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Housing Policies in the United Kingdom, Switzerland, and the United States: Lessons Learned

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Abstract

We provide an analysis of the housing market and current housing policies in three developed countries: the United Kingdom, Switzerland, and the United States. We focus on these three countries mainly because of the marked differences in their institutional settings. The United Kingdom is characterized by fiscal centralization and an extraordinarily rigid planning system. The consequences of this setting, which make housing supply extremely unresponsive to changes in house prices, are a high degree of urban containment, a severe housing affordability crisis, and a housing shortage, particularly for the young. The key UK policy, Help-to-Buy, which focuses on stimulating housing demand, fails to address the affordability crisis, because increasing demand only pushes up house prices further without expanding housing supply. Fiscal decentralization and a lax zoning system—both are encouraging residential development—and an extraordinarily low homeownership rate explain why Switzerland's main political concerns are sprawl and rent stabilization. The country's key policies aim to tackle these two concerns, but those same policies have some important unintended consequences. The United States is characterized by fiscal federalism and an enormous variation in the tightness of land use restrictiveness across metropolitan areas. The key policy concern across the country is homeownership attainment and the key policy to tackle this issue is the mortgage interest deduction (MID). This policy backfires in metropolitan areas that are prosperous and where land use is tightly regulated— "superstar cities"—because, in these places, the policy-induced demand increase mainly pushes up house prices. The MID increases homeownership attainment of only higher-income households in metropolitan areas with lax land use regulation. The net effect of the policy on homeownership

Abstract (continued)

attainment across the country is essentially zero. We conclude that the assessment of housing policies crucially depends on the fiscal and regulatory environment in local housing markets. Policies that stimulate housing demand, such as the MID or Help-to-Buy, are doomed to fail in markets with tight regulation or otherwise tight supply.

Introduction

In this article, we provide an analysis of the housing market and current housing policies in three developed countries: the United Kingdom, Switzerland, and the United States. All three countries are founding members of the Organisation for Economic Co-operation and Development (OECD). They are all high-income economies with a high Human Development Index and all three are highly urbanized today: 82 percent of residents in England and Wales (2011), 77 percent in Switzerland (2010), and 84 percent in the United States (2010) lived in urban areas, according to their respective censuses.

We did not select these three countries at random. We chose the United Kingdom and Switzerland because they represent two opposite ends of the spectrum regarding their fiscal and land use planning policies, making them interesting cases from the point of view of a comparative analysis. The United States falls between these two extremes; although it has a decentralized fiscal system (with local, state, and federal taxes) similar to the Swiss one, the country is characterized by an enormous spatial heterogeneity in land use planning restrictiveness, ranging from very relaxed (in places such as Houston or much of the Midwest) to highly restrictive (in cities such as Los Angeles, New York, and San Francisco), thus providing useful variation that can be exploited in a comparative analysis.

The three countries differ not only in their institutional settings but also in their housing policies. These policies have evolved over time within the institutional, political, economic, and cultural contexts of the respective country. In this article, we illustrate how the institutional setting—in particular a country's land use planning and fiscal systems—influences urban form, the built environment, housing market conditions, and the perceived challenges and risks (for example, housing affordability, housing shortage, and homeownership attainment). The current housing policies attempt to tackle these challenges, but, as we document, many of these policies have severe unintended consequences and are ineffective and costly at best and harmful at worst.

Trying to identify the origins of the key policies of the three countries and analyzing their merits and demerits provides a broader and clearer picture of the consequences of specific housing policies for given institutional settings. It may thus help governments of emerging economies in Asia (and elsewhere) to learn some lessons for the implementation of their own respective housing policies.

To begin, the United Kingdom is a highly politically and fiscally centralized country with a rigid planning system focused on urban containment. It is a country of homeowners, although homeownership has been in decline recently, falling from 69.3 percent in 2002 to 63.5 percent in 2013. The country's main political concern is the housing shortage and its corresponding lack of affordable

dwellings. We document that the housing shortage and lack of affordability are a direct consequence of the planning system—implemented more than 70 years ago—and of the extreme form of fiscal and political centralization. We outline the key policies (for example, Help-to-Buy) that attempt to address the housing shortage and affordability crisis. These policies have the effect of propping up demand and, because supply is severely constrained, of increasing house prices. Thus, they fail to resolve the housing affordability crisis. Homeownership attainment is another closely related political concern. We find it intriguing that the evidence from recent empirical research suggests that key policies that aim to increase homeownership attainment (for example, the Mortgage Interest Deduction [MID] in the United States or Help-to-Buy in the United Kingdom) may not, in fact, positively affect aggregate homeownership rates and may even lower them in supply-constrained locations.[1]

Switzerland, in many respects, is the counterpart to the United Kingdom. It is one of the most politically and fiscally decentralized countries in the world, with a flexible zoning system and a unique political setting with direct democracy at all levels of government: federal, regional (cantons), and local (municipalities). Although housing affordability is a concern among a fraction of lower-income households, the main housing-related policy issue in the recent past has arguably been sprawl—not so much urban sprawl in the larger cities of the country as a phenomenon that could be described as "rural sprawl" in the more touristic mountainous areas. We argue that the housing policies enacted are, to a large extent, a direct consequence of the degree of fiscal decentralization and the implemented land use planning system. The key policy for "rural sprawl containment" is a ban on second (investment) homes in tourist areas in place since 2013. We discuss the intended and unintended consequences of this policy.

Another unique characteristic of Switzerland's housing market is its extremely low homeownership rate, still less than 40 percent, despite a slow but steady increase during the past few decades and a steeper increase since the early 1990s. Because the median voter in Switzerland is still a renter, the implemented policies are unsurprisingly tilted toward favoring renters. The key policy in place, aimed at helping renters, is a mild form of rent stabilization that allows landlords to raise rents if a tenant changes or if some specific conditions are met, such as the mortgage interest rate increases or a major renovation is carried out. We discuss the various merits and demerits of this policy.

Finally, the United States is interesting because parts of the country—mainly the large coastal "superstar" cities such as Boston, Los Angeles, New York, and San Francisco—are confronted with strong demand pressures and rigid land use controls. Other parts of the country—including the Midwest and Texas—have lax land use regulations. This unique setting allows us to test the hypothesis that supply constraints imposed by rigid planning make the housing supply curve inelastic and, thus, housing subsidies—such as the MID—are capitalized into higher house prices, offsetting the intended effects of the policy. We summarize evidence in support of this hypothesis.

[1] On the one hand, subsidies to existing or prospective homeowners (such as the MID or Help-to-Buy) lower the cost of owner-occupied housing. On the other hand, the subsidy-induced demand increase is likely to raise prices of owner-occupied housing in supply-constrained locations, thus increasing the cost of homeownership. One might expect that the net effect may be positive or neutral depending on supply conditions (that is, depending on whether the subsidy is fully capitalized into prices or not). In fact, Hilber and Turner (2014) outline a number of theoretical mechanisms that explain why the net effect may even be negative in places with inelastic housing supply. They also provide evidence for the United States consistent with the proposition that, in supply-constrained locations, the impact of the subsidies on homeownership attainment is negative.

We proceed as follows. For each of the three countries, we (1) review the current status of the housing market and describe the main challenges and risks facing policymakers, (2) describe the key housing policies currently implemented, (3) discuss the policies' intended distributional effects and other objectives, (4) provide an analysis of the merits and demerits—often unintended consequences not considered by policymakers—of the key policies, and (5) discuss the lessons learned from our analysis of the key policies. In a final step, we bring together the evidence from all three countries and provide a synthesis.

Housing Policies in the United Kingdom

The institutional setting in the United Kingdom[2] is characterized by two key features. First, by contrast with continental European countries and the United States, which implemented rule-based planning systems, the United Kingdom regulates its land use via a rigid so-called "development control" system. In this system, each change of use of any parcel of land triggers a public consultation process and, in the end, has to be approved on a case-by-case basis by a local planning authority. The main aim of the system is urban containment.

Second, the United Kingdom has a high degree of fiscal centralization—giving very little weight to local taxes—with the consequence that local authorities have virtually no positive fiscal incentives to permit new development. (That is, local authorities that permit development face significant local infrastructure-related costs and strain to local public services, but they reap few benefits in the form of local tax revenue.) This situation is made worse because, in the medium term, a government grant equalization system effectively eliminates any revenue gain for the less-restrictive local authorities. In conjunction with the idiosyncratic development control system that assigns strong political power to local "not-in-my-backyard" (NIMBY) residents, the ultimate outcome is that housing supply is extremely price inelastic, particularly in major urban agglomerations such as the Greater London Area. In these urban agglomerations, positive demand shocks have the main effect of rising land and house prices, leading to a severe housing affordability crisis in large parts of the country. This affordability crisis has triggered a swath of mainly demand-focused housing policies that, as we illustrate in this section, have had major unintended consequences; rather than stimulating new housing supply, they have further exacerbated the affordability crisis.

Current Status of the Housing Market

Housing in the United Kingdom—particularly in London and Southeast England—is some of the most expensive and cramped[3] in the world. According to a ranking by the Global Property Guide (2015) of the buying price per square meter of a "comparable apartment" in a prime inner-city area

[2] The discussion of UK housing policies in this section builds on a recent analysis in Hilber (2015a).

[3] New houses in the United Kingdom are 38 percent smaller than in densely populated Germany and 40 percent smaller than in more densely populated The Netherlands (Statistics Sweden, 2005). Not only are new housing units small in an international comparison but also, allegedly, within the existing housing stock. Moreover, the existing stock in the United Kingdom tends to be substantially older and, partly as a consequence of its age, of poorer quality compared with housing in other OECD countries with similar standards of living, such as the United States or Switzerland.

of a country's prime city—in the United Kingdom, this is London—the United Kingdom comes second. It is topped only by the tiny city-state and tax haven, Monaco. Not only UK house prices, but also UK rents, are extraordinarily high. The same comparable apartment in London is also the second-most expensive in the world, again topped only by Monaco.

Exhibit 1 provides the relative housing costs by country (city), with the United Kingdom (London) being the benchmark (100 percent). We find it astonishing that housing costs in the United Kingdom are almost twice as high as those in the United States (New York, 53.6 percent), and they are significantly more than twice as high as those in Switzerland (Geneva, 44.2 percent), despite the fact that Switzerland is one of the wealthiest countries in the world and that Geneva typically is one of the cities at or near the top of life-quality rankings.

Housing costs in the United Kingdom are not only high in absolute terms but also relative to incomes. Conventionally measured "housing affordability"—median house price to median income—in the Greater London Area is currently at its worst since data became available. The price-to-income multiple in the Greater London Area in 2014 was 8.5. The United Kingdom, as a whole, was somewhat less unaffordable with a multiple of 5.0 (Demographia, 2015).

UK house prices are not only extraordinarily high but also exceptionally volatile. Real house price swings in the United Kingdom (exhibit 2) were substantially larger during the last full real estate cycle (that is, the upswing of the 1980s and the downturn of the 1990s) than those in the single-most-volatile metropolitan area in the United States (Hilber and Vermeulen, 2016).

Exhibit 1

International Comparison of Housing Costs, 2014

Country (City)	Price/m² in Percent Relative to UK (London)	(Rank)	Rent/m² in Percent Relative to UK (London)	(Rank)
Monaco	174.1	(1)	101.8	(1)
United Kingdom (London)	**100.0**	**(2)**	**100.0**	**(2)**
Hong Kong, China	66.1	(3)	58.5	(4)
United States (New York)	53.6	(4)	63.9	(3)
France (Paris)	53.3	(5)	47.2	(6)
Russia (Moscow)	46.4	(6)	46.4	(7)
Switzerland (Geneva)	44.2	(7)	42.8	(8)
Singapore	44.2	(8)	39.1	(9)
India (Mumbai)	33.2	(9)	24.5	(16)
Japan (Tokyo)	31.2	(10)	48.4	(5)
Israel (Tel Aviv)	27.5	(11)	29.4	(11)
Sweden (Stockholm)	27.3	(12)	NA	
Finland (Helsinki)	24.3	(13)	26.9	(14)
Canada (Toronto)	23.9	(14)	27.4	(13)
Italy (Rome)	23.2	(15)	27.6	(12)
Luxembourg	22.2	(16)	26.4	(15)
Australia (Sydney)	22.1	(17)	31.1	(10)

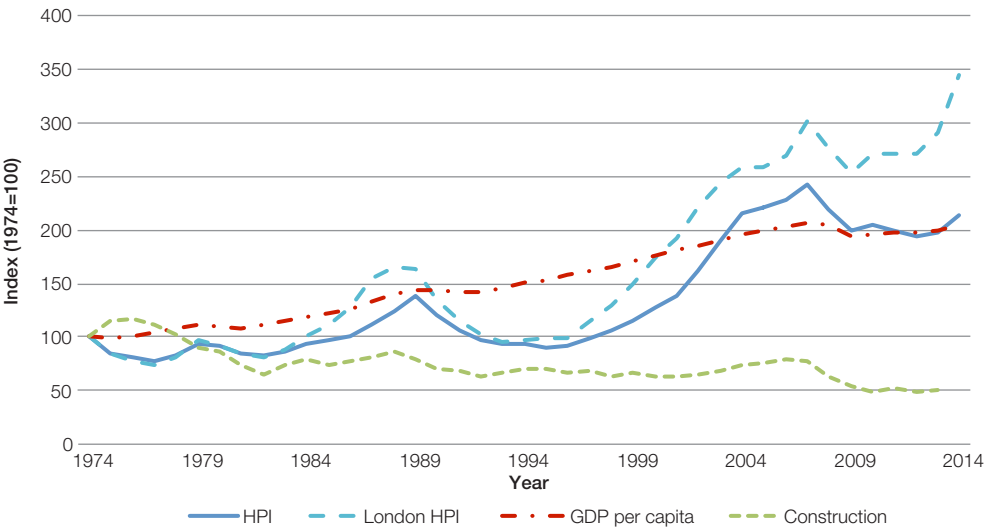
m² = square meter. NA = data not available. UK = United Kingdom.

Notes: All data are derived from http://www.globalpropertyguide.com/most-expensive-cities. Relative prices and rents are based on own calculations.

Source: Hilber (2015a)

Exhibit 2

UK HPI (real), UK GDP per Capita Index (real), and Construction Index



GDP = gross domestic product. HPI = house price index. UK = United Kingdom.

Sources: Authors' calculations based on Nationwide, www.nationwide.co.uk/about/house-price-index/download-data#xtab:uk-series; Office for National Statistics, www.ons.gov.uk/ons/datasets-and-tables/data-selector.html?cdid=IHXW&dataset=ukea&table-id=X11; Department for Communities and Local Government, www.gov.uk/government/statistical-data-sets/live-tables-on-house-building

The current housing affordability crisis has been developing slowly during the past 40 years. House price growth in the United Kingdom has been faster than in any other OECD country during this period. Exhibit 2 illustrates the country's real house price index (HPI) and real gross domestic product (GDP) between 1974 and 2014. UK house prices are today more than twice as high, in real terms, as they were in 1974. The United Kingdom's HPI, which rose 113 percent (from 100 to 213 percent), slightly exceeds the real GDP growth per capita, which grew 105 percent. Within the United Kingdom, the price growth has been most pronounced in London: the ratio of London house prices to average UK house prices has increased substantially since the mid-1990s. London housing prices have displayed a staggering increase in the past few years. In 2014, the London HPI reached an all-time high value of 344 percent with respect to the 1974 base year, far outstripping the real GDP growth per capita of about 140 percent. This increase explains why housing is most unaffordable in London and Southeast England, even when holding earnings constant.

Despite rising real incomes and significant population growth driven by net immigration and despite strongly growing nominal and real housing prices, construction of new permanent dwellings has been decreasing dramatically since the late 1960s, leading to a substantial housing shortfall. According to the Department for Communities and Local Government (DCLG, 2015a), the United Kingdom built nearly 380,000 new homes in fiscal year 1969, when statistics began. Housing construction subsequently declined until it fell markedly to fewer than 200,000 homes from 1990–91 onward. Residential construction reached a record low in 2012, when fewer than 135,510 new homes were constructed. In 2013, figures were only slightly higher, at 140,930

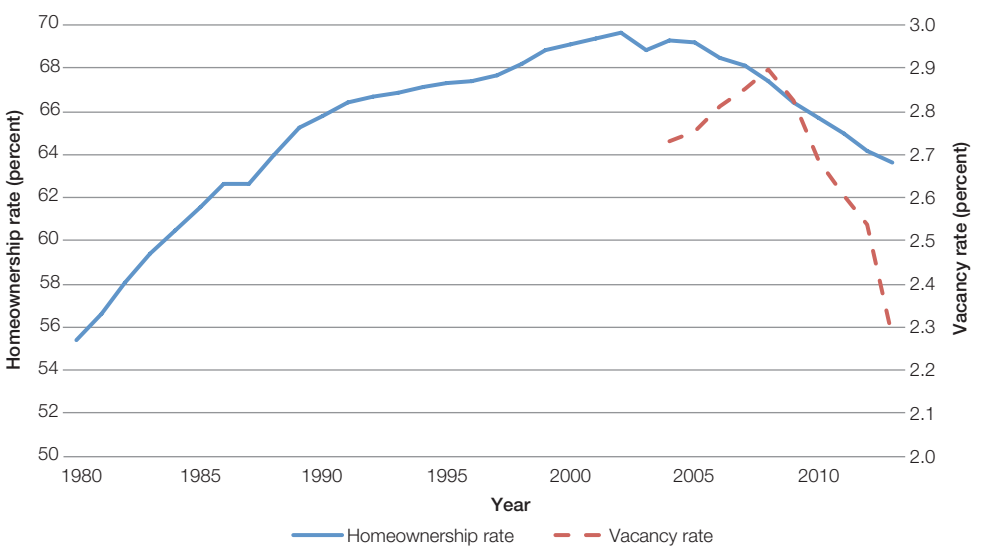
homes constructed, reflecting the typical increase in housing construction associated with an economic recovery. As illustrated in exhibit 2, between 1974 and 2013, housing construction fell 50 percent, despite strongly rising real house prices.

The extremely high UK house prices, particularly in London and Southeast England, have also affected homeownership attainment. Homeownership has been on the rise since World War II. As exhibit 3 illustrates, homeownership also increased markedly during the 1980s. This increase can be attributed mainly to the so-called "Right-to-Buy" scheme introduced by Margaret Thatcher's Conservative government in 1980. At that point, merely 55.4 percent of UK households were homeowners, 33.1 percent were social renters, and 11.4 percent rented privately. The share of social renters has been falling significantly since then, but the homeownership rate has taken the opposite direction. The homeownership rate continued to grow during the 1990s and reached its peak in 2002 with 69.6 percent. At that point, 20.9 percent and 9.8 percent of dwellings were socially and privately rented, respectively. Since 2002, the homeownership rate has been in decline, reaching a tentative low point of 63.6 percent in 2013, the latest year with available numbers (DCLG, 2015b). At the same time, the private rental rate has increased very substantially to 18.6 percent, but the social rental rate fell to 18 percent.

We find it interesting that, given the massive housing shortage in the United Kingdom, which can perhaps most accurately be described as a "construction drought" (exhibit 2), the residential vacancy rate has been stable during the past decade, ranging between 2.3 and 2.9 percent from 2004 to 2013 (exhibit 3). The UK vacancy rate is lower than that of the United States. This difference is not surprising given the massive overbuilding and subsequent foreclosure crisis in the United States during

Exhibit 3

UK Homeownership and Vacancy Rates



UK = United Kingdom.

Source: Department for Communities and Local Government, https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants

the 2007-to-2009 global financial crisis. What is perhaps more surprising is the fact that the residential vacancy rate is currently substantially higher in the United Kingdom than in Switzerland, despite a massive housing shortfall in the United Kingdom and a minor housing construction boom in Switzerland in recent years. This disparity could, in part, be driven by the fact that the United Kingdom, in contrast with Switzerland, contains numerous struggling and declining cities (such as Blackpool, Liverpool, and Sunderland) with stagnating or declining populations and, thus, comparably weak housing demand, likely causing some houses to be empty. In part, the disparity could also be driven by the strict local planning constraints in the United Kingdom: in places with strict regulatory constraints, the supply of new housing, and the characteristics of the existing stock are less well adapted to the structure of demand for housing characteristics and, thus, may be more likely to stay empty. See Cheshire, Hilber, and Koster (2015) for evidence on the latter.

Explaining the Current Status of the Housing Market: The Role of the UK Land Use Planning System

Longstanding empirical research points clearly to the United Kingdom's land use planning system—in conjunction with strong demand for housing in some regions, notably the Greater London Area and Southeast England—as the main cause of the United Kingdom's housing affordability crisis (Ball, Allmendinger, and Hughes, 2009; Barker, 2006, 2004, 2003; Cheshire, 2014, 2009; Cheshire, Nathan, and Overman, 2014; Hilber, 2015a; Hilber and Vermeulen, 2016, 2010; Overman, 2012).[4]

The UK planning system,[5] which dates back to the Town and Country Planning Act of 1947,[6] is extraordinarily rigid by world standards. This rigidity is a consequence of urban containment through so-called "greenbelts" (introduced during the middle and late 1950s), strict controls on height, and lack of fiscal incentives to develop at the local level. The system's rigidity is exacerbated

[4] The negative effects of the UK planning system are not confined to housing. Cheshire and Hilber (2008) provided evidence that firmly links regulatory constraints to the extraordinarily expensive price of UK office space. Cheshire, Hilber, and Kaplanis (2015) demonstrated that "Town Centre First" policies in England imposed a loss of output of 32 percent on a typical store opening after the rigorous implementation of the policy in 1996. Cheshire, Hilber, and Sanchis-Guarner (2014) provided evidence that Town Centre First policies paradoxically made shopping trips less "sustainable" by nudging suburban residents to shop in congested town centers rather than in big-box retailers out of town. Moreover, tight planning constraints in the United Kingdom also may have increased commuting times (for example, because commuters have to "jump" the greenbelt) or may have discouraged new buildings and renovations, thus generating older housing of poorer quality relative to other comparable countries. Of course land use planning can also generate benefits by correcting for various market failures (internalizing negative and positive externalities and providing local public goods such as public parks or the preservation of historically important buildings). The net welfare effect of the existing planning regime is not in itself clear but the scarce evidence for the United Kingdom is indicative that the net welfare impact is, in fact, negative (Cheshire and Sheppard, 2002; Hilber and Vermeulen, 2016).

[5] We somewhat casually refer here to the "UK planning system" even though notable differences exist between the planning systems of the four UK countries: England, Northern Ireland, Scotland, and Wales. Although the planning systems in the four countries all follow the same guiding principles, some significant differences occur in how rigorously these principles are applied; for example, Town Centre First policies are applied much more rigorously in England than in Scotland and Northern Ireland.

[6] To be more precise, the Town and Country Planning Act of 1947 was an Act of Parliament in the United Kingdom passed by the postwar Labour government. It came into effect on July 1, 1948, along with the Town and Country Planning (Scotland) Act of 1947. It is the foundation of modern town and country planning in the United Kingdom.

by the use of development control, which makes all decisions about whether development can go ahead subject to local political calculations and, therefore, makes them more uncertain. Development control also facilitates NIMBY behavior.

Early empirical evidence by Hall et al. (1973) suggests that the UK planning system may have already imposed binding constraints on construction as early as the beginning of the 1970s. Although rigorous empirical evidence on this point is lacking, it is highly plausible that the greenbelt constraints—which affect all major UK cities—started to become binding around 1970, when growing demand for housing hit the greenbelt boundaries. When this change happened, NIMBY homeowners (and private landlords) residing near greenbelts started to oppose new construction in their local authorities, effectively imposing gradually more severe "horizontal" constraints on construction. These constraints, in conjunction with various "vertical" constraints (that is, building height restrictions or so-called "view corridors"[7]), gradually made housing supply less and less price elastic. Thus, as the demand for housing continued to grow, especially in the Greater London Area (the United Kingdom's economic powerhouse), real house prices started to rise drastically, and commuters, desperate for affordable housing, started to "jump" the greenbelts.

Increasingly binding planning constraints are the likely explanation for why housing construction numbers have been in continued decline since the late 1960s. In 1970, the United Kingdom built nearly 380,000 new homes, almost three times as many as are being built today. In those days, fewer constraints existed regarding where new housing could be built. Price signals still provided important information to developers, architects, and builders regarding where and how much to build. Today, the planning system completely ignores price signals and effectively tries to prevent residential development nearly anywhere, particularly where it would be attractive to build. If price signals were taken into account, more housing would be built in attractive areas, with more highrise buildings in town centers and more single-family homes farther out (Hilber, 2015c).

Hilber and Vermeulen (2016) provided the arguably most rigorous econometric evidence to date for England on the impact of local land use planning restrictiveness and other types of supply constraints on local house prices. The study found that local-earnings shocks lead to much greater local house price increases in severely planning-constrained locations. The study provided evidence that can be interpreted in a causal sense: regulatory restrictiveness causally affects house prices. Although regulatory constraints appear to be binding everywhere, the effects are starkest in London and Southeast England, where refusal rates (that is, the proportion of planning applications that are refused by local planning authorities) are highest and land use planning restrictions

[7] View corridors, by means of limiting the height of nearby buildings, aim to preserve an unobstructed view to places deemed of particular value. London's St. Paul's Cathedral, for example, is protected by six view corridors imposing constraints on construction in large parts of Central London. One such view corridor—created in 1710—imposes a view from King Henry VIII's Mound in Richmond Park to St. Paul's Cathedral at a distance of more than 10 miles (16 kilometers). The view frames the cathedral through a special gap in a hedge, down a specially maintained clear avenue and then all the way across London. This particular view, still enforced today, has severely limited development around Liverpool Street Station—the third most frequented train station in the United Kingdom and one of the most central and busy areas in London.

most binding.[8] Housing is not being built in the most desirable areas, where demand pressure is greatest, but instead in those local authorities where it is still feasible to get the green light for development. Often these are local authorities with high unemployment rates, which have economic incentives to permit local development: construction creates local jobs, if only temporarily.

To give a sense of the economic magnitude of the effects, according to the estimates in Hilber and Vermeulen (2016), house prices would have risen about 100 percent less in real terms between 1974 and 2008 if, hypothetically, all regulatory constraints were removed. Removing all regulatory constraints, of course, is neither realistic nor desirable. To be more pragmatic, if Southeast England (United Kingdom's regions with the most severe planning constraints) had the regulatory restrictiveness of Northeast England (the least restrictive UK region, but still highly restrictive in an international comparison), its house prices would have been roughly 25 percent lower in 2008 and—based on forecasted trends—about 30 percent lower in 2015.

Hilber and Vermeulen (2016) also found that regulatory constraints are not the only constraints that are binding. Constraints also exist because of scarcity of developable land. These constraints are confined to highly urbanized areas (mainly the Greater London Area, Greater Manchester, and the West Midlands conurbation that includes Birmingham); however, in these areas the effect is large in the sense that, because of scarcity constraints, house prices increase more strongly in response to given positive demand shocks. To put it a different way, house prices in London would still be high by world standards if the various regulatory constraints were relaxed. Topographical constraints were also found to be binding, but the effect of those constraints was quantitatively less meaningful, perhaps because England is largely a flat country with few slopes that really hinder construction severely.

The UK planning system also has important distributional effects. The groups of the young, and not so young, would-be buyers are the obvious losers of the constraints imposed by the UK planning system. Young home-owning families, however, are also losers of the broken system, although they often do not realize it. They lose out because they (1) live in artificially cramped housing and (2) are increasingly priced out from moving to a larger home that would be more adequate for their growing family. Trading up becomes increasingly difficult, and the problem is made worse by the UK Stamp Duty Land Tax (SDLT) that heavily taxes housing transactions (Hilber, 2015c; Hilber and Lyytikäinen, 2015).

Elderly homeowners could be argued to be the winners of the system, because their houses have experienced tremendous (untaxed) capital gains since the late 1960s and early 1970s and they

[8] Hilber and Robert-Nicoud (2013) provided a theoretical argument for why not all regions and local authorities are equally restrictive. They argue that land use restrictions benefit owners of developed land via increasing prices but hurt owners of undeveloped land via increasing development costs. In such a setting, more desirable locations are more developed and, as a consequence of political economy forces, more regulated. Translating this theoretical argument to the institutional setting of the United Kingdom, the authors' argument implies that, in the wealthiest and most desirable local authorities with the strongest demand pressures (mainly in the Greater London Area), homeowners and private landlords have the most assets to protect, so they have the strongest incentives to restrict local development either via voting and NIMBYism-objections (homeowners) or lobbying (private landlords). Struggling places with weak demand and high unemployment (mainly in the north of England) may be more prone to permit commercial, or even residential, development in an attempt to create local retail or office jobs, or, temporarily, local construction jobs.

typically no longer live in cramped housing since their children have moved out. If anything, given the reduced household size, they may well now overconsume housing and may well have gardens too big to maintain.

The trouble from the perspective of elderly homeowners is that they cannot really access their housing wealth unless they sell their home—a costly and burdensome endeavor, especially for the elderly—and either downsize or move to a cheaper location, thereby often having to give up their local social ties. Equity release (in U.S. parlance: reverse mortgages) may represent an alternative option for elderly homeowners to monetize their housing wealth. According to Burgess, Monk, and Williams (2013), however, equity release represented only about 2.1 percent of mortgage sales in the first half of 2011 in the United Kingdom. This low percentage may be related to several factors, such as a perceived lack of transparency of the instruments, concerns about the quality of the financial advice, drawbacks linked to concerns about having to move out of the property, and absence of long-term planning for old age. Private renting is not a better option for elderly homeowners because it is similarly costly (to owning) and legal protection of renters in the United Kingdom is poor.

Hence, the only real winners of the broken UK planning system are arguably those elderly homeowners who are prepared to sell their house, pocket the proceeds, and move to a country with cheaper housing. For those who stay put, it is the children who will eventually benefit. The children of renters lose out. The planning system, thus, cements wealth inequality (Hilber, 2015c).

Key Housing Policies and Their Objectives, Merits, and Demerits

As the previous section documented, the United Kingdom's affordability crisis has been developing slowly during the past 40 years. In contrast with real incomes, real house prices and, presumably, real private rents[9] have grown faster in the United Kingdom than in any other OECD country (Hilber and Vermeulen, 2016). Especially younger and lower-income households struggle to get their feet on the housing ladder.

The key housing policies that were adopted in the past and, especially those that were implemented in recent years, not surprisingly, thus reflect the stylized fact that housing affordability has been the key concern of voters and politicians of all stripes. In the next subsections, we briefly discuss the United Kingdom's key policies that have been implemented with the intent to address the affordability crisis. We discuss their objectives and their merits and demerits.

Social Housing

The birth year of social housing in the United Kingdom goes back to 1919—the year when local authorities (councils) had been required by law to provide the so-called "council housing" (also called "council estates") (Wheeler, 2015). Local authorities had been the main provider of social housing in the United Kingdom until 2007. In 2008, housing associations[10] outstripped local councils for the first time to provide the majority of social homes in the United Kingdom.

[9] A good time-series on rents is not publicly available.

[10] Housing associations are private, nonprofit making organizations that provide low-cost housing for households in need of a home. They have been operating an increasing share of social housing properties in the United Kingdom since the 1970s. Although formally independent of the government, housing associations are regulated by the state and receive public funding.

The original aim of council housing was to provide decent housing for army recruits; however, the age of social housing only truly arrived after World War II, when the Labour government built more than 1 million homes, 80 percent of which were council homes, largely to replace those destroyed during the war. The house-building boom continued throughout the 1950s, but, near the end of the decade, the emphasis shifted toward slum clearance (Wheeler, 2015). By the early 1970s, the downsides of social housing became more visible. In the words of Wheeler—

> By the early 1970s, the concrete walkways and "streets in the sky" that had once seemed so pristine and futuristic, were becoming grim havens of decay and lawlessness. And there was a powerful smell of corruption emanating from some town halls as the cosy relationship between local politicians and their friends in building and architecture was laid bare, along with the shoddy standard of many of the "system-built" homes they had created. It was against this backdrop that "right to buy" (discussed in a later section) began to take off, with the number of council houses sold in England going up from 7,000 in 1970 to nearly 46,000 in 1972. (Wheeler, 2015)

The provision of social housing has certainly helped the lowest-income households and the most vulnerable people to obtain more adequate housing than they could have in the absence of such intervention. Whether public spending on social housing in certain areas ("helping places") was more effective as a policy than giving the same amount of funding directly to low-income households and vulnerable people ("helping people") is a difficult question to answer. Normally the answer would be that helping people directly is a more effective means of achieving the desired outcome; however, because the planning system has increasingly not been responding to price signals nearly everywhere in the country, market forces are muted and subsidies to people that raise demand may not actually lead to much additional private construction of housing. Hence, what would normally be a good policy when market forces work properly may become a policy doomed to fail.

Still, even when we abstract from this general argument that makes assumptions about a counterfactual outcome, the track record of social housing is mixed. One concern associated with social housing estates is that, through the concentration of low-income households, social housing may be associated with negative peer effects (for example, adversely affecting student performance). Weinhardt (2014) estimated the effect of living in a deprived neighborhood—as identified by a high density of social housing—on the educational attainment of 14-year-olds in England. He first points out that neighborhoods with markedly high concentrations of social housing have very high unemployment rates and extremely low qualification rates and also have high building density (social housing is typically midrise or highrise buildings). To identify the causal impact of neighborhood deprivation on pupil attainments, Weinhardt (2014) then exploits the timing of moving into these neighborhoods. He argues that the timing of a move can be taken as exogenous because of long waiting lists for social housing in high-demand areas. Using this approach, the study found no evidence of negative effects of social housing neighborhoods on student attainment.

Another obvious concern with social housing is the fact that, when the price of rental housing is kept below the market price, a shortage of rental housing will inevitably occur: given below-market prices, more households demand social housing than there is supply (and given below-market prices, developers will not have sufficient incentives to provide additional social rental housing). We consider this phenomenon in more depth when we analyze the rent control system in

Switzerland that also arguably generates below-market prices. Because the subsidy associated with social housing in the United Kingdom is substantial, the waiting list is long. Such a long waiting list is obviously inefficient and associated with a deadweight loss. Social housing waiting lists also tend to favor the "clever" and "persistent" among low-income households rather than those most vulnerable (for example, clinically depressed people).

A policy related to social housing is the so-called "Section 106 agreements," which require private-sector developers to offer "affordable housing" as a condition of obtaining planning permission. This policy has similar adverse effects to social housing in the sense that the demand for such subsidized housing far outstrips supply.

Right-to-Buy

The downturn of social housing began in 1980, when Margaret Thatcher introduced "Right-to-Buy." In brief, the policy allows social tenants to purchase their homes at a significantly subsidized price, with the effect that some of the best social housing stock moved from socially rented to privately owned. Right-to-Buy is a crucial factor helping to explain the significant rise in homeownership from 1980 until 2002, as illustrated in exhibit 3.

In their recent election manifesto, the Conservative Party proposed to extend the Right-to-Buy to tenants of housing associations. What are the merits and demerits of this new policy?

First, consider the likely effect on homeownership attainment. To the extent that the discount granted to tenants is substantial, it will have the effect of incentivizing many housing association tenants to become homeowners, perhaps reversing the decline in the homeownership rate observed since 2002.

Increasing homeownership attainment may be desirable. Some evidence for the United States indicates that homeownership is associated with social benefits (DiPasquale and Glaeser, 1999), particularly in places with tight supply constraints (Hilber, 2010; Hilber and Mayer, 2009). Other evidence suggests, however, that (leveraged) homeownership also has social costs. Homeownership impairs the labor market (for example, Blanchflower and Oswald, 2013) or adversely affects entrepreneurship (Bracke, Hilber, and Silva, 2015). Therefore, it is not clear whether the Right-to-Buy subsidy to housing association tenants, which essentially randomly benefits some lower-income households, is justifiable from a social welfare point of view.

Second, the policy imposes significant costs on the taxpayer because housing associations receive public funding; therefore, they presumably must be compensated for their losses. Otherwise, Right-to-Buy would significantly harm housing associations and endanger their ability to finance new homes, which would effectively decrease housing supply.

Finally, although extending Right-to-Buy will help the selective group of tenants of housing associations, the policy will not solve the affordability crisis for the rest of the population. If anything, extending Right-to-Buy is likely to make the crisis worse, even if the ability of housing associations to finance new homes is unaffected. This is for two reasons. First, a transition from housing association tenant to homeowner neither affects total housing demand nor total housing supply, so does not create any new homes; second, the incentive of a converted homeowner to oppose new

construction is likely much larger than that of the identical person as a tenant. In aggregate, this latter reason will make building new homes even more difficult (Hilber and Robert-Nicoud, 2013) and will, thus, if anything, accelerate the housing affordability crisis.

Help-to-Buy

The so-called "Help-to-Buy" policy was introduced in 2013. The aim of the scheme—arguably the flagship housing policy of the previous coalition government—has been to stimulate housing demand (Gov.uk, 2015). The Help-to-Buy scheme consists of four instruments: (1) equity loans, (2) mortgage guarantees, (3) shared ownership, and (4) a "new buy" scheme that allows buyers to purchase a newly built home with a deposit of only 5 percent of the purchase price. The promoters of the policy hoped that the increase in demand would translate into new housing being supplied and higher homeownership attainment.

Some simple stylized facts, however, cast serious doubt on this optimistic view. Help-to-Buy appears to have hindered people to buy: In the year following the announcement of Help-to-Buy, between the second quarter of 2013 and the second quarter of 2014, according to Nationwide,[11] the price of the average dwelling in London increased 25.8 percent from £318,200 to £400,400 and a building boom failed to emerge.

The stylized fact that mortgage subsidies may create a house-price boom, thus discouraging homeownership attainment rather than stimulating it, is consistent with evidence from the United States. Hilber and Turner (2014) suggested that only a very weak link at best exists between mortgage subsidies and homeownership attainment across the United States. They documented that, in tightly regulated metropolitan areas (which may be most comparable with tightly contained UK cities), the subsidies have a negative effect on homeownership attainment because the price effect—through increased demand—more than offsets the income effect from the tax deduction. They also found that, in less-regulated metropolitan areas (more comparable to sprawling Swiss cities), subsidies do have a positive effect on homeownership attainment, but only for higher-income groups.

As outlined in the previous section, longstanding evidence documents that housing supply in the United Kingdom is incredibly unresponsive to demand shocks, in large part, because of an extraordinarily inflexible planning system. Consistent with unresponsive supply, a related study found that central government grants in the United Kingdom are roughly fully capitalized into house prices; that is, the present value of the change in the grant allocation roughly equals the change in house price (Hilber, Lyytikäinen, and Vermeulen, 2011). The effect of Help-to-Buy, which also works through stimulating the demand side, can thus be expected also to become fully capitalized, consistent with the observed extraordinary price increase in London after the introduction of the policy.

Apart from not achieving its main intended objective, the policy has a number of additional drawbacks. First, taxes are needed to finance the Help-to-Buy schemes and these have a deadweight loss—a pure welfare loss to society. Second, the scheme has created a systemic risk in that the government (or perhaps more accurately, the taxpayer) assumes most of the risks associated with the guarantee schemes. The remaining risk is assumed by the "marginal homebuyers," those who

[11] http://www.nationwide.co.uk/about/house-price-index/download-data#tab:Downloaddata.

could not obtain loans in the absence of the scheme. Third, the policy may have undesirable distributional consequences. The beneficiaries of the scheme are existing homeowners, who benefit from the capital gains. First-time buyers who take up the scheme may not be better off, because the price increase, quite plausibly, offsets the present value of the subsidy they receive. Moreover, they increase their financial leverage beyond what they could do without Help-to-Buy; they thus expose themselves to a greater risk of defaulting. Would-be buyers who are discouraged to purchase a home as a consequence of the policy-induced price increases also lose out because they still finance the policy as taxpayers. Fourth, introducing the scheme is fairly straightforward. Withdrawing it, however, may pose a threat to the macroeconomy, because a withdrawal will create some obvious (perceived) losers and will likely also have an adverse effect on house prices, especially if the withdrawal coincides with an economic downturn that forces the government to review its costly spending programs. Help-to-Buy and related schemes designed to stimulate housing demand have some further drawbacks. These drawbacks are discussed in Hilber (forthcoming, 2015b, 2013).

Housing-Related Tax Policies

Housing-related taxes can have important effects on housing affordability, especially in a setting with a rigid planning regime, because, in supply-constrained areas, higher (lower) taxes likely have the effect of being capitalized into lower (higher) property prices. Any tax-related policy reforms ought to be considered in this light. In the next subsection, we briefly discuss the key housing-related taxes in the United Kingdom and also address their merits and demerits.

Central Government Grants to Local Authorities and the Council Tax. Most local expenditures in the United Kingdom are financed via central government grants, not via local taxes. These grants are distributed to local authorities on a "needs" basis according to some complicated formulas that take into account numerous characteristics of the local authorities and their residents. The distribution mechanism amounts to an "equalization system." One significant shortcoming of this system is that only a very weak link, at best, exists between permitting new residential development on the one hand and permanent grant revenue on the other.

In brief, local authorities face most of the cost of providing the infrastructure and local public services for the newly built residential development. At the same time, the central government grants provide virtually no fiscal incentives to local authorities to permit development. This lack of incentives is even more so because NIMBY homeowners and private landlords will try to put additional pressure on local authorities to resist new development. Local authority politicians interested in re-election have strong incentives not to permit residential development in their council.

Linking local tax revenue to the amount of local residential development could provide the necessary incentives to local authorities to permit such development in the first place, even under a "development control" system. In the United Kingdom, however, such tax incentives are lacking almost entirely. The only local tax in the United Kingdom is the council tax, which is a tax based on property value. The tax has little weight in the tax system, however, compared with tax systems in other countries (and compared with what it would be under an efficient tax system [Mirrlees et al., 2011]). It thus is not substantial enough to provide any meaningful incentives to local authorities to permit residential development. Moreover, because all local revenue is subject to the equalization system, this redistribution mechanism will largely eliminate any council tax revenue gain in

the medium term for local authorities that permit comparably more development. The council tax has one important additional flaw: a revaluation of the tax base has not occurred since 1992. This flaw has had the consequence that the tax now bears little relation to current underlying property values and has become increasingly regressive over time.

Stamp Duty Land Tax. Stamp duty, which is a tax on real estate transactions (that is, on land and property), was introduced in the United Kingdom during the 1950s. It is formally paid by the buyer and is a percentage share of the purchase price of the house. The economic incidence, however, may be at least partially on the seller. The stamp duty effectively drives a wedge between the price obtained by the seller and the price paid by the buyer. Basic economic intuition suggests that the stamp-duty-induced transaction costs result in fewer housing transactions and fewer moves, *all else equal*.[12]

Until early December 2014, the progressive schedule was a defining feature of the UK stamp duty system. The latest reform—announced in the government's 2014 Autumn Statement—eliminated this longstanding anomaly of the tax: Under the old rules, homebuyers had to pay the tax at a single rate on the entire property price. For example, a tax rate of 1 percent levied on a house worth £250,000 resulted in a tax payment of £2,500. A tax of 3 percent was imposed on a house worth £250,001, leading to a tax payment of £7,500—a difference of £5,000. Thus, the old rules led to large discontinuous jumps in the tax paid at the threshold prices (in our example, £250,000). Under the new rules, homebuyers have to pay the rate of tax only on the part of the property price within each tax band. This reform has been a small step in the right direction in that it has eliminated the large discontinuous jumps in the tax and corresponding distortions. It did not address, however, the fundamental flaw of the SDLT, which is that the tax creates a disincentive to move to a new or different house. This tax-induced lack of mobility potentially has adverse consequences for the functioning of housing and labor markets.

Empirical research strongly suggests that the adverse effects of the SDLT on housing transactions and household mobility are substantial. Besley, Meads, and Surico (2014) and Best and Kleven (2015) both examined the effect of the 2008–09 stamp duty "holiday" (that is, in September 2008 the UK government implemented an increase of the threshold for paying the SDLT from £125,000 to £175,000 for 1 year to stimulate the housing market). Although Besley, Meads, and Surico (2014) found that the tax holiday temporarily increased transactions by 8 percent, Best and Kleven (2015) estimated the effect on the transaction volume to be 20 percent in the short run. Hilber and Lyytikäinen (2015) found that the increase in stamp duty from 1 to 3 percent at the cut-off of £250,000—before the 2014 stamp-duty reform—reduced the annual rate of mobility by 2 to 3 percentage points (a large effect given that the average rate of mobility is 4.6 percent). This adverse effect is confined to short-distance and non-job-related moves, suggesting a distortion in the housing market rather than in the labor market. The key conclusion of this research is that the SDLT is a highly inefficient tax. It discourages downsizing of the elderly and expansion of young families.

[12] Of course, many other factors, such as labor market conditions, prevalence of rent control, and homeownership rates, affect household mobility. Moreover, we note that many other countries also impose taxes on land and property transfers—especially Southern European and less-developed countries—often exceeding those of the United Kingdom.

A revenue-neutral replacement of the SDLT and the council tax with an annual local tax on the true value of property should be a strongly preferred outcome for at least two reasons. First, such a tax does not affect the decision to move house and, thus, does not distort housing and, possibly, labor markets. Second, annual local taxes on the true value of property (with the revenue not to be equalized) provide greater incentives to local authorities to permit residential development.

Lessons Learned

Our analysis of the UK housing market and its policies suggests that the United Kingdom's rigid planning system is the main culprit of the housing affordability crisis. The planning and fiscal systems are incredibly inflexible and provide insufficient incentives to permit residential development, respectively, making the local housing supply curves inelastic. In such a setting, the main effect of policies that stimulate housing demand—such as Help-to-Buy—is to push up house prices rather than increase supply. These demand-focused policies may, thus, be a waste of taxpayer resources at best. They may even be counterproductive in that they may effectively price out young would-be buyers from the market.

If policymakers are serious about addressing the housing affordability crisis, then they need to fix the planning system, rather than introduce yet more demand-focused policies that push up house prices to even higher stratospheres. It is important to stress here that fixing the planning system does not mean abandoning it. Planning is necessary and it can generate important benefits to society. The planning system, however, should not be focused merely on constraining residential (and other) development to often unattractive brownfield sites in unattractive locations. Instead, the basic principle should be that reforms reflect issues of market failure so as to ensure that land-based public goods (for example, urban open spaces, wildlife habitats, national parks, areas of outstanding natural beauty, historical districts, or heritage buildings) are adequately supplied and that positive and negative externalities arising from the proximity of different land uses are internalized. Positive externalities can be internalized, for example, through mixed land use zones (which spur mutually beneficial activities arising from proximity of land uses). Negative externalities can be internalized through separation of incompatible land uses. In brief, the planning system ought to be focused on addressing market failures.

Hilber (2015a) discussed various reforms on the supply side, distinguishing between short-term reforms and more fundamental longer-term reforms. In the particular case of the United Kingdom, in the short term, the boundaries of greenbelts could be revised to release some accessible land with low or negative environmental value and low amenity value (Cheshire, 2014).

In the longer term, one could revert to protecting all land only on the basis of its environmental or amenity value, taking account of other cost factors (infrastructure, carbon footprint, among others). This land use allocation could be done in a way to retain all areas of outstanding natural beauty and all national parks but using observed land-price differentials as price signals to inform planners where or when land would be more usefully released for residential use. If the land-price differentials cannot be justified by environmental or amenity benefits, then there would be a presumption in favor of development (Cheshire and Sheppard, 2005).

Other supply-side reforms could work via altering tax incentives at the local level. In an ideal world, the existing council tax and the SDLT—two highly distortive taxes (Hilber, 2015a; Hilber and Lyytikäinen, 2015)—are replaced with a proper annual local property tax with automatic annual revaluation based on neighborhood-specific price changes. Such a tax reform could be designed to be revenue neutral in the aggregate.

An alternative and less radical proposal would be to provide incentives to local authorities through the central government's grant allocation system, which could be done by tweaking the grant allocation formula and taking account of the amount of housing development granted. Local authorities that facilitate residential development could be compensated with permanent and generous "development grants" that exceed the cost they have to bear. Local authorities alternatively could be allowed to tax developers so they are compensated for any extra infrastructure or any other expenses that are required to accommodate additional development. Lastly, planning laws could be altered to allow developers (potential winners) to compensate NIMBYs (potential losers) in an attempt to reach a mutually beneficial (that is, Pareto-superior) outcome.

Housing Policies in Switzerland

Switzerland has one of the most decentralized governments in the world. The jurisdictional decentralization is reflected in the political autonomy of regional (cantons) and local (municipalities) administrative units. This autonomy provides two main instruments to municipalities to attract new taxpayers, both of which have a significant impact on the housing market. The first instrument is the fiscal package offered by the local municipality. The fiscal package consists of the local income tax rate (a lower tax rate will attract more and higher-income taxpayers, all else equal) and the nature and level of local public services provided. Households will sort into the respective municipalities that provide their preferred local public goods package; better local public services, all else equal, are more desirable. This autonomy is the central idea of "fiscal competition": cantons and municipalities compete against each other to attract (wealthy) taxpayers.

In principle, municipalities could compete on both the tax rate and the local public services offered. In practice, however, competition is mainly one of tax rates, because both the federal government and the cantons require high minimum standards of local public good provision. For example, primary and secondary school class sizes must not exceed 23 to 25 students in any of the cantons. Thus, local public services offered in Switzerland end up being relatively homogenous across municipalities within a canton. As a consequence, relatively little evidence of capitalization of local public services exists, all else equal. Strong evidence indicates, however, that local income tax rates are capitalized, at least partially, into house prices.

In an early paper, Hilber (1998) found that an annual tax increase of SFr1,000 for an average taxpayer reduces rents in the Canton of Zurich by roughly SFr720. The present value of a tax increase of SFr1,000 reduces house values by roughly SFr940 and land values between SFr560 and SFr1,620, depending on the specification estimated, which suggests, roughly, full capitalization.

In a more recent and econometrically rigorous analysis, Basten, von Ehrlich, and Lassmann (2014) looked at all of Switzerland and employed a boundary-discontinuity design approach that corrects

for unobservable location characteristics. They estimated the income tax elasticity of rents to be about 0.26 (compared with 0.54 based on a conventional estimating approach). That is, a tax increase of 10 percent reduces rents by about 2.6 percent. Basten, von Ehrlich, and Lassmann (2014) estimated that about two-thirds of the tax elasticity is the result of direct capitalization effects. About one-third can be traced back to the sorting of high-income households into low-tax municipalities. This study suggests that the extent of house-price capitalization may be only very partial in Switzerland, consistent with a more elastic housing supply curve compared with the United Kingdom.

The second, less well documented, instrument is land use controls. Municipalities may implement lax or tight land use controls to attract households with particular housing needs. One instrument is the so-called "Ausnützungsziffer," a utilization intensity factor that determines what fraction of land on a given plot may be physically developed. It is a type of exclusionary zoning, similar in nature to the "minimum lot size restriction" in the United States. By setting a low Ausnützungsziffer, municipalities may attract better-off taxpayers who can afford a less-intensive use of land.

Municipalities also have to comply with mandatory land use regulations emanated at the federal level, such as the sectorial plan for cropland protection. The plan aims to guarantee a sufficient supply of food for the country during times of crisis and war, protect the soil, and preserve good agricultural land in the long term. Because of the heterogeneous geographic features of the Swiss territory, about 77 percent of the land protected by the plan is concentrated in only seven cantons possessing large agricultural areas, thus making the plan more binding for some municipalities than others. With the possible exception of Geneva, however, the impact of the plan on local housing prices seems to be weak for most of the cantons. In the case of Geneva, protected cropland effectively amounts to a greenbelt similar to the ones surrounding UK cities. The surrounding mountains, the Geneva Lake, the Swiss boundary with France, and other fairly tight local land use controls (including height restrictions)—all making property supply inelastic—jointly explain the fact that Geneva has the most volatile property prices in Switzerland—in fact resembling the price volatility in the United Kingdom.

The fact that a local municipality's tax revenue is directly determined by the number and nature of taxpayers provides strong incentives to (1) permit local development and (2) set local tax rates to attract high-income households. This setting, by contrast with the setting in the United Kingdom, suggests that local housing supply curves in Switzerland may be elastic.

Besides affecting local housing markets by encouraging tax competition among local authorities, the Swiss tax system also potentially affects the country's homeownership rate. In fact, the Swiss tax system is fairly neutral with respect to homeownership at all levels. It is possible to deduct mortgage interest from taxable income in a similar fashion as under the U.S. tax system. It is important that the deductibility applies to both homeowners and landlords, so no differential tax treatment occurs between the two. In a similar fashion, homeowners have to pay taxes on "imputed rents," whereas landlords have to pay taxes on their rental income. Tax treatment is again neutral between the two groups. Thus, in contrast with most other countries, Switzerland's tax and housing policies have little (or no) bias in favor of homeownership.

In contrast with banking policies adopted in other European countries, Swiss banks do not require households to fully pay back their mortgage loans over a given period. Coupled with the mortgage

interest deduction, this policy creates a strong tax incentive for households—even wealthy ones—to never fully repay their mortgage debts. This setting explains why Switzerland has one of the highest outstanding mortgage debt-to-GDP ratios in the world—exceeding 140 percent in 2012—despite the low homeownership rate of the country and despite the fact that initial loan-to-value (LTV) ratios are low in an international comparison.

In addition to the consequences arising from a decentralized government, Switzerland has to cope with another specific factor strongly influencing its housing market; that is, the particular geographic features of its territory. In contrast with the United Kingdom, which has a fairly homogeneous flat landscape, Switzerland's geographic features affect both local housing supply and demand. On the one hand, lakes, mountains, and country borders strongly impede the development of major urban areas like Geneva and Zurich, thus reducing the elasticity of the housing supply in these places. On the other hand, the country's geographic attributes increase the demand for investment homes (called "second homes" in Switzerland) by attracting wealthy foreigners in prestigious locations where ski resorts are located.

Foreign second-home investments are affected by the Swiss franc exchange rate. Many foreign investors consider the Swiss housing market as a "safe bet," providing significant returns after real estate capital gains are converted into home currencies.[13] The pressure of foreign buyers on the Swiss housing markets is the result of not only second-home investors but also a significant immigration inflow of people who—for tax and quality-of-life purposes—transfer their primary residence to Switzerland. According to the Federal Statistical Office, in 2013, 23.8 percent of Swiss residents were foreigners, one of the highest rates of all European Union countries.

Current Status of the Housing Market

Switzerland regularly appears in world rankings as one of the countries with the highest per capita incomes,[14] one of the most competitive economies,[15] and the highest quality of life (Kekic, 2012). Given the state of the country's economy and the high standard of living, one might expect that most households own their home. The reality, however, is different. Switzerland displays one of the lowest—if not the lowest—homeownership rate among all developed countries (exhibit 4) (missing years have been computed by linear interpolation). In 2013, it was 37.5 percent, increasing 2.9 percent from 2000. The increase in the homeownership rate is arguably due to the negative trend in mortgage interest rates. In particular, from mid-2008, fixed mortgage interest rates have shown a strong negative trend and are presently at less than 2 percent.[16] Bourassa and Hoesli (2010) suggested that high house prices and imputed rent taxation may represent two factors

[13] In contrast with what is observed in Japan, where the yen devaluation has arguably led to an increase of foreign investment into the residential sector, the Swiss franc appreciation of the past few years—and the corresponding price increase faced by foreign real estate investors—did not negatively affect their investments. In fact, the Swiss franc traditionally represents a safe-store currency, preserving capital gains from exchange-rate fluctuations, thus being particularly attractive to foreign investors in times of economic and political instability. It is particularly desirable for foreign investors with large financial assets in Swiss banks.

[14] See http://data.worldbank.org/indicator/NY.GDP.PCAP.CD.

[15] See http://reports.weforum.org/global-competitiveness-report-2014-2015/rankings/.

[16] See https://en.comparis.ch/hypotheken/zinssatz/zinsentwicklung.aspx.

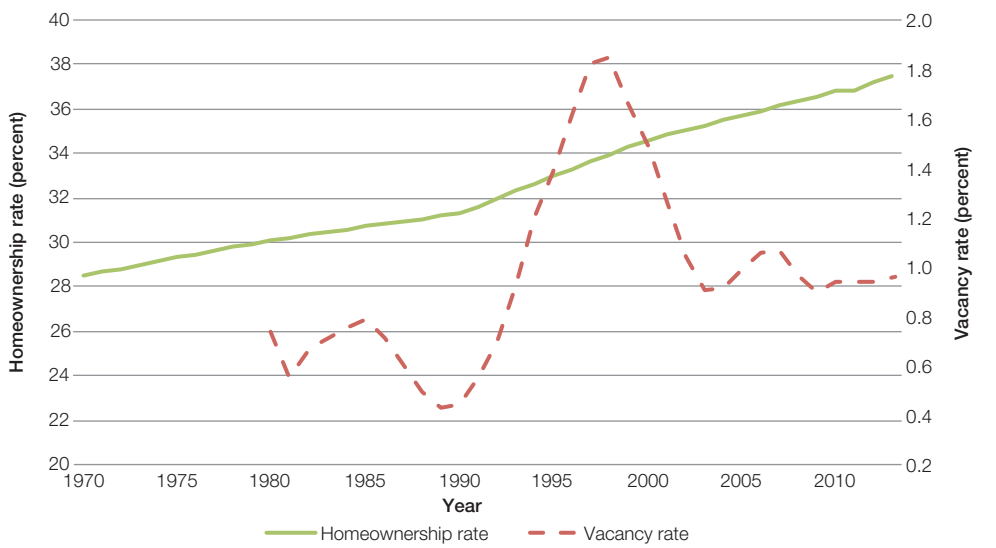
partially explaining Switzerland's exceptionally low homeownership rate. Shiller (2013) pointed out that the taxation of imputed rents distinguishes Switzerland from most other developed countries: in the United States, imputed rent taxation was abolished by the Supreme Court in 1934, and the United Kingdom tried to adopt it, but the proposal was relinquished in 1963.

Exhibit 4 also depicts the incredibly low vacancy rates of the Swiss housing market, which ranged from 0.43 percent in 1989 to 1.85 percent in 1998. In the past 10 years, vacancy rates appear to have stabilized around 1 percent. This low number may be, in part, driven by the Swiss rent-control system, explained in the following subsection. We note that vacancy rates are particularly low in major urban areas. For example, the vacancy rates in the cities of Geneva and Basel are only 0.36 and 0.24 percent, respectively. These exceptionally low rates may be explained by two factors. First, rent control is particularly important in urban areas because they have extremely low homeownership rates, typically in the range of 10 percent. Second, a spatial shift of housing demand toward the major Swiss agglomerations can explain why few housing units remain empty in these places. According to the Swiss Federal Statistical Office, in 2012, major agglomeration centers accounted for 59 percent of the total population, covered only 12 percent of the country's surface, and provided 70 percent of the employment.[17]

In contrast with the United Kingdom, where construction numbers have been falling dramatically since the late 1970s, construction numbers in Switzerland since 1980 are cyclical, but the long-run trend is roughly stable. Exhibit 5 shows construction indices for *all* and for *single-family*

Exhibit 4

Swiss Homeownership and Vacancy Rates

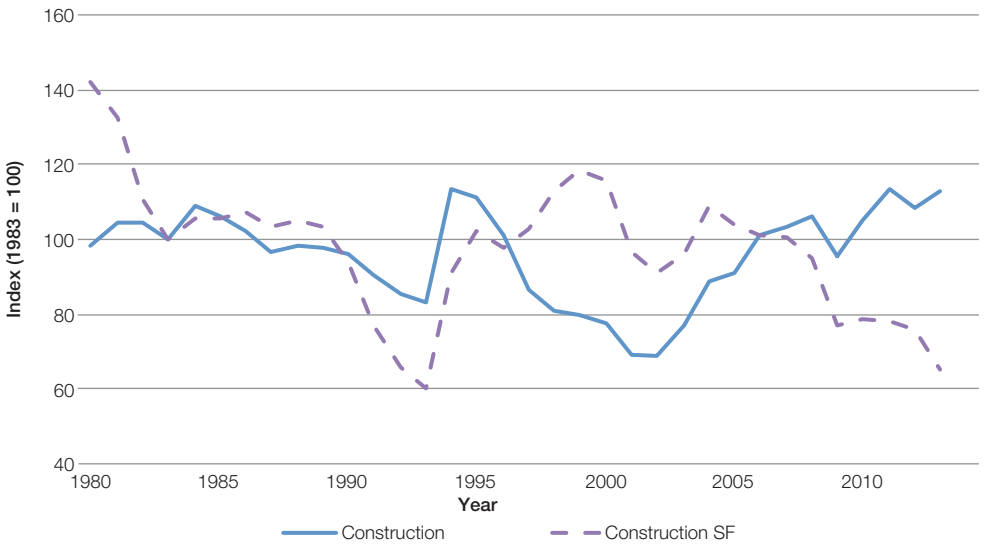


Sources: Swiss Federal Statistical Office, http://www.bfs.admin.ch/bfs/portal/de/index/themen/09/01/new.html and http://www.bfs.admin.ch/bfs/portal/de/index/themen/09/02/blank/key/leerwohnungen/entwicklung.html; authors' calculations

[17] See http://www.bfs.admin.ch/bfs/portal/de/index/regionen/11/geo/raeumliche_typologien/00.html.

Exhibit 5

Swiss Construction Indices: Total and Single-Family Houses



SF = single-family.

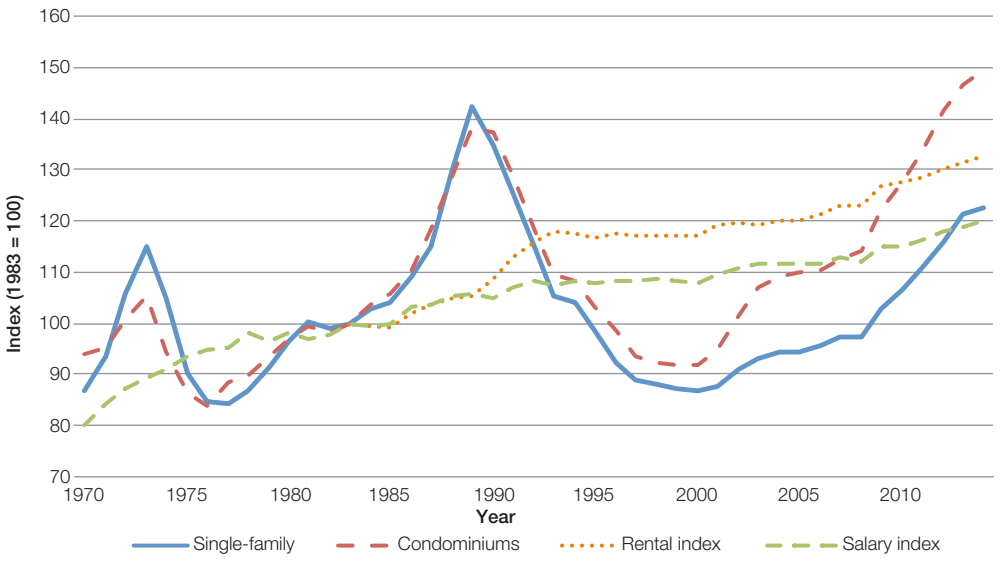
Sources: Swiss Federal Statistical Office, http://www.bfs.admin.ch/bfs/portal/de/index/themen/09.html; authors' calculations

construction. One interesting trend since about 2005 has been that more flats (apartments) and fewer single-family houses were constructed. Between 2002 and 2011, the construction of new flats increased markedly. The yearly construction of new flats during this period increased from 28,644 units to 47,174. In 2012 and 2013, however, the number of newly constructed dwellings remained stable at around 45,000 to 46,000 units. In 2014, according to Credit Suisse and the Swiss Association of Contractors and Builders, a general reduction of the residential construction sector could be observed and is expected to continue through 2015. Waltert and Müggler (2014) pointed out that, in part, this reduction may be related to both the implementation of the Second Home Initiative (SHI) (discussed in a later section) and the decision of the Swiss National Bank to no longer support the minimum exchange rate against the euro (causing a significant appreciation of the Swiss franc).

Price dynamics also show major differences compared with the UK housing market (exhibit 6). Three stylized facts are worth highlighting. First, real house prices in Switzerland are cyclical; three boom periods can be observed since 1970 (early 1970s, middle to late 1980s, and the period since 2000). Second, in contrast with the United Kingdom, where real house prices more than doubled since the early 1980s, in Switzerland, real house prices merely increased 23 percent (single-family prices) and 50 percent (condominiums), respectively. The difference in the growth rate between these two categories reflects the fact that the housing demand has shifted toward major urban areas, as suggested by the vacancy rate differentials observed between rural and urban areas. This hypothesis is further supported by the drop in vacancy rates observed from 2000 onward, which

Exhibit 6

Swiss Single-Family and Condominium Price Indices (both real), Rental Index (CPI Sub-Index) (real), and Salary Index (real)



CPI = consumer price index.

Sources: Swiss National Bank, www.snb.ch/en/iabout/stat/statpub/statmon/stats/statmon/statmon_O4_3; Wüest and Partner, www.wuestundpartner.com/en/online-services/immobilienindizes.html; Swiss Federal Statistical Office, www.bfs.admin.ch/bfs/portal/de/index/themen/05/06/blank/key/index.html; authors' calculations

coincides with a strong growth in condominium prices. Third, rent growth is about halfway between the price growth of single-family houses and condominiums and has amounted to 33 percent since 1983. These increases are not too distant from the salary index growth (about 20 percent since 1983).

The Swiss government recently implemented several measures aimed at dampening the price growth of the owner-occupied housing sector (which may have been driven by the all-time-low mortgage interest rates). Under government pressure, banks tightened lending conditions from July 2012 onward. In particular, the own funds required to have access to mortgage lending—typically 20 percent of the property price—cannot be exclusively constituted by the retirement provisions cumulated in the occupational pension funds. The part of own funds represented by retirement provisions is limited to 10 percent of the property price. In addition, the LTV ratio, at most, must be equal to 2/3 after 20 years. To reduce the risk exposure borne by mortgage lenders, in June 2014, the Swiss government forced banks to increase the part of capital held against mortgage loans by an additional 2 percent.

Key Housing Policies and Their Objectives

In this section, we review two policies that currently have a strong impact on the Swiss housing market: rent control and the SHI. The discussion on rent control builds on Werczberger (1997).

Rent Control

The history of rent control in Switzerland is quite tormented. The control of rents was first introduced during World War I. It was subsequently abolished in 1924. In response to the Great Depression, rent control was reintroduced in 1936. After World War II ended, the control's extent was progressively reduced and, subsequently, abolished in 1970. These changes led to a significant increase in rents, inducing the government to reintroduce rent control in 1972. Since then, several law modifications of rent control have been proposed, but a general consensus has not been reached and rent control is currently subject to controversy in political debates. Rohrbach (2014) provides a detailed exposition of the history of rent control in Switzerland.

The current level of renters' protection is high in Switzerland. According to the existing federal law, landlords have to justify the magnitude of rent increases to their tenants.[18] Rent levels can be adjusted according to two main economic indicators. The first indicator is the so-called rent reference index, which is based on the average of mortgage interest rates provided by banks for the whole of Switzerland. The index cannot be used only by landlords to justify rent increases; it can also be used by tenants to ask for rent reductions. The second indicator is the Swiss consumer price index (CPI). Up to 40 percent of the inflation, as measured by the Swiss CPI, can be passed on as higher rents. Although these measures might seem restrictive, the adjustment of rent levels to economic indices was established to prevent abusive rent increases and, at the same time, to provide landlords with reasonable returns on their investments. In addition to these two economic indicators, landlords can generally modify rents under two circumstances. First, the landlord performs a major renovation of the property and/or bears increased maintenance costs, which would lead to a reduction of the return on the investment. Second, rents are usually adjusted when a new tenancy starts, provided that the new rent is in line with the prevailing rent level observed in the same area. It is important that new tenants are allowed to challenge a rent even after having taken possession of the property. This rule effectively prevents landlords from arbitrarily increasing rents between tenancies.

Rent control also protects tenants against abusive evictions. Landlords are not allowed to rescind the tenancy contract simply to obtain more advantageous contract terms or to induce tenants to buy the property. Moreover, a change in the family status of a tenant, which does not inflict damage on the landlord, is not a sufficient reason for an eviction.

Ban on Second (Investment) Homes: The Second Home Initiative

Fiscal competition in conjunction with significant immigration inflows strongly shapes urban development in Switzerland. In particular, as documented by Jaeger and Schwick (2014), urban sprawl has strongly increased during the past few decades. The apparent eagerness of Swiss citizens to protect their country's landscape with its natural beauty and the widespread perception that second-home investors, in particular foreign real estate investors, were "disfiguring" the countryside, creating ghost towns (outside of tourist seasons) in mountainous areas and inflating local housing costs, has led to a political backlash.

[18] The biggest private landlords in Switzerland are insurance companies and banks, and the army and the national railway company are the two major institutional landlords. Figures on the market shares of these landlords, however, are not publicly available.

The SHI was launched to address these concerns.[19] The initiative was approved by the Swiss population in March 2012 by the narrowest of margins. Only 50.6 percent of the voters and 13.5 of the 26 cantons voted in favor of the initiative (for historical reasons six cantons count as "half cantons").[20] The resulting ordinance, which came into force on January 1, 2013, prohibits the creation of new second homes in municipalities in which the second-home share of the housing stock exceeds 20 percent. It is important that, in these municipalities, the initiative also forbids the conversion of primary residences built after January 2013 into second homes. Primary homes built before that date can, in principle, still be converted into second homes. This concession by the lawmakers during the legislation process aims to protect the property rights of existing homeowners in the affected municipalities. The regulation is far from being marginal; figures from the Federal Office for Spatial Development suggest that approximately one municipality out of five faces the restriction.

The definition of *second home* depends on the amount of time the owner of the property spends in it. A *primary home* is a property in which the owner spends most of the time. All other properties a person may possess are considered to be second homes. Although the concept may sound vague, it is based on precise and long-established tax rules that have implications going far beyond the initiative's regulations. In particular, the tax burden that households face depends on where their primary home is located. The number of second homes in a given municipality is then simply approximated as the total number of dwellings minus the number of primary homes.

Merits and Demerits of Policies

In this section, we illustrate the merits and unintended effects of rent control and of the SHI.

A vast and well-established literature exists on the negative consequences of implementing rent control. Rent control has been shown, among other things, to cause rent increases of not-regulated units (Caudill, 1993), to perturb optimal allocation mechanisms (Glaeser and Luttmer, 2003), to lower housing quality (Gyourko and Linneman, 1990), and to reduce household mobility (Ault, Jackson, and Saba, 1994). Our aim is not to extensively review this literature but, rather, to compare the specific effects of rent control observed in the Swiss housing market with those predicted by the literature.

The effects of the SHI—a recent policy reform—are currently being investigated by us and, to our knowledge, no empirical study on its effects exists. Therefore, only preliminary evidence concerning its effects is presented here.

Rent control in Switzerland has several merits. First, as illustrated in exhibit 6, real rents tend to grow slowly. Since 1983, real rents have grown only 13 percent more than salaries. The dampening effect of rent control becomes apparent when the price growth of condominiums—typically good substitutes for rented units—is considered. In the past few years, asking prices for condominiums have increased at a considerably higher rate than rents; since 1983, the growth differential between

[19] See http://www.zweitwohnungsinitiative.ch/home.html for details (in German, French, or Italian). A brief summary in English is provided at http://www.ffw.ch/en/camp_detalle/second-homes-initiative-switzerland/2/11.

[20] We find it interesting that, from a political-economical point of view, the touristic cantons (and municipalities) that were most strongly affected all rejected the initiative.

the two is 17 percent. Second, in contrast with the cyclicality displayed by single-family homes and condominiums, rent volatility is quite low. Third, because all rental units are subject to rent control, only one regulated rental housing market exists rather than two—a regulated and an unregulated one—with potentially vastly differing prices. Fourth, because the law ensures minimum quality standards, landlords cannot reduce building maintenance in the hope of increasing returns. On the contrary, major renovations present an opportunity to bring the rent of a controlled unit closer to market level. Finally, because new tenants have the right to challenge the rent level after renovation, speculative rent hikes can largely be prevented.

These advantages, however, come at a price. Rent control induces a distortion in the allocation mechanism of the market by creating a disincentive for households to move. In fact, the most effective strategy for tenants to benefit from rent control is to stay in the same unit as long as possible. This strategy is facilitated by the lawmakers, because rent control protects tenants against irregular evictions. As a consequence, rent increases, to some extent, are capped by the reference index and the CPI. In this setting, demand for rent-controlled properties significantly exceeds supply, resulting in an extremely low residential vacancy rate—especially in major urban areas—as illustrated in exhibit 4, and, as a consequence, in a time-consuming and costly search effort for households forced to relocate.

Because the SHI was only recently approved, we can merely speculate about its long-term effects. To begin with, to the extent that local municipalities will not be able to uncover significant loopholes in the legislation, we expect that the policy will be effective in preventing sprawl in the highly touristic places with shares of second homes already exceeding 20 percent. Because demand for second homes may simply shift spatially in the long term, however, sprawl may become an increasing problem in municipalities with shares of second homes at less than but close to 20 percent. Moreover, the ghost-town phenomenon (outside of tourist seasons) in mountainous municipalities with desirable natural amenities can be expected to become worse, because the only way to now add new second homes to the existing stock of such homes is by converting existing primary homes. Because the ban on new second homes has increased the scarcity of such homes in the most desirable tourist places, conversions from primary to second homes may further increase the second-home share.

The SHI legislation also likely will affect the prices of primary and second homes. The restriction to create new second homes in places that exceed the 20 percent threshold can be expected to be immediately capitalized into higher second-home prices—a supply-side effect; because new second homes in restricted municipalities can be created only by converting primary homes constructed before 2013, the second-home supply can be expected to become progressively inelastic, thus capitalizing future demand increases.

The SHI has two opposing effects on the price of primary homes. The price may decrease as the SHI imposes a negative shock on the local economy, thus lowering demand for primary homes. By preserving local natural amenities, however, the SHI may increase the price of primary homes, all else equal. The net effect is theoretically ambiguous.

Using a difference-in-difference approach, Hilber and Schöni (2016) empirically found that the price of primary homes in restricted municipalities decreased significantly, on average, by about 12 percent, after the implementation of the SHI. They found no statistically significant effect of

the SHI on the price of second homes, possibly due to the small number of transacted second homes in their sample. Banning new residential investment thus appears to hurt existing primary homeowners in affected areas but not existing owners of investment properties.

Lessons Learned

The mild implementation of rent control in Switzerland has provided undeniable benefits to renters, such as moderate price increases and protection against abusive evictions. These benefits, however, also make households immobile. As a consequence, the increasing demand for dwellings situated in or near major urban areas—arguably fueled by strong immigration inflows—must mainly be satisfied by new construction. Because the Swiss fiscal decentralized system provides incentives to municipalities to attract new residents, local housing supply is elastic, leading to only moderate price and rent increases when hit by significant demand shocks. The situation is different when the geographic features of the territory decrease the elasticity of local housing supply. Geneva, for example, which has an urban area constrained by natural amenities, a national border with France, and strict land use controls, has very high rents and housing prices compared with rents and prices in other Swiss cities.

All in all, the decentralized system of Switzerland—with its strong local fiscal incentives—appears to be able to solve the housing affordability problem, unlike the centralized system of the United Kingdom. This solution, however, comes at a cost: the ease with which local administrative units can build new homes has led to urban and (even rural) sprawl. With the approval of the SHI, Swiss citizens have given a clear message that they want to preserve the natural environment of the country by limiting the footprint of second-home investors. Separating the primary- and second-home market, however, has hurt local owners of primary residences in restricted areas.

Housing Policies in the United States

The analysis of U.S. housing policies perhaps represents one of the richest bodies of the policy evaluation literature (see Olsen and Zabel [2015] for an overview). This richness can be attributed to the variety and the extent of the implemented policies at the federal, state, and local levels and to the increasing quality of data available to researchers. It is not feasible to do justice to the richness of this literature in a single subsection of this article. We, therefore, limit our analysis to those policies that were intended to preserve a pillar of the "American Dream": homeownership.

Owning a house represents the achievement of the American dream for most U.S. citizens. With the 2007-to-2009 global financial crisis, however, this dream has turned into a nightmare for many homeowners. After a peak at the beginning of 2007, house prices fell about 30 percent in less than 2 years. Millions of homeowners found themselves possessing negative home equities, thus being unable to sell their home or not having access to refinancing mortgages in the case of financial need. The bust of the housing boom, coupled with soaring unemployment rates, led many U.S. households to lose their homes, causing a steep decrease of about 5 percent in the country's homeownership rate. To counter this drop in homeownership attainment, the U.S. government adopted several new housing policies, in addition to the pre-existing policies—importantly the MID. Our aim is to describe the intended and unintended effects of these new and old policies, with a particular focus on the MID.

The discussion of the policies presented in this subsection draws heavily from the work of Olsen and Zabel (2015), who offer an exhaustive review of U.S. low-income rental programs and mortgage policies. In contrast with Olsen and Zabel (2015), our focus is on the description of implications of the MID based on recent evidence provided by Hilber and Turner (2014).

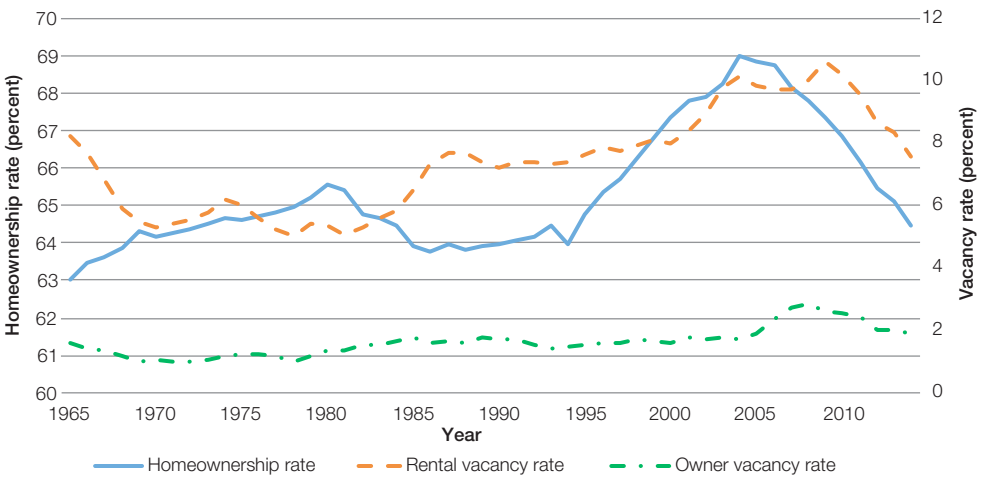
Current Status of the Housing Market

The U.S. housing market has recovered from perhaps the worst housing crisis in its history, or so it seems, at least, when looking at the trends of housing market fundamentals (exhibits 7 and 8). In this positive economic context, from December 2014 and March 2015 onward, respectively, Fannie Mae and Freddie Mac allowed first-time homebuyers to lower their downpayments to 3 percent instead of the usual 5 percent. Moreover, the Federal Housing Administration recently reduced its annual mortgage insurance premium by 0.5 to 0.85 percent. Finally, some of the post-crisis housing programs aiming to boost homeownership are still under way (see the next section).

Given the current state of the U.S. housing market, one might expect that the homeownership rate has stopped decreasing or, at least, has stabilized, yet this is not the case. Exhibit 7 documents the U.S. homeownership rate between 1965 and 2014. Homeownership started to decline between 2004 and 2005, preceding the global financial crisis (2007 to 2009) and its corresponding high number of foreclosures. It continued to decline after the end of the crisis. It is currently still on a downward trend, similar to that in the United Kingdom. From the fourth quarter of 2004 to the fourth quarter of 2014, the homeownership rate fell from 69.2 to 64.0 percent. Exhibit 7 also reports vacancy rates of owner-occupied and rental housing. Consistent with the homeownership statistics that imply an increase in demand for rental housing, vacancy rates for the latter type of

Exhibit 7

U.S. Homeownership and Vacancy Rates

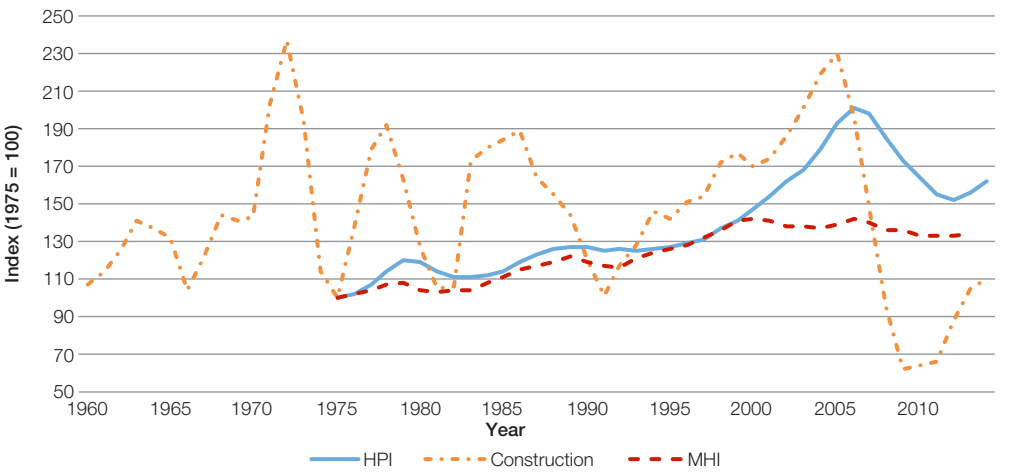


U.S. = United States.

Sources: U.S. Bureau of the Census, obtained via Federal Reserve Economic Data (FRED) database, https://research.stlouisfed.org/fred2/series/RHORUSQ156N, https://research.stlouisfed.org/fred2/series/RRVRUSQ156N, and https://research.stlouisfed.org/fred2/series/RHVRUSQ156N

Exhibit 8

U.S. HPI (real), Construction Index (New Private Housing Units Authorized by Building Permits), and MHI (real)



HPI = house price index. MHI = mean household income.

Sources: Federal Housing Finance Agency, obtained via FRED, https://research.stlouisfed.org/fred2/series/USSTHPI; U.S. Bureau of the Census, https://research.stlouisfed.org/fred2/series/PERMIT and http://www.census.gov/hhes/www/income/data/historical/household/; authors' calculations

housing fell significantly from 10.6 percent in 2009 to 7.5 percent in 2014. It is interesting that vacancy rates of owned units increased only slightly during the peak of the crisis. They generally remained fairly low and stable throughout the crisis.

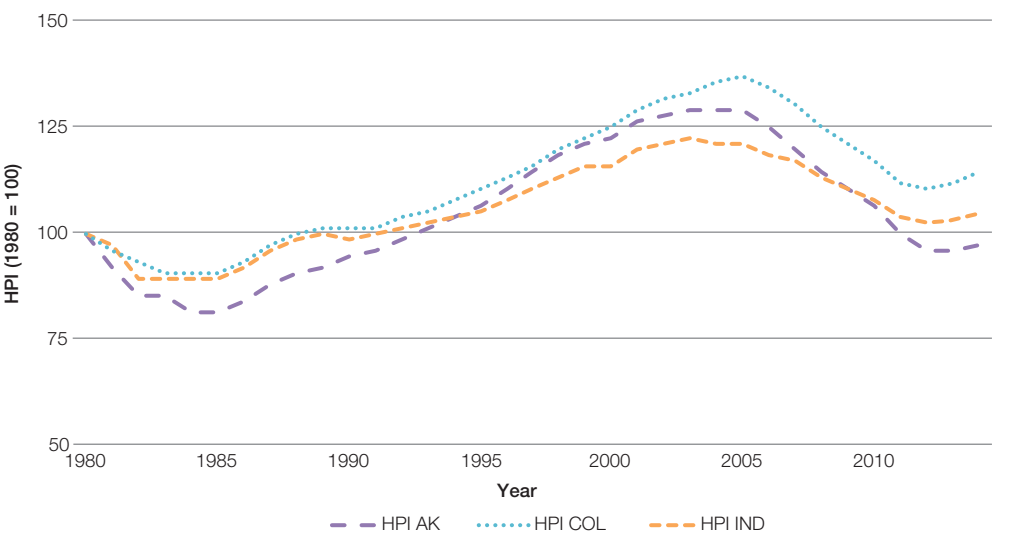
The observed decrease in the rate of homeownership may be explained by three factors. First, the massive increase in the price-to-income ratio in the buildup of the global financial crisis implied that, all else equal, fewer and fewer households were able to afford the monthly mortgage payments (that is, liquidity constraints tightened). Second, the tightening of credit conditions (including downpayment constraints) during the crisis meant that many households that were at the margin of property ownership before the crisis suddenly no longer had access to mortgage lending. Third, and related to the former point, bad credit ratings of households that experienced foreclosure during the crisis meant households could not easily become homeowners again.

Exhibit 8 illustrates the seasonally adjusted purchase-only HPI since 1975 and the mean household income for the same period. Focusing on the past 10 years, although the price-to-income ratio fell significantly during the global financial crisis, the trend has been reversing since about 2011, all else equal, making it increasingly difficult for households to have access to property ownership. At the same time, increasing prices during the past few years appear to have revived the construction sector. Exhibit 8 documents the number of housing starts between 1960 and 2014. Housing construction appears to be highly cyclical in the United States. Although it fell dramatically during the 2000s, housing construction has been recovering since around 2011.

Local housing markets in the United States show remarkable spatial heterogeneity with respect to their price dynamics. Exhibits 9 and 10 illustrate the price growth since 1980 for three major inland cities—Akron, Ohio; Columbus, Ohio; and Indianapolis, Indiana—and three major coastal ones—Los Angeles, California; New York, New York; and San Francisco, California—respectively. Inland housing markets have rarely been affected by the crisis and display a very low—if not negative—real price growth since 1980. By contrast, the coastal cities (sometimes referred to as "superstar cities"; Gyourko, Mayer, and Sinai, 2013) that possess severe natural and regulatory constraints (Hilber and Robert-Nicoud, 2013; Saiz, 2010) show astonishing long-term price increases—with San Francisco reaching a real price growth of about 300 percent since 1980—and large price volatility. The price trends depicted in exhibits 9 and 10 are consistent with the proposition that given demand shocks (which may or may not be greater in large coastal cities) translate into greater price swings in places with severe long-term supply constraints; that is, the superstar cities.[21]

Exhibit 9

U.S. Inland Metropolitan Areas HPI (real)



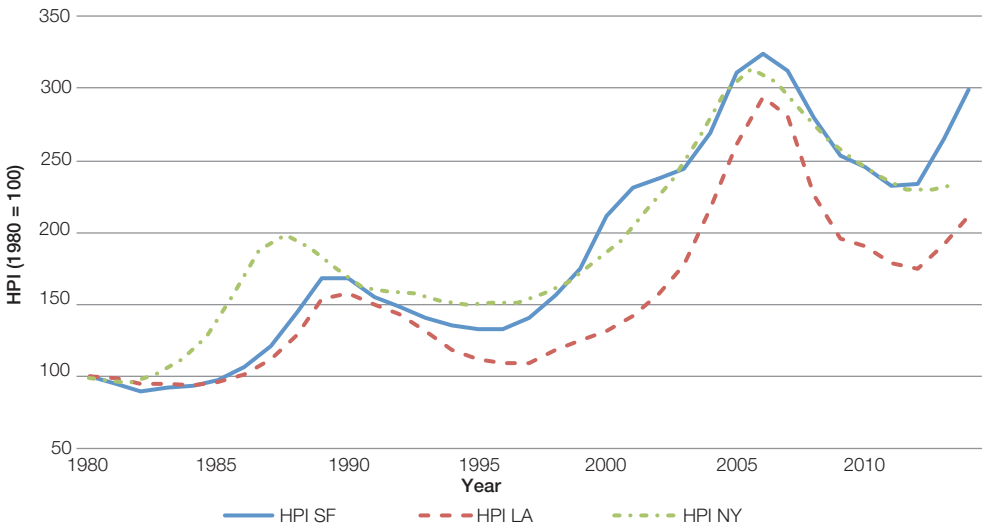
AK = Akron. COL = Columbus. IND = Indianapolis. HPI = house price index.

Source: Federal Housing Finance Agency, http://www.fhfa.gov/DataTools/Downloads/Pages/House-Price-Index-Datasets.aspx#qat

[21] These findings are consistent with the findings of Hilber and Vermeulen (2016) for England. They are also consistent with the theory put forward in Hilber and Robert-Nicoud (2013) that more desirable places (in the United States, coastal cities) are more physically developed and, as a consequence of owners of developed land becoming more politically influential, more regulated.

Exhibit 10

U.S. Coastal Metropolitan Areas HPI (real)



HPI = house price index. LA = Los Angeles. NY = New York. SF = San Francisco.

Source: Federal Housing Finance Agency, http://www.fhfa.gov/DataTools/Downloads/Pages/House-Price-Index-Datasets.aspx#qat

Key Housing Policies and Their Objectives

The current U.S. tax system is biased in favor of homeownership. It is important to note that, whereas mortgage interest can be deducted from taxable income, imputed rents associated with property ownership are not taxed.[22]

The broad deductibility of interest *on all loans* in the United States dates back to 1894 when the first modern federal income tax was created. It was the Tax Reform Act of 1986 that *confined deductibility to mortgage interest only*. The aim of the reform has been to encourage homeownership. The MID is a costly policy, representing about $100 billion in foregone annual tax revenue for the U.S. government. Despite the already-existing bias toward homeownership, the bust of the housing boom during the global financial crisis led the U.S. government to adopt yet more fiscal measures in an attempt to halt the decline in homeownership attainment.

In 2008, the Congress passed the Housing Assistance Tax Act (HATA), which provides a tax credit of 10 percent of the purchase price of a property for first-time homebuyers. The maximal tax credit was capped to $7,500 per household and the requirement was that it had to be repaid within 15

[22] Note that the mortgage interest deductibility is a popular policy, implemented in numerous developed countries to promote homeownership. The United Kingdom used to have a form of mortgage interest deduction—the Mortgage Interest Relief at Source (MIRAS). The MIRAS was introduced in 1969 but phased out from 1988 until it was completely abolished in 2000. Because of the numerous demerits and unintended consequences of the MID, which are discussed subsequently, the slow phasing out and subsequent termination of the MIRAS can be seen as a highly successful policy decision.

years. To limit the vacancy of foreclosed properties, while avoiding speculative behavior, in 2009, the American Recovery and Reinvestment Act (ARRA) increased the maximal tax credit to $8,000 and offered the possibility to waive the credit repayment if the property was not sold during the 3 years after its acquisition and was used as the principal residence. At the end of 2009, President Obama signed the Worker, Homeownership, and Business Assistance Act into law, extending the period during which households could claim the ARRA tax credit. According to the Government Accountability Office, up to July 2010, approximately 1 and 16 million first-time homebuyers benefited from the HATA and ARRA tax credits, respectively.

In addition to providing fiscal incentives, the U.S. government launched several programs to enhance credit conditions.[23] In early 2009, the U.S. Department of the Treasury started the Making Home Affordable (MHA) program to improve credit conditions. Two centerpieces of the MHA are the Home Affordable Modification Program (HAMP) and the Home Affordable Refinance Program (HARP). Both programs end in December 2016. The two programs are not intended to promote homeownership but, rather, to avoid the loss of it by reducing the likelihood of foreclosure. HAMP's aim is to cooperate with mortgage lenders to reduce the monthly mortgage payments of homeowners at risk of foreclosure by decreasing interest rates, lengthen the loan's term up to 40 years, and define a balloon payment at the maturity date. HARP's goal is to provide credit access to homeowners who possess negative home equities. To be more specific, homeowners who had their mortgages owned or guaranteed by Freddie Mac or Fannie Mae and who were current with their payments (in contrast with HAMP) were initially allowed to refinance their debt even if the LTV ratio of their properties was between 80 and 125 percent. In a subsequent modification of the program in 2011, these LTV limits were suppressed for mortgages up to 30 years, thus allowing households with deeply underwater assets to refinance.

In February 2010, President Obama approved the Hardest-Hit-Fund (HHF) program to help households living in states that were particularly affected by the global financial crisis. States displaying unemployment rates greater or equal to the national average and having experienced average housing price decreases greater than 20 percent were accepted into the program. Many of these states (California, Florida, Nevada, and Oregon, among others) host some of the most expensive cities in the world. In the same spirit of the MHA program, the HHF's aim was to reduce the mortgage burden of households owning negative housing equity.

Merits and Demerits of Policies

We first discuss the impact of the MID in some depth, because it offers the most compelling empirical evidence. With the exception of the MID, the policies reviewed in the previous section are recent and many are still current. Therefore, only limited information is available concerning their effects on the U.S. housing market. In this subsection, we offer an analysis based both on informal evidence and on recent empirical findings.

[23] See the U.S. Department of the Treasury website (http://www.treasury.gov/initiatives/financial-stability/TARP-Programs/housing/Pages/default.aspx) for a more indepth description of these programs. Because of a lack of participation, we do not consider the HOPE for Homeowners Act in the present subsection of the article.

In light of the staggering cost of the MID, two main questions are of interest: (1) Does the policy produce the effect that justifies its existence; that is, to increase homeownership? (2) Do unintended consequences follow its implementation? The answers to these questions appear to be negative for the first and affirmative for the second.

Glaeser and Shapiro (2003) provided evidence supporting the proposition that homeownership is not influenced by the MID. They point out that households on the margin between owning and renting usually do not use the deduction to reduce their taxable income. As a consequence, the MID does not create new homeowners but, rather, increases the housing consumption of well-off households. According to Gervais and Manish (2008), wealthy households may use equity financing if the MID is not available, further providing support for the hypothesis that the homeownership decision of these households is not influenced by the deduction. Bourassa and Ming (2008) provided some evidence that the MID is not only ineffective, it lowers the homeownership rate among young households due to price capitalization effects. Hilber and Turner (2014) provided strong evidence on the unintended consequences of the MID. They show that the deduction promotes homeownership of only higher-income households in which the housing supply is elastic. This effect on the higher-income group is reversed in housing markets with strong regulatory constraints. We find it interesting that they found no significant relationship between homeownership and the MID for low-income households. The net effect of the MID on homeownership is roughly equal to zero.

We now present some informal evidence concerning the HATA/ARRA and HAMP housing programs.[24] Baker (2012) provided a descriptive analysis of the effect of the tax credit. He points out how the program's effects were only temporary. The program considerably boosted home sales when it began (June 2009), and a marked decline was observed when it ended (July 2010). In this respect, it seems that the program—rather than supporting the demand in the long term—simply shifted the homeownership decision in time, thus having no effect on the long-term homeownership rate. We find it interesting that Baker provided some evidence that the program influences the purchase of only bottom-tier properties in less-expensive markets. He justifies his claim by arguing that new homebuyers generally buy inexpensive properties and that the $8,000 tax credit is not likely to have an influence in expensive housing markets like Boston or New York.

An early theoretical study by Mulligan (2010) discusses how the guidelines imposed by the HAMP to take part in the program may have negative effects on mortgage renegotiations. In particular, he points out that renegotiations, in general, do not lead to a reduction of the principal mortgage and do not decrease households' uncertainty. Because of these facts, he stresses how the program avoids only some foreclosures in the short term but basically shifts in time the efforts required to prevent the others.

Using a difference-in-difference identification strategy, Agarwal et al. (2012) empirically demonstrated the inefficiency of the HAMP. Using second-home investors who are not eligible for the program as the control group, they showed that promoted mortgage renegotiations has only limited influence on the rate of foreclosures and virtually no effect on other economic variables, such as declining house prices and employment. In addition, they point out that the lack of responsiveness to the

[24] To the authors' knowledge, no conclusive study is currently available on the effect of the HARP and HHF programs.

program (only 1.2 million mortgages were renegotiated compared with a target of 3 to 4 million) can be attributed to the rigid organizational capability of a few large loan lenders, who were not able to renegotiate mortgages. They conclude by stressing that short-term policies aiming to modify the behavior of large mortgage lenders are of limited effect.

Finally, using a simulation approach, Hembre (2014) assessed the impact of the HAMP on credit defaults by comparing it with a hypothetical counterfactual housing program in which households were not able to renegotiate their mortgage debt. He found that the HAMP expects to prevent slightly more than 500,000 defaults after 5 years. He shows, however, that the exorbitant program cost of $20.8 billion greatly exceeds the roughly estimated social costs associated with foreclosures, concluding that the program resulted in a net loss of $12.7 billion.

Lessons Learned

Several lessons can be learned from the present analysis. Some of them directly result from the previous analysis, but others are less straightforward.

To begin with, housing policymakers seem to be obsessed with the desire to modify the demand side of the market (for example, via mortgage subsidies such as the MID), arguably because it is the easiest way to reach a broad consensus among voters. Capozza, Green, and Hendershott (1996) and Hilber and Turner (2014), for example, showed, however, that modifications of fiscal incentives in housing markets that have an inelastic supply are capitalized into higher housing prices. In addition, research conducted by Glaeser, Gottlieb, and Gyourko (2010) and Mayer (2011) demonstrates the important role played by the supply elasticity to determine equilibrium prices.

In particular, we point out that future policies should take the spatial heterogeneity of the housing market into account. The United States provides a good example of the spatial dependence of supply constraints and of the consequences of neglecting them when making housing policies. Supply constraints are influenced by not only local regulatory restrictions but also by the nature of the local geographic area in which the housing market is located (Saiz, 2010).

Our analysis suggests that simply pouring subsidies homogenously across the country through ad hoc programs aiming to shift the housing demand without considering the local supply elasticity of housing markets can be counterproductive. The HHF program is an example of such bad practice. The largest allocation share (almost $2 billion) went to California. Given the nature of supply conditions in the large coastal California metropolitan areas, it seems reasonable to assume that the only effect of the allocation on the housing markets of Los Angeles and San Francisco was to further increase housing prices and augment the market volatility. Consistent with this proposition, illustrated in exhibit 10, the two cities experienced a strong price increase after the HHF was implemented.

Other lessons that can be learned are typically intrinsic to some flaws present in the policy implementation itself. Financial incentives and mortgage policies should avoid simply shifting purchase decisions and foreclosures in time. Otherwise, all these policies will achieve is a short-term disequilibrium of the housing market that will disappear as soon as the program ends.

Finally, a trivial lesson is to take the legal and organizational frameworks into account. If the demand or supply side of the market cannot react to the proposed incentives, the policies will

be largely ineffective. An example of limited supply response is provided by the inability of large mortgage lenders to renegotiate mortgages. On the demand side, it appears that credit score constraints of delinquent borrowers prevent them from benefiting from the policies' incentives.

Synthesis

In this article, we review the key housing policies implemented in three developed countries that differ markedly in their institutional settings, economic conditions, and geographic features. Our analysis suggests that differences in these factors manifest themselves in diverse supply conditions (that is, supply price elasticities) and these, in turn, are associated with two distinct housing problems: (1) housing affordability (in the case of inelastic supply) and (2) sprawl (in the case of elastic supply). The housing policies implemented to address these problems typically focus on the demand side, perhaps because they are politically more appealing. These demand-side policies, in turn, often have unintended (distributional and allocative efficiency) consequences via house price capitalization effects that policymakers typically ignore.

Our analysis of the United Kingdom and Swiss government systems—highly centralized versus decentralized—suggests that fiscal incentives may play a major role in determining the local housing supply elasticity and may thus explain issues of local housing affordability or of sprawl, respectively. The two opposite systems come with their own advantages and drawbacks. A highly centralized government providing few fiscal incentives at the local level for residential development, corresponding urban containment via greenbelts, height restrictions that prevent vertical expansion, and other regulatory constraints prevent urban sprawl but generate an acute housing-affordability crisis. By contrast, a system of fiscal competition with strong incentives at the local level to permit residential development implies lower house-price inflation but comes at the cost of urban sprawl.

The United States differs enormously across space in its geographical constraints and in its fiscal and regulatory features. While urban sprawl is a concern in large parts of the Midwestern and Southern United States, high house prices and a corresponding lack of affordability are major issues in coastal superstar cities such as Los Angeles, New York, and San Francisco. The United States, which has implemented numerous housing policies in recent years and provides access to rich data, thus provides a unique laboratory for empirical research.

Policymakers in the United States and the United Kingdom faced with housing-affordability problems and concerns about homeownership attainment tend to focus on demand-side solutions. Demand-side policies such as the MID or Help-to-Buy may be popular among voters, but they tackle symptoms rather than root causes. The key problem with these demand-side policies is that they have unintended and counterproductive consequences in severely supply-constrained places, because the demand-induced price increases offset the desired effects of the policy.

In a more general sense, the impact of housing policies ought to be evaluated in a general equilibrium framework rather than in a partial one. For example, a partial equilibrium analysis may focus on the direct incentive effects of demand-side subsidies such as the MID or Help-to-Buy and ignore the fact that such subsidies spur housing demand and thus increase house prices in supply inelastic places. Another example is the Swiss SHI. Whereas the SHI may achieve one objective—to combat

sprawl in the most touristic areas—it may create a few new problems (via general equilibrium effects): adverse effects on the local economy in the touristic areas, an increase of the ghost town phenomenon in these areas (outside of tourist seasons), long-term sprawl in semitouristic areas (slightly less than the initiative's threshold of 20 percent second homes), and price declines for existing local primary homeowners in touristic areas. Given the particular features of the legislation, the latter effect is arguably more pronounced among the elderly and less-educated, lower-income homeowners because they are typically less mobile, so the cost of converting their primary home into a second home *and* move away to another region may render their conversion option worthless.

One central conclusion from our analysis is that policymakers ought to be cautious when implementing new housing policies, especially "blanket" demand-side policies in countries that contain areas with severe supply constraints. Instead, policymakers ought to focus on correcting market failures and take supply conditions into account when designing policies.

Whereas large greenbelts (with intensive agricultural use) surrounding cities, in combination with tight height controls and lack of fiscal incentives at the local level (as is the case in the United Kingdom), are a recipe for a housing-affordability crisis, creating and maintaining local public parks (a local public good), preserving areas of outstanding natural beauty (because of their positive externalities and option values), or protecting truly historical buildings or neighborhoods (again because of positive externalities) are all sensible local (planning) policies. They increase social welfare yet will not create a housing affordability problem as long as enough incentives still exist to permit and develop tall buildings in the center of the locality and larger single-family houses in the periphery. If the lack of sufficient new housing construction is the perceived problem, then local taxes that provide fiscal incentives to local policymakers to permit development could be an effective means to create more affordable housing.

In a similar vein, if sprawl is perceived by voters to generate negative externalities, then a new national tax on the consumption of developed residential land (that is, a property [or, ideally, land-value] tax that has to be paid irrespective of whether a property or a parcel of land is used as the primary or secondary home) could discourage nonintensive use of residential land and could provide the right kind of incentives to prevent sprawl. At the same time, it would not provide additional incentives to local planning boards to permit development. Such a national tax might provide a much more efficient tool to combat sprawl with fewer side effects than banning second homes in touristic areas altogether. Such a reform could be designed revenue neutral. For example, in the case of Switzerland, the federal income tax (and corresponding deadweight losses) could be reduced by the amount of revenue the new tax generates.

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