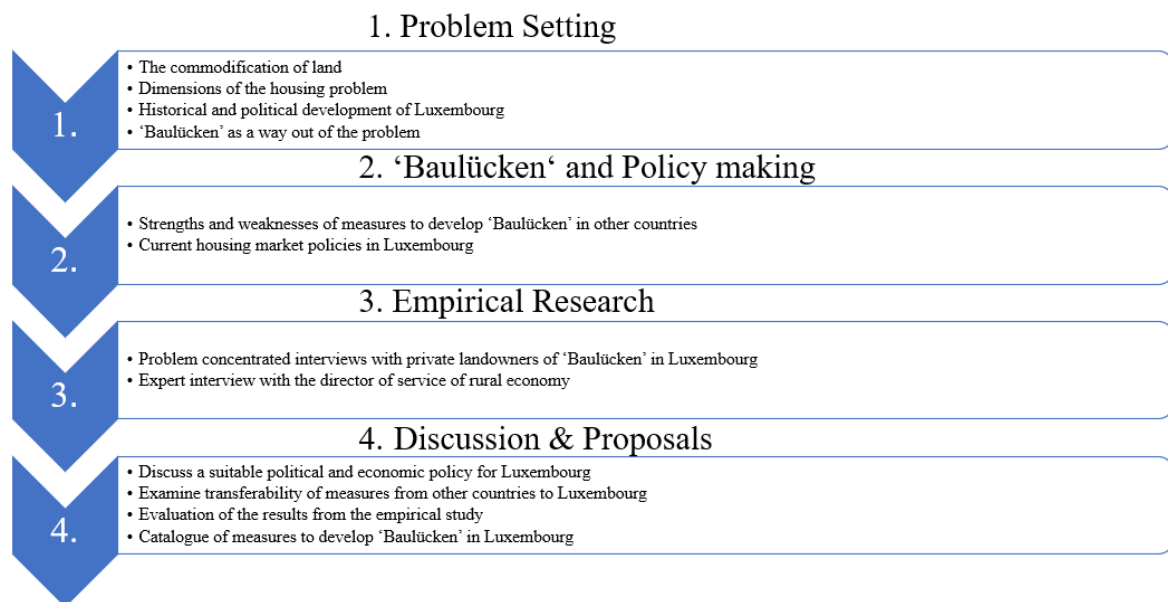


Figure 4: Research design (own figure 2021)

Now that the problem has been defined and the different dimensions of the housing crisis have been clarified, the next steps are to be taken.

The current situation of the housing market in Luxembourg will briefly be discussed in the presentation in order to demonstrate the necessity and topicality of the study, which this work is based on. A peek is taken at other countries that have already taken measures to mobilise 'Baulücken'. Luxembourg has not been working on the issue of mobilising 'Baulücken' for a long time, hence the need of looking at other countries to highlight both positive and negative examples. Furthermore, this strategy clarifies which policies currently prevail in Luxembourg. This historic review highlights the different possible mechanisms and approaches to problem solving.

After the description of the methodological approach of the empirical study, the implementation strategy of the problem concentrated interviews as well as the expert interview, conducted

with the director of the service of rural economy, will be set up. The results of the study will be presented without being interpreted. Only in a later step will the results be evaluated.

Finally, a large section first assesses the economic and political dimensions of housing policy in Luxembourg and discusses which approach would be suitable for the country. Then the transferability of the measures from other countries to the Luxembourg situation will be examined. The results of the empirical study are evaluated and conclusively a catalogue of measures for the mobilisation of 'Baulücken' is presented. This is structured according to the research questions.

1.4. 'Baulücken' in Luxembourg – Definition, ownership structure and geographical distribution

1.4.1. Definition

In 2016, the Ministry of Housing, the Ministry of Home Affairs and the department for environment within the Ministry of Environment, Climate and Sustainability Development defined 'Baulücken' as:

- An area that is, according to article 23 paragraph 2 of the altered municipal planning and urban development law of July 19th 2004 completely opened-up. An area is considered as opened-up according to the legislation, if it's connected to the transport system, to water provision, sewage plant, canalisation, telecommunication, lightening, public squares, playgrounds and to green areas.
- An area that meets the requirements for residential construction and is situated in a residential zone or in a mixed zone. Areas in mixed zones count as 75 % of the 'Baulücken'.
- An area that can be built on immediately with a building permit, without having to draw up a land-use plan 'new district'.
- An area whose building development is possible without impairing other laws (e.g. nature conservation, historic preservation).

(Ministry of Housing 2016: 3).

The definition is only valid in the context of the 'Baulückenprogramm' and does not have any legal validity. The definition gives no details to the minimum or maximum of the plot size of the 'Baulücken'. Subsequently to LISER, being able to identify all the 'Baulücken' in the country by the means of orthophotos and cartographical analyses, the communes had to validate these areas on several criteria (Housing Observatory 2015: 11).

The German Raum+ programme strikes in a similar direction: '[Baulücken]' are individual plots of land that are already developed and part of the built structure. They could be built particularly quickly, with a simple building permit and thus without the need to go through a 'new district' plan (PAP)'. Regardless of their location, 'Baulücken' are generally between 2 and 20 ares in size, as specified by the Raum+ programme (Housing Observatory 2021b: 22).

The Housing Observatory defined 'Baulücken' in another report (2019: 12) as follows: 'Baulücken', which represent net availability (i.e. the land is serviced and its entire surface area can be used for housing, without the need to create additional roads) and which can be mobilised in short term (i.e. they do not/no longer require the filing of a 'new district' PAP)'.

According to the given definition, the size of the 'Baulücken' is in constant transformation as an expansion of the building perimeter can lead to an increase of the 'Baulücken'. Contrarily, new monument conservation regulation or reclassifications as green areas can lead to a decrease of the 'Baulücken'. The 'Baulücken' can also be in use and aren't necessarily classified as a brownfield or as unused land. This use of the construction gaps can consist in horticultural or agricultural use.

However, the term should not be confused with the ÖROK (Austrian Conference on Spatial Planning) description of a 'Baulücke'. A 'Baulücke' is the part of a building land reserve that is fully developed in Luxembourg. Here, the building land reserve describes the part of the land that can only be built on in the medium to long term because it is in second position, which means that it still needs infrastructure to develop it, or that it is not yet considered a 'new district' in the PAP (Housing Observatory 2019: 12). In Austria, a building land reserve simply describes land that is dedicated, but not yet built on. Further specifics of an undeveloped area are addressed there. In Austria, a plot of land is classified as built on if the building and housing register indicates a built-on area of at least 50 sqm for the building coordinate (ÖROK Atlas 2020). The areas that fall under the Luxembourg term 'Baulücken' are therefore not all known here. Nevertheless, there is, for example, a study that identified precisely this area in the

Wienerwald according to the Dutch ABC model, which evaluates the accessibility of the area and thus determines the favourability of the location (Musil & Pindur 2011).

To further delineate the term, other terms are explained. 'Baulücken' 'Minus' are similar to 'Baulücken', but differ from them in one important respect: they are either not yet fully parceled out or developed or cannot be built on immediately for legal reasons. Thus, the 'Baulücken' 'Minus' must either first be separated from a plot with densification potential, or two small sections must be merged to become one building plot. It is also conceivable that a neighbouring plot is needed for development. There are also external reserves. These building reserves, usually larger than 20 ares, are recorded in the outer area of the settlement body. They lie outside the largely built-up area, but within the legally binding building perimeter. As a rule, these areas are not developed and have not yet been parcelled out for development. Finally, there is the inner development potential. These are larger areas within the urbanised settlement body, usually with an area of more than 20 ares. These are:

- Undeveloped building areas within the settlement body (with the exception of areas that serve as green or open space)
- Areas with densification potential, i.e. areas, which are only partially used or for which or for which a higher-value use or building density is building density is intended
- Incorrectly used areas, i.e. areas which are not used used in accordance with the use zone (e.g. historically developed misuse of businesses in the businesses in the residential or mixed area) and whose use should be transferred to another location from a municipal point of view
- areas no longer in use (brownfield sites), i.e. built-up areas that are no longer used
- possible future brownfield sites, i.e. areas, currently in use but which are expected to fall into disuse in the near future

(Ministry of Housing 2021: 18).

1.4.2. Ownership structure

In Luxembourg, one percent of the population owns a quarter of the areas in the country (Onken 2020: 9). The average land wealth of each of these landowners is 21 million euro (Housing Observatory 2016: 1). In 2013, the Ministry of Housing identified the following ownership structure for 'Baulücken' in Luxembourg:



Figure 5: Ownership categories of 'Baulücken' (%) in Luxembourg (Ministry of Housing 2016: 3)

At the time of the survey in 2013, the available area of 'Baulücken' was at a size of 995 ha. Thereof, 94 % were owned privately, and even 82 % were in possession of private individual people, which represents an amount of 818 ha. According to the Ministry of Housing (2016), 30 000 apartments could be built on the available area. The Raum+ study sets the area size of 'Baulücken' at 675 ha for the study period of 2019-2021, but only 89 of the 102 municipalities in the country were studied (Ministry of Housing 2021: 31). Nevertheless, it can be assumed that the remaining municipalities will not be able to fill up to the 2013 value with their 'Baulücken'. On the one hand, this may be due to the constant variation of the areas and, on the other hand, to different measurement methods for the 'Baulücken'. In the town of Dudelange, Paccoud (2020) has shown that a small number of private landowners, who own most of the residential area in the city, have determined the pace of housing production since the 1970s.

It is obvious that the municipalities and the state (4.3 % and 0.7 %), i.e. the public actors, own few 'Baulücken' and thus play a minor role in the use of land. In total, the public sector owns 10 % of the land in Luxembourg. The majority of these are brownfields, such as in Esch-sur-Alzette (Tanson 2020: 378). Another public actor, the Housing Fund, also owns only 0.5 % of the building land, although by name it should play a major role.

The same study carried out by the Housing Observatory in the year 2016 revealed that 941 ha of vacant land were available at that time, which is equivalent to a reduction of 54 ha compared to 2013. This figure is calculated using 100 % of the total available 'Baulücken' area in residential areas and 75 % of the total available 'Baulücken' area in mixed areas. (Housing Observatory 2019: 12). The reasons for this difference are clarified in the following section.

These 'Baulücken' represent 33.1 % of the areas that are building land. The difference between the 'Baulücken' and the remaining building land is that these can be built on without depositing a new PAP (specific development plan). This other available land, represents firstly gross availability (the land is in second position or requires the creation of a road to be fully used) and secondly also land that can only be mobilised on medium or long term (net or gross) located in areas subject to the preparation of a 'new district' PAP (or its equivalent in the former PAGs) or in deferred development zones (ebd.: 12).

When the 'Baulücken' are considered nominally as individual plots, a telling picture emerges. A large majority (8 220 out of 9 226, i.e. 89 %) of the plots identified as 'Baulücken' are owned by only one owner. These 8 220 'Baulücken' are distributed as follows:

- 6 424 'Baulücken' are owned by 4 926 private individuals. Of these, 872 private individuals own more than one 'Baulücke' (out of a total of 2 370 gaps);
- 1 026 'Baulücken' are held by 238 corporate groups. Among these groups, 14 own more than nine 'Baulücken' (for a total of 584 'Baulücken');
- 645 'Baulücken' are owned by municipalities, funds or the state. Eight of these owners own more than nine 'Baulücken' (488 building sites in total);
- 125 'Baulücken' are either held by other owners or have no identified owner (Housing Observatory 2021b: 22).

1.4.3. Geographical distribution

According to a dataset from 2016, LISER was able to determine the geographic distribution of 'Baulücken' in Luxembourg per municipality (figure 4). The average area per municipality is 27 ha, but with a very uneven distribution. The great divergence can be explained by the different degrees of urbanisation within the municipalities, the dynamics of mobilising 'Baulücken', the demolition of buildings, the topographical situation and finally by policies and local strategies (Housing Observatory 2016: 6).

The availability of land is highest in Luxembourg City. The majority of the other municipalities that have a large share of land, are urbanised or peri-urbanised municipalities such as Mersch, Junglinster, Steinfort or Dudelange. The rural communes that also have a large share of land are large fusion communes such as Wincrange, Parc Hosingen or Rambrouch and finally, Clervaux, which also shows a high rate. Another striking fact is, that between Schengen and Echternach only a few gaps can be found, which is probably due to the fact that there are only

a few large municipalities in the area. Most 'Baulücken' are located in the far north and in Luxembourg City.

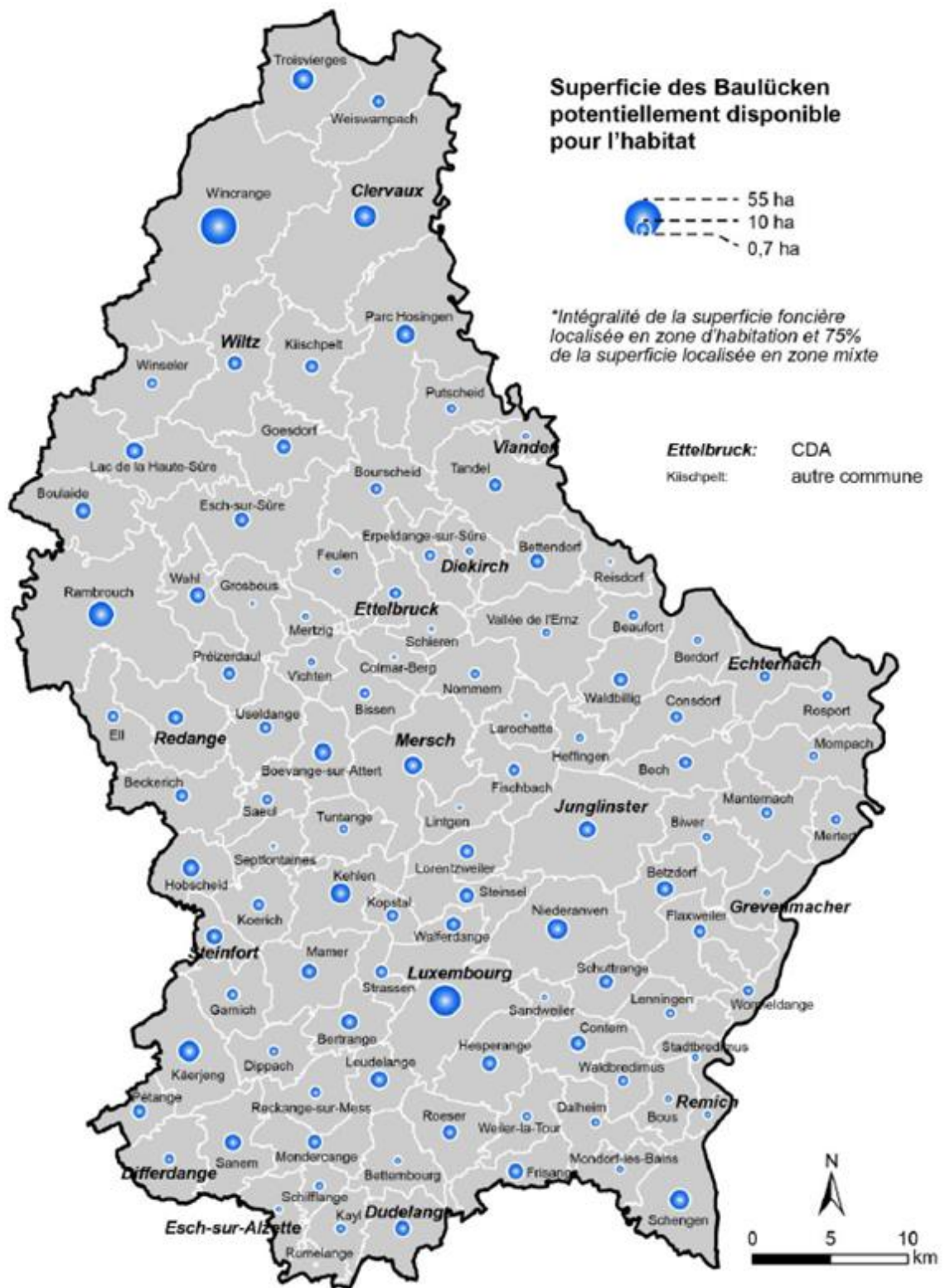


Figure 6: Availability of 'Baulücken' in Luxembourg per municipality in the year 2016 (Feltgen 2018: 7)

If we now look at where the 'Baulücken' are in relation to the desired development of the region, there are some striking features. Before this, however, it must be said that the regions described in figure 7, CDA (Development and Attraction Centre), Agglo Centre, Région Sud and Nordstad, are considered urban centres and should therefore also be the focus of future developments. In addition to these urban centres, which are to take up future development as a priority, there are the municipalities where so-called inner development is envisaged. These mostly rural municipalities (shown in green on the map) are not intended to grow through immigration from outside, but to optimise their offer for the existing population and their descendants. (Ministry of Housing 2021: 22-23). The self-development communities are characterised by a high proportion of 'Baulücken' and by far the largest area of external reserves. Thus, the majority of the external reserves are located in areas that are expected to develop rather moderately. The southern region has the smallest share of external reserves and the highest share of internal development potential (ebd.: 46).

This distribution also leads to the period for which the 'Baulücken' will last for future development. Obviously, the existing 'Baulücken' in the CDA, Agglo Centre, Région Sud and Nordstad are sufficient for a shorter period than in the self-development municipalities (ebd: 67).

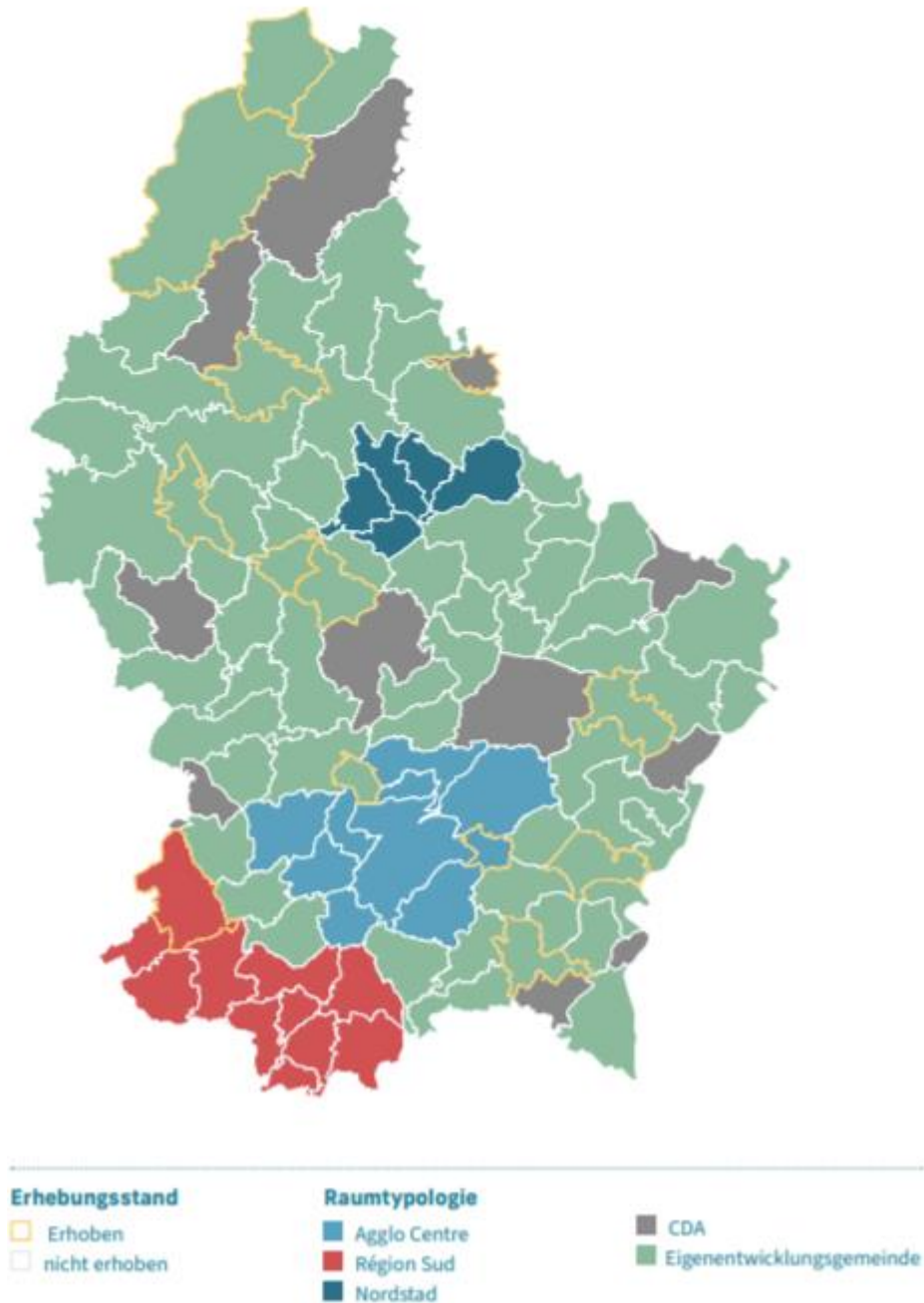


Figure 7: Spatial typology of the municipalities in Luxembourg (Ministry of Housing 2021: 23)

There is therefore no clearly discernible periphery-centre gradient as is the case, for example, with building land reserves in the Vienna conurbation. This shows an increasing central-peripheral gradient starting from the Vienna city limits, independent of the size of the municipality: this means that the more peripheral the municipality, the more building land reserves there are. The proximity to the core city of Vienna or the transport connections are significant explanatory factors for the lack of availability of building land reserves (Musil & Pundur 2011: 403). This building land reserve survey thus confirms the findings of other studies, namely the increasing supply of (as well as demand for) building land in favourable,

peripheral locations at regional level (Bock & Preuß 2011: 26). However, care must be taken that these studies refer to building land reserves, whose definition does not clearly correspond to the 'Baulücken' described above.

2. 'Baulücken' and Policy making

A look is taken at other European countries that are either in a similar housing situation as Luxembourg (e.g. Switzerland) or have already taken initiatives to promote the development of 'Baulücken'. This provides an overview of existing instruments and mechanisms to combat the problem at hand. Finally, a look at current policies in Luxembourg is given to illustrate the current state of affairs.

2.1. Development of 'Baulücken' in other countries

2.2.1. Various existing instruments

In order to provide an overview of existing instruments, a look at selected practices in their respective countries is briefly presented. In the absence of laws and instruments, cities and municipalities are increasingly reacting by applying their own building land strategies adapted to the local situation, - with a 'land reform from below'.

Sanctions

In France, a surtax on land to be built on was introduced at state level in 2015. After some amendments due to protests, it was finally decided that the amount of the surtax should be 25 % of the assessed value per year. The introduction of this additional tax is compulsory for municipalities with a high settlement density and is voluntary for the other municipalities in the country. Furthermore, it was decided that areas with a size of less than 200 m² are completely exempt from the additional tax (Public Finance Directorate 2015: 1-2).

In the Austrian provinces of Upper Austria and Salzburg, in addition to a property tax, which is to be paid in all provinces, there is a so-called 'Aufschließungsbeitrag' (development fee), which is to be paid annually to the municipality. On the basis of § 25 - 28 of the Upper Austrian

ROG, this law shall be applied. Areas that are legally designated as building land in the zoning plan, i.e. undeveloped and connected (connection to road and/or sewer/water) are affected by this law. In all of Upper Austria, the municipalities are obliged to levy this amount. There are a few exceptions, e.g. agricultural businesses that need the 'Baulücke' as a manipulation area for vehicles are exempt from the development fee. Private owners have to pay taxes to the municipality until they actually build on the 'Baulücke'. In the case of development, the amounts paid are 'value-assured with the consumer price index' and deducted from the development fee due in the case of an actual connection (Office of the UA State Government 2016).

In Switzerland, private owners whose land is newly included in the building perimeter have had to pay an 'added value levy' to the municipality since 2013 (Gmünder 2013: 3).

Expropriation

The instrument of expropriation exists in some countries, but it is used with varying frequency and in different forms. While expropriations are rarely conducted in Germany, in France about 40 000 expropriations against compensation take place every year. This shows the historically grown power of the French central state. When a municipality announces the existence of a project requiring the expropriation of certain owners, it must initiate a public utility enquiry. The transfer of the property can be settled out of court. This procedure offers the opportunity to fix the best possible value for the property affected by the expropriation. Moreover, one should not wait for a proposal to be made but take the initiative oneself. Indeed, it is possible that the municipality will agree to pay the suggested amount, even when the price is higher than the one the municipality is prepared to pay, if it is certain that its project will be implemented as soon as possible. The failure of the amicable procedure will trigger the intervention of a judge to fix this compensation after an evaluation of the property. Regardless of whether or not the compensation allows reinvestment in a property of equal value, the owner has the option, upon application, of obtaining a new dwelling and becoming a simple tenant. In this case, the municipality must send up to three proposals for rehousing (CCM Benchmark 2008).

Funding programs

In Germany, funding programmes for the mobilisation of 'Baulücken' exist at Land level, such as the 'Entwicklungsprogramm Ländlicher Raum' in Baden-Wuerttemberg (Federal Ministry for Economic Affairs and Energy 2017). In France, there is the governmental 'FSIL' programme (micro-investment support fund) and also some municipal projects, for example in Franche-Comté (Edater 2014: 12). In Switzerland, municipal projects to close gaps between

buildings are primarily promoted by the state within the framework of the 'Impulsprogramm zur Innenentwicklung 2016-2020' and the so-called 'Agglomerationsprogramm Verkehr und Siedlung' (Federal Office for Spatial Development 2017).

Public relations

Public relations measures exist in many countries. With the help of information campaigns, the activation of 'Baulücken' is to be carried out. An example of this is the 'small gap big impact' programme, a collaboration between the Environment Ministries of Bavaria and Baden-Wuerttemberg (2008). The decisive factor is communicating the advantages of inner development and land mobilisation for the municipality and each individual. Results from the identification of inner-city building land potentials must be made known at an early stage, as well as the sense and purpose of approaching owners. Citizens must see themselves as actively involved in the shaping of future local development. Continuous reporting in the local press on successful examples of internal development in the locality is very helpful. With the help of a brochure, the ministries want to show how such public relations work can best be presented:

- Identification of 'Baulücken' (cadastre)
- Coordination with mayors, political committees and administration
- Preparation of questionnaires, letters and press releases
- Implementation (form letter, mailing)
- Accompanying events (e.g. information evening for owners)
- Evaluation of the responses and discussion of the need for further action
- Initiation of concrete measures (e.g. building advice, 'Baulücken' exchange)

The brochure uses some examples to show how successful the campaign was in the respective towns: 105 vacant lots/ 3 100 inhabitants (Euerbach), 239/18 300 (Pfullingen), 296/ 16 700 (Gunzenhausen), 260/ 10 600 (Markt Werneck), 662/ 217 000 (Freiburg) (ebd.: 4). It becomes clear that this public relations work can take place regardless of the size of the locality.

Open citizen participation leads to a slow-planning process, but also to a democratisation of that process (Raco et al. 2018). The slower the process, the more control can be exercised on the micro-markets (Anderson 2019: 1047).

Municipal land manager

Municipalities have the possibility of appointing an independent person to operate the 'Baulücken' activation. Baden-Wuerttemberg is used as an example. The funding programme 'Gaining space through inner development' was developed together with the municipal state associations. It is aimed at all cities, municipalities, municipal administrative associations, districts and special-purpose associations in Baden-Wuerttemberg. This year again, municipalities have the opportunity to receive financial support from the funding programme for the use of municipal land managers for residential purposes. Municipal land managers activate inner-city land and bundle the processes of inner-city development between the administration and all other stakeholders (Ministry of Economics 2020).

The City of Vienna does not rely on a single person who is considered a mediator but has at its disposal an agency for vacancy management (*NEST*) that acts between the owners and the interested parties. The agency deals not only with 'Baulücken' but also with vacant buildings. As part of this project, as an example, a beach volleyball court was created in the inner-city 'Baulücke'. In June 2017, the so-called 'Baulücken'-concerts were held at several locations in Vienna. This original project also draws attention to the problem of 'Baulücken' and can thus be understood as part of public relations work. Since then, the project has taken place annually and in 2021, as example, six different concerts took place on 'Baulücken' where well-known bands performed. Initiated by media artist Oliver Hangl, the project now also attracts a number of sponsors, such as *Aspern die Seestadt*, a sustainable urban development concept (Hangl 2017).

Shrinking of the building perimeter

New building land can be designated to increase the chances of mobilising 'Baulücken'. In Switzerland, it was decided by referendum on the 3rd of March 2013 that the size of communal building zones must not exceed the demand for the next 15 years. Municipalities must determine the demand for the next 15 years in cooperation with the cantonal authorities. If 'oversized building zones' (Gmünder 2013:15) are identified, the municipalities are obliged to exclude areas from the building perimeter and compensate the owners accordingly (Gmünder 2013: 15-16).

Pre-emptive right

Pre-emption is legally allowed in some countries, but it is not practised everywhere with the same frequency. This is why we will take a look at France, because it is applied quite often here. In France, municipalities can use the pre-emptive right in the context of projects of public

interest, however, this right is not applicable in the case of family links between the seller and the potential buyer. Sellers of land are free to set a price. If the municipalities do not agree to this price, the latter is estimated by a neutral court on the basis of the local property price level. This approach prevents price speculation and enables municipalities to use their right of first refusal more frequently (Finance Law 2017).

Strategic land reserves

The acquisition of land by municipalities should be systematic and strategic. These requirements can only be met by means of municipal land funds with sufficient financial resources. In this context, it makes sense to adopt strategic purchase of land before it is declared building land. As early as the 19th century, the city of Ulm began to pursue a systematic land and building policy. It bought up agricultural land and today owns about one third of the city's area. In this way, the municipality has managed to own sufficient compensatory areas. The procedure for a new land-use plan is only initiated when all the newly planned land is in the city's possession. This means that increases in land value are not transferred to private people. In addition, the city insists on a buy-back clause when it sells undeveloped land. Speculation with land is made impossible with these measures (City of Ulm 2020). Due to the municipality's social land policy, the model enjoys a high level of acceptance in the region and is continued across party lines.

Hereditary building right

In some countries, hereditary building rights are enshrined in law, without being regularly exercised anywhere. In Stuttgart it is possible to create a hereditary building right. Such a right can be granted for 50, 66 or 99 years and the builder has the right to build on and use the land for this period. In return, the landowner is paid a ground rent. At the end of the agreed period, both the land and the building (the latter for an agreed compensation) revert to the landowner or can be sold to the builder or his heirs for a premium. The advantage of this is, on one hand, that the owner can remain in possession of his land and thereby achieve a regular return for himself and his heirs. On the other hand, the builder has the same financing options as an owner and also a long-term secured right of use for a plot of land, which, however, he does not have to purchase (Municipality of Stuttgart 2019).

The Upper Bavarian municipality of Weyarn has opted for a different approach. This municipality is located between Munich and the Alps and is a sought-after residential location. It is also important to emphasise that citizen participation enjoys a very high priority in that municipality. Since the 1980s, the municipality has been acquiring agricultural land outside

the building area at low prices. A farmer who owns several plots of land and sells one plot to the municipality of Weyarn receives in return a building land dedication for one of his other plots. For every square metre sold to the municipality, half a square metre is dedicated to building land. As soon as a field owner decides to sell 1000 square metres of land to the municipality, 500 square metres of his agricultural land will be converted into building land, thus increasing its value. The land that the municipality acquires by this way is given in inheritance rights in order to create affordable housing (Federal Institute for Research on Building, Urban Affairs and Spatial Development 2015). There is even an association to promote this approach.

The municipality of Zwischenwasser in Vorarlberg is currently operating a model based on Weyarn and was awarded the Baukulturpreis in this context (Der Standard 2013). In this way, the municipality's own 'Baulücken' can be used and new building land is designated that belongs to the farmers who work closely with the municipality.

Lex Koller

This law restricts the acquisition of land by people living abroad in order to prevent the over-exploitation of local land. At the same time, speculation by foreign residents can be prevented. In Switzerland the acquisition of real estate by foreign nationals, companies domiciled abroad, or companies domiciled in Switzerland that are foreign-controlled is restricted by law. All these actors require a permit from the competent cantonal authority. It is irrelevant whether the property is already in foreign ownership and for what legal reason (purchase, exchange, donation, etc.) it is acquired.

The enforcement of the Federal Act on the acquisition of real estate by persons living abroad (so-called Lex Koller, named after the Federal Councillor at the last major revision Arnold Koller) is thus primarily a matter for the canton in which the real estate is located. The authority designated by the canton decides on the question of whether a legal transaction requires authorisation and whether authorisation should be granted. It can only be granted on the grounds provided for by the federal law and, if applicable, the cantonal introductory law. The cantons may determine by law that the acquisition shall be authorised if the land serves:

- social housing under cantonal law and without federal assistance in regions suffering from housing shortages, or if there are such newly constructed residential buildings on the land
- a natural person as a secondary residence in a place to which he or she has exceptionally close ties worthy of protection, for as long as these last.

The permit shall be refused in any case if:

- the land is used for a capital investment which is not permitted under this Act
- the area is larger than the intended use requires
- the purchaser has attempted to circumvent this Act.
- the purchaser of a secondary residence, a holiday home or a residential unit in an aparthotel, his or her spouse, registered partner or children under the age of 18 already owns such a residence in Switzerland
- the acquisition is contrary to national policy interests

(Fedlex 2021).

Property tax

The aim of a property tax is to give the wealthier part of the population a greater share in the financing of government tasks in line with their particularly good economic situation and performance. The richest people should therefore pay an additional tax. This tax would apply not only to financial assets but also to real estate and land. It is therefore an element of redistribution of wealth and creation of a more social society. This also linked to the fact that land prices increase not through the work of the landowner but because of general economic development. The property tax is thus a way to capture some of this rent for the public good. There is also the idea that a property tax can encourage development of housing and that it can limit speculation by reducing the return on land.

A property tax already existed in some countries, but it was subsequently partially abolished again as in France. Currently, Switzerland has a wealth tax calculated and levied at the cantonal level. The highest tax rate is being applied in Geneva with 10.1 per mille. The lowest rate is being charged in Nidwalden, at 1.3 per mille (STATISTA 2018).

Inheritance tax

By means of an inheritance tax, social inequality is intended to be reduced. Housing is considered to be the main factor of social exclusion, explaining why the inheritance tax is presented in this context of mobilisation of 'Baulücken'. Some countries have such a tax, but at very different rates, hence two examples are presented below.

In the United Kingdom, as an example, an inheritance tax does exist. Inheritance tax is a tax on the estate (property, money and possessions) of a deceased person. Usually, no inheritance tax is payable if either

- the value of your estate is below the threshold of £ 325 000
- you leave anything above the £ 325 000 threshold to your spouse, civil partner, a charity or a charitable amateur sports club.

The standard inheritance tax rate was fixed at a percentage rate of 40 %. It is only levied on the portion of your estate that is above the threshold. The estate may be taxed at a reduced rate of 36 % if you leave 10 % or more of the 'net value' to charity in your will (Government of the United Kingdom)

In Austria, too, there is an inheritance tax, which now goes by the name of "real estate transfer tax' (Grunderwerbssteuer). The text of law GrEStG idF StReFG 2015/2016 provides that the tax applies to the inheritance of real estate and land. The tax amounts for the inheritance of real estate free of charge are as follows

- for the first 250 000 euros 0.5 percent,
- for the next 150 000 euros 2 percent,
- Beyond that amount, 3.5 percent of the value of the property (Government of Austria 2015).

2.2.2. Other potential instruments

During the Housing Week, a discussion group of different actors in the housing market met in Luxembourg and proposed some more instruments. The event brought together six experts and professionals from the sector: Max Leners (*LSAP*, politician), Sara Noel Costa de Araujo (architect and manager of the *SNCDA* studio), Olivier Bastin (CEO of *Immobel Luxembourg*), Jacques Brauch (general manager of *Soludec*), Marc Giorgetti (manager of *Félix Giorgetti*, construction company), and Antoine Paccoud (research scientist at Liser). In the following chapter, the measures that have not yet been mentioned in the previous section are listed. Furthermore, only those proposals related to the direct mobilisation of 'Baulücken' were retained. However, these are not described, as they are not covered in detail in the published article.

- Accelerating procedures

- Reviewing the biopoint system
- Accelerate construction on public land
- Priority to public-private partnerships
- A tax incentive to sell to the state
- Lowering notary fees

(Paperjam 2021)

However, these suggestions are less concrete than the examples encountered earlier and are therefore not retained in the summary.

2.2.3. Summary of measures to mobilise ‘Baulücken’ by other countries

Penalty	Incentive
Sanctions	Funding programs
Expropriation	Public relations
Lex Koller	Municipal land manager
Property tax	Expansion of the building perimeter
Inheritance tax	Pre-emptive right
	Hereditary building right
	Strategic land reserves

Table 1: Summary of instruments for the mobilisation of ‘Baulücken’

There are both incentives and sanctions to promote the mobilisation of 'Baulücken' (table 1). It can be assumed that incentives are more likely to be implemented because citizens would rather not re-elect their political leaders if they were being sanctioned. The Lex Koller is excluded from this because it does not directly affect voters. However, this will only be argumentized in the discussion part of the paper.

2.2. Housing market policies in Luxembourg

2.2.1. First steps of a housing policy

Sustainable land use planning is a relatively new concept in Luxembourg, having only emerged in the late 1990s (Carr 2013). In 2003, the 'Programme Directeur de l'Aménagement du Territoire' (PDAT – Master Programme for Spatial Planning) was released. The concept was geared towards a top-down manner and envisaged territorial growth in a polycentric space (Ministry of Interior 2003). The Master Programme for Spatial Planning of 2003 is currently under revision. There are the sectoral master plans (Plans directeurs sectoriels, PDS) for four interrelated areas of spatial planning - housing, transport, landscape and economic areas - these underpin the Master Programme for Spatial Planning with legally binding instruments that promote sustainable spatial development. The Sectoral Plan for Housing reserves land for future housing construction and aims to ensure good accessibility to workplaces. The Special development plans (Plans d'occupation du sol, POS) are enforceable spatial planning documents prepared and approved by the central government. This spatial planning measure can override the General Land Use Plan. Once approved, municipalities are required to amend their general land use plans in accordance with the provisions of the special land use plan. Conventions on territorial cooperation between the state and the municipalities (conventions de coopération territoriale Etat-communes) promote inter-municipal and multi-level cooperation in the following areas of sustainable regional development and integrated planning (Strasky 2020: 13-14).

Institutionally, Luxembourg is divided into twelve cantons, who have no operating power and into 102 municipalities. Land-use management is the domain of these municipalities. They oversee the general land-use plans (PAG Plan d'aménagement général) and the partial land-use plans (PAP Plan d'aménagement particulier). The latter is prepared by the owner or

developer of the land, the municipality (or a syndicate of municipalities) or the state and approved by both the municipal council and the Ministry of Interior (as for the PAG). They were introduced in 2004, almost at the same time as the state programme, to create a link between PAG and PAP (Affolderbach & Carr 2016: 949). Nevertheless, scientists today see a weakness in spatial planning in Luxembourg (Affolderbach & Carr 2016/ Chilla & Schulz 2015).

2.2.2. Existing instruments

As in the countries just described, Luxembourg counts comparable instruments, although not always under the same form. All municipalities in Luxembourg have direct and protected access to the interactive map ('Baulücken' layer) in the national geoportal (<https://communes.geoportail.lu>), which allows the municipality to correct the recorded 'Baulücken' (Ministry of Housing 2016: 3).

Sanctions

In Luxembourg, it is possible to levy a tax on undeveloped 'Baulücken' (Art. 15. - Art. 28.). It is up to the municipalities to collect this tax, but only a few municipalities actually do so. As can be seen from figure 8, only two municipalities from the south of the country, Roeser and Esch-sur-Alzette, levy a tax on 'Baulücken'. The figure also shows the other municipalities that levy a tax on unoccupied buildings, but this is not directly relevant to this work.

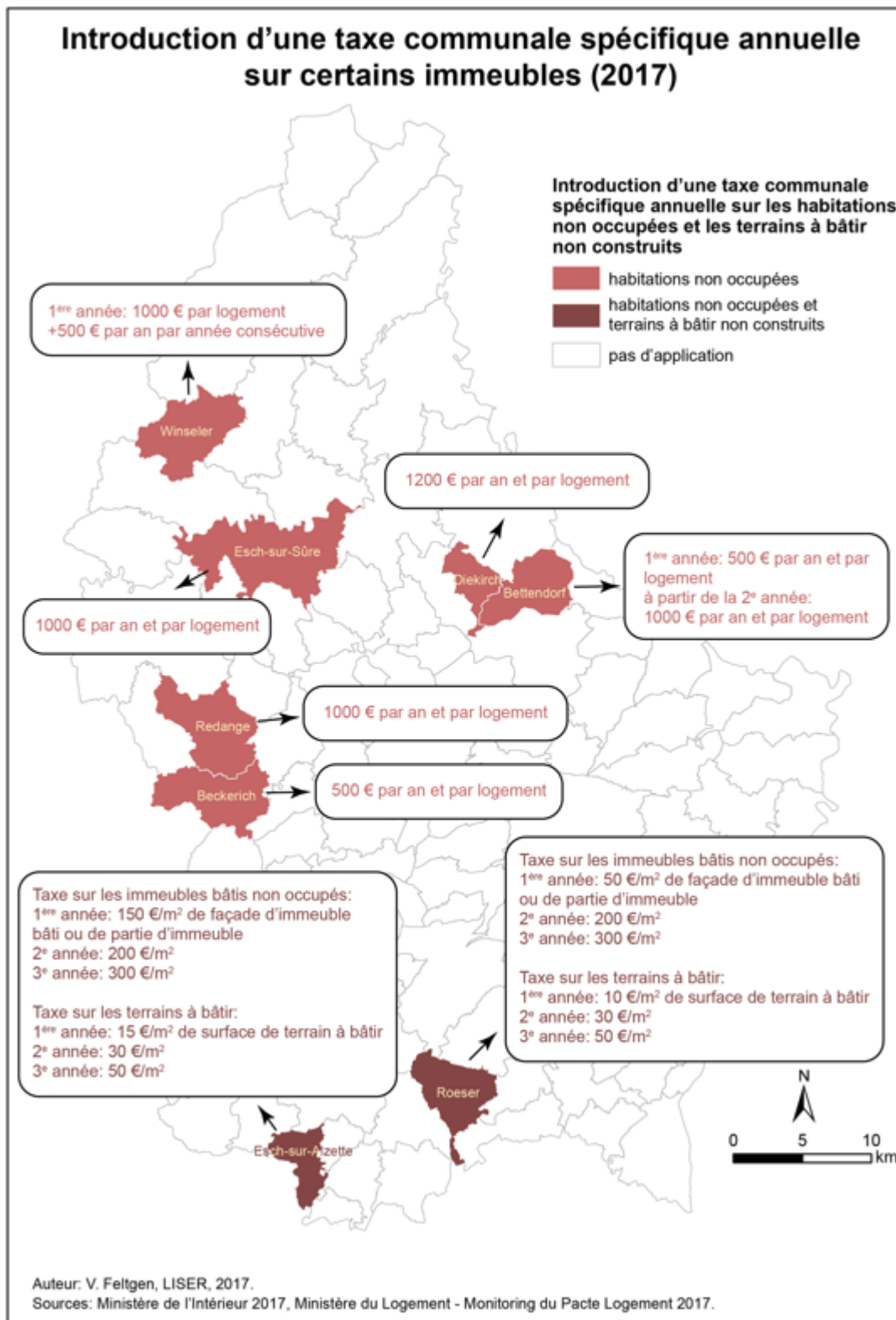


Figure 8: Introduction of a tax on 'Baulücken' (Feltgen 2017)

The collection policy of the two municipalities differs only minimally: where in Roeser 10 euros/sqm were raised in the first year, in Esch-sur-Alzette 15 euros/sqm were charged. In the second year, 30 euros/sqm were collected in both municipalities, and in the third year,

without development of the building land, 50 euros/sqm were charged. Feltgen (2018) does not provide exact figures on how many 'Baulücken' exist in the two municipalities. However, it can be assumed that Roeser has about 10 ha, i.e. 100,000 sqm, of 'Baulücken', while Esch-sur-Alzette probably has about 1 ha, i.e. 10,000 sqm.

A further sanction possibility is given through the annual levy after the building authorisation has been ordered if no development takes place (Amended Act of 19 July 2004 on municipal planning and urban development) (Ministry of Housing 2016: 11).

Expropriation

Although the concept of expropriation does exist in Luxembourg as well, this procedure is hardly ever applied. Kirchberg is a rare example, where the possibility of expropriation has albeit been used, in this case with a very high percentage. In one specific project, the expropriation rate was 24.1 %. In the case of expropriation, it is clearly regulated that the project must be of public interest, which has not been the case so far with housing construction. In fact, you would have to prove that you need a specific plot of land for a specific project. Expropriation is used as a measure in road construction and/or railway lines, but it is difficult to implement in housing projects. In addition, the same price has to be paid for purchase within the scope of expropriation as when a plot of land is bought on the market (Tanson 2019).

Financial incentive

Within the framework of the 'Baulücken' Programme, a 'lower tax on the added value of property sales' was introduced as a temporary measure from 01.07.2016 to 31.12.2017 (Housing Ministry 2016: 5). The measure affected all physical persons who sold a property that they had owned for at least two years. Prior to 01.07.2016, property sales in Luxembourg were subject to half the income tax rate. The temporary measure allowed a sale to which only a quarter of the income tax rate was applied. The aim of this measure was to increase the supply of building land and housing in Luxembourg in the short term (PWC 2016: 1-2). This measure is also advertised in the brochure 'Lücke sucht Wohnung' and on the Ministry's website. A further financial incentive to encourage the creation of housing is the reduction of the regular value added tax rate (VAT) from 17% to 3% on the construction and renovation of housing, provided it is a primary residence (Government of Luxembourg 2021).

Pre-emptive right

In Luxembourg, too, there is a right of pre-emption, namely for municipalities and the State on real property vis-à-vis other purchasers, subject to the condition that the purchase is of public interest. Pre-emptive right applies to land in 'development areas', in the 'areas to be restructured', in 'land reserve areas', in 'deferred development areas' and in the adjoining outer area of the agglomeration (Art. 3. - Art. 12.) (Ministry of Housing 2016: 11). The right of first refusal may not be exercised if the sale is between spouses, legal partners, relatives and in-laws in the direct line and in collateral lines or is directed to entities authorised to sell (e.g. social housing). The law lists further exceptions where the right of first refusal may not be applied, such as public auctions or in the case of property subject to expropriation proceedings (Central Legislation Service 2008: 2231-2232).

Public relations

In 2016, the Ministry of Housing published a brochure called 'Lücke sucht Wohnung' (Gap seeks housing). This brochure provides a guide for municipalities with information bases and activation means. Public relations are seen as the path to success. Early information about the building gap programme of the municipality or the local authority associations or individual measures, such as a planned survey of the owners of vacant lots, should be successful. Print products, internet platforms, guest lectures, exhibitions, radio broadcasts, advertising spots and awards could be used to activate vacant lots. Communication and activation measures of inner development are to offer special advantages in the cooperation of several municipalities. A jointly conducted public relations campaign on the advantages of the activation of vacant lots saves both financial and human resources. Cooperation gives the task area more power in implementation, since decisions on housing investments and the search for housing take place in a regional or urban-rural context and are not concentrated in one municipality. Property owners are to be approached directly with the help of targeted guiding questions (Ministry of Housing 2016: 6-7). The owner address even provides for a timetable: Compilation or examination of the building gaps (<https://communes.geoportail.lu>) - one month; determination of owner data- one month; preparation of cover letter and questionnaire - one week; press release and/or information event - two days; mailing of form letters with response time - one month; reminder letter with response time - one week; evaluation and documentation of the response - one month (ebd.: 9).

Hereditary building right (Emphyteutic lease)

The law allows the state, municipalities and other public institutions to enter into ground lease contracts with each other and with private individuals. In addition, it is also possible for private individuals to sign a leasehold/ heritable building right contract among themselves. The

leaseholder receives the right to full enjoyment of a property for a period of 50-99 years (extension possible at a later date). The owner can demand payment of a fee from the leaseholder in advance in order to enforce the contract (Central Legislation Service 2008: 2232-2233).

2.2.3. Targets for the future

Housing pact

The 2008 Housing Pact should be a milestone, especially for the mobilisation of vacant lots and the creation of affordable housing. In that year, the Luxembourg government adopted the first Housing Pact, which ended in 2020. In this context, a new Housing Pact 2.0 was adopted, the goals of which are to be achieved by 2032. The aim of the programme is to support municipalities in developing housing, especially affordable housing, and in ensuring a good quality of life. The Pact has 3 objectives:

- Increase the supply of affordable and sustainable housing at the municipal level
- Mobilising existing land and housing potential at the municipal level
- Improving the quality of housing (Ministry of Housing 2020: 1).

In future, for each new PAP, a percentage of 10-20 % of the land will be transferred to public ownership and reserved for affordable housing. In return, private developers will benefit from a 10 % increase in building potential, to allow them to make the best use of the available building land. With the Housing Pact 2.0, the municipalities are made jointly responsible. The creation of affordable housing must be addressed in all municipalities, towns and villages in the future. The Ministry of Housing (ebd.) wants to introduce a housing consultant, funded by the state and whose role is to assist municipalities in their efforts to develop affordable housing.

However, after not reaching all the targets of the first Pact, it is still too early to evaluate the new Pact. The mobilisation of 'Baulücken' is part of the new Pact and appears to make particular sense from a spatial planning perspective. The creation of new living space through redensification can lead to a reduction in housing prices in central locations. It also protects open space and the resource of land and contributes to traffic avoidance. Furthermore, the theoretical chances of socially integrating new residents are higher in existing areas than in outlying areas (Portz 2009: 19). For the municipalities, growth on 'Baulücken' means better

utilisation of existing infrastructures and thus cost savings as well as a possible inner-city upgrading (Grulms 2017: 25).

State of the Nation speech

In his State of the Nation address, Luxembourg Prime Minister Xavier Bettel (2021) announced further steps regarding the housing shortage, speculation and social housing in Luxembourg:

- 'State actor should become biggest actor in the housing market
- 10 – 20 % of new PAPs go to the public sector to assure social housing
- 8 200 new accommodations built by the public sector until 2025
- Property tax reform: tax speculation on not developed constructible land
- New constructible land must be developed within a certain time with a new building plot contract'

The state, municipalities and public developers will have to invest in housing by building more housing themselves to make housing available to citizens at affordable prices. In the medium and long term, the state will be the most important player in the housing market. The state is an actor who does not aim at making a profit, but whose only goal is to guarantee citizens access to affordable housing. Furthermore, the State is developing a property tax, targeting those who own several land plots or houses, and are using them for speculative purposes.

Building land contract

With the building land contract, the municipalities are given an additional instrument to combat land speculation. In the future, new building plots must be built within a certain period of time. Otherwise, the land will be reclassified as a non-buildable zone. This development contract helps to make speculation with building land less lucrative. At the same time, the new property tax is intended to increase the tax on new building land, as the owners of the land benefit from an enormous increase in value, due to an administrative decision. In doing so, the Prime Minister underlines that there is a right to property (Bettel 2021).

3. Empirical Research

3.1. Theoretical presentation of the methodology

3.1.1. Introduction into empirical human geography research

The thesis is based on an empirical social research approach which was executed by a qualitative methodology. Through qualitative research, one can understand how people experience processes as a part of a fluid reality, constructed by multiple frames and systems. In contrast to a quantitative research method, which serves to quantify a single social reality, a qualitative approach tries to recognize the complexity of everyday life and the multitude of influences that shape human lived experiences (DeLyser et al. 2010: 6). A quantitative research method tries to express general statements that can be evaluated statistically. Deductive processes should enable us to claim objective arguments about the social reality in a quantitative method. A qualitative method, as a clear demarcation from a quantitative method, is rather inductive and tries to generate theories and consequently subjective realities are being mapped. Individual perspectives, opinions and motivations should be described in detail in order to understand them. The representative status will not be achieved statistically but in a context-related sense. Data will be collected through a social interaction, by the means of communication (Misoeh 2014: 2).

Commonly in human geography, questionnaires are being established and standardized to a group of individuals who represent a sample of a specific population group. The questionnaires are useful for gathering original data about the people and their opinions (McLafferty 2010; Parfitt 2005). Such questionnaires first appeared during the rise of behavioural geography in the 1970s. They have been used to collect data about complex issues like mobility or the environment (DeLyser et al. 2010: 6). The research method doesn't necessarily have to be questionnaires, there is also the possibility of investigations based on laboratory experiments or observations.

There are different types of interview methods. Scientist Sabina Misoch (2014: 65) has identified the following:

- Problem concentrated interviews
- Theme concentrated interviews
- Focussed interviews
- In-depth interviews
- Discursive interviews
- Expert interviews
- Convergent interviewing
- Focus groups
- Group interviews

The questionnaires are structured by a guideline which can be fully structured or semi-structured. The guideline helps to frame the questionnaire and to list all the important topics. The grade by which the guideline is structured depends on the research question, the interview method and the grade of the interviewer's experience. The chronological order of the questions play an important role that shouldn't be underestimated. If the questions are formulated openly, the interviewee has got the necessary space to respond ajar to his feelings and experiences. The guideline allows to control the survey and assure the comparability of the data. Furthermore, the guideline should follow the principles established by Reinders (2005):

- Openness – no hypothesis linked procedure: Openness regarding the shape of the interview, the process is flexible and can be adjusted during the interview. The order of themes can also vary during the different interviews.
- Litigation incidence: Meanings shouldn't be grasped statistically but procedural because they are shaped during social interactions. Therefore, questions about the past and changes will be posed to highlight the procedural act. The social environment is important to comprehend the emergence of the interviewee's perspective.
- Communication: The interviewer should adapt to the language level of the interviewee. If it's not an expert interview, the interviewer should avoid using technical terms and use everyday speech.

The guideline passes through four different stages: (1) Information phase; (2) Warm-up phase; (3) Main phase; (4) Final phase (Misoich 2014: 68).

3.1.2. Problem concentrated interview

For this specific analysis, the Problem concentrated interview of data collection fits best because a qualitative approach allows to interpret the intentions of the landowners in an open discussion which can be bustling and emotional. A quantitative research method with a fixed question sample wouldn't allow this interaction between the interviewer and the interviewee.

In this context, the characteristics of the 'Baulücken' of the interview partners are also briefly described. Accordingly, these are areas that can be built on directly. They are therefore connected to the electricity and water network and they are located on a public road. The areas are also marked as settlement areas in the development plan and could therefore be built on directly without rezoning. Some of the areas are completely vacant at the moment and are not used at all and could thus be designated as set-aside or greenfield. Other areas of the interview partners are used as gardens and thus serve as recreational areas. Finally, there are areas that are currently used for agriculture and thus have an economic benefit.

It's rather difficult to identify and come into contact with a large representative number of landowners, because the land registry is run by the Administration of the cadastre and topography, and it is not publicly accessible, yet very little contact information is provided for the owner of a given land plot. The interview partners were found through social contacts – friends and family. Mostly through the mother of the author who is working at the service for rural economics (SER). Therefore, the interviewees have to a large extent been farmers, on which the focus in the thesis partly lies. The interviews were stopped when the interviewees started repeating the same arguments and no new information emerged.

Sample size	Sample group	Method	Duration	Period
15	Private people who own 'Baulücken' but don't develop their land	Semi-guided interview	15 – 35 minutes	1st of August – 1st of September

Table 2: Sample characteristics of the empirical study

The 15 interviews were numbered consecutively and are referred to by their number in quotation marks, in order to guarantee the anonymity of the interviewees.

In the survey the problem-centred interview was used as the basis for collecting the data. This method was established by Andreas Witzel in the 1980s. It's a specific form of a guideline interview and the approach is orientated on the 'grounded theory' (Glaser et al. 1968; Glaser & Strauss 1970). The goal is to examine the subjective perspectives of individuals regarding a specific societal relevant issue. In this case the topic is the housing market in Luxembourg, and at the end of the interview, there should be theory generation, with the central principle of narration. In contrast to a narrative interview, the problem concentrated interview allows to combine inductive and deductive steps. An interplay can be undertaken due to the linkage of theoretical prior knowledge and the newly generated knowledge in the interview. This means that the interviewer has prepared himself before entering the survey and that the further generated knowledge always flows in the sample process (Misoch 2014: 71-72).

- (1) Before the interview started, the socio-demographic background (age, occupation, geographical situation of the 'Baulücken') of the interviewees was known in every case.
- (2) In a first information phase, the interviewees were informed about the objective of the survey, the collaborators and the confidential treatment of the data. A declaration of consent was always signed before the interviewee started and the interviewees were asked their permission to record the interviewee. Three people refused to be recorded and therefore the author had to take separate notes during the interview.
- (3) During the warm-up phase the interviewees were questioned about the history of their plot and how they came to own it. This information is part of the questions about the past and the changes of ownership of the land. There were also questions about the ownership structure of the land, in order to identify whether there is just one landowner

or several actors who share the land. These questions should lead the interviewee to talk and leave behind the fear to give wrong or right answers. The questions are rather authentic and important because 'the first minutes of the interview are decisive' (Kvale 2012: 55).

- (4) The main phase consists of questions about the really relevant issues. This survey is mainly about the intention of the owners to build on the property in the future. Through further enquiries, the author tried to find out why they refused to develop or to sell or what incentives could bring them to evolve their parcels. This is an inductive procedure in which the answers of the interviewee lead to new questions.
- (5) The final phase should sum up the important highlights of the interview. Therefore, the interviewees were asked if they had a comment on an issue that wasn't talked about during the interview. Finally, they could bring up possible solutions for the research question presented by the interviewer at the beginning of the interview. After the recording of the interview stopped, there was an informal conversation between the two actors to get out of this particular situation and come back to each actor's everyday life.

After all interviews had been conducted, they were transcribed and short summaries were made to get a quick overview over the different interviews. A qualitative content analysis helped to interpret the interviews. A chart was created with the different intentions by the interviewees. The chart was structured according to the amount and type of answers given, and those will be discussed in the interpretation part of the thesis.

3.1.3. Expert interview

A 16th interview was held with the director of the SER (service of rural economy), which is subordinated to the Ministry of Agriculture, Viticulture and Rural Development. This interview came off as the author's mother works at this service and the director could give some specification about the farmers in Luxembourg, who represent an integral part of the survey's interest group. He will be quoted in the work by his name, Mr. Treinen.

This interview was held as an expert interview. This type of interview is the most used in empirical social science (Meuser & Nagel 2014: 465). An expert is a person with an institutionalised competence to construct reality (Hitzler 1994). The experts acquire this special knowledge due to their long education path, as in this case the development to an agrarian expert at the Rheinische Friedrich-Wilhelms-University of Bonn. These experts have a high significance in today's societies because more and more specialist knowledge is

produced surpassing common knowledge (Misoch 2014: 120). The director of the SER could provide knowledge which can't be found on the internet and therefore played a crucial part in describing the farmers' situation in Luxembourg. An expert therefore is a person who can give substantiated expertise about a specific domain of knowledge (Bogner & Menz 2001). Expert interviews are no biographical surveys, but the experts stand as social actors in a determined functional context in the centre of interest.

The execution of the interview not only needed a methodological, but also a thematic-textual preparation. Previous expert interviews showed that the willingness to share their knowledge by the experts depended on the competence and standard of knowledge of the interviewer (Trinczek 1995). The guideline for the expert interview was orientated on the previous guideline used for the problem concentrated interviews. It was extended with economic questions about the farmers' situation in Luxembourg and possible disputes between ministries over land policies. The order of the questions was made flexible so that the interviewer could adjust them during the interview. The evaluation is different from what is described in literature, as the interview cannot be compared with another expert interview and can only be used as a thematic supplement to the situation of farmers in Luxembourg.

3.2. Critical reflexion on the methodology

3.2.1. Strengths

The qualitative research method has shown strengths as well as limitations. The possibility to gather information about social trends, processes, values, interpretations and attitudes certainly count as its most important strengths. Furthermore, it has proved to be a cost-effective practical research method. Another advantage is, that provided the guideline is semi-structured, it's extremely flexible and can be combined with spontaneously rising questions in combination with the answers given by the interviewee (McGurik & O'Neill 2016: 10).

One third of the interviewees being farmers, some other professions were included enabling the diversification of the sample group. The professions of the participants are: farmers, public servant, director of a construction company, second-hand vehicle dealer, teacher, concierge, social worker, engineer, banker, guardian, while the last five are already retired. The different occupational situations make it possible to draw linkages between a socio-demographic background and reasons of considering or refusing to develop the land.

The location of the interview partners is spread throughout almost all the regions of Luxembourg. The southern region from Pétange to Dudelange as well as the Moselle region in the east aren't represented at all, as no potential interviewee could be found. The best exemplified region is around Capellen, in the western part of the country and in the greater area of the capital Luxembourg City, where five of the interviewees own their land. In some cases, the 'Baulücke' wasn't next to the owner's residence, some plots were located further away in a different village. If we suggest that the interests of the landowners stand in relation with monetary affection, the somehow even repartition of the interviewees 'Baulücken' is a strength of the survey. Prices for land are much higher in the greater region of Luxembourg City and in the southern part of the country than in the North or in the West and the East. The intentions of landowners with regard to the plans for their building land are influenced by the value of the land in their region. Both peripheral and central locations are represented in the survey and diversify the answers of the respondents. Hereby, various attitudes could be generated, and linkages may be drawn upon the location of the land. The following figure illustrates the location of the 'Baulücken' of the interviewees:

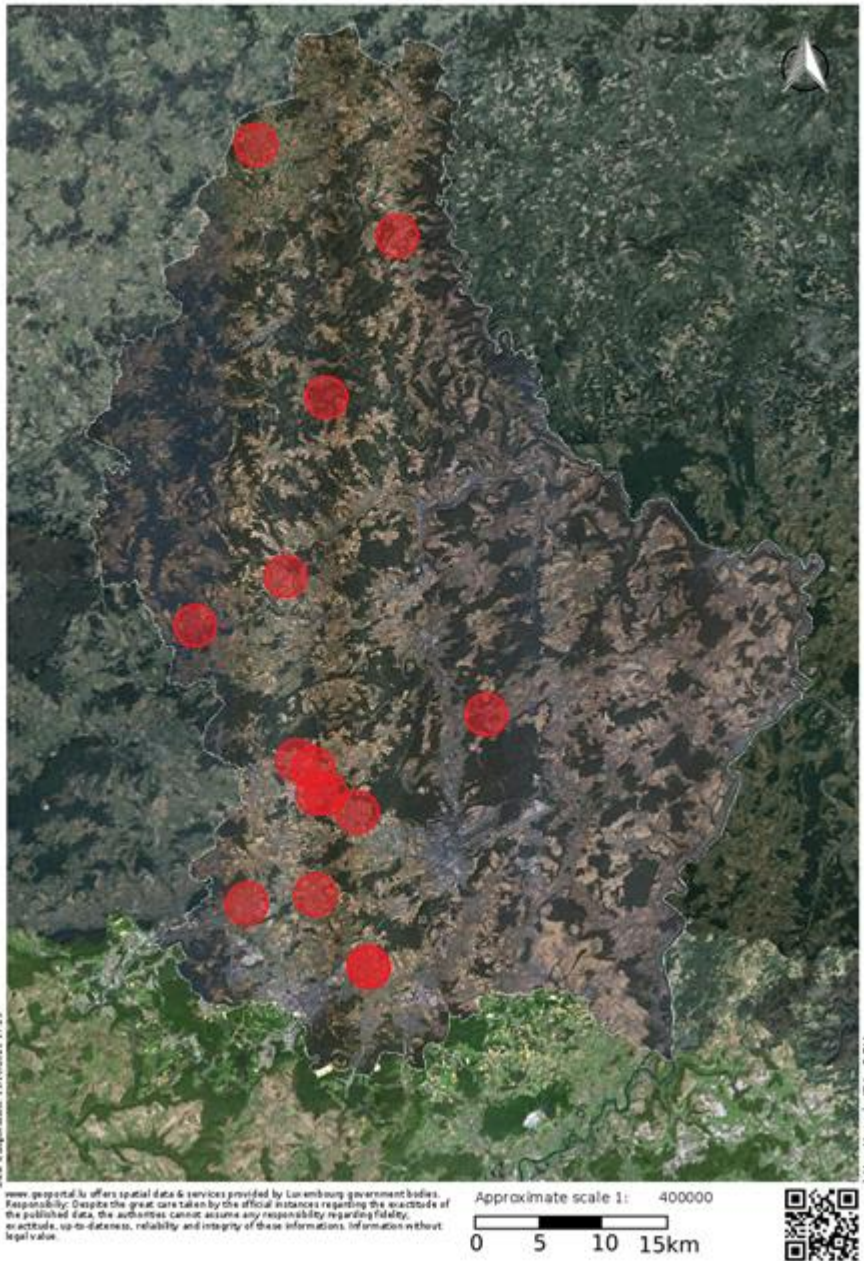


Figure 9: Geographical distribution of the interviewees 'Baulücken' (own map 2021)

The interview with the director of the SER is an additional benefit, as this expert provided information which cannot be found on the internet and gave background knowledge on the farming situation in Luxembourg. It helped to widen the view on the housing crisis thanks to a different point of view.

3.2.2. Weaknesses

At some point, both individuals of a married couple owning different 'Baulücken' were interviewed. The author first interviewed the husband in the presence of his wife when she was questioned, few new aspects came up for discussion and she stated that her husband had already given specific answers, which she agreed to and had no new element to add. The author should have interviewed both individually.

Not all the interviewees owned a lot of land parcels, mostly 2 to 3 parcels of 'Baulücken'. For this reason, the owners of smaller plots of land are perhaps not the ones who should most urgently start developing their 'Baulücken'. The large landowners are the important players, as owners of many 'Baulücken' and being in a position to strongly influence the housing market. However, the 'smaller' landowners could also be mobilised to start developing their land and thereby provide housing options.

The structure of the interview guideline changed over time in relation to the answers the author received in previous interviews. This evolution is due to the style of the problem concentrated interview, where the interplay between deductive and inductive approaches transforms the guideline with every interview. Therefore, the first interviews are not as complete as the last ones.

During the first two interviews, the author didn't ask many questions about the history of the land, which I could have done during my visit to the 'Baulücke' taking pictures of it. This would also have been helpful for the correct location of the interviewee, because of the risk of confusion with the numerous interviews.

The question about the satisfaction of the financial situation: 'Are you satisfied with your current economic situation?', suggested that individual well-being would be the same as economic stability. The author would like to pull back from this statement as well-being depends mostly on the social environment rather than on monetary issues. This statement didn't apply fully to the openness of the interview, because a hypothesis was set and the interviewee couldn't respond freely to the question, which is deductible in the repeated 'yes' as an answer, each time the question was asked.

4. Discussion & Proposals

4.1. Evaluation of the results from the empirical study

In the following section, the arguments of the 'Baulücken' owners will be discussed in detail, their statements will be deepened and conclusions will be drawn.

4.1.1. Presentation of the arguments about the sale of a 'Baulücke'

The following table shows the arguments given by the interview partners on why they refuse to sell their 'Baulücke' and in which case they consider selling. Hereby, the two columns are not linked.

Number of mentions of the arguments and first conclusions

Refuse to sell	Mentions	Consider selling	Mentions
Not in my backyard	6	Prices continue to rise	1
No need for money	12	Emergency situation	3
Used for agricultural purposes	4	Taxes on constructible land will rise further	8
More room for nature	5	Exchange constructible land – agricultural land	1

Inheritance for the children - keep in family structures	12	No one wants to continue working on the farm	1
Land has historic value for the family	4	Need money for a further investment	1
Used as garden - garage	3	Sell rather to a private person than to an investor	2
Own property	12	Sale simplifies the situation with multiple owners	1
Financial security	5	Sell a small piece of land for a bigger project	1
Co-property – other party doesn't want to sell	3	The constructible land isn't close to the farm	2
Low interest rates – Utilisation from the sale	4	Get a constant income	2
Problems with the promoter	1	Sell to the municipality or state if the sale is tax-free	1
Pay taxes if the land gets mobilised	4		
Administrative barriers	2		

Table 3: Selling arguments of the 'Baulücke' by the landowners

This table shows the motives given by the ‘Baulücken’ owners as to why they would not sell their ‘Baulücken’ or under what circumstances they would sell it.

It is noticeable that the landowners are not dependent on the money from a potential sale. From this, it can be concluded that the ‘Baulücken’ owners must be wealthy people, because as already shown in previous examples, a high profit can be made by selling land in Luxembourg. This statement will be further elaborated in the discussion. Another argument of many interviewees was that the land should remain in family structures, i.e. that the children should inherit it. In this context, it was often explained that prices are currently at such a high level that no one will be able to buy a piece of land in the future. It is also noticeable that it is important for people to own their own piece of land and not to have to rent from a landlord, a point of view that will be elaborated later on as well.

Considering the potential sale of the ‘Baulücke’, it shows that taxes play a particularly important part. Should these continue to rise in the future, a sale of the building land would probably be considered at some point. None of the interviewees was able to define precisely at which point taxes would be likely to reach a level that would initiate the owner to sell or mobilise a land plot. In general, more reasons were given as to why the ‘Baulücke’ was not sold, than arguments as to when it might be sold or mobilised. This proves the value of the present study: the ‘Baulücke’ owners presently do not really want to sell/activate their building land and therefore incentives have to be developed to stimulate potential sales or development of the ‘Baulücke’.

Subdivision of the arguments of the ‘Baulücken’ owners about a potential sale

In a first step, the arguments are divided into financial and psychological categories, as well as statements shaped by external influences.

Psychological ownership	Financial ownership	External influence ownership
Refuse to sell		
Not in my backyard	No need for money	Co-property – other party doesn’t want to sell

More room for nature	Pay taxes if land gets mobilised	Low interest rates – what to do with the money
Land has historic value for the family	Heritage for the children – keep in family structures	Problems with the promoter
Used as garden - garage	Financial security	
Own property	Land isn't opened-up	
	Used for agricultural purposes	
Consider selling		
Exchange constructible land – agricultural land	Prices rise further	To a private person rather than to an investor
No one keeps farming on the land	Emergency situation	Simplify the situation when there are several owners
Constructible land isn't close to the farm	Taxes on constructible land will increase	Small piece of land for a bigger project
	Need money for a further investment	
	For accommodations rather than using the money for another investment	
	Sell to the municipality or state because it is tax-free	

Table 4: Psychological, financial and external influence ownership

Although it has already been found out that the 'Baulücken' owners are potentially wealthy people and a possible income via the mobilisation of the 'Baulücken' plays a subordinate role, financial arguments seem to be important according to the number of different arguments to motivate the refusal of the sale. This table therefore helps to highlight the financial value of a

'Baulücke'. If an external influence prevails, the owner has no decision of his own to make about the future of the 'building gap' and thus his hands are tied in this case. In psychological arguments about the decision to exploit a 'Baulücke', consciousness arguments play a decisive role. How these arguments come together and develop is, however, beyond the scope of this paper, although these arguments probably play a major role in the decision, since the financial aspect is not always in the foreground.

4.1.2. Analysis of landownership in Luxembourg

Various scholars have tried to structure the types of landowners in order to form categories and thus better identify their behaviour. Based on these categories, the examined 'Baulücken' owners in Luxembourg are divided into the different categories. Due to the non-representative number of participants in the study, it is difficult to make a clear statement, however it will be possible to define a tendency.

Structure by Haila

Anne Haila (1991) was already aware that the question of land divided economists into two categories. On the one hand, the neo-classic theories and, on the other hand, the Marxist and institutionalist approaches, lead to numerous interpretations of the issue, conducted from different points of views. Haila amalgamated the different theories into one big structure and at the time at the Institute of Real Estate at the Helsinki University of Technology has distinguished four different types of investment in land and property, which are presented below:

A) Derived demand (bazaar type of investment)

Derived demand describes the demand for final products, for profitability or utility, i.e. the commodification of land. For example, a farmer's demand for land for his own profit, a company's demand for land for the entrepreneur's profit or a household's demand for land for the consumer's benefit (Alonso 1972: 106-109). According to this statement, the purpose (the final cause) of the investment is seen as an explanatory factor. Investments are made because of the specific utility values they generate. (Haila 1991: 346).

The actor is an accidental agent. He or she acquires (occupies, buys or inherits) a property or a piece of land without the intention of speculating, but may find, when the property is sold, that it has increased in value. The actor is lucky in that the profit he makes is rather fortuitous in nature. The source of the investment is the surplus, usually from the owner or occupier. The

land is not speculative, but the investment is the use value. A serendipitous actor makes his or her land use and investment decision based on the subjective use value of the land, not the exchange (market) value. The function of investment is the consumption of these use values. Consumption satisfies the actor's need. An actor's action is oriented towards the present or perhaps towards a short- or medium-term use (ebd.: 349). The emerging pattern of land use resembles a bazaar (Langer 1984: 102). Individuals with different tastes and abilities produce a rich and heterogeneous space with many nuances and differences. 14 of the 15 people interviewed fit into this category.

B) Switched investment (jungle type of investment)

Switched investment is the investment in land and property after the derivation of an investment in another sector. When investment in the industrial sector is not temporarily possible, the money is invested in land and property. The actors act as dealers and try to earn a regular income (Haila 1991: 346, 350).

According to Henri Lefebvre, investment is made in the housing market in times of economic crisis, but in the meantime the importance of the housing market has overtaken that of the industrial sector. D. Harvey (1981: 96-97) describes this phenomenon in his article on the over-accumulation of capital in the industrial sector. Crises of capitalism always happen after a massive movement of capital into the housing market as a last hope to invest money in the long run.

This phenomenon would probably rather affect wealthy people who try to invest their money in one sector. In the empirical study, almost without exception, the wealthy middle class was examined, who probably cannot afford to invest in the housing market or in building land because the necessary investment is too high. These people, who nevertheless possess a certain net worth, tend to put their money into shares, which are more easily affordable. For this reason none of the analysed individuals falls into this category. Haila (1991: 360) herself describes in her conclusion that this type of investment requires a more profound description.

C) Conditions for restructuring (organism type of investment)

Public investment in land and property is aimed at the reproduction of labour and the means of production. These investments have indirect effects on economic growth and change urban planning. These theories have been discussed and propagated mainly by Marxists. (Haila 1991: 346-347). It becomes clear that the actor is a public sector planner. This type of actor was not considered in the empirical study.

D) Real estate sector's intrinsic dynamics (circus type of investment)

The housing market has intrinsic characteristics that make investment in the sector attractive. M. Gottesdiener (1985: 187) contrasts the arguments of Lefebvre and Harvey from switched investment theory, because Lefebvre's arguments explain the intrinsic value of the housing market and Harvey always emphasises on the value of the industry. Thus, investments are made in the housing market not only because there are no other options, but because the market is intrinsically attractive and develops its own dynamics. Harvey has failed to explain the importance of investment in the housing market as the first form of a circle of capital accumulation (Haila 1991: 347).

The agent is a speculator, seeking profit by using the market for his own interest. The speculators try to anticipate price changes and buy in favourable market situations. They may also try to manipulate the market, for example by lobbying for or against building permits. The aim of the investment is capital gain. Brokers are primarily interested in land as a financial asset, and land is therefore treated as a financial asset (ebd. 350-351). In the case of this empirical study, one of the individuals falls into this category. This individual is the owner of a construction company and therefore has a better overview of the market than the other actors and can easily function as a homo economicus. The interviewee points out that he also reserves building plots for his children, but the number of plots seems to exceed the actual needs of his children.

The following table summarises the main characteristics of the four different types of landowner categories. The table does not exactly overlap with Haila's (1991) figure as she has divided her current and future decisions slightly differently as in the previous section.

Bazaar	Organism
Serendipitous actor	Planner
Own money	Public revenues
Value use	Restructuring
Consumption	Public coordination

Jungle	Circus
Dealer	Speculator
Productive sector	Borrowed money
Annual rent	Capital gain
Investment switch	Intrinsic dynamic

Table 5: The four types of investment and their main characteristics according to Haila (1991)

Conclusion

The heterogeneous group of derived demand does not necessarily lead directly to specific 'Baulücken' retention decisions. Therefore, the listed subdivision is insufficient for this specific study. Nevertheless, it is clear that the middle class does not necessarily aim at speculating with building land. Farmers engage in agro-economic activities on the building land, while other landowners retain their land with the ultimate aim of passing it on to their children. It is rather the top of the socio-economic social classes that try to make money with the 'Baulücken'. In this case, capital accumulation constitutes the essential motivation. The preceding subdivision, however, shows that the actors determine their decisions on the retention of 'Baulücken' according to short-term or long-term benefits. The short-term impact represents an actual current use of the land, while the long-term use can represent speculation or, for example, inheritance. It is difficult to classify the actors into one category. While the often-hereditary character of their property associates them with the serendipitous agents, they also have traits of the speculator: they use the planning apparatus to increase the value of their land, selling it piecemeal and waiting for favourable conditions to sell.

Structure by Massey and Catalano

Massey and Catalano (1978) have tried to present the British land tenure system by creating different categories of how people obtained their land and for what purposes. As with Haila (1991), different 'types of landownership' were identified and described; they are presented below and applied to the empirical investigation of the work. The classification of the various categories must be viewed in a differentiated manner in relation with Luxembourg, because the historical land ownership relationships are somewhat different in Great Britain. In Great Britain, the aristocracy owns 30 % of the land. This distinguishes Great Britain not only from Luxembourg, but from most European countries as well as North America. Since immemorial times, the aristocracy's land holdings have not diminished. In Britain, 50% of the building lands

are privately owned, which still represents a smaller percentage than in Luxembourg. But here too, an ever bigger concentration of real estate is owned by ever less private individuals. In figures, for the country as a whole, this means that 95 % of the land used by owners is on plots of 1 000 acres or less, and less than 2 % of the land used by private individuals concerns lots of 2 000 acres or more. While land use in both urban and non-urban spaces has changed over years and centuries, there has been no general redistribution of tenure at a very trivial level. (ebd.: 60-62).

In their preface, the two scholars describe how land ownership in Britain is a capitalist institution. Their primary subdivision characteristics are subject to political, economic, ideological and functional aspects:

A) Former land property

The former land property refers to land adapted to the capitalist conditions of the modes of production - aristocracy, church and Crown Estate. This group emerged from the transformation of feudalism into capitalism. In this category, land ownership also means occupying a societal position. According to this approach, it can be concluded that land ownership is not a pure form of capitalism, since the economic relation is influenced by the inherent social position (Massey & Catalano 1978: 64-66). Although Luxembourg enjoys the status of a constitutional monarchy and a noble family is at the representative head of the country, monarchy is much less significant in terms of ownership than in Britain. It can be argued that in Luxembourg it is not the monarchy or the nobility who pass on the land, but the farmers as well as the other landowning families. The land is thus passed on to a next generation, which involves a sense of responsibility for its preservation, a type of ownership diametrically opposed to an 'investment'. The land is entrusted to several family members and as a matter of fact 12 of the 15 participants fit into this category.

B) Industrial landownership

Industrial landownership induces that land is owned by the group because it is a condition of production and thus mainly a large part of industrial capital and farmers make up this group (ebd.: 66-67). In Luxembourg, it is precisely the former farmers who still own a lot of land. This group is already closer to a pure form of capitalism than the previously described group of former land property. For example, Paccoud et al. (2021a: 15) also describes that in the case study of Paccoud (2020), the landowners in Dudelange fit into the group of industrial landownership. However, the link between this group and the other two groups is also described, in its resemblance with former land property. Over several generations,

landownership remained in the same family. But this group also overlaps with the financial landownership group its aim being the maximisation of the return on the land. Thus, 12 of the 15 respondents fit into this group.

C) Financial landownership

Financial landownership describes the purely capitalist mode of production. Land ownership being merely another sector to invest in, corresponding to the rationale of real estate companies, pension funds and insurance companies. These are not necessarily only short-term investment decisions, since they can also be of a long-term nature. In this case, the group is formed by private individuals as well, who are company owners or use their property for private residential purposes only. Consequently, there is also an ideological pressure suggesting that a person in a given social position should own private property (Massey & Catalano 1978: 67-68). If only this aspect is considered, all the people interviewed would fit into the group of financial landownership, since property plays an immensely important role for all of them. Nevertheless, only two of the landowners are currently using their 'Baulücke' in its resident form. This means that the 'Baulücke' is connected to their residence and yet is only sparsely used.

The last actor who fits into this group acts in pure capitalist form, as in Haila (1991), he can be called a financial actor as well.

Former land property	Industrial landownership	Financial landownership
Occupying a social position	Close form to pure capitalism	Own property is important
Economic influence	Landownership is a condition of production	Pure form of capitalism
Landowning families		Sector to invest in

Table 6: The three types of landownerships and their main characteristics by Massey & Catalano (1978)

The table again summarises the most important aspects of the subdivisions and thus provides a comparable overview of the three categories.

Conclusion

Discussions of landownership (Massey & Catalano 1978; Christophers 2018) have neglected the family dimension of landownership, but in this thesis it is being used for the first time in the case of the industrial landownership. It becomes clear again that the demarcations between the groups cannot be clearly drawn. Another important aspect is that of the importance of owning property in industrial landownership. This aspect does not play a role in Haila (1991) and yet its importance becomes noticeable. It can therefore be concluded that, based on the categorisations described so far, short- and long-term decisions play a role as to ownership, the inheritance of land within the family and the fact that farmers have owned land in Luxembourg for a long time.

Structure by Paccoud, Dörry, Decoville and Górczyńska

The authors have examined the land assembly process in four case studies in Luxembourg. Their main objective was to bring to light the family dimension, which was already mentioned in the previous section and can now be clarified and applied to the study of this thesis (Paccoud et al. 2021b). The compilation of the categories is strongly based on that of Massey and Catalano (1978).

A) Dynastic landownership

Those who have inherited most of their land and consolidated their ownership fit into this group. Furthermore, those landowners who have either acquired more land or have had a profession that directly uses the land, or both, are also part of this group. So this is a kind of amalgamation of the former land property and industrial landownership groups of Massey and Catalano. The group is based on the historical baseline, an inheritance of the country's pre-capitalist past consolidated when feudal rights were abolished in the early 19th century (Paccoud et al. 2021b: 12-13). So all former or current farmers fit into this group, but also the son of a former village blacksmith, which again comes up to a total of twelve of the 15 participants in the study.

B) Investor landownership

The landowners who have acquired all the land sold in the land consolidation process are classified on the 'investment side' and can thus be described as investor landownership (Paccoud et al. 2021b: 12). In this case study, this group includes the three remaining participants, who represent the other extreme compared to dynastic landownership.

C) Legacy Landownership

Two further subdivisions can be identified from the dynastic landownership (figure 7). The land may be shared by several different owners through inheritance. As a result, there are several decision-makers as to what should happen to the land. A decision by several actors can lead more easily to a restraint of the 'Baulücken'. Different actors have different economic needs bringing along different views on the use of the land. The authors call this type of retention of 'Baulücken' legacy ownership (Paccoud et al. 2021b: 13). Six of the twelve participants who fit into the group of dynastic owners were encountered here in the phase in which several decision-makers had to agree on the use of the 'Baulücke' and the 'Baulücke' was held back for this reason, among others.

D) Trustee Landownership

The further subdivision of dynastic ownership is called trustee landownership. This is accompanied by a sense of responsibility, which refers to the fact that the sale of the 'Baulücke' would herald the end of a dynasty. It can also simply denote an emotional attachment to the land and thus solidify the retention of the 'Baulücke'. The legacy, as well as the trustee landownership, represents the standstill of the dynastic landownership. It can decay even further through the fragmentation of the property caused by another inheritance. It could only be resolved by mobilising the 'Baulücke' (Paccoud et al. 2021b: 14). For five out of the twelve owners in the dynastic landownership group, keeping the land in the family played an important role.

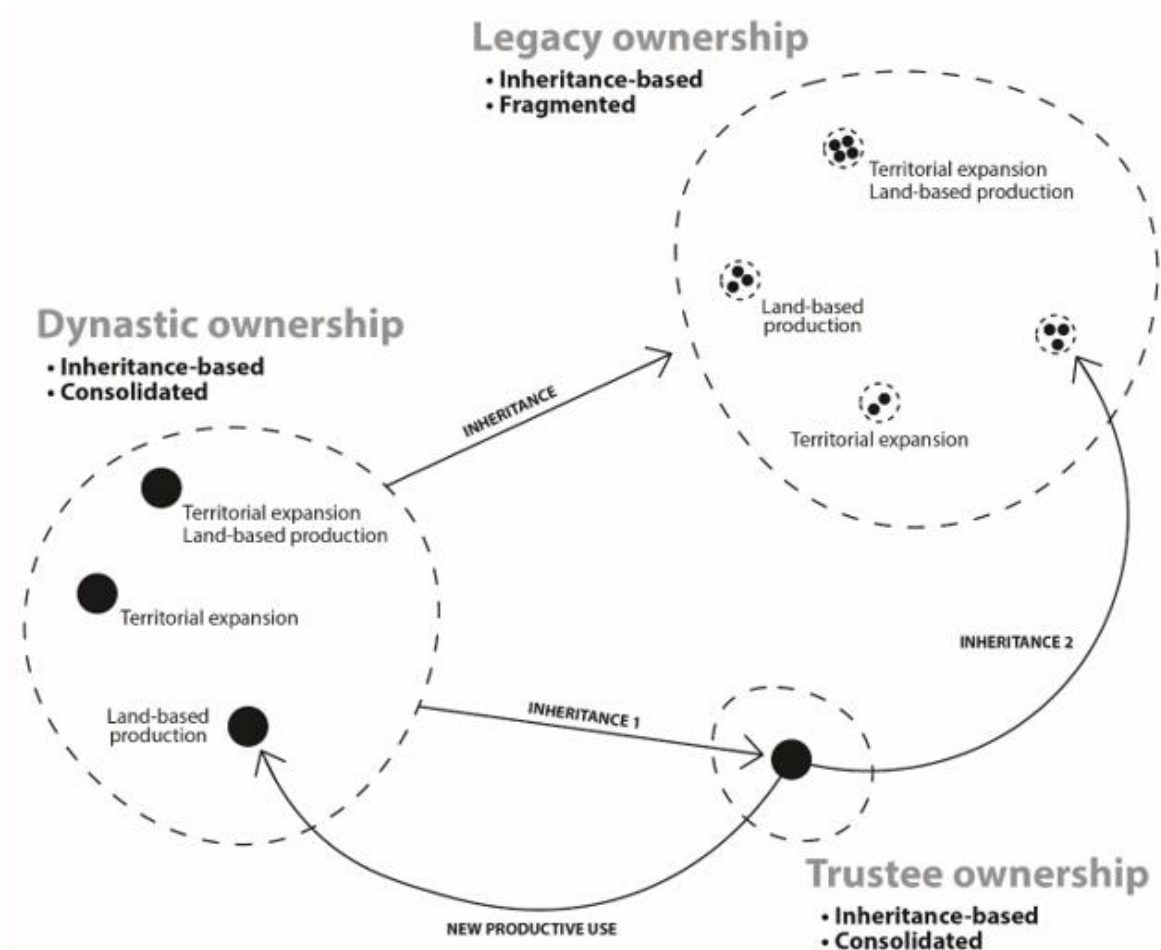


Figure 10: The land release process from dynastic ownership (Paccoud et al. 2021b: 13)

Conclusion

In this paper, the aspect of the family dimension initiated by Massey and Catalano was again specifically explored. It stands out, that one candidate does not have particularly close ties to the land, even though the land has been in the family for a long time. Landowners with a special bond to their inheritance lend themselves to a mobilisation of his 'Baulücke' if the economic dimension of mobilisation would fit. Otherwise, it becomes clear that legacy landownership can lead to a quandary if one actor would be willing to sell, but the others not necessarily, and thus the process would be deadlocked. This is the same case for trustee landownership, where it would probably take another generation of heirs for the attachment to the land to cease. However, the empirical research has shown that this attachment can persist over several generations. When looking at dynastic landowners, it is striking that in the past the means of expropriation was often used to mobilise their land. In a project already mentioned located in Kirchberg, expropriation was overrepresented in transactions with

dynastic landowners: While they owned 42.5 % of the land, they accounted for 64.3 % of the expropriated land (Paccoud 2021b: 15).

4.1.3. The wealth middle class and the gate keeping of land

Keep the land in family structures

Piketty and Saez (2014) have identified how the wealth middle class in the 19th century for the first time managed to accumulate capital in the form of land. At first, this only included their own residence, but over time other landholdings were added. In Luxembourg, the land capital was accumulated by heirs from earlier farming times of the families, as can be seen from the interviews. The land has always been passed on and these former peasant families belong in most cases to the wealth middle class.

Now, this 'wealth middle class' is one actor group that retains 'Baulücken'. The families keep the land in family structures. *'I think it's easy to say, we have two children, it would be nice if they both got a building plot'* (Interview 11: 3). Many of the interviewees feel the same about the situation. There is a certain fear that in the future their offspring will not be able to afford having a flat of their own due to rising prices. *'Most people have children and grandchildren, they want to keep the land for their descendants (...). The prices are exploding and if you already own land, then you keep it for your descendants, or your children'* (Interview 6: 4). So there is a certain fear of the future. *'That is priority number one and then nothing comes for a long time and we don't know who will be here in 40 years looking through our windows. We don't know that. But the family is an absolute priority, we could have sold right and left'* (Interview 7: 5). Making money plays a less important role than keeping building land for the family. Although in some statements one can identify an interplay of the two factors. The 'Baulücke' would probably be sold if new building land cost less and there was not such immense pressure on the housing market.

Own a property

As already mentioned, owning a property is very important for many private persons. Almost every interviewee stated this as a very important argument: *'We also got that from our education, keep what you have and don't give it away, once you give it away it's gone forever'* (Interview 7: 5). The desire for property can take on extreme dimensions: *'If they tell me I can no longer do what I want on my land, then we are in a dictatorship'* (Interview 12: 5). However,

not all interviews used such extreme comparisons to reinforce their opinion. *'I say that it is important to me to have something of my own, but I can also think of colleagues for whom this is not the case. For example, one of them is a bachelor and he prefers to spend his money on other things than buying his own apartment'* (Interview 5: 1). Whether ownership is important to someone depends on whether one grew up in a home of one's own or in a rented apartment. However, since all 'Baulücken' owners already own condominiums, it seems inevitable that these individuals will want to own condominiums in the future as well.

In general, there is still a certain fear of politically left-wing measures and a left-wing doctrine in Luxembourg. This is probably related to the fact that for years a politically liberal-conservative government was in power and a danger emerging from socialism was perceived. In a liberal-conservative society, property is even more important, which is also reflected in the interviewees' statements on how to solve the housing crisis: *'It always goes to the communist, socialist ideas. Just hearing Kersch [Minister of Labor, Employment and Social and Solidarity Economy, Minister of Sport]. No then the people must be captured, and it is said your country must become free. I think I have the right to be an owner here in the country. Nobody can take that away from me'* (Interview 12: 12).

The importance of property in land has also been discussed and taken up again and again in the academic literature. As already pointed out, it is mainly liberalists who insist on the value and importance of property. On the other hand, there is the Georgist stream, which, like the French socialist Pierre-Joseph Proudhon (1971: 1), postulates that property is theft. However, it is not the aim of this paper to discuss theoretical concepts, but to effectively elaborate proposals on how to end the housing affordability crisis in Luxembourg.

The question is whether the importance of ownership refers only to the dwelling, to the building plot or to both. If only the dwelling has to be owned, the principle of heritable building right can be applied. It is however, doubtful whether people who care about owning property would be satisfied with owning only their building and not the land on which it stands.

'Baulücken' as a security in uncertain times

Generating financial security is an absolute priority for families. In this context, owning building land is a secure source of investment. Many people no longer want to place their money in a savings account: *'If you put it [the money] in the bank and there is a banking crisis, the banks go bankrupt, you only get 100 000 euros back. It's well known that a bank guarantees 100 000 euros, you don't get anything above that. If you sell your 'Baulücke' and you get 300 000 to*

600 000 euros with 0% interest or even negative interest, it doesn't make sense. That means the money would have to be reinvested' (Interview: 14: 4).

'Where is the interest that I should sell my land to anyone? I am not interested in it, because then I get money. The money I get today, tomorrow in the re-investment is no longer worth the same value. When the money is in the account, I have to pay negative interest. That does not interest me even if I get a million, they are tomorrow no longer worth it if the bank calculates me negative interest. That's why I have absolutely no interest in selling whatever. On the contrary, I seek to invest all the money I own in real estate' (Interview 12: 2). So it is not only the uncertain times that lead to the use of 'Baulücke' as an investment but also in general the homo oeconomicus is looking for the best possible option to invest his money. This pure form of capitalism also leads to a retention of the 'Baulücke'.

This search for security is not only characterised by a direct financial aspect, but by a material aspect as well: *'It is simply a material security for the children, which they may also receive as a gift, when they are in need, so that they can do something with it. You never know what tomorrow will bring. Tomorrow we could have an accident somewhere, we could be sitting in a retirement home where we can't dispose of ourselves. At that moment, the children have the opportunity to quickly do something financially'* (Interview 1: 5). On the one hand, it is understandable that families want to ensure their descendants' financial security first, but on the other hand, it reveals a lot about a society where people look after themselves first, rather than seeing a problem as a global problem for society as a whole and making decisions based on that. So, the social culture seems to be guided by a certain fear. Where this fear comes from is probably beyond the scope of this paper.

4.1.4. A qualitative life for all?

Neo-Malthusianism

Some of the interviewees stressed the need for them to benefit from the direct proximity to unspoilt nature allowing them a higher quality of life. *'I need my own space, where I am in contact with nature. This would no longer be possible if we started building here behind the house'* (Interview 8: 1). However, this also testifies of a selfish view of a high quality of life. Many people who cannot afford their own flat or have no access to a flat at all because they are simply not wealthy enough will have a somewhat different approach to how high quality of life is defined. The first priority would be to own a home, before thinking about how far one's privacy can be lived out. By striving to have nature right in one's own backyard and even owning the land oneself, access to a high quality of life is blocked for others. It should be noted

that no one should be forbidden to own a garden or to let nature unfold in their backyard, but the question must be asked as to how large this area should be and whether the space should be available for someone else. However, one specific interviewee was aware of this aspect himself: *'Living in nature is a right of the rich'* (Interview 8: 1). Anyhow, this same person also refused in principle to allow his 'Baulücke' to be developed, which again is a somewhat controversial attitude.

This also leads us inevitably to the issue of Neo-Malthusianism. As in the articles on *The Limits to Growth* (1972), this is about too many people living on the planet and that the carrying capacity of the Earth system will be overloaded. Without going further into the other statements and the origin and critique of the theory of Neo-Malthusianism, it must nevertheless be noted that population growth has led to high pressure on the mobilisation of 'Baulücken'. Furthermore, we have already learned that the potential of 'Baulücken' could withstand the demand for housing. To return to the argument of nature in one's own backyard, it is of course true that nature is indispensable for a good quality life. Neo-Malthusianism in particular has also shown that total construction, as a dominance of humans over nature, is not possible (Aligica 2009: 79). It is precisely this natural environment that can exist alongside the construction of 'Baulücken'; it may just not be possible for everybody, especially in urbanised areas, to have a large garden.

Not in my backyard

Now that it is known that overcrowding is not the real problem, as some interviewees claimed, but rather, as some added, that the problem of the housing shortage in Luxembourg is solvable, just not right on one's own doorstep. This concept is also known as nimby (not in my backyard). The nimby effect is mainly directed against social housing, as can also be seen from the scientific literature (Sally & Koenig 2012). This is where spatial planners and residents clash, because the latter often rebel against plans to further concretise the settlement area. A nimby attitude can thus act as a hurdle to spatial development.

'I would never accept strangers there. That is out of the question for me (...). We have worked all our lives on this big house, we have our garden. Then you don't want to have a neighbour in your garden when you are old and finally at home (...). When you have spent 30 years taming your neighbours, when peace returns and you can enjoy it, then you don't want to have another one right away' (Interview 1: 3).

The background of this attitude towards social housing, which was not mentioned in the interviews, probably lies in the fact that negative social, economic and ecological effects on the neighbourhood are feared from the original residents (Sally & Koenig 2012: 436). Of

course, the reason could simply be the existence of a kind of xenophobic attitude and people just want to keep to themselves: *'It wouldn't have occurred to us that someone would build there to spy on our house'* (Interview 7: 4).

Farmers occupy a special position in the nimby effect. It is often the case that resettlement farms are built because the farms cause too much noise and dirt within the village, which can lead to disputes with the neighbours. So, if they don't live on resettlement farms, farmers still want to avoid bringing in new neighbours who are not used to living next to a farm. This cannot be considered as selfishness. However, the director of the Agricultural Economic Service (Treinen 2021: 4) emphasises that only one resettlement took place in the period of the last agricultural law and that this potential has now been virtually exhausted.

'We are not out to get new neighbours in the area. We already have to deal with people in the village who are not even living directly next to the farm. We regularly get messages and phone calls in the evening, as if we had nothing else to do but to make the street dirty on purpose and to annoy and provoke people. The bottom line is that you just do your job, slave away all day, and then you don't like building right next to your yard. So just selling to someone [just to get rid of it is out of the question]' (Interview 15: 3). One of the farmers even goes so far as to say that the farm would no longer work with new neighbours: *'Then you can forget the farm, it's not feasible at such a short distance. It might work for a while, but not in the long run. There is friction everywhere. The way farms used to be located right in the village, right next to the neighbours, nobody accepts that anymore. Those times are over'* (Interview 9: 4). *'Money is not worth having problems'* (Interview 9: 2), so farmers are more interested in continuing their activity as usual, even though they could probably increase their wealth by the sale of their 'Baulücke'. This means that economic incentives would have to be extremely high in order to mobilise the 'Baulücke' belonging to farmers.

However, it must also be said that new inhabitants can generate many benefits, such as social, ethnic and economic diversity (Lewis & Sinha 2007), education (Harkness & Newman 2007) and also concerning the efficiency of public transport (Talen & Koschinsky 2010), which could be particularly interesting for the remote communities in the rural north of Luxembourg.

4.1.5. Farmers: marginal for the economy but important for the housing market

Agriculture accounts for only a small part of the GDP

The interview with the director of the Agricultural Economic Service (Treinen 2021) clearly shows that farmers still play an important role in Luxembourg. Half of the country's area is used as farmland. Furthermore, Luxembourg is part of a common European agricultural policy, the rules of which each country must comply with. In each country there are specific cultivation conditions, which means that the same products cannot be produced in each region. Each country is both an exporting and importing country. In Luxembourg, for example, specific kinds of cheese are produced, as well as specific wines and vegetable cultivations. Nevertheless, agriculture accounts for only 0.2 % of the country's total gross domestic product and the sector employs only 1 % of the labour force (STATISTA 2021b). Therefore, it can be argued that the sector only plays a marginal role in the Luxembourg economy, even if its value goes far beyond that.

Agriculture is more than an economic factor

After all, the value of the agricultural sector is not only important for food production, but also for the housing market. This leads us directly to the ambiguous position of agriculture in society. On the one hand agriculture ensures food production, on the other hand agriculture prevents access to housing by the retention of their 'Baulücken'. It could be argued that farmers could cash out their land and they would never have to work again for the rest of their lives. In fact, it is not only building land that increases in value, but also farmland. Farmers could sell this land too and turn it into money. The director of the Agricultural Economic Service (Treinen 2021: 3) emphasises that the profitability of agricultural land is carried ad absurdum by the high prices. Compared to the selling prices for building land, the same area would have to be farmed for 1 000 years to achieve the same return. Therefore, the question arises once again why the farmers are holding back their 'Baulücken'.

Here, too, the classic arguments such as the importance of owning property or keeping the land in family structures play an important role, but farmers are also concerned about moral values. As one of the farmers underlined: *'Grandpa is of course happy that his son has taken over the farm. I [the grandson] will take over the farm again. I grew up with it'* (Interview 9: 5). On the one hand, farming is seen as a duty, on the other hand, it is also seen as a passion. If this were not the case the farm would most probably get sold. The profession of farmer has a long tradition in Luxembourg and many of them have owned their land for several generations.

To illustrate the latter, one of the interviewees family first came into possession of the land in 1830 and the farm still stands on it today (Interview 10: 1). If a farmer were to sell his land, he would be depriving himself of his own livelihood. He would no longer be able to pursue his profession despite the monetary surplus. Farmers are also aware of the added value they could generate for an area. They maintain biodiversity, produce food (Interview 9: 5) and also generally provide recreational ecology and green spaces in a village (Interview 10: 2). So, it would be presumptuous to claim that farmers could simply sell their 'Baulücken' to produce more housing.

The restructuring of the farm

There is the idea of simply selling the 'Baulücken' and using the money from the sale to buy farmland elsewhere or even to get agricultural land even cheaper abroad. However, the fact is that land located directly on the farm has an enormous added value in terms of time and money and it is therefore rather unlikely that 'Baulücken' will ever be sold. Especially since the 'Baulücken' are usually located directly on the farm and not in the green zone: *'If it were located outside, I could imagine selling it'* (Interview 9: 4). In addition, agricultural land is taxed differently abroad, and earnings are lower than in Luxembourg. When the farm is passed on to a new generation, the farm may have to be divided in the case of siblings. If one of the children wants to continue farming, the farm is restructured and perhaps there is a 'Baulücke', the other siblings have to be paid out: *'You get a high amount in money if there is property, but owning it alone and paying it out to the siblings is becoming more difficult, it is less attractive'* (Interview 9: 3). As a result, fewer 'Baulücken' continue to be mobilised.

4.1.6. Conclusion

After the presentation of the various types of landowners based on the literature review and considering their motivations for retaining their land, new categories will be identified.

Types of 'Baulücken' owners

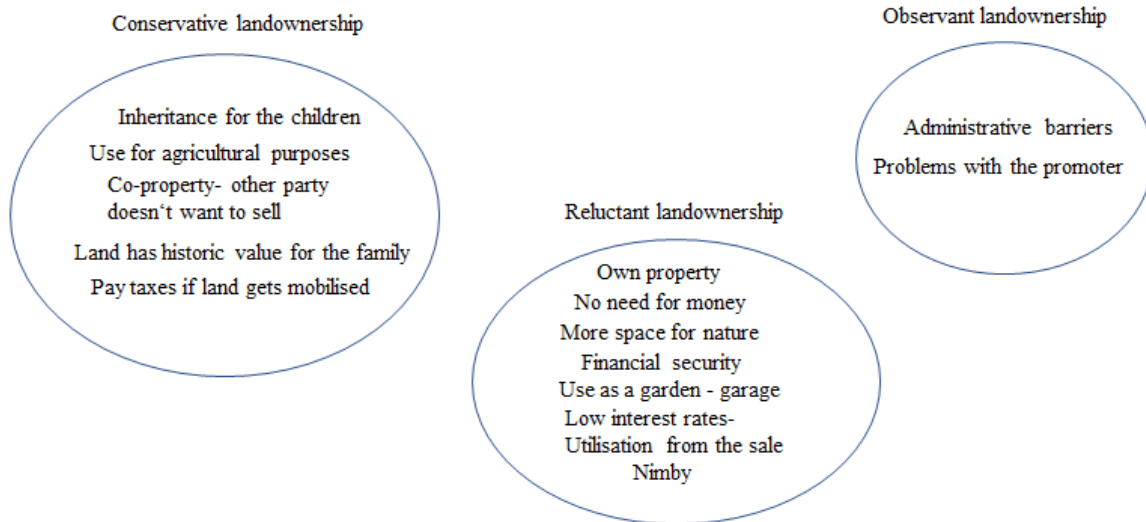


Figure 11: Types of 'Baulücken' owners (own figure)

Conservative landownership

This type of 'Baulücken' owner describes people who hold back their land because they have a particularly strong emotional attachment to their specific land, resulting mainly from a consciousness of preserving family property. The goal is to eventually pass the land on to their children referring to Paccoud et al. (2021b) trustee landownership. This hostile attitude towards a sale can also result from the fact that the 'Baulücken' are part of the economic capital and thus part of the living conditions and combines the financial and industrial landownership of Massey and Catalano (1978). The latter point applies especially to the farmers who use the 'Baulücken', for example, as a tractor parking area.

If the 'Baulücken' are particularly large, a sale may not be an option because the owners cannot afford to pay out to another party. In the case of partition, compensation payments are sometimes set at such a high level that it is easier to leave the land fallow. Furthermore, a sale or mobilisation of the building plots can be hampered by the refusal of a partial owner. Thus, the legacy landownership of Paccoud et al. (2021b) also belongs to this group. In any case, a change of ownership is required so that the question of mobilising the 'Baulücken' can arise again. This can probably only happen through another inheritance.

Reluctant landownership

The reluctant type of landownership describes landowners who are not fundamentally opposed to selling their 'Baulücke', but are not yet willing to sell their land. This group is characterised by the fact that it is important to them that they own property. The 'Baulücke' is

not sold because there is no intrinsic need to earn money and the 'Baulücke' also functions as financial security. The individuals belonging to this group are aware that an investment in the housing market is the safest source of investment for their wealth, which is equivalent to Haila's (1991) circus type of investment. Sometimes the 'Baulücke' is also used as a space where nature can develop freely, but in contrast to the conservative landownership group, this is not a basis for reproduction. Certain landowners might also want to avoid having neighbours in their vicinity underlining thus the nimby effect.

Observant landownership

The observant landownership type is a variant of the bazaar type of Haila (1991). There is no close connection of the landowners to the 'Baulücken' and these are not currently used for specifically important projects. However, there is a lack of initiative to mobilise the piece of land, possibly because of problems with the promoter, which the owners no longer trust and therefore would prefer to arrange the sale with another company, but this actor has not yet come on the scene. On some occasions, the length of the administrative processes might be the reason why the owner is deterred. This is due to the fact that the requirements for a building permit for every new construction underlie complicated authorisation procedures which explains that the process of a new PAP takes time. In principle, however, these owners are open to a sale.

The data found in the empirical study is in line with the Raum+ study on the interest of owners to sell or mobilise their 'Baulücken'. The latter states that, according to the municipalities, two-thirds of the private individuals have a negative attitude towards the development of their areas. It should be noted here that experience from other Raum+ projects, as well as the pilot project of 2018 in Luxembourg however show that municipalities sometimes underestimate the interest of private owners. For family, financial or other reasons, private owners may sell their land or develop it themselves at short notice. Building or real estate companies, on the other hand, are almost predominantly interested in development, according to the assessment of the municipalities (Ministry of Housing 2021: 34). As a possible explanation for the rejection attitude, the study mentions that the owners may be elderly people who no longer have the energy or the will to take on a project. When the land is transferred to the next generation, a negative attitude can turn into an interested attitude one. In addition, many owners want to keep the land for their children or consider it as a financial security, all the more that the value of the 'Baulücken' increases every year (ebd: 69). It must be underlined however, that the Raum+ study was conducted more superficially than this survey and is based on assumptions made by the municipalities.

4.2. Discussion on instruments & policies

Now the owners of 'Baulücken' could be divided into different categories, the following section attempts to assign the appropriate instruments for mobilising the 'Baulücken' to these owners.

4.2.1. Suggestions of the interview partners for the mobilisation of 'Baulücken'

State	Mentions	Commune	Mentions
Limit population growth	2	Expand the building perimeter	3
Taxes on speculation	2	Not expand the building perimeter	1
Taxes on constructible land higher than the yearly added value	4	Commune buying land	2
Lex Koller	1		
Self-regulating market	2		
Less ecological requirements	2		
Minimize the value-chain	1		
Hereditary leasehold for social housing	2		

Less registration money for the state	1		
Pay no added value while selling	2		
Inheritance tax	1		
Small piece of constructible land à reclassification all around and pre-emptive right for the commune with selling price between constructible and agricultural land	1		
Pre-emptive rights			1
Abolish pre-emptive rights			2
Faster administrative procedures			2
Commune and state buying land			1
Social housing with different types of homes			1

Table 7: Instruments and proposals of the property owners for the development of 'Baulücken'

This table shows which arguments the owners of 'Baulücken' themselves listed on how to mobilize 'Baulücken'. The table partly overlaps with table 3, which shows on what terms the 'Baulücken' owners would sell their land. In the present table, however, some instruments are presented that may not concern the owners themselves and were therefore not mentioned in the previous table. It is to be underlined that the range of instruments is very scattered and there is no measure that was unanimously supported by all interviewees. The reason is probably that some people did not think of any measure spontaneously and some did not respond to an instrument until after the interviewer suggested it. Nonetheless, most of the

interviewees are aware that the introduction of a tax on 'Baulücken' is probably an important instrument.

4.2.2. Political and economic policies for Luxembourg

This section first enumerates the key policy orientations that Luxembourg must undertake to create the conditions for the other instruments. These policies do not directly affect local 'Baulücken' owners and are therefore listed separately. This role can also be understood as Haila's (1991) organism type of investment. The state and the municipalities are in fact the planners who can pursue active land policy.

Governance and competence distribution

Only a few countries are characterised by strong public intervention in land markets, even though public intervention plays a crucial role in providing land for the industrial sector (Baker 1995). Given their status as exceptional cases, examples of active land policies have been the subject of intensive research. In her article on Hong Kong and Singapore as 'property states', Haila (2000) highlights the efforts of the public sector to acquire most of the land in the city states, though in the case of Singapore through extensive expropriation. Lin (2009) shows how expropriation of municipally owned agricultural land by industrial cities financed much of the early regional development in China's Pearl River Delta. In the Netherlands, for example, municipalities can lead the assembly process and circumvent land ownership by creating land reserves before land use plans are finalised, facilitated by pre-emption and expropriation rights (Louw 2008). However, public intervention in land markets is increasingly being critically questioned, as concerns are raised about the financial risks that this very approach entails (van Oosten et al. 2018). The fact that public authorities are both 'arbitrators' and 'actors' in the development process also plays a role (Van Dijk and Van der Vlist 2015). The question must therefore be asked whether Luxembourg does not actually need a completely new governance approach to the topic than the initiatives that have been inconclusive so far.

The nature of governance obviously plays an important role when discussing future policies. Governance is understood by Affolderbach and Carr (2016: 946) as 'a broad process of political steering that does not rest solely on governmental structures but includes private and voluntary sectors as well'. From a geographical perspective, multi-level governance is often used as a prime example. A multi-level perspective addresses the hierarchical organisation of a decision-making policy (Hooghe & Marks 2003: 233). A multi-level perspective on the housing market arises from the fact that international investors intervene in the market, guidelines are set at the national level, at the municipal level these guidelines have to be

implemented and this for local housing seekers actors. An interdependence between the actors is created and so the different roles must also be discussed. In the housing market, there are the national construction companies like *Arend & Fischbach* or *Stugalux*, or private individuals like Flavio Becca, who play an important role. The question arises as to which actor must bear which competence.

Transparency in policy-making

The small Luxembourg community leads to a situation where everyone knows everyone, for example many residents know the mayor personally or a chamber representative. As a result, transparency among decision-makers is dwindling. From personal experience, it can be said that personal contacts play an important role in the granting of building rights. It must be avoided that the granting of rights of use or the dedication of building land runs through personal contacts. The disclosure of documents and the clear public communication of processes must take place. In addition, the people's trust in politics could be regained by increased transparency.

It would be desirable to have a coherent policy between the different ministries on land acquisition. The Ministry of Housing, the Ministry of Economy and the Ministry of Environment, Climate and Sustainable Development stand out. The Ministry of Housing is trying to acquire land for future housing, while the Ministry of Economy is trying to acquire land to build industrial zones and businesses. The Ministry of Environment, Climate and Sustainable Development is very strict in its requirements, which makes it difficult and expensive to build on the land: *'Why do we have to build our homes more ecologically than the EU prescribes (...). One would have to see if the house is really as dirty, as polluting as the Greens like to make it. The old houses have also been built respectably (...). They don't need much energy either (...). It doesn't always have to be an absolute passive house with ventilation systems and everything that doesn't work and where people sit inside and don't feel any better than the others'* (Interview 10: 3-4). According to Article 17 of the law of 19 January 2004, drafted by the Water and Forestry Department, the Ministry of Environment would like to make the following clarifications: the Minister has the right to prevent a construction project if a biotope or biodiversity is destroyed (Ministry of Environment 2006). Thus, the Minister actually has a right of veto. This is not to deny the changing nature of the times, but to draw attention to the fact that the increasingly far-reaching requirements prevent more housing from being mobilised.

The mutual interests mean that the value of the land only increases because it becomes an object of desire. This makes it all the more difficult for the Ministry of Housing to get hold of 'Baulücken'. A coherent master plan, where spatial planning is decided in cooperation by all

ministries, should be the goal. Although this would also entail long procedures and raise many points of contention.

Centralisation in policy-making

Spatial planning decisions are characterised by community-level decisions. Although the government partially supports the municipality, the municipalities are often left to themselves. This is revealed, among other things, in the municipalities' lack of awareness about their 'Baulücken'. Even though the preliminary studies of the PAGs already contain information on the available land, several municipalities only became aware of their important land possessions when talking to Raum+ (Ministry of Housing 2021: 66). Many of the instruments proposed by the government are not legally binding and so it is up to the municipalities themselves to implement them (IMF 2018). This can be seen, for example, in the government's 'Lücke sucht Wohnung' catalogue for municipalities. While municipalities are advised on how they could mobilise 'Baulücken', the initiative has borne little fruit and has not yet achieved any accountable result. In other OECD member countries, however, such binding instruments exist, for example Estonia. When new housing units are built, other infrastructure must be developed in parallel, such as playgrounds, roads or kindergartens (Strasky 2020: 14). Housing projects and community facilities account for more than 8 % of municipal expenditure, compared to an average of 3 % in OECD countries (OECD 2016). In most cases, the municipality has to bear the financial costs for these projects. This can lead to municipalities refraining from investing in further housing.

Centralising housing policy in Luxembourg might be a solution to be considered in order to prevent municipalities being left alone with their varying policies. Furthermore, there could be governmental aids to financially support the municipality in the development of necessary infrastructures in addition to housing. The promoters could also be obliged to pay for the infrastructure, a solution that should only have to be insured by larger companies. Private developers with few 'Baulücken' would be deterred if they incur additional costs when building a dwelling.

Many operators ask for the acceleration of procedures related to housing construction: *'The state should process the PAPs that come rapidly and not work for five years on one PAP. Only then, we could avoid having this shortage of land'* (Interview 12: 3). In a similar vein, Marc Giorgetti (managing director of a construction company) also calls for administrative processes to go through faster (Paperjam 2021). It is of course interesting to understand the motivations underlying such statements made by these persons. It is precisely those construction companies, which want to enrich themselves financially by building ever more flats, which are

often luxury flats that do not meet the needs of most people living in Luxembourg. Nevertheless, administrative processes are often an obstacle and a simplification of these processes by the state would probably accelerate housing construction.

Article 26 of the 2005 Law on Municipal Planning and Urban Development provides that a building permit must be obtained from the mayor for any new construction, reconstruction or demolition of a building. This application is not yet available in every municipality (Government of Luxembourg 2005). A simplification of this procedure could be easily achieved with an application connected like other procedures via myguichet.lu. Of course, this application will have to fulfill different criteria in a rural municipality compared to an application in an urban municipality. However, it would be possible to classify the municipalities according to their degree of urbanisation. The state, as the central administrative authority, should thus be responsible for simplifying the mobilisation of 'Baulücken'.

The avoidance of speculation: Lex Koller

The urgency of preventing speculation on the housing market has now also been recognized by the current government. The Prime Minister Xavier Bettel stated precisely in the State of the Nation address (2021), that speculation on 'Baulücken' should be prevented. Currently foreign capital is massively circulating in the Luxembourg housing market due to the attractive conditions according to a construction company owner. Moreover, there is speculation not only with 'Baulücken' and apartments, but also with farmland. As can be seen from an interview (Interview 12), where the interviewee was at an auction, foreign investors are currently buying every available piece of land in Luxembourg: 'There was an Asian and an Arab fund that bought land at an auction. They come there in the knowledge that here in Luxembourg, if you have a few million lying around, they bring in ten times more per year than anywhere else in the world. That is a huge problem. There are farmers who can't get anything at auction in their own village' (ebd.: 6). The purchase of land by foreign investors makes it even more difficult for farmers to buy a piece of land, for example, because they have significantly less purchasing power than these foreigners or than domestic investors. The latter also buy farmland in order to be able to realize eco-points (ebd.: 8). These are compensation measures when interventions in the ecosystem happen (Ministry of Environment, Climate and Sustainable Development 2019).

In Luxembourg, one could also imagine measures to prevent foreigners from buying up massive 'Baulücken' and thereby increasing the value without mobilising the land. Of course, one must also be aware that the political right-wing camp in Luxembourg would be happy about such a measure, which would lead to restricting foreigners in their machinations in

Luxembourg. However, as in Switzerland, a distinction must be made between Luxembourg residents and people living abroad. Since, according to the author, it is difficult to determine the percentage of properties that can be sold to persons living abroad, it could be determined that these persons could only acquire a tax-free property in Luxembourg if they moved their principal residence to Luxembourg at the same time. All other 'Baulücken' should be taxed at the highest possible rate to prevent people living abroad from buying land in Luxembourg.

However, one should be aware of the fact that if less powerful players enter the housing market in Luxembourg, the prices for the 'Baulücken' could increase nonetheless.

An instrument that should have been used much earlier: Strategic land reserves

A model like the one practised by the city of Ulm in the 19th century is difficult to imitate today. Prices are so high nowadays that it is hardly possible for the state or the municipalities to buy up and hoard land on a large scale (Onken 2020: 9). 63 % of the Luxembourg population would like the state and municipalities to become active players in the creation of affordable housing (RTL 2021b). Therefore, land should be bought up much more actively when the opportunity arises. It is to be demanded that housing construction be promoted much more actively and become a focus of provincial and municipal policy, as for example in the times of Red Vienna.

If the state owns a lot of land and can thus build housing itself, gentrification processes are also prevented. In this way, rents can be capped, and social segregation prevented. This can be clearly seen in the example of Vienna: there, students live next to workers or even academics. The social mix is very high and there are no 'problem districts'. However, if flats are privately owned, real estate appreciation processes can lead to the displacement of low-income households through a rent increase. In this context, there is also the rent-gap concept, which was formulated by Neil Smith in 1979 and describes the difference between the currently realised rental income of a property and the potentially achievable rental income after the investment in this property (Kadi & Verlic 2019: 35-36).

Expansion of the building perimeter and creating new millionaires

In the debate on whether the building perimeter should be extended, opinions among the population differ widely. Currently, it is estimated that 80 000 new homes could be built with the existing 'Baulücken' (Hertweck 2020: 371). However, if developers are to be believed, the land currently allocated as building land is not sufficient to meet demand: *'We want to grow, but we don't want to open up the perimeter (...). The PAGs have to be opened up, otherwise we won't get anywhere. You can't just close everything and still want to grow. It's like a bubble,*

you keep pouring water or air into it and eventually it bursts. It's no different' (Interview 12: 3, 6). The building perimeter is closely related to the idea of growth. Further growth naturally leads to further sealing and a stronger intervention in nature, which in turn would also generate a lot of resistance. However, the Housing Observatory's forecast states that a large population growth spurt would be possible with the current stock of 'Baulücken'. This is precisely why the Housing Observatory wants to prevent the further conversion of land into building land.

The question of who would benefit of the expansion of the building perimeter has to be asked. Will the land be built on directly if it is rezoned, at an affordable price? To come to the point: Every time the perimeter is extended, there are only more millionaires,' states social geographer Paccoud in an interview with Reporter (2021: 3). There is a building land cartel in Luxembourg, which means that the people who develop an area already own this area. So, there is no real need to expand the building perimeter, but rather to introduce other measures, because there is a mobilisation problem in the country and not a land availability problem.

Pre-emptive right

The pre-emptive right could be implemented in a similar way to France. Luxembourg currently lacks a clear definition of what exactly falls under the umbrella of public interest. This could however be defined very largely in order to make as many projects as possible tangible for municipalities and the state. Public developers should be allowed to use this right much more consistently. There should also be the possibility for an independent court to assess the value of the 'Baulücke' if, for example, the municipalities do not agree with the price set by the landowner. This procedure might prevent speculation and might ensure that prices are not fixed at an exaggerated level by private individuals.

The pre-emptive right is valued differently by different actors. On the one hand, there are the liberalists, who want the state to stay completely out of the market and let it regulate itself: The implementation of the state's pre-emptive right would lead to a big confusion in the eyes of the author: *'The state has not done its job for 20 years. Now they come with the pre-emptive right and take the land that comes up for sale. (...) There are many people, promoters and also private people, who are desperately looking for 'Baulücken'. Then you go to the notary, he has to inform the authorities, who will raise their hand and say: we'll buy it' (...). It's parasitism on the part of the state with the right of first refusal. Nine hectares were handed to it on a platter and the Fonds du Logement didn't even have to move out of the house for it. I searched for a long time to find the area. Who compensates me for my work? All the effort I put in and so on. No one.'* (Interview 12: 3, 9-10). On the other hand, there is a young academic for example, who is in favor of a pre-emptive right: *'In various places, that [the right of first refusal] is*

certainly a good approach' (Interview 15: 6). The controversial issue of intervention by public actors and their intervention in the market thus depends on the larger political orientation of a country or municipality. In Luxembourg, a more liberal policy currently prevails (Hesse 2020: 142). Nevertheless, the extension of the pre-emptive right is elementary for a massive purchase of 'Baulücken', because public developers can ensure to build a lot of homes and at the same time offer them at socially affordable prices.

How the hereditary building right can help to ensure ownership

The demand for this model is already very old and was voiced by Walter Gropius and Martin Wagner (2013). Land speculation often leads to the decay of the settlement and the community itself should be the owner of its land. The individual plots should be leased, while the houses themselves can be owned as was already said formerly.

The hereditary building right is certainly a model that can be applied in Luxembourg as well. Even though it is not possible to copy exactly the example of showcase municipalities like Weyarn, it could be partially implemented. In Luxembourg, it is already too late to acquire a large amount of building land at a favourable price. However, the latter approach could be interesting especially for farmers. If a farmer in Luxembourg sells his 'Baulücke' to the state, he might be awarded a redesignation of one of his farmlands into building land in return.

Similar to Weyarn, the procedure could be that for every square meter of building land sold, half a square meter of farmland would be converted into building land. In this way, the farmer would not turn the sale of his 'Baulücke' into money, but his land would also receive a theoretical appreciation through the redesignation, although it could still be used as farmland. This model is even advocated by an interviewee who is known for his rather liberal views and who explicitly proposes this model for social housing: *'If social housing is made, that is the right application. There the land is not to be sold with, but one should receive a housing right. As a consequence, the land always remains in state hands, which is absolutely right'* (Interview 12: 4).

A political utopia: the Single Tax

The 'single tax' was not explicitly described in the theoretical part, because it is not currently practised in any country. However, the theory is certainly an approach worth discussing. Behind this initiative, we find a historical movement, also known as Georgism. It aims above all at taxing non-beneficial profits. Henry George, an established and often-quoted American political economist, already advocated the 'single tax'. All other taxes should be abolished because the ground rent is more than enough for the functioning of the state. Jacqueline

Badran, a member of the Swiss parliament, has calculated that the combined value of all land and real estate in Switzerland is worth four billion Swiss francs plus interest. If only two per cent of this sum were taxed, Switzerland could do without all other taxes and still have more money available than in the current budget (Hertweck 2020: 379).

It must be noted, however, that these considerations are of very theoretical significance and would completely overturn the current tax system. This would also render obsolete the other measures for the development of building land. The likelihood that a single tax will actually be introduced is rather low among the measures presented in this paper. Nevertheless, the Swiss politician Badran has calculated how much difference such a tax would make to the budget, which in turn would open up a new scope for other projects. Withal, the actual legal and economic assessment of such a tax is beyond the author's competence.

4.2.3. Evaluation of measures for the different types of landownership

4.2.3.1. Conservative landownership

Expropriation

Expropriation is theoretically possible in Luxembourg, but it is mainly envisaged at the municipal level. However, there is too much 'human interaction', so that this approach is only considered in rare exceptional cases. Moreover, four out of five voters are owners of building land (Woxx 2017) and it is obvious that expropriations would meet a lot of resistance and thus the politicians' re-electability is endangered in the case such drastic measures are enforced. Of course, it is not in the spirit of politics to only take measures that allow re-election, but the political situation in Luxembourg, as well as abroad, is characterised by this approach. After the Kirchberg building project, the state never again made use of expropriation legislation to this extent, possibly due to the fact that this unfamiliar, cumbersome procedure fostered disapproval in a country more accustomed to public-private negotiations (Decoville: 2008).

In principle, expropriation would be a panacea to mobilise the 'Baulücken' without having to apply any further measures. As already mentioned, there is the possibility of regulations that 'Baulücken' have to be built on after a certain period of time, or their owners are expropriated. This seems to be an appropriate and effective means, if the state or the municipality is in possession of the gaps, it would be easier to mobilise the land and at the same time create comparably cheap housing. It must be taken into account that property plays an important role

for a large part of the population. Unpopular measures such as expropriation would reduce trust in the state and other potential projects that need the participation of the population could be endangered. Nevertheless, expropriation could be used especially when a ‘Baulücke’ held back by a private owner prevents the realisation of a large housing project.

Expropriation is subject to a high number of administrative hurdles. Legal procedures must be followed, and the expropriation procedure can be expensive for the municipalities, as compensations must be paid to the owners (Christmann et al. 2017). Again, since many ‘Baulücken’ are located in the less affluent municipalities in the northern part of the country, payments of compensations could become problematic. Therefore, it seems plausible that this instrument is probably more suitable for economically stronger municipalities in the centre and the south.

Expropriation would be particularly suitable for the conservative type of landownership because, as described, these people are fundamentally opposed to a sale and can therefore only be mobilised through coercion.

4.2.3.2. Reluctant landownership

Sanctions

‘Everybody works but the vacant lot. I paid £ 3 600 and will hold ‘till I get £ 6 000. The profit is unearned increment made possible by the presence of this community and the enterprise of its people. I take the profit without earning it’ (George). This is a famous quote by Henry George which was published on a sign at the sidewalk, and it still fits today. The ‘Baulücken’ increase in value without direct performance and should therefore be taxed accordingly.

Two municipalities in Luxembourg levy a tax on a particular type of residential land, i.e. a ‘Baulücke’. Licheron (2019) has calculated the approximate cost of an acre of building land in each municipality. Taking the average price as a basis, an acre in Esch-sur-Alzette costs 90 000 euros, which corresponds to a price of 900 euros per square metre. In Roeser, the average price is even over 100 000 euros/ acre. If we assume that the price of building land is 100 000 euros/ acre, this would be 1 000 euros/ sqm.

The figures are illustrated in tabular form using an example to illustrate the order of magnitude.

Municipality	Roeser	
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Are of the 'Baulücke'	960 sqm	
1 st year	10 euros/ sqm	= 9 600 euros
2 nd year	30 euros/ sqm	= 28 800 euros
3 rd year	50 euros/ sqm	= 48 000 euros

Table 8: Fictitious example of fines to be paid per year for a 'Baulücke' in Roeser

If we now consider that the sale of this 'Baulücke' in Roeser in 2019 could possibly earn 1 000 euros/ sqm, in this fictitious example, the 'Baulücke' would be sold for 960 000 euros. This makes the dimension of the sanction (70 euros per sqm) clearer in comparison to the punishment. If the variable of the price increase per year is added to this, it very quickly becomes clear that the sanctions are probably much too low. Between 2010 and 2019, average prices for building land increased by 7 % (Housing Observatory 2020: 5), which would amount to a net increase of 67 000 euros from 2018 to 2019. The owner of the 'Baulücke' would therefore theoretically gain 67 000 euros, while he would have to pay 48 000 euros in penalties in the third year of ownership of this 'Baulücke'. The builder would therefore still make a profit sum of 19 000 euros in that year, despite the penalty.

Even if a total of up to six people propose taxes on the 'Baulücken' in various forms to exploit their potential, that proposal also meets with a headwind. The resistance is evidenced by the following liberal statement: *'I want no loss on the land where I am the owner. This is also a shot in the back. The Diekircher municipality increased after all 500 % or more on different lands. I am the owner and do not want to build, punish me quietly, then I'll pay every year for my stripes. But the day once someone buys my land, my land costs the price multiplied by all my penalties. This is also adversarial, respectively counter-productive'* (Interview 12: 5).

According to a survey published on November 18, 2021 by the market research institute TNS Ilres, an average of 62 % of the population of Luxembourg is in favor of a heavier taxation of the 'Baulücken'. A closer look at the figures reveals that residents with an income of up to 4 000 euros a month are less in favor (61 %) of taxing 'Baulücken' than people with a salary of over 4 000 euros a month (69 %) (RTL 2021b). This is all the more surprising, because it is often the wealthier people who own the 'Baulücken' and so it strangely seems that they would be in favor of higher taxes being levied on their own plots. If we now consider from which

political spectrum such a measure would be easier to implement, it is not surprising that a higher tax is called for primarily by Greens and socialists rather than by conservatives and liberals (ebd.).

In order to work out a model for taxation, it is worthwhile to look abroad. Firstly, the levying of such a tax must become mandatory for the municipalities so that they can effectively ensure that 'Baulücken' are actually mobilised. The model from Upper Austria based on a development tax serves as an inspiration. 'Baulücken' that are still in use for agricultural purposes can be exempted from such a tax. In order to protect private property owners who have owned their land for a long time, the tax is to apply to 'Baulücken' that have been rezoned since the last PAG amendment. Secondly, a model should be devised that protects landowners who own few to one 'Baulücke'. For example, taxes could increase in relation to the surface of residential land owned by a private individual. In addition, the tax rate should increase per year, as is already the case in the Luxembourgish municipalities that levy such a tax.

A property tax in a wealthy country

It is inevitable to discuss greater tax fairness in Luxembourg. The Gini coefficient is a measure of inequality in distribution. The value lies between 0 and 1, and the closer the value is to 1, the more unfair the distribution of wealth. So if a country is listed with a value of 1, it means that one person would own all the wealth. A value of 0 would mean that all the wealth is evenly distributed among the population (Kaufmann et al. 2006). It is therefore desirable for a country to achieve a low value. According to the Credit Suisse AG (2019: 117-120), Luxembourg has a value of 0.67, which is already significantly lower than the value, for example, of Switzerland (0.702), France (0.696), Germany (0.819) or Austria (0.739). From a social point of view, it would nevertheless be desirable to reduce this coefficient, which would be possible by means of new tax regulations. Redistribution of funds could make access to housing possible for many more people. If private individuals are taxed on their assets, including their land, these funds could be used for the promotion of housing by public developers.

It is clear, of course, that the higher the value of such a tax, more funds can be redistributed and the purchasing power of public developers for 'Baulücken' would be greater. However, it must be noted that a tax increase is considered as an unpopular political instrument. Since this tax is based on land valuations from 1942, the tax is significantly low and needs an update. Nevertheless, the property tax is a means to mobilise 'Baulücken'. The small rural communities in the north of Luxembourg often lack the purchasing power to keep up with the high prices on the housing market. Through a higher purchasing power, more 'Baulücken'

could be acquired. The survey shows that some of the interviewees were discouraged from selling their 'Baulücken' to promoters. These are often perceived as money-grubbing and rip-off artists: *'No that was not a fair deal'* (Interview 11: 3), commented one of the interviewees about a promoter's offer to buy his 'Baulücke'. This is probably why some owners prefer to sell their 'Baulücke' to the municipality or the state, which would be more likely with a property tax.

However, a property tax would fundamentally change the country's demographic makeup. Whereas today many of the wealthy people in the country are attracted by the very low property tax and settle down in the country, increasing the pressure on the housing market due to their great purchasing power and demand, they would not be attracted anymore. The property tax could therefore have a longer-term effect on the housing market in Luxembourg.

A fiscal controversy: the inheritance tax

Like the property tax, an inheritance tax would aim to make society fairer and more socially responsible. There is an inheritance tax in Luxembourg, but it excludes transfers in direct line (between parent and child, between siblings). You still need to pay (a modest amount) if you inherit from an aunt or uncle for example. The gap between rich and poor is widening, while the richer possess 'Baulücken' and the poorer have hardly any access to housing. The descendants of 'Baulücken' owners benefit from the fact that the value of their land has risen without performance, which suggests that an inheritance tax could compensate for this disparity. The higher the income was during lifetime, the more likely it is that the descendants will inherit capital anyway. This meritless increase in value actually contradicts the very foundation of capitalism, according to which the industrious should be rewarded more. An inheritance tax could also be a way to avoid disputes among descendants: *'What for me would also be an effective measure is the inheritance tax. Often there are disputes about inheritance, so it would be a good way to be stricter and force people to sell'* (Interview 2: 2).

On the other hand, it can be argued that many testators are outraged by the thought that their children would have to pay taxes on their inheritance. After all, the inheritance was acquired honestly through diligent (taxed) work by the parents. This work during their lifetime would thus be devalued. However, as with the property tax, a new tax is politically very unpopular and the likelihood of its introduction in Luxembourg is very low. It could be argued that if the state needed new revenues, the state could save in other sectors. Private property is considered a bourgeois value in itself in Luxembourg, and its importance is repeatedly emphasized by the owners: *'Nobody takes away what is ours'* (Interview 14: 4).

This is compounded by another problem with inheritance tax. The heirs are often only super-rich on paper. In reality, the heirs may be heavily in debt. They have to take out a loan from the bank to pay the inheritance tax, because the tax is calculated on the basis of the high standard land values. Actually, the aim is to set the tax so high that the heirs sell and mobilise their land. However, if the heirs then sell to speculators, nothing has been achieved with the tax. It must be seen as one element of a set of measures that also prevent speculation in the housing market. Only the 'Baulücken' should be affected by the inheritance tax and not the main residence of the heirs, because the 'Baulücken' could provide housing for more people.

A model could therefore be envisaged in which the 'Baulücke' would be taxed after inheritance, if it were neither built on nor sold within two years. The percentage of the tax would then depend on the size of the 'Baulücke'. It would also be conceivable, that in general, the 'Baulücke' would be taxed on inheritance, but this would generally face more headwind and therefore, the implementation of the first option proposed should be considered as more realistic.

Public relations

Through public relations, people of the reluctant type of landownership could be made aware of their situation. The preparation of a brochure is in principle welcome. However, municipalities are left to their own devices and often lack experience in the field of housing policy. This mainly concerns municipalities with few inhabitants. This applies more to the area of 'Baulücken', as can be seen from the fact that only two municipalities in the urbanised south of the country levy a tax on the 'Baulücken'. However, it would be wrong to claim that rural municipalities do not have an active mobilisation policy. As an example, the municipalities of Beckerich, Winseler or Redange can be quoted, where taxes are levied on unoccupied houses. It can be concluded that more support should have come from the state for the elaboration of the documentation, which is in principle a good practice.

In the meantime, housing as a topic of interest continues to increase its presence in the various media. The 'Housing Week', which last took place in September 2021, brings additional public attention. There are more and more online articles about the housing problem in Luxembourg. Recently, there are always articles about 'Baulücken', but this specific form of public relations is initiated rather by academic and journalistic sources than by the municipalities and the state. Recently, the former mayor of Zwischenwasser in Austria was invited to present the local hereditary building right project and brought the issue further into the public eye.

Financial incentives

To encourage the creation of housing, the state levies a reduced value added tax (VAT) rate of 3 % on the construction and renovation of housing, provided it concerns a primary residence (Government of Luxembourg 2021). The problem is that many private individuals have owned their land for a very long time and the value of the land has tremendously increased over the years. As a result, all the more taxes have to be paid. A tax already exists to prevent speculation, whereby a sale of land two years after its acquisition is subject to a maximum possible tax rate of 21 % on the capital gain (Government of Luxembourg 2018). Conversely, there could also be a tax exemption on the capital gain if the private person or his family has clearly been in possession of the land for a longer period of time.

'That's the problem, then they look at the value-added tax. What that has for a value, is exactly in the law. There was a garden or farmland and if that is now sold for three million and then it is estimated what value it had when your father came into possession of it or inherited it from his parents. What it cost at that time and then there is a value added tax. (...) That means it cost 100 000 at that time and now 3 000 000, then you will be taxed on a value of 2 900 000 on it, if a private person buys it. Nobody owns it. Back then, people bought it piecemeal' (Interview 11: 7-8). However, one must also be aware that many private individuals would go to the financial pain threshold before selling their 'Baulücke' due to high taxes. *'I think we could cope with that. That would be an expensive price to pay, all that is being considered with the taxes on the 'Baulücke'* (Interview 7: 5).

Many private individuals are reluctant to sell their 'Baulücke' even if they have to pay a significant tax rate. However, it is difficult to set a precise time frame for an exemption. One possible approach could be that if a 'Baulücke' is inherited in the third generation, i.e. it has been in the family for a significantly long time, is built on or sold within two years, it should be exempt from VAT. It is clear that people who have already been allocated a 'Baulücke' without any further effort and have thus already been able to make a high non-performing profit would in the present proceedings in turn be given an advantage. But it must be clear that the goal of this work is to create more housing and to mobilise 'Baulücken' and this instrument would be a possible step towards promoting construction activity, even if there would be some profiteers of the system.

The 'Baulücken' owners are not dependent on the money they would receive from a sale. By hoarding the assets as landholdings, they only have a theoretical value. Therefore, a participation system of the 'Baulücken' owners could be developed in case of mobilisation. If the owner sells his land and several apartments are built on the site, he could obtain a cheaper

apartment with a pre-emptive right. Accordingly, the landowner could earn a monthly income and the asset would have a real value.

4.2.3.3. Observant landownership

Financial incentives

A financial incentive could also be the final push for the observant landownership group to sell or mobilise their land. These people are willing or at least open to selling anyway and could mobilise their 'Baulücke' at a low VAT rate.

The importance of a municipal land manager

Not only must processes be centralised, but inter-municipal cooperation must also be strengthened, as already called for by Strasky (2020). The Ministry of Housing (2020: 1) already has the intention doing this by introducing their housing consultant. This could mean that the rural municipalities might share the services of a municipal land manager who would coordinate the spatial planning strategies of the municipalities. The individual municipalities are often overwhelmed with the spatial planning challenges and an expert in this subject could support them efficiently. Many smaller municipalities cannot afford to hire their own municipal land manager. However, such a hiring would be possible if several municipalities would share the costs. This expert could prepare development plans for individual municipalities and advise municipalities, as well as private individuals, on what options their land offers. This person would also be responsible for actively approaching landowners in order to possibly mobilise 'Baulücken'. He could also act as a link between public administrations and private persons, as is already the case in Baden-Wuerttemberg. The creation of such a post seems beneficial considering the circumstances as well as the importance. Although a municipal land manager would also help with the reluctant type of landownership, his role would be more effective for this group. The municipal land manager's task would consist in taking over administrative processes and dealing with all kinds of hurdles. The work of the manager would be similar to that of a real estate agent, whereby his work would be paid for by the municipality and not by the owners of the 'Baulücke'. Another advantage over a real estate agent is that the municipal land manager does not want to gain any financial advantages for himself but acts in the sense of the spatial development of the municipality.

This proposal is preferable to the hiring of an organisation because local knowledge is required for this kind of work. In addition, it would be an advantage if the person were from the region it is working for so that the private owners could feel more comfortable in dealing with the municipal land manager.

4.2.4. Conclusion

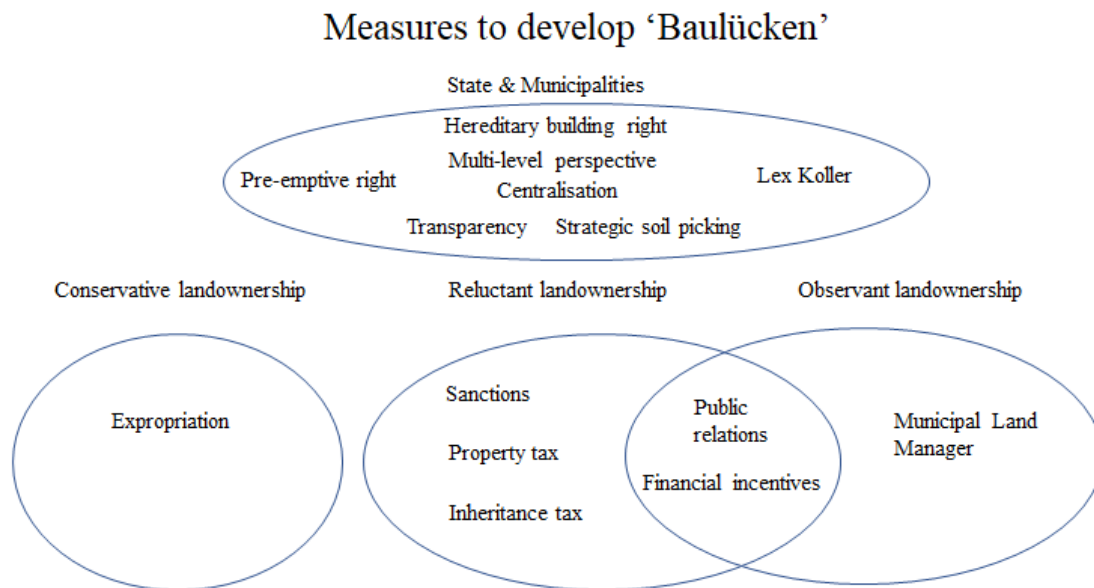


Figure 12: Measures to develop 'Baulücken' in Luxembourg by types of owners (own figure)

The figure above summarises the instruments to be used for the different types of owners and the measures to be taken by the state and the municipalities to mobilise 'Baulücken'. It becomes clear once again that the framework must be created by the public authorities to enable the other instruments to take effect. It is a mosaic of measures that can only function if they are implemented effectively together. Considered individually, these measures can only mobilise very few 'Baulücken'. This is also evident from the fact that the interviewees stated several reasons why they did not mobilise their gaps. This multi-causality also links some measures for different groups. Overall, the instruments might impact all groups of actors. However, the figure above describes which instrument is most effective for which group of owners. It is also noticeable that the public relations and financial incentives apply to the reluctant ownership as well as to the observant ownership group.

5. Conclusion

5.1. Answering the research questions

In order to retrospectively summarise the answers to the research questions, they are listed again:

1. What are the strategies and motivations of landowners for hoarding their land?
2. Can various types of owners be distinguished and do they differ in terms of their exploitation strategies?
3. Are there location- and landowner specific differences in possible housing policies?

The mobilisation of 'Baulücken' owned by private individuals is not subject to economic decisions alone. Emotional ties to the undeveloped areas prevent decisions from being made in the sense of valorisation. Since the land has been in the family for a long time, there seems to be a sense of responsibility to keep the land in the family. In the case of farmers, this can also be expressed by the philosophy that the profession must be passed on from generation to generation. Farmers cannot do without an area of land which represents their livelihood. As a conclusion, we must deduct that property plays an important role in Luxembourg society. People want to own their own land and don't want to sign a rental contract to live somewhere.

Nevertheless, financial aspects must not be underestimated either. The landowners keep their land partly because they do not need money and because they would inevitably have to take an investment decision in the event of a possible sale, well aware that land ownership is the safest and most effective source of investment for hoarding money. However, this asset also carries some dangers. If several parties share a 'Baulücke' which has to be divided in case of mobilisation, the difficulty of paying off the other party is a dangerous reality. A further problem with multi-party ownership, are the possible different considerations concerning the future use of the land which leads to inactivity and the land ends up not being mobilised.

Some interviewees were reluctant to have neighbours right next to their own front door. Although they are aware that there is a housing shortage, they would prefer the problem to be solved elsewhere and not on their cost, which can be attributed to the nimby effect. Besides, we noted the wish to have nature next to one's own house as well as the realization that spatial planning cannot cope with rapid population growth.

In addition, there sometimes was a desire to mobilise the 'Baulücken', but administrative barriers prevented further initiatives. This is due, among other things, to the long procedures and, as some interviewees complained, to the ecological requirements for a new building.

In the course of the analysis of the empirical investigations, three different types of 'Baulücken' owners could be identified. The first is the conservative landownership type. This group is characterised by the strict hoarding of the 'Baulücke'. There is no option for the group to mobilise it other than expropriation or inheritance. The reasons for hoarding can be family responsibility, the use for agricultural purposes, the aim of bequeathing it to the children or simply that it is a multi-party property, and one actor does not want to sell.

The second type is the reluctant landownership group. This group is characterised by the fact that it is important for landowners to own property and they use the 'Baulücken' as financial security, because it has proven to be the safest investment opportunity for their own assets. Furthermore, no money is presently needed through a sale and thus the 'Baulücke' remains in his possession. A higher tax rate on undeveloped 'Baulücken' could encourage this group to sell their land. This approach goes in a similar direction as do both a property tax, as well as an inheritance tax. The owners could be forced to sell their 'Baulücke' after an inheritance. In return, however, there could also be financial incentives to mobilise the 'Baulücken', in the form of tax omission in the case of mobilisation or sale. Drastic measures would have to be taken to change the reluctant attitude of those affected. It is clear that a change in tax regulation would bring about an important change in the country's face. A higher tax rate would wipe Luxembourg off the map of investment hotspots. Furthermore, effective public relations could also drive the owners towards developing their 'Baulücken'. Last, a so-called municipal land manager could also contribute to this.

The third group is called observant landownership. This group is characterised by the fact that the owners of the 'Baulücken' are actually willing to sell their land. However, a sale has not yet materialized because of administrative barriers or problems with promoters. Efficient methods for mobilising these 'Baulücken' would be the involvement of a municipal land manager for taking over all administrative processes, as well as further public relations and financial incentives.

The main focus of this study was on the private owners. Nevertheless, the state's function as owner and developer of 'Baulücken' also had to be discussed mainly in its responsibility to set the framework conditions to facilitate their mobilisation. This includes the centralisation of housing policy, which up to now has largely been carried out at the municipal level. A higher transparency of the processes as well as the strategic purchase of 'Baulücken' can also be efficient measures. With the extension of the pre-emptive right and the establishment of a heritable building right, cheap housing can possibly be created, and the Lex Koller might partially prevent speculation on the housing market.

The geographical location of the 'Baulücken' and any mobilisation instruments do not have a specific context within Luxembourg. Nevertheless, it is probably a good opportunity for rural municipalities from the north of Luxembourg to share the services of a municipal land manager, because the municipalities alone often do not have the financial means to do so.

5.2. Outlook on future developments

Dealing with a socio-ecological crisis

Any future decision must always take into account the long-term development. We are in a socio-ecological crisis at the moment and making society sustainable must always be the ultimate goal. This also means protecting nature and taking care of it. On the other hand, housing must continue to be built to provide shelter for people. In view of the European perspective of 'no net land take' for the time horizon 2050, which aims to avoid additional land take of natural spaces throughout Europe, the conversion of brownfield sites, the restructuring of urban spaces or the redensification of existing buildings will play an increasingly important role (Ministry of Housing 2021: 69). In the spirit of a climate-friendly city with valuable open and green spaces, not every intra-urban open space should be built on. Especially in a dense urban context, an inner-city network of natural spaces is indispensable and contributes to a high quality of life.

The Post-Growth debate

The post-growth issue is a delicate concept, and the solutions are controversial. New approaches are needed. Many of the proposals suggested by the author actually resemble symptom treatment, although a paradigm shift is needed. The current models of land use in Luxembourg are embedded in a growth theory. It cannot be ignored that quantitative growth still seems to be fundamental in the context of the increase in competitiveness of a region. However, the vital question is how this growth is achieved. The neoliberal model in Luxembourg inevitably leads to a growth imperative according to the motto 'grow or weaken' (Schulz 2020: 145) and the housing market is becoming the incorporation of capitalism. The existing Luxembourg growth framework could even serve as an example to any idea of a policy-led transition to sustainability. The level of prosperity, growth dynamics and international network relationships achieved so far is almost unprecedented (Christmann et al. 2017: 39). This makes the current liberal policy look like a symptom treatment trying to reduce the negative side effects within the capitalist system instead of bringing about a paradigm shift. The transformation of the housing sector in Luxembourg may be difficult if not impossible to achieve as long as the socio-economic and social framework conditions remain unconsidered

and thus key elements of the country's housing policy remain unconsidered (ebd.: 49). The post-growth involves a rejection of the eternal belief in growth. Growth must be re-evaluated. Housing policy should mutate towards a common good orientation outweighing economic profitability. Solidarity and social economy serve as food for thought in this regard (Schulz 2020: 147).

It would require a de-financialisation of the housing market, forced social housing construction and a prioritisation of residents over landowner interests (Madden & Marcuse 2016). The call for preferential rights for individual residents over big landowners must become stronger as well as the general call for a new land policy. The instruments just presented should be seen as a mosaic of measures which have also recently triggered greater attention in Luxembourg. However, as long as trading with land remains a golden business, one should have no illusions about the chances of fundamental reform initiatives (Hesse 2020: 143).

The state as a central figure should become a kind of 'developmental state' as already described in the work of Haila (2016: 113). With this approach the land is owned by the state who grants the rights of use to developers through public auctions, grants rights of use to private third parties, promotes competition among private developers, offers public housing stock and distributes important values. In Luxembourg, it has also been necessary to involve the private promoters, due to their great purchasing power and their networks allowing them to build housing in a short period of time. With a central state, distribution issues can also be regulated more efficiently. Many people would prefer the central government to be more actively involved in the housing debate, which would also result in an electoral benefit. The state thus functions both as a motor of demographic and economic development and as a guarantor of social balance (Hesse 2020: 137). However, the state also acts as a 'property state' (Haila 2020), because it can guarantee the formation of property through hereditary building rights, because it has enough stock itself through its active strategic land reserves to be able to regulate the market.

Probability of the introduction of the measures and alternatives

After the presentation of a new finance minister in Luxembourg at the beginning of December 2021, major tax reforms are hardly to be expected before the next election. Nevertheless, the announced reforms of the new housing pact and the promises of the Prime Minister in his State of the Nation address offer reason for hope. However, one must also be aware that pledges, which could not be kept, were already made in the first housing pact. Especially the non-commitment of the promises in the State of the Nation Address poses a problem for the

implementation of the measures. It is important to set priorities, and housing is increasingly coming into focus.

Alternative forms of housing would also reduce pressure on the housing market. These include space saving shared flats or tiny houses. However, the residents also have to be content with the fact that they cannot live alone in a large villa. A certain realism must be implanted in the population, in the sense that the dream of owning a large home cannot be fulfilled for everyone. At the moment, however, realisation is difficult because of the minimum requirements for house sizes in the development plans of the municipalities, which make the construction of a tiny house obsolete (RTL 2021c). However, there is a non-profit organisation in Luxembourg that promotes the construction of tiny houses. It is clear that the population is becoming increasingly aware of the need to consume less, and that tiny houses also allow greater financial leeway.

Further hope for the future arises from the population's aspiration for greater participation in spatial design. 'The right to the city', which Henri Lefebvre formulated and developed in his programmatic writings 'Le droit à la ville' (1968) and 'Die Revolution der Städte' (1972), has become the rallying cry of many urban actors worldwide (Mengay & Pricelius 2011: 245). This is a reaction to real existing conditions and a push for processes of change. So far, the movement has not reached Luxembourg, but the call for participatory processes is growing here as well.

The foregoing discussion leads us to the conclusion, that the various proposals presented in this paper contain a mosaic of measures whose implementation could lead to the solution of a social problem. Their implementation is however closely linked to Luxembourg's political landscape, which presently offers only partial hope for a paradigm shift.

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7. Annexes

Semi-structured guideline of the expert interview

1. Could you introduce yourself?
2. What is your overall feeling of the state of agriculture in Luxembourg?
3. Is it possible to work as a farmer in Luxembourg without the subsidies by the European Union?
4. How do the farmers apply to the subsidies?
5. What is an average monthly salary of a cereal/ milk/ meat farmer?
6. Is it possible for farmers in Luxembourg to get wealthy?
7. How many hectares are needed for a farm to be viable?
8. Why are there still farmers when they could sell their land and become wealthy?
9. Does the Ministry of Agriculture have data on how much constructible land the farmers own?
10. Is it realistic that farmers who own constructible land could get taxed on it?
11. Why do you think that farmers don't sell their land?
12. Is there a crisis in connection with farmers losing more and more land?
13. Is there a conflict of interest between different ministries like the Ministry of Agriculture, of Planning and of Housing?
14. What will be the evolution with rent land?
15. Is there a possibility for farmers to have a pre-purchase right if private people sell their land that they previously rented to the farmer?
16. Are there farmers that sold their constructible land in Luxembourg and founded a new farm abroad or outside the perimeter?
17. Why is it so important to have farmers in Luxembourg when you just could buy your food from abroad?

Semi-structured guideline of the problem-centred interview

Gudde Moien, mäin Numm ass Louis Bleser an ech sin amgang meng Masteraarbescht am Fach Geographie op der Uni Wien ze schreiwen an zesummen mat dem sozio-ekonomeschen

Fuerschungsinstitut LISER ënnersichen ech de lëtzebuergeschen Wunnengsmaart. Ech gi dobäi ënnerstëtzt vum Antoine Paccoud vum LISER an vu mengem Uni-Prof. Robert Musil. De folgenden Interview wäert dorëmmer goen, wisou Privatpersounen mat Terrain am Bauperimeter, net op dësem bauen an en net entwéckelen. Ech hunn e puer Froen preparéiert, mä et soll éischer wéi e Gespräch verlafen. Den Interview wäert anonym sinn an et wäert spéider och keng Infoe iwwert ären Beruff oder Localiséierung vum Terrain gemaach ginn. Donieft wollt ech lech och froen op ech dësen Interview ophuelen dierft?

Good day, my name is Louis Bleser and currently, I'm writing my master thesis in geography at the University of Vienna and I'm investigating in the Luxembourg housing market in collaboration with the socio-economic research institute LISER. Thereby, I get support from Antoine Paccoud of LISER and my university professor Robert Musil. The following interview will deal with the situation of a private person owning constructible land, but who isn't building or developing the land. I've prepared some questions, but it should rather be a conversation. The interview will be treated anonymously and there will be no further information about the location of the land. Furthermore, I'd like to ask to record the interview?

1. Sidd dir zefridden mat ärer aktueller finanzieller Situatioun?

Are you satisfied with your current economic situation?

2. Wéi sidd dir un ären Bauterrain kumm? (Historie vum Terrain)

How did you get in possession of your constructible land?

3. Sidd Dir eenzeggen Propriétaire vum Terrain?

Are you the only owner of the land?

4. Wat hutt dir vir Pläng mat ärem Terrain?

What are your plans for the land?

5. Wéi eng Persounen hutt dir an är Entscheidung mat abezunn?

Which persons did you include in your decision making?

6. Hutt dir d'Absicht an Zukunft op ärem Terrain ze bauen?

Are you planning to build on your land in the future?

7. Sidd dir bereet ären Terrain ze verkafen, ze tauschen oder selwer ze investéieren?

Are you willing to sell, to swap or to invest by yourself?

8. Braucht dir Ënnerstëtzung oder Berodung zum Thema Baurecht, Wunnengsbau-Modeller oder Subventiounen?

Do you need consultation or support in construction law, in housing models or for subventions?

9. A wéi enger Form wéilt dir bedeelegt gi bei enger méiglecher Bebauung vum Land?

In what way would you like to be involved in a possible development of the land?

10. Fannt dir, dass momentan eng momentan eng Kris um Wunnengsmaart besteet?

Do you think there is a housing crisis in Luxembourg?

11. Et existéieren eng Réi vu Mesuren, déi de Staat kann huelen vir aktiv an de Wunnengsmaart anzegräifen. Wiert dir bereet ären Terrain ze verkafen, wann de Staat d'Stéieren op Bauland géing erhéijen?

There are some policies that the state can take to intervene at the housing market.

Would you sell your land, if the state would raise taxes on constructible land?

12. Spillt et eng Roll an ärer Entscheidung, dass et wichteg ass selwer eppes ze besetzen, en Eegentum ze hunn, wou ee fräi kann drop gestalten?

Is it important for your decision to have an own property which you can shape independently?