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Financial circuits

Cyclicality, leakiness and social housing finance in Ireland and Denmark

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Abstract

The concept of financialisation has been advanced to capture some of the most important political and economic challenges facing contemporary society. Human geographers and urban studies scholars have emphasised the particular importance of the expansion of the financial system for cities through the reduction of housing, real estate and urban space in general to a financial asset, in a manner which intensifies commodification and enhances inequality and volatility within both urban and financial systems. However, a number of scholars have also warned of the danger of treating financialisation in somewhat monolithic terms and the related importance for empirical and theoretical research into the variegated and heterogeneous processes through which the relationship between financial and urban systems takes shape. This article deploys the concept of 'financial circuits' to advance such a research agenda. Halbert and Attuyer (2016) conceptualise financial circuits as the material relations, institutions and practices, which make possible particular sets of relationships between the financial system and urban space in particular contexts. The concept of financial circuits is developed here through an examination of social housing finance in Ireland and Denmark. Quantitative and qualitative data is presented on social housing finance and output between 1994 and 2014. We argue that whether or not social housing finance is public or private is not as significant in explaining divergent outcomes as the nature of specific financial circuits.

Introduction

The Irish housing boom and bust is by now a well-known example of one of the more catastrophic legacies of the global financial crisis. In the years following 2008 one of the most overvalued housing markets on record crashed, revealing a massively over-leveraged banking sector and sparking a sovereign debt crisis and a severe recession. What is less well known, however, is the housing crisis, which has developed since 2012. Following the banking collapse, new housing output in the private sector declined by as much as 90%. At the same time, unemployment increased and incomes declined. Most importantly, through successive austerity budgets funding for social housing was slashed by more than 80% between 2008 and 2014, with a consequent decline of output in the social housing sector of between 80% and 90%. The Irish housing system has essentially been in free fall since 2012, with little sign of any change on the horizon. The most immediate consequences have been a dramatic increase in homelessness and acute difficulties within the private rented sector. The latter has absorbed demand arising from the lack of social housing and owner occupied housing. Rents have increased by more than 60% between 2012 and 2017 and demand is intense (Daft.ie, 2017).

The literature on the Irish property boom and bust has explained the Irish experience by focusing on the role of private finance and the financialisation of property (O'Riain, 2014; Downey, 2014; Kelly, 2014). This literature emphasises the massive expansion of credit linked to real estate and the consequent transformation of real estate into a financial asset. There is no doubt that this process of financialisation is key to understanding the Irish experience. However, one of the most important processes driving the current crisis in the housing system is the absence of *public funding* for social housing. This initial observation gains further importance when we consider the Danish experience. Denmark shares many traits with Ireland as a small, open EU economy. And like Ireland the Danish housing market experienced a property boom in the mid-2000s followed by a subsequent house price crash and a fall off in output within the private sector. The Danish case was significantly less severe than its Irish counterpart: house prices fell by 20% rather than 50%. And while a number of Danish banks received financial support this was not on the scale of the system-wide bailout received by the Irish banking sector. In terms of the focus of this paper, however, most notable is the fact that in the years following the global financial crisis, funding and output in the Danish social housing sector has increased significantly, and this is one important reason why Denmark has not experienced a housing or homelessness crisis in recent years. Importantly, the Danish social housing system is almost 90% privately financed.

The point of departure for our argument is that Ireland's publicly funded social housing system has failed to act as a buffer to the failure of the private market and to produce an adequate supply of social housing, while the privately financed Danish system made possible an expansion of affordable, not-for-profit housing in the wake of the crisis. What might first appear as something of an anomaly is in fact an invitation to consider the role of social housing finance beyond the dichotomy of public and private finance. It is also an opportunity to consider the relationship between finance and the built environment beyond the more familiar territory of home ownership and mortgage markets and beyond those countries most dramatically affected by the crisis (where research has tended to focus). In taking up this opportunity this paper draws on the work of Halbert and Attuyer (2016) and Sokol (2015) to develop the concept of 'financial circuits'. In what follows we employ this concept in order to bring attention to the material institutions, practices and relations through which finance flows through the built environment. Rather than focusing on whether finance is 'public' or 'private', we are more interested in *how* finance interacts with the built environment. Neither public nor private finance are homogenous but rather internally differentiated spheres, which, as we show below, have varying, and sometimes unexpected, relationships with the commodification and decommodification of housing. By drawing out and analysing social housing finance circuits we also seek to shed light on the important challenge of imagining alternatives to commodified and financialised housing systems.

Our core argument is that whether or not social housing finance is public or private is not as significant in explaining divergent outcomes as the nature of specific financial circuits. In order to conceptualise these differences we develop the concepts of 'cyclicality' and 'leakiness'. These concepts capture the interaction between particular financial circuits and wider dynamics within the housing system and indeed the economy at large. We argue that the dynamics of Irish social housing can be understood in terms of a *pro-cyclical* and *leaky* financial circuit, while its Danish counterpart can be understood as *counter-cyclical* and *contained*.

As noted, this paper looks at social housing finance in two countries: Ireland and Denmark. These case studies were selected as they both represent small open economies, which experienced housing bubbles and financial distress during the relevant period but the nature and experiences of their social housing systems is significantly different, as indeed are their respective housing regimes. Ireland represents a strong home ownership society with very low levels of social housing and where social housing is highly residualised. Denmark approximates the classic 'unitary' model described by Kemeny (1995), with a large and high quality social rented sector catering for a wide spectrum of society. The analysis presented below is based on extensive empirical research. Data has been provided by public institutions and government agencies in Ireland and Denmark. In addition, we conducted more than 30 qualitative interviews with housing providers, policy makers, private financers, housing experts, central bank officials and other stakeholders. We focus on the period between 1994 and 2014, which encompasses the boom/bust period associated with the global financial crisis. This allows us to identify how the financial circuits in both Ireland and Denmark interacted with and were shaped by developments in the wider housing finance system during this period.

The paper begins by engaging with the literature on the financialisation of housing in order to develop the concept of ‘financial circuits’ and to set out its conceptual and critical contribution. We then provide an overview of Ireland‘s and Denmark’s respective housing systems. The third section examines the ‘sources’, ‘channels of finance’ and ‘revenues’ that constitute the social housing financial circuits that form the main object of our research. We then analyse these circuits and explore their implications in terms of supply and interaction with the wider housing system and economy.

From the financialization of housing to ‘financial circuits’

The interaction between the financial system and the built environment is at the heart of understanding housing systems in contemporary cities and the relationship between housing and wider economic processes. This interaction has been analysed in the literature on the ‘financialization of housing’, in which financialisation has been defined as “the increasing dominance of financial actors markets, practices, measurements and narratives, at various scales, resulting in a structural transformation of economies, firms (including financial institutions), states and households” (Aalbers quoted in Wijburg and Aalbers, 2017: 2). Perhaps the most important theme that has emerged from this literature is the transformation of housing into a ‘financial asset’, i.e., an income-yielding asset, which can be easily traded (Coakley, 1994; Guironnet and Halbert, 2014). In the world of commercial real estate (e.g. the office and retail sectors), direct real estate assets such as office blocks and shopping centres are traded by financial actors as assets with potential for capital appreciation while generating regular income streams in the form of rents (Guironnet and Halbert, 2014). In terms of housing, the focus has been on the trading of income streams generated by mortgage debt through the process of securitisation. The growing importance of REITs, a form of property investment company, which issues shares, similarly makes possible trading in income stream arising from residential and commercial real estate (Rutland, 2010; Beswick et al 2016). Public intervention in financial systems in the wake of Europe's banking crisis has led to 'bad banks', or Asset Management Companies, deleveraging billions of euro in distressed real estate assets, with private equity firms and hedge funds acting as the principal investors (Byrne, 2016a; 2016b).

The growth of the volume of capital flowing into real estate markets is linked to the general expansion of the financial system. This is predicated on the widespread deregulation of financial system over recent decades and low interest rate policies pursued in numerous countries (Aalbers, 2015). The formation of the Eurozone played an extremely important role for European countries as the single currency led to persistent low interest rates, a significant increase in cross-border flows of capital and the elimination of exchange rate risk (Flassbeck and Lapavitsas, 2015). This effected so-called peripheral countries in particular, such as Ireland and Spain, were high interest rates had been the norm prior to the Euro (Norris and Byrne, 2015). While financial deregulation and the development of the Euro made the expansion of the financial system possible, real estate served as the crucial avenue through which this expansion was able to take place. This has been shown particularly in the literature on the political economy of the Eurozone, which has emphasized the role of real estate in the expansion of cross border flows of capital, particularly flows from the so-called core member states to the periphery (López and Rodríguez, 2011). Macro-economic dynamics, however, are significant not just as causal or contextual factors shaping the financialization of housing. Financialized real estate and housing in turn shape macroeconomic dynamics, particularly in stimulating aggregate demand (López and Rodríguez, 2011; Norris and Byrne, 2015; Downey, 2014).

While the literature on the political economy of financialisation has identified the macro-economic processes and impacts of the financialisation of real estate and of housing, research within human geography and urban studies has been particularly useful in identifying the material processes through which finance has penetrated the built environment. Housing and urban development policies (Fields, 2015; Guironnet and Halbert, 2014), government financial interventions (Gotham, 2006; Ashton, 2011), and changing cultures, subjectivities and governmentalities (Langley, 2007; Garcia-Lamarca and Kaika, 2016; Di Feliciantonio, 2016) have been highlighted in this regard. Much like earlier work on neoliberal urbanism (Brenner et al, 2010), these insights are crucial in emphasising that the process of financialisation is not a global process unfolding in a homogenous and uniform fashion. Rather, it varies across space and time and is both made possible by and shaped by material institutions, relationship and practices by both state and market actors in ways which in turn impact both on macroeconomic dynamics and on housing systems and urban systems more generally (Sokol, 2015). Financialisation is not only varied and uneven, it is also contested (Fields, forthcoming). A new and growing body of scholarship is analysing and theorising the manifold ways in which social movements and citizens are challenging the logic of financialisation (Fields, forthcoming; Di Feliciantonio, 2016a; 2016b; Garcia-Lamarca, 2017; Garcia-Lamarca and Kaika 2016; Andreucci et al., 2017), and opening up alternative ways of relating to the built environment (Di Feliciantonio, 2016; Fields, forthcoming; Bresnihan and Byrne, 2015).

Nevertheless, there are a number of issues with the literature on the financialisation of housing, which require further conceptual and empirical clarification. First of all, the geographical and sectoral focus of the existing research is somewhat imbalanced in that US and UK home ownership and mortgage markets are over-represented (Sokol, 2015; Wijburg and Aalbers, 2017). More generally, research has focused on ‘housing markets that were heavily exposed to the global financial crisis' (Wijburg and Aalbers, 2017: 2). Wijburg and Aalbers (2017: 2) also suggest that 'the financialization literature generally struggles with defining how processes of financialisation are processed in other national contexts'. There has been a tendency to draw conclusions around the general logic and trajectory of the process of financialisation from research on these markets, leading for example to an over-emphasis on the importance of securitisation within the financialisation of housing and in terms of driving the boom/bust dynamics of the last decades or so. Second, and with some notable exceptions (see Fields (2015) on the rental sector and Wainright and Manville (2017) on social housing), there has also been something of an imbalance in terms of a focus on the owner occupancy sector and even a tendency to implicitly exclude the possibility of financialisation within the private rental sector and even more so within social housing (Wijburg and Aalbers, 2017). Finally, the literature has focused on the extension of financial logics and processes in ways which reinforce, reproduce and extend the logics of commodification, speculation and privatisation (e.g. Rolnik, 2013; López and Rodríguez, 2011; McCabe, 2011; Hodkinson, 2011; Wainright and Manville, 2017). This is unsurprising and even welcome given that these processes were at the heart of the global financial crisis and continue to drive urban and economic inequality. However, instances were private finance is used to extend *decommodified* forms of urban production have received almost no attention. The case of social housing in a number of European countries (such as Denmark, discussed here, and Austria, see Norris and Byrne, 2017) evidences a highly developed use of private finance to maintain and extend decommodified, non-market housing. Such instances represent important case studies, which will enable a fuller and more nuanced understanding of the process of financialisation of housing.

Furthermore, examining such instances is illustrative in relation to the task of generating alternative and more equitable housing systems. The existing literature has developed powerful critiques of financialisation but perhaps paid less attention to how we might transform the relationship between finance and the built environment in more democratic and socially just ways. The literature on the financialisation of infrastructure has touched on these issues, with some writers arguing for the need to explore how we might leverage private finance to meet social goals and challenges, such as environmental adaptation and sustainability (Castree and Christophers 2015). As Castree and Christophers (2015: 379) argue, “[t]here is a need for analysts and policy makers not only to understand these decisions but to shape them to realize important noneconomic goals”. Examining existing examples in which private finance is linked to processes of decommodification and non-market provision is thus not just useful in the development of a more nuanced understanding of the financialisation of housing, it can enhance the critical purchase of critiques of financialisation by contributing to our understanding of alternative models.

In what follows we contribute to some of these challenges through a comparative study of social housing finance in two countries with contrasting housing systems and indeed experiences of the global financial crisis. We focus on social housing as a tenure, which is primarily outside the market and in which, in the case of Denmark, private finance is used to deliver non-market housing.

In order to respond to some of these challenges this articles draws on the concept of ‘financial circuits’, developed by Halbert and Attuyer (2016), as well as Martin Sokol’s (2015) work on ‘financial chains’. Halbert and Attuyer conceptualise ‘financial circuits’ as “sociotechnical systems that channel investments in the forms of equity and debt into urban production” (Halbert and Attuyer, 2016: 1347). Similarly, Sokol (2015: 2) theorizes what he calls ‘financial chains’ as both ‘channels of value transfer’ (between people and places) and ‘social relations that shape socio-economic processes and attendant economic geographies’. Debt, in particular, represents a contractual mechanism through which investment is advanced and a return obtained and as such makes possible the transferring of value across space and time between different actors. One of the strengths of these concepts is that they allow us to displace some categories and distinctions, which may obscure more than they reveal. For example, Halbert and Attuyer (2016: 1348) argue that we must “go beyond simplistic analytical distinctions, such as ‘public subsidies’ versus ‘private investments’ and […] scrutinise financial circuits as relevant factors to the explanation of urban dynamics”. Focusing on processes and practices and being attentive to how financial circuits traverse the domains of public, private and ‘third sector’ makes possible critical analysis of the particular forms of relationship between financial flows and the built environment.

The section below develops on insights of both the term ’financial chains’ and that of ‘financial circuits’, however we employ the latter term to emphasise that finance must be channelled into a particular form of investment (in this case the built environment) and *back*, i.e. garnering a return for creditors and investors. The term circuits thus emphasises the flow of finance in and through the built environment[1].

To a large extent attendance to socio-technical systems which transfer value across time and space has been implicit in research and theory within critical geography and urban studies. In relation to the issue of financialization and real estate, we could point to work of Kevin Fox Gotham (2006) who has looked at the role of state interventions in the financial system and particular at the production of commercial backed mortgage securities in order to understand how public and private processes make possible new pathways through which global finance, at different scales, can flow into local real

[1] It should be noted that the term financial circuits here should not be seen as similar to Harvey’s notions of primary and secondary circuits of accumulation. Financial circuit is a concept used to shed light on the nature of particular financial flows, whereas Harvey’s work is a theorisation of structural macroeconomic dynamics of the capitalist system and specifically the geographic dimensions thereof.

estate. Similarly, Desiree Fields (2015) pioneering work on the financialization of the rental sector emphasises material processes and practices from the employment of apps to decentralise property investment decisions to new forms securitisation. Nevertheless, the concept of financial circuits allows us to draw out and make explicit the material processes and linkages at stake here and bring these to the fore in our analyses.

Social Housing in Ireland and Denmark

Denmark

Social housing has been and continues to be a central facet of the Danish welfare state. Social housing makes up over 20% of all dwellings and refers primarily to housing provided by not-for-profit housing associations, usually referred to in Denmark as Housing Organisations (HOs). The Danish system is 'generalist' in the sense that all citizens are eligible for social housing and it is not targeted at those in greatest need. The social housing sector is comprised of 700 HOs owning 570,000 dwellings (Gomez Nielsen, 2010; Scanlon and Vestergaard, 2007). These are divided into almost 8000 estates, each of which is financially independent[2].

[2] Each housing development is a discrete legal and financial entity with its own board of management. Each estate must be self-financing, in that the associated costs must be covered by the rental income of the estate.

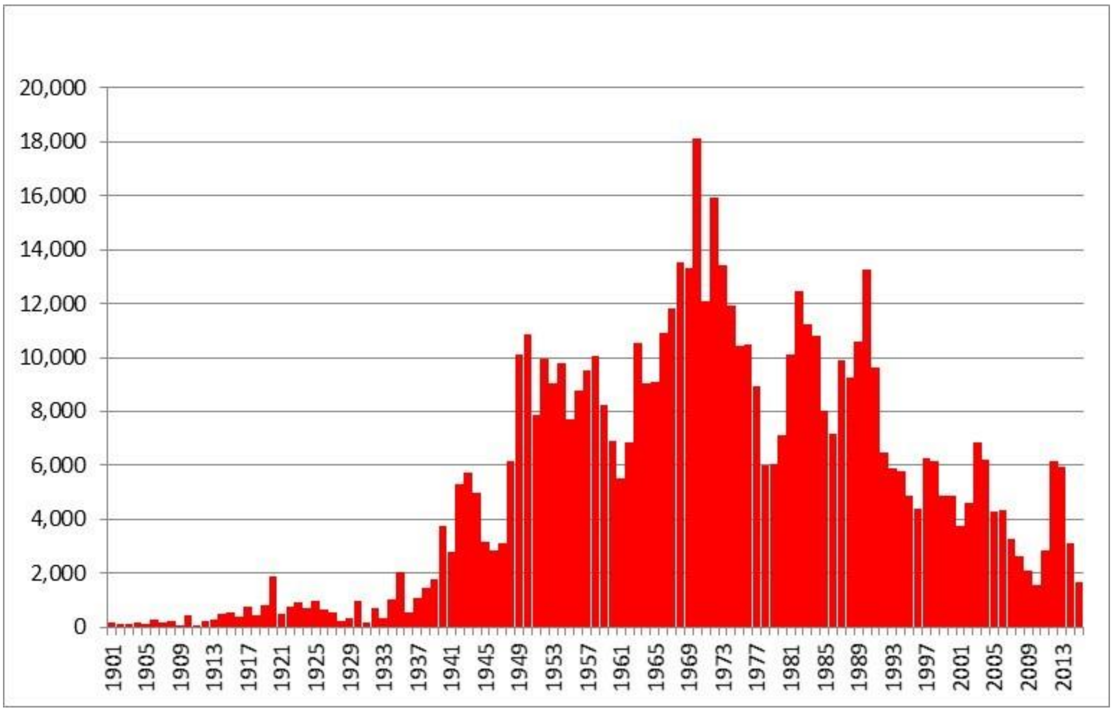

Figure 1: Social housing output by year of construction (1901 -2015). Source: Danish Transport, Construction and Housing Authority.

HOs vary in size from over 30,000 units to less than 10 (Scanlon and Vestergaard, 2007). They are defined by their social mission and their limited remit: their activities must stay strictly within the realm of the provision of cost rental housing. HOs are subject to national legislation, which regulates the sector and are supervised by city councils, including approving budgets and accounts (Tsenkova and Vestergaard, 2011). The construction costs associated with new social housing projects undertaken by HOs are 'capped' by central government. Danish HOs are exceptional in the strong role played by tenant democracy in their governance and organisational structure. Since 1984, tenants have had the right to elect the majority of seats on HO boards and all seats on estate boards (Tsenkova and Vestergaard, 2011).

City councils are crucial to the provision and governance of social housing. As well as playing a general supervisory role with regard to the social housing sector as a whole and HOs in particular, city councils must approve any new social housing development. This means providing oversight with regard to the level of demand, project costs and overall congruence with wider planning objectives. City councils thus play an important role in ensuring that social housing is only built when and where it is needed, which in turn ensures that adequate demand exists for new social housing and thus helps to avoid issues around vacancy and the financial implications thereof.

In terms of the private housing market, Denmark has a liberal financial regime and a growing reliance on mortgage-backed home ownership, especially since the 1990s and 2000s (Mortensen and Seabrooke, 2008). There has been both favourable tax treatment for mortgage holders and owner-occupiers and financial deregulation in the 1990s and 2000s. These years saw a growth in flexible rate and interest only mortgages as well as a shift towards a general political discourse favouring home ownership and property as wealth creation and investment over and above housing as a right (Mortensen and Seabrooke, 2008). These shifts were linked to the housing boom in Denmark, which burst with the GFC of 2008. In 2006, it was estimated that the Danish housing market was overvalued by as much as 20%. Increasing property prices during the 2000s were also a driver of strong economic growth and increased consumption in Denmark (Mortensen and Seabrooke, 2008).

Ireland

Ireland has been conceptualised as a property-based model of welfare state associated with a ‘home ownership society’ (Norris, 2016). From its foundation the Irish state provided a myriad of subsidies to the owner occupied sector allowing it to reach one of the highest home ownership rates in Europe by the 1970s, despite its relative economic under development. Throughout most of the 20th century the Irish state also directly provided high levels of social housing. However, under the tenant purchase scheme, a form of ‘right to buy’ *avant la lettre*, dwellings have been continually privatised right up until the present day (Norris, 2016). At least two thirds of all social housing built in the 20th century has been privatised (McCabe, 2011). As such, social housing has operated to a significant extent as a vehicle for the further expansion of homeownership, especially among the working class, rather than as meaningful alternative to it. As a consequence, by the early 2000s social housing in Ireland represented just 8% of households while home ownership had reached 80% (Byrne and Norris, 2017).

Although historically local authorities raised loan finance to fund social housing provision, since the late 1980s the sector has been entirely funded by capital grants from central government (Norris, 2016). These grants are provided to local authorities and housing associations (referred to as Approved Housing Bodies, or AHBs). The former make up by far the largest share, with 125,000 dwellings. Government policy has been characterised by a growing emphasis on AHBs since the 1990s and recent years in particular have seen them take on prominence in the delivery of new social housing. However, they currently make up just one fifth of all social housing (Byrne and Norris, 2017).

For both local authorities and AHBs housing is allocated on the basis of a waiting list and a housing need assessment. Waiting lists for social housing are extremely long, with close to 100,000 households currently registered. Social housing in Ireland is highly residualised as a result of low levels of supply, the selling of units to tenants who can afford to buy and the needs based approach. Partially as a result of this, the sector is stigmatised (Carnegie, Byrne and Norris, 2017). The short fall in affordable housing is in part made up for by wide spread subsidies for the private rental sector.

In recent years (since 2011), the Irish system has begun a process of reform which aims to transition to a greater role for private finance and a greater role for AHBs.

However, this system has only begun to come into effect since 2015 and for the moment has delivered few units, and is therefore is not considered here.

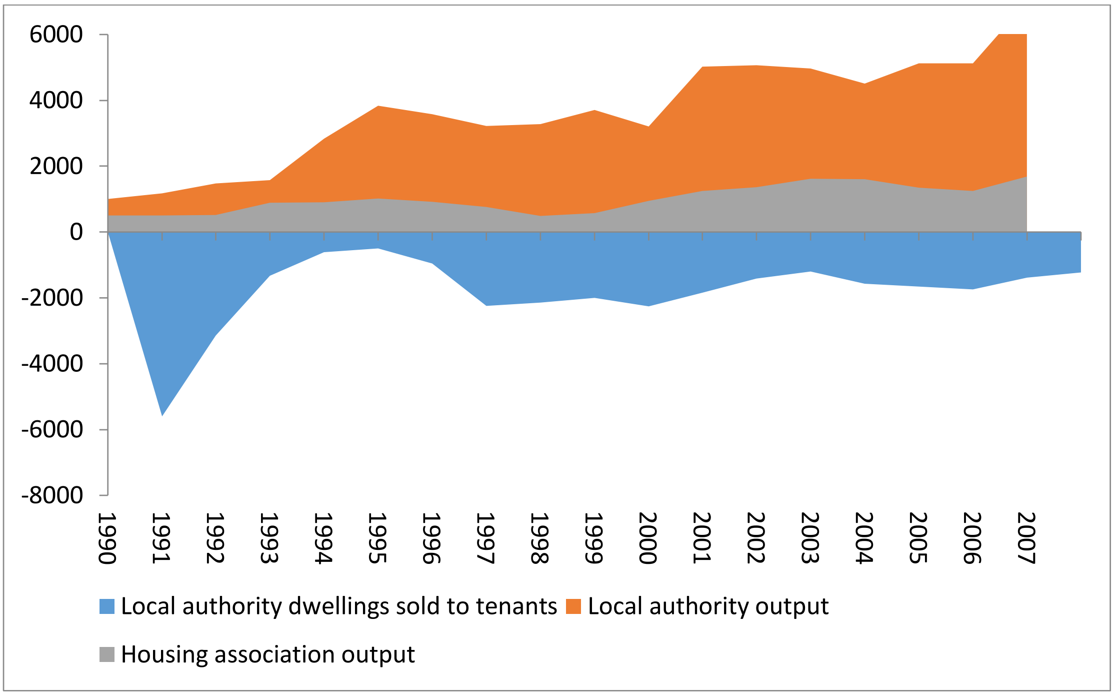

Figure 2: Output of Social Housing and Local Authority Housing Sold to Tenants, 1990-2007. Source: Department of Housing, Planning and Local Government (various years). Note: local authority dwellings sold to tenants are lost from the social housing stock therefore they are represented as a negative number in this graph.

In the early 2000s, the home ownership focused nature of Irish housing policy collided with a wave of cheap credit. The latter was largely brought about through integration into European Economic and Monetary Union, financial deregulation, and reckless behaviour within the financial sector and regulatory authorities (Kelly, 2014; Norris and Coates, 2014; O'Riain, 2014). This led to one of the most intense house price boom and busts in recorded history – with house prices rising by 300% in nominal terms and suffering a subsequent 50% collapse in value. The collapse of the banking sector soon followed. Since then the Irish housing system has entered into a period of free fall with output collapsing in both the social housing and owner occupancy sectors and dramatic levels of demand consequently piling up in the private rental sector (Byrne and Norris, 2017). This has resulted in rents increasing by 60% since 2010 in Dublin (Daft.ie, 2017), despite almost stagnant wages, and a homelessness crisis. Housing supply remains a chronic issue and the scale of the crisis has revealed the extent to which government lacks mechanisms to shape the supply of housing (Norris and Byrne, 2017; Healy and Goldrick-Kelly, 2017).

Social housing financial circuits

This section examines social housing finance in our two case study countries. It begins by describing social housing finance in terms of the financial circuits through which housing investment occurs. These are examined in terms of three steps within the financial circuits of social housing in Ireland and Denmark respectively. We term these steps here as sources, channels of finance and rents.

Sources

Irish social housing during the relevant period was funded exclusively through capital grants from central government. These grants were provided to local authorities and housing associations to provide general needs social housing as well as housing for groups with specific needs, such as the elderly. Funding was provided through the Department of the Environment’s capital spending budget and covered the full costs of land acquisition and construction or, alternatively, acquisition of completed dwellings produced by the private sector. As such, funding for social housing was exclusively raised by central government through taxation or borrowing.

The Danish system is characterized by a much greater role for private finance with close to 90% of social housing finance currently being provided by Danish mortgage banks. This portion of social housing finance is raised through the Danish bond market, specifically through the issuing of covered bonds. Danish mortgage banks, which are somewhat unique, do not hold any deposits and raise all of their funding through the issuing of covered bonds. These are purchased primarily by domestic investors such as commercial banks (who use covered bonds as part of their liquidity management strategies) and pension and insurance funds (who are attracted to long-term low risk returns). Covered bonds issued by mortgage banks are used to fund both residential mortgages in the owner-occupier sector (which makes up approximately 70% of mortgage bank lending) and commercial mortgages to Housing Organizations (which make up approximately 5%). Covered bonds are considered very low risk due to the highly regulated nature of the mortgage bank industry and the history of very low losses in the sector, and yields are typically quite close to those of Danish government bonds.

In addition, approximately 10% of a given social housing project will be funded by a public loan from the local authorities. These take the form of an interest free bullet loan normally paid off when the mortgage loan has been repaid in full (i.e. approximately 30-year loan term) and are funded through local authority budgets. Tenants in social housing must also pay a deposit equal to 2% of annualized construction cost, which forms part of the funding system.

Channels of finance

In the Irish case as social housing funding is provided from central government it is simply allocated to local authorities and housing associations. As there is no loan component and only one source of funding this is relatively straightforward and control over the level of funding provided rests with central government and is primarily shaped by the allocation of the Department of the Environment's capital spending budget.

In contrast, the Danish system is more complex and is designed to channel finance towards Housing Organizations at low cost. This operates through three principal mechanisms: public loan; central government subsidy; and regulated private finance. The public loan is provided by the municipality subject to approval of a given housing project and demand levels. The level of the public loan is determined by central government and currently stands at 10%. The central government subsidy is provided by central government and ensures that costs for the housing organization (and therefor for the tenant) are fixed at 2.8% per annum. This means that the portion of loan repayments, which exceed 2.8% per annum are covered by central government[3]. Thus, the cost of finance for the housing organization is effectively determined by government rather than by the market and, similarly, housing organizations are not exposed to interest rate risk nor will increases or decreases in market interest rates effect their willingness or capacity to initiate new projects. The 2.8% rate is indexed to wages and prices and as such the contribution of housing organizations grows over time and that of government reduces. Finally, the margin, which mortgage banks can charge when issuing commercial mortgages to housing organisation is capped at 0.27%. This figure is determined by central government following negotiations with the mortgage bank sector. As such, financing costs for the social housing sector are determined by the market price of covered bonds plus 0.27%. These three mechanisms combined shape the flow of finance towards social housing.

Revenue

[3] Where 2.8% is greater than the market costs for the housing organisation a negative subsidy comes into effect.

Financial circuits are, as the name suggests, circuits; they involve flows of finance, which move through the built environment and circulate within the housing system and the wider economy. As such, it is important to examine not just the money that goes into social housing but the revenue that the latter generates. This primarily takes the form of rents and equity and this aspect of the financial circuits if social housing is decisive for tenants, for government and for private investors.

In terms of social housing in Ireland, tenants pay rents, which are income related. The mechanism for calculating rent levels varies somewhat but across the country it is approximately set at 15% of income. Due to its highly residualised nature, the social housing sector contains a much higher degree of low-income households than the average. As such, rent levels are relatively low with the average rent per dwelling around €200 per month as opposed to the Danish average of €689 per month. As a result, tenants' rents are primarily used to cover the cost of property management and maintenance rather than covering to the cost of construction.

Most importantly, the equity created through social housing investment is in many cases privatised through an extensive and long-standing tenant purchase scheme. This scheme allows tenants to purchase their dwellings at below market value[4]. This has the effect of transforming a form of public investment into a privately owned asset, thus creating equity and wealth for participating households. Ireland's social housing privatisation scheme also has the effect of transforming social housing into a mechanism for expanding the stock of owner occupied and private rental dwellings[5].

[4] Tenants enjoy a 3% reduction in the market price for each year they have resided in the dwelling, up to a maximum of ten years.
[5] A considerable portion of ex-local authority social housing dwellings are sold on to landlord investors.

In contrast, rents paid in the Danish rental sector are cost rents which are set at such a level as to cover the cost of social housing provision, and rents are indexed to the cost of living and as such increase in line with inflation. Rents thus gradually increase over time. After 20 years the form of indexation is adjusted and rent increases are moderated. After 30 years the loan term comes to an end and the loan will be repaid. At this point tenants continue to pay rent as if loan repayments continued. The additional revenue this generates accrues to central government for a period of 10 years. After 40 years rents continue to be paid as if loan repayments were ongoing, however the revenue generated no longer accrues to central government but is divided between a local 'reserve fund' (which obtains 1/3 of this revenue) and the National Building Fund (which obtains 2/3s)[6]. After 45 years, indexation no longer applies and rents remain stable. Rental streams arising from social housing thus cover the costs of both public and private investors (i.e. local and central government and the mortgage banks) and at the same time generate additional revenue, which will ensure that the self-financing component of social housing grows over time.

[6] The National Building Fund is an independent body established in 1967 with the chief objective of ensuring that revenues derived from social housing tenants were funnelled back into housing investment. It uses revenue generated through tenant contributions to fund new social housing output, renovation and urban regeneration projects.

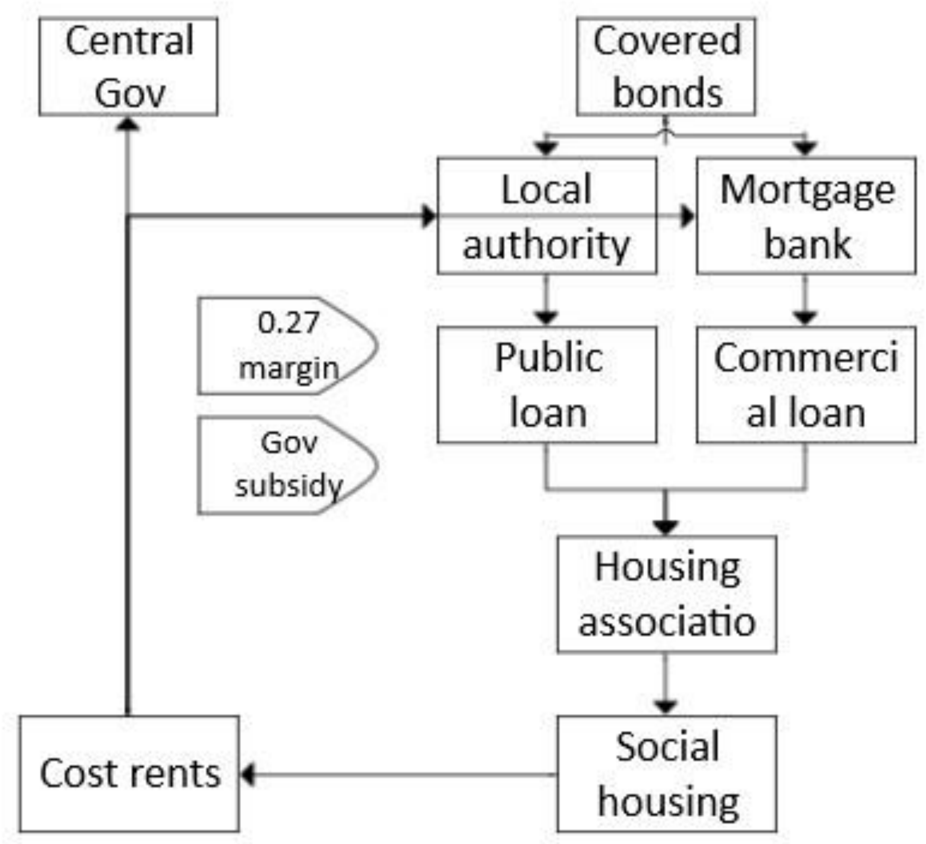

Figure 3: Danish social housing finance circuit

Figure 4: Irish social housing finance circuit

Analysing financial circuits: cyclicality and 'leakiness'

The Danish and Irish social housing systems can, as demonstrated above, be understood as alternative financial circuits through which finance flows. These respective circuits are characterised by diverse sources of funding, channels of finance and forms of rent and revenue generated. In both cases public, private and third sector actors play a role and the circuits can be understood as traversing the distinction between these three stakeholders. Below we analyse how these divergent circuits interact with wider housing system dynamics and wider economic dynamics during the period encompassing the run up to and aftermath of the global financial crisis. We argue that whether finance is public or private is not as significant as whether or not the financial circuit in question causes investment to remain within social housing or to spill out into the private market. In this sense, what is most important is the relationship and interface between social housing finance circuits and the wider housing system and economy.

In order to conceptualise this we develop the concepts of the ‘cyclicality’ and ‘leakiness’ of financial circuits. Cyclicality refers to the extent to which fluctuations in volumes of finance and output of dwellings in the social housing sector mirrors that of the private housing market. Here we are interested in whether or not social housing finance is shaped by the same factors, which drive the availability of finance for, and supply of, private housing. Most importantly, cyclicality brings into focus the extent to which social housing in a given context is able to provide a counterbalance or buffer to the ups and downs of the private housing market. The cyclicality of social housing finance is closely tied to the extent to which government is in possession of mechanisms to shape the supply of social housing which are autonomous, or relatively autonomous, with regard to broader dynamics in the financial and housing system. Cyclicality relates not just to the interaction between social housing and the private housing market, but also to the economy as a whole, in particular economic growth and employment. In classical Keynesian fashion, we can also consider the extent to which social housing can act to stimulate economic activity and demand during periods of high unemployment and weak economic growth or recession. The concept of leakiness also functions to capture the relationship between financial circuits and the wider housing system and economy. Here however, we are interested in how investment flows through a financial circuit and the extent to which it remains within that circuit or seeps out. The capacity for investment in social housing to seep out of the social housing sector itself ultimately relates the extent to which value created through investment in social housing is captured by actors outside the sector in the form of rental incomes, equity or interest payments. Here we describe as ‘contained’ financial circuits within which there is little or no possibility for investment to seep out and be captured by other actors and therefor investment remains within the sector. We describe as ‘leaky’ financial circuits, which, in contrast, create value which leaks out of social housing and into the private housing market and/or the wider economy.

Pro-cyclical and counter-cyclical financial circuits

The most immediate divergence between the Irish and Danish experience is the capacity of the latter to deliver adequate levels of affordable housing and to thus maintain a large and sustainable social housing sector. Overall, the Danish system produced over 130,000 units between 1990 and 2014 while its Irish equivalent produced 103,000 units. However, during the same period 36,000 social dwellings were sold in Ireland under the tenant purchase scheme. As such, the net gain amounts to around 67,000 units. This must also be taken in the context of the pre-existing large social housing stock in Denmark versus the Irish situation in which roughly two thirds of all social housing built in the 20th century was privatized. But more importantly, for the purposes of the present analysis, our case studies exhibit very different dynamics in terms of the cyclicality of social housing provision vis-à-vis the wider housing market and the economy. Irish social housing, as we have argued elsewhere (Byrne and Norris, 2016) is strongly pro-cyclical. Weak output within Irish social housing combined with high levels of tenant purchase has meant the sector has become increasingly residualised over the relevant period. Research has demonstrated that the revisualisation of social housing has been an important factor driving the expansion of both home ownership and the private rental sector and thus fed into the housing boom of the late 1990s and early 2000s (this is discussed further below). Ireland’s ‘dualist’, to use Kemeny’s term, housing system gives households little choice with regard to choosing a non-market form of housing thus ensuring that almost all housing demand occurs within the private housing market. In contrast, Denmark’s ‘unitary’ system means that a significant number of households can chose to meet their housing needs outside the market. This may help to explain the fact that Danish house price inflation during this period was significantly lower than in Ireland. In considering this of course many different factors come into play, including the supply of credit and regulation of mortgage issuing (including LTV ratios, nature of mortgage products etc.); Eurozone membership; taxation; and so on. However, the existence of a relatively large non-market sector can only have dampened demand for mortgages within Denmark, and indeed evidence from other countries bears this out (e.g. Austria, see Amann et al., 2009).

Figure 5, which compares house prices and social housing output in Ireland, demonstrates that output was low when the Irish economy and housing market were weak in the early 1990s; social housing provision expanded radically during the Celtic tiger boom in the mid-1990s and early 2000s but it contracted radically (by 92% between 2008 and 2014) following the global financial crisis and housing market crash at the end of this decade. This coincidence between increased social housing output and the property boom helped to further stimulate a construction sector that was arguably already overstimulated. In addition, investing in social housing when land and house prices were at historic highs was unlikely to provide value for money. From 2008 the sharp contraction in social housing output obviously intensified the negative economic effects of the concurrent collapse in commercial house building, particularly the contraction in construction employment.

Figure 5: House Prices and Social Housing Output Ireland, 1990-2014. Source: Department of Public Expenditure and Reform (various years) and Department of the Housing, Planning and Local Government (various years).

These pro-cyclical tendencies were further reinforced by increasing reliance on the private rented sector to accommodate low-income households, which the help of a housing allowance called Rent Supplement. This measure was introduced in 1978 and take-up was initially low, but began to climb as the economy boomed in the early 1990s to the extent that between 1994 and 2004 Rent Supplement claimant numbers increased by 101%, whereas the number of social housing tenants increased by just 15.2. The growth in Rent Supplement claimants also made an important contribution to driving house price inflation by enabling more buy-to-let landlords to enter the housing market and inflating rents. Norris and Coates (2014) argue that lending to this cohort was a key driver of the Irish house price bubble - the proportion of outstanding mortgages held by residential landlords increased from 18.8 to 26.9% between 2004 and 2008, while the proportion held by homeowners fell from 80.0 to 71.9% concurrently.

The pro-cyclical nature of Irish social housing is directly related to the financial circuit within which it is embedded. The Irish model of using central government capital grant funding for social housing concentrates almost all of the substantial costs of provision in the procurement phase and exposes the sector to fluctuations in the strength of central government finances and also to changes in central policymakers' spending priorities.

In practice, these developments meant that Irish social housing output was very low in the early 1990s in large part because central government finances were stretched. Output rose as central government finances improved in the late 1990s and early 2000s and public capital spending on social housing provision rose from €232 million in 1995 to just below €1 billion in 2005 (Department of Public Expenditure and Reform, various years). Finally, output virtually disappeared once the property and financial crisis brought about a sharp deterioration in government finances. This dynamic is aggravated by the fact that neoliberal and austerity policies tend to target cutbacks at capital rather than current spending (Hardiman and MacCarthaigh, 2013).

The Danish model, in contrast, is characterised by a strongly counter-cyclical dynamic, which has led to almost the opposite experience in terms of social housing output during the period. As indicated by Figure 6 below, social housing output experienced significant fluctuations during this period. Specifically, from 2007 to 2010 social housing output fell to roughly half its previous output level. This was followed by a sharp rise between 2010 and 2015. As can be seen from Figure 6 below, these fluctuations run counter to the dynamics in the private housing market. Between 2005 and 2010, Denmark experienced an exponential rise in private housing output, particularly in the owner occupied sector, followed by the bursting of the house price bubble in 2008/2009 and a marked decline in output from 2010. Social housing output levels fluctuated in a manner, which responded to and offset the dynamics within the private housing system. Where the latter was characterised by weak output social housing output increased, and vice versa. This is particularly important for the years following 2010 when output of private housing declined precipitously, from roughly 15,000 units in 2007 to less than 5000 units per annum between 2010 and the present. Social housing output was rapidly ramped up from 1,559 units completed in 2010 to approximately 6000 units in 2011 and 2012 and 2013. This has ensured that overall housing output has remained at adequate levels and the rapid decline of the private housing sector has not led to wider crisis within the housing system or with regard to homelessness, as has been the case in Ireland.

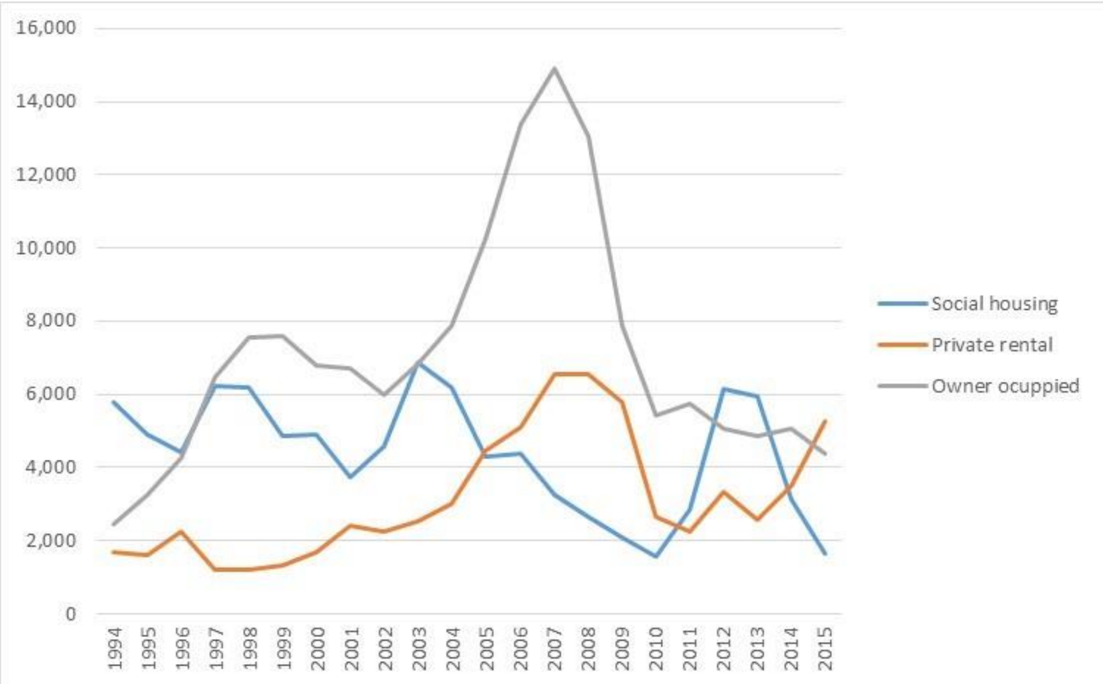

Figure 6: Total Housing Output Denmark (Excluding cooperative sector) 1994 – 2015.

Source: Danish Transport, Construction and Housing Authority.

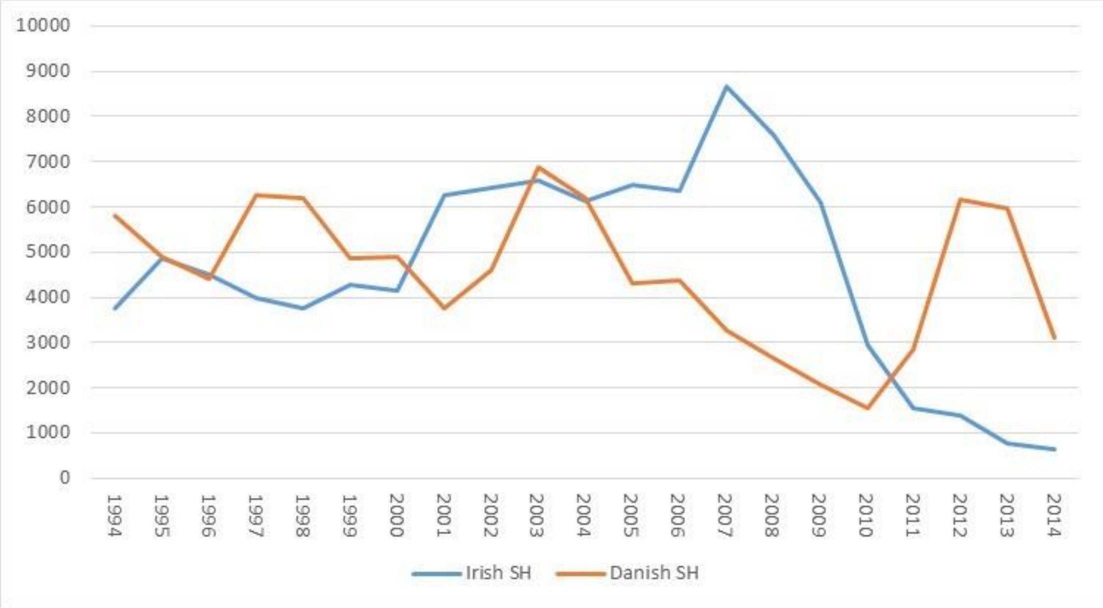

Figure 7: Housing output in (dwellings completed) Ireland and Denmark 1994 – 2014. Source: *Danish Transport, Construction and Housing Authority and the Irish Department of Public Expenditure and Reform (various years) and Department of the Housing, Planning and Local Government (various years).*

The issue of cyclicality is once again directly linked to the nature of the Danish social housing financial circuit. First of all, fluctuations in output are controlled by government via the mechanism of the public (municipal) loan. As noted above, the size of this loan vis-à-vis the other components of social housing finance is determined by central government. From 2007, the mandatory level of the municipal loan was increased from 7% to 14% of the acquisition cost. In 2010, in the wake of the economic crisis, it was reduced to 10 % for a period from mid-2010 to the end of 2015. The 10% period has been prolonged for 2016 and 2017 and thereafter it is anticipated that the municipal loan will be set at 14% again. Given the budget of municipalities is finite these fluctuations have an immediate impact on the number of new projects initiated and output levels. When the volume municipalities must contribute declines they initiate more projects and, conversely, when it increases the level of new development is reduced.

Second of all, the fact that Danish social housing incorporates private finance form mortgage banks, which were largely unaffected by the global financial crisis, meant that social housing output could be expanded rapidly without placing undue strain on government resources. When the municipal loan size is reduced, making the initiation of new projects more affordable for local government, the volume of private finance must of course be increased. The availability of this finance is thus crucial to maintaining a counter-cyclical social housing system. It is the use of private finance, which allowed Denmark to maintain and expand decommodified social housing during the crisis period and avoid a homelessness crisis, while Ireland's reliance on public funding for social housing made it vulnerable to boom/bust dynamics of the housing market and ensured it functioned more to amplify rather than buffer those dynamics (see also Byrne and Norris, 2016).

The issue of cyclicality also raises the question of the wider role of social housing at a macroeconomic level[7]. During our research, Danish policy makers were very quick to point out that the social housing system was not just counter-cyclical with regard to the housing market but with regard to the wider economy. In particular, increased social housing output and increased investment in social housing renovation and regeneration is used in a counter-cyclical fashion to generate employment during economic downturns. This more or less Keynesian stimulus measure contrasts strongly with the Irish model, which can be described as a form of *asset-price Keynesianism*. Here a strongly residualised social housing sector with a pro-cyclical bias feeds into a housing system characterised by sharp asset-price increases during

[7] This important issue is very rarely discussed in either the housing studies literature or within political economy.

the boom, which in turn fed aggregate demand within the economy (Lane, 2011; Downey, 2014).

Contained and leaky circuits

As noted above, the concept of leakiness captures the relationship between financial circuits and the wider housing system and economy by highlighting the extent to which investment remains within a given circuit or seeps out. Our key focus here is on forms of value generated through investment in social housing manifesting in the form of rental incomes, equity and interest payments. To the extent that these forms of value remain within the social housing sector, a financial circuit can be considered 'contained'. Where these forms of value are captured by actors outside the social housing sector they can be considered 'leaky'.

In Denmark revenue generated by investment in social housing takes the form of cost rents. As described above, cost rents contributed by tenants are used to cover the cost of construction, maintenance, property management and finance, i.e. all the costs associated with social housing. However, the way rents are indexed ensures that over time additional revenue is generated. Importantly, Housing Organisations cannot make a profit as they are strictly not-for-profit bodies under Danish legislation. Surplus rent revenue is accrued by central government and by local and national reserve funds which may only use funds thus generated to invested in new social housing or in renovation and regeneration. As such, additional value generated through investment in social housing remains within the circuit thus enhancing its affordability for government and strengthening its self-financing dimension. This means that the provision of social housing becomes more affordable for government over time and hence increases the sustainability of investment in the sector. The contribution made by rental income to local and national funds is also of particular importance as it ensures funding for renovation and regeneration work. Housing regeneration and renovation costs over time are very substantial and funding such work usually represents a significant challenge for governments.

In addition, neither government, housing organisations nor tenants can liquidate the equity built up in housing stock, ensuring this too remains within the circuit. Legislation introducing the right to buy for social housing tenants was introduced in 2004. However, in practice there have been virtually no sales largely due to the resistance of housing organisations and tenants (Larsen and Lund Hansen, 2015). The politics of the Danish social rental sector is interesting in this regard. First of all, housing organisations are themselves well organised and, through their representative body *Danmarks Almene Boliger* (BL) operate as very effective advocates for the sector and in particular for ensuring investment in social housing remains within the sector. Second, Danish social housing developments (usually described as estates) each have a separate legal identity from the overarching housing organisation they form part of and, as mentioned above, the board for each estate is elected by the tenants and made up of tenants. This gives tenants direct political influence over the reform of the sector and in the case of the attempted introduction of the 'right to buy' ensured it the reform did not undermine the 'contained' nature of the social housing financial circuit.

Because the Danish social housing sector is majority privately financed, the other actor of relevance with regard to the potential capturing of value created through investment in social housing is the financial institutions, which lend to the sector, i.e. the Danish mortgage banks. Mortgage banks do obtain a profit from investment in social housing but this is regulated by central government. As noted previously, the yield, which mortgage banks can obtain is capped at 0.27%, which is of course and extremely low margin. This cap is negotiated with central government and it is through these negotiations that the mortgage-banking sector can lobby for an increase in the yield and therefor to extract greater profit from the sector. Nevertheless, thus far, the yield remains extremely low and therefore the value, which is captured form social housing investment in the form of interest rate repayments, is minimal.

In contrast, Ireland's social housing financial circuit can be described as 'leaky' as investment is not contained within the sector but rather spills out into the housing system and the economy. The chief form of revenue generated by investment in social housing, as in the Danish case, is the rental income generated. However, the income related rents paid by social housing tenants are moderate and do not cover the cost of provision. In addition, this rental income may be used by the local authority to fund non-housing related expenditure. More importantly, social housing investment does create very significant value in the form of equity. Housing assets however are not retained within the sector but instead privatised through the very high proportion of dwellings sold to tenants. This means that social housing investment functions to expand the stock of private housing and the size of the market. It also means, however, that there is essentially a transfer of equity from the local authority to social housing tenants. This equity can be turned into liquidity by selling on the property and as such is released in to the wider economy.

As in the case of Denmark, the 'leakiness' of the Irish social housing finance circuit is linked to the political dynamics of the sector. Ireland's long-standing tenant purchase scheme is embedded in a wider 'property based welfare state' focused on home ownership. This regime developed through Ireland's post-colonial experience and in particular due to the extremely significant role played by conflict around the distribution of land in the struggle for independence from British rule. Tenant purchase developed in the mid-20th century from earlier policies, which enabled tenant farmers to purchase their dwellings from the large landlords which dominated agriculture (Norris, 2016). As a consequence, the principal that social housing tenants should have the right to buy their property has maintained cross-party support up until today.

Conclusion

This article has set out to contribute to our understanding of social housing finance and in particular its relationship with the boom/bust dynamics which characterized housing and financial markets during the period associated with the global financial crisis. The concept of financial circuits is deployed to capture how finance flows through social housing in manner, which traverses the distinction between public, private and third sector. These circuits, in the case of Danish and Irish social housing finance systems can be conceptualised in terms of funding, channels and revenues, and operate as dynamic flows of funding and revenue which move through the built environment in ways which are structured by the varying features of each circuit and by the sets of relations which make them up. Key to understanding how these circuits work is analysing their cyclicality and leakiness in order to capture the interaction of social housing and the wider housing system and indeed economy. It is this, rather than the whether or not social housing is publicly or privately financed, which explains the divergent experience of Ireland and Denmark, particularly in the wake of the global financial crisis. In the Danish case, the nature of social housing finance made it possible to maintain and expand social housing output in a manner which is affordable to government during a period of crisis and decline within the commercial banking sector and the private housing market. This has played an important role in ensuring that difficulties in the private housing system have not translated into a generalised housing and homelessness crisis. Ireland, in contrast, is characterised by a social housing finance circuit, which has failed to build up a significant stock of social housing, despite significant investment through much of the twentieth century. In addition, Irish social housing provision was immediately decimated once the collapse of the private housing system and the difficulties in the banking sector impacted upon government revenue. This ensured that social housing became increasingly unavailable as private housing output declined with a consequent, and ongoing, housing and homelessness crisis.

The concept of financial circuits can thus be used to draw out and highlight the sets of material intuitions and practices, which make possible and structure certain relationships between finance and the built environment. We thus sidestep more general categories and concepts through which housing finance is typically framed, such as public and private, market and non-market and so on. This suggests that theorisation of the financialization of housing should take into account not just the extent to which a particular sector of housing or aspect of the built environment is subject to investment by financial actors. It should also pay close attention nature the financial circuits, which make this possible, for example by examining the trajectory of value produced within a given circuit, in the form of rental streams, equity or interest payments. This, we argue, is likely to shape the extent to which housing within a given circuit is subject to the economic *logic* of private finance, i.e. the reduction of housing to an income-yielding asset.

Thinking beyond the dichotomy of public and private finance opens up an important avenue for critical reflection, particularly in the current context in which many cities face acute crises with regard to the availability of affordable housing. We refer here to the possibility of using private finance to provide investment in de-commodified housing (and possibly other forms of public infrastructure). This raises the question of to what extent private finance can be subordinated to democratic processes and to logics other than that of *rentierism* and speculation. Of course, these questions will remain open, but given the extent to which wealth is concentrated in the financial system and the urgent need for investment in infrastructure and affordable housing, they are certainly questions worth pursuing.

References

Aalbers M B (2015) The great moderation, the great excess and the global housing crisis. *International Journal of Housing Policy* 15(1): 43-60.

Amann W, Lawson J and Mundt A (2009) Structured financing allows for affordable rental housing in Austria. *Housing Finance International*, June.

Andreucci D, García-Lamarca M, Wedekind J and Swyngedouw E (2017) “Value Grabbing”: A Political Ecology of Rent. *Capitalism, Nature, Socialism*. Epub ahead of print 12 January 2017. DOI: 10.1080/10455752.2016.1278027

Ashton P (2011) The financial exception and the reconfiguration of credit risk in US mortgage markets. *Environment and Planning A* 43(8): 1796-1812.

Beswick J, Alexandri G, Byrne M, Vives-Miró S, Fields D, Hodkinson S, and Janoschka M (2016) Speculating on London's housing future: The rise of global corporate landlords in ‘post-crisis’ urban landscapes. *City* 20(2): 321-341.

Brenner N, Peck J, and Theodore N (2010) Variegated neoliberalization: Geographies, modalities, pathways. *Global networks* 10(2): 182-222.

Bresnihan P and Byrne M (2015) Escape into the city: Everyday practices of commoning and the production of urban space in Dublin. *Antipode* 47(1): 36-54.

Byrne M (2016a) ‘Asset price urbanism’ and financialization after the crisis: Ireland's National Asset Management Agency. *International Journal of Urban Regional* 40(1): 31–45.

Byrne M (2016b) Bad banks and the urban political economy of financialization. *City* 20 (5): 685-699.

Byrne M and Norris M (2017) Pro-cyclical social housing and the crisis of Irish housing policy: Marketization, social housing and the property boom and bust. *Housing Policy Debate*. Epub ahead of print.

Carnegie A, Byrne M and Norris M (2017) Changing perceptions: Stigma and social housing in Ireland. Dublin: Clúid Housing Association.

Coakley J (1994) The integration of property and financial markets. *Environment and planning A* 26(5): 697-713.

Castree N and Christophers B (2015) Banking spatially on the future: Capital switching, infrastructure, and the ecological fix. *Annals of the association of American geographers*.105(2): 378-386.

Daft.ie. 2017. Irish Rental Report Q4 2016. Dublin: Daft.ie. URL: https://www.daft.ie/report/ronan-lyons-2016q4-rental

Danish Transport, Construction and Housing Authority

Department of Housing, Planning and Local Government (various years), Annual Housing Statistics Bulletin, Dublin: DHPLG.

Department of Public Expenditure and Reform (various years), Revised Estimates for Public Services, Dublin: Stationery Office.Di Feliciantonio C (2016a) Social movements and alternative housing models: Practicing the “politics of possibilities” in Spain. *Housing, Theory and Socie*ty. Epub ahead of print. DOI: 10.1080/14036096.2016.1220421.

Di Feliciantonio C (2016b) Subjectification in times of indebtedness and neoliberal/austerity urbanism. *Antipode*. Epub ahead of print. DOI: 10.1111/anti.12243.

Downey D 2014 The financialisation of Irish homeownership and the impact of the global financial crisis. In: MacLaran A and Kelly S (eds) *Neoliberal Urban Policy and the Transformation of the City.* London: Palgrave Macmillan UK, pp.120-138

Fields D (2015) Contesting the financialization of urban space: Community-based organizations and the struggle to preserve affordable rental housing in New York City. *Journal of Urban Affairs* 37(2): 144-165.

Fileds D (Forthcoming) Urban struggles with financialization. Geography Compass

Flassbeck H and Lapavitsas C (2015) *Against the Troika: Crisis and Austerity in the Eurozone.* London: Verso Books.

García-Lamarca M (2017) From occupying plazas to recuperating housing: Insurgent practices in Spain. *International Journal of Urban and Regional Research*. Epub ahead fo print 29 January 2017. DOI: 10.1111/1468-2427.12386.

García-Lamarca M and Kaika M (2016) 'Mortgaged lives': the biopolitics of debt and housing financialisation. *Transactions of the Institute of British Geographers* 41(3): 313-327.

Gomez Nielsen B (2010) Is breaking up still hard to do? Policy retrenchment and housing policy change in a path dependent context. *Housing, Theory and Society* 27(3): 241-257.

Gotham K F (2006) The secondary circuit of capital reconsidered: Globalization and the U.S. real estate sector. *American Journal of Sociology* 112(1): 231-75.

Guironnet A and Halbert L (2014) The financialization of urban development projects: concepts, processes, and implications. Working Paper n14-04 URL: https://hal.archives-ouvertes.fr/hal-01097192/document

Halbert L and Attuyer K (2016) The financialisation of urban production: Conditions, mediations and transformations. *Urban Studies*, 53(7), 1347-1361.

Hardiman N and MacCarthaigh M (2013) How governments retrench in crisis: the case of Ireland. Geary Institute Working Paper

Healy T and Goldrick-Kelly P (2017) Ireland's housing emergency – time for a game changer. NERI Working Paper series. Dublin: Nevin Economic Research Institute.

Hodkinson S (2011) Housing regeneration and the private finance initiative in England: Unstitching the neoliberal urban straitjacket. *Antipode* 43(2): 358-383.

Kelly S (2014) Light-touch regulation: the rise and fall of the Irish banking sector. In: MacLaran A and Kelly S (eds) *Neoliberal Urban Policy and the Transformation of the City*. London: Palgrave Macmillan UK, pp. 37-53.

Kemeny J (1995) *From Public Housing to the Social Market: Rental Policy Strategies in Comparative Perspective*. London: Routledge.

Lane P (2011) The Irish crisis. IIIS Working Paper Series. Dublin: IIIS.

Langley P (2007) Uncertain subjects of Anglo-American financialization. *Cultural critique* 65(1): 67-91.

Larsen H and Lund Hansen A (2015) Commodifying Danish housing commons. *Geografiska Annaler: Series B, Human Geography* 97(3): 263-274.

López I and Rodríguez E (2011) The Spanish model. *New Left Review* 69: 5-29.

McCabe C (2011) *Sins of the Father: Tracing the Decisions that Shaped the Irish Economy*. Dublin: The History Press Ireland.

Mortensen J L and Seabrooke L (2008) Housing as social right or means to wealth? The politics of property booms in Australia and Denmark. *Comparative European Politics* 6.3: 305-324.

Norris M (2016) *Property, Family and the Irish Welfare State*. London: Palgrave Macmillan.

Norris M and Byrne M (2015) Asset price urbanism in the Irish and Spanish housing crises. *Built Environment* 41(2):205-221.

Norris M and Byrne M (2017) Housing market volatility, stability and social rented housing: Comparing Austria and Ireland during the global financial crisis. Geary Institute Working paper

Norris M and Coates D (2014) How housing killed the Celtic tiger: Anatomy and consequences of Ireland's housing boom and bust. Journal of Housing and the *Built Environment* 29(2): 299-315.

O'Riain S (2014) *The Rise and Fall of Ireland's Celtic Tiger: Liberalism, Boom and Bust*. Cambridge: Cambridge University Press.

Rolnik R (2013) Late neoliberalism: the financialization of homeownership and housing rights. *International Journal of Urban and Regional Research*. 37(3): 1058-1066.

Rutland T (2010) The financialization of urban redevelopment. *Geography Compass* 4(8): 1167-1178.

Scanlon K and Vestergaard H (2007) Social housing in Denmark. In Whitehead C and Scanlon K (eds) *Social Housing in Europe*. London: LSE.

Sokol M (2015) Financialisation, financial chains and uneven geographical development: Towards a research agenda. *Research in International Business and Finance.*

Tsenkova S and Vestergaard H (2011) Social Housing Provision in Copenhagen. Working paper. URL: http://vbn.aau.dk/en/publications/social-housing-provision-in-copenhagen_0e19c08c-b170-4f81-99bc-6eb84b542ac5.html

Wainwright T and Manville G (2017) Financialization and the third sector: Innovation in social housing bond markets. *Environment and Planning A*. Epub ahead of print 20 December 2016. DOI: 0308518X16684140.

Wijburg G and Aalbers M B (2017) The alternative financialization of the German housing market. *Housing Studies*. Epub ahead of print 24 Feburary 2017. DOI: 10.1080/02673037.2017.1291917.