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Rental Housing: An International Comparison

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Abstract

This report compares rental housing in 12 countries in Europe and North America, using individual records from household surveys. Differences in housing characteristics, conditions, and costs across countries reflect a number of factors, including demographics, geography, culture, and government policies. A lack of comparable data can make international comparisons difficult to execute, but such analysis is valuable for understanding and contextualizing differences in affordability and other characteristics of renter households and housing.

The analysis revealed the US, along with Spain, as notably unaffordable for renter households, based on a number of measures. The greater apparent cost burdens reflected a variety of factors, including differences in characteristics of the housing stock and differences in tax burdens, as well as measurement problems.

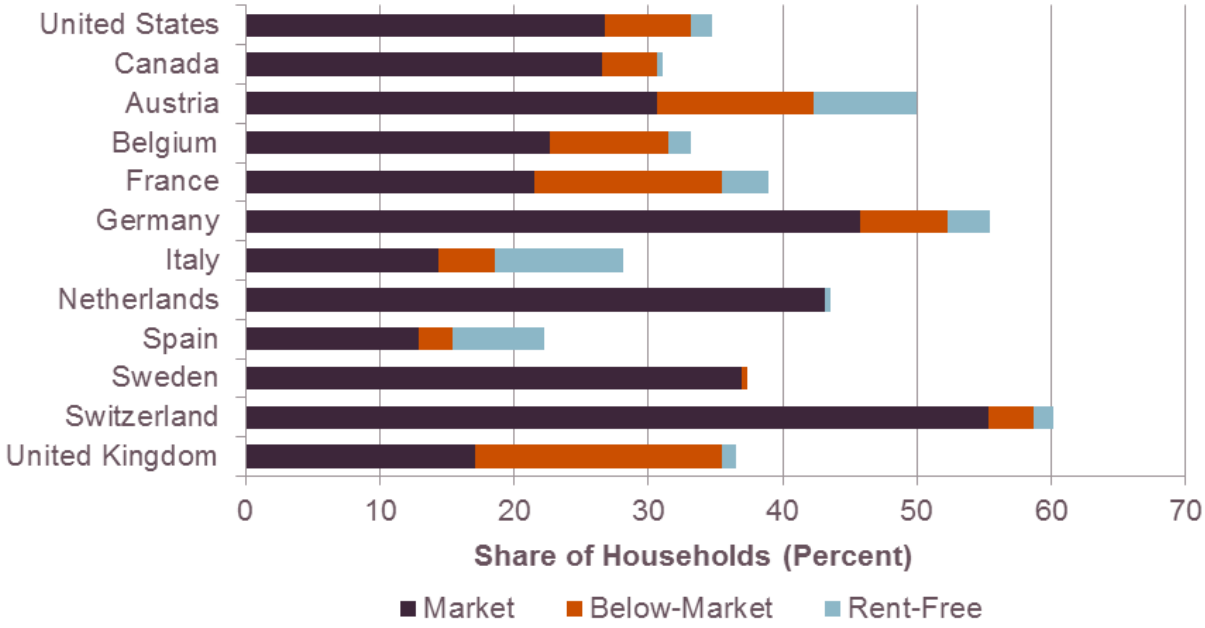
However, two major influences – differences in the size and availability of housing allowances and the degree of income inequality – emerged as the main drivers of differences in housing affordability. The effects of supply-side factors such as the extent of social housing supply, supply subsidies, and rent controls were unclear, due to problems with the identification and description of below-market rentals in the household survey data.

Rental Housing: An International Comparison

Introduction

The cost and the characteristics of housing vary among countries. Unlike many goods and services, housing doesn't enter into international trade in any significant way, so no competitive pressure from imports equalizes prices. Differences in housing reflect differences in government policies, geography, culture, history, demographics, and other factors. Comparing housing across countries may provide insight into the effects of these factors, but such comparisons have been hampered by a lack of comparable data.

Figure 1. Cash Renters and Rent-Free Households as a Share of All Households



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions.

This paper focuses specifically on rental housing in 12 advanced countries in Europe and North America, comparing affordability and other characteristics using data adjusted to be, as much as possible, on comparable terms. Figure 1 shows that the share of households paying rent in the countries studied ranges from 15.4 percent in Spain to 58.7 percent in Switzerland. If

households who are not owner-occupants but who pay no rent are also included in the rental category, the rental share ranges from 22.3 percent to 60.1 percent.

The US, along with Spain, exhibits more pervasive and severe rental affordability problems than the other countries considered. The analysis indicates that the greater cost burdens found among renters in the US, relative to most of the other countries, are largely due to greater income inequality, to more limited housing assistance programs, and perhaps to a housing supply consisting of units that are larger and better-equipped but that are consequently more expensive. This paper is largely focused on lessons for the US from comparisons to other countries, but hopefully it will be useful for those interested in comparisons among those other countries as well.

While measures of housing affordability and quality are often provided in official reports for different countries, the reported indicators have typically been based on a variety of inconsistent definitions and metrics. There have been few cross-country comparisons covering both Europe and North America of rental housing affordability, tenant characteristics, and the other measures examined here. Harloe (1985) discussed many aspects of rental housing in the US and Europe, and cited some research measuring rent-to-income ratios for individual countries, but didn't show comparable measures across the countries he considered. A series of World Bank and UN studies in the 1990s compared many aspects of housing in selected cities in a large number of countries (Angel 2000, Malpezzi 2014), but that data collection effort was not continued. Comparisons among European countries are included in reports such as those by Arestis, Mooslechner, and Wagner (2010), Dol and Haffner (2010), and Pittini (2012). Most of the literature in recent years involving cross-country comparisons of rental housing has focused on the supply side, considering incentives for building or operating private rental housing and/or support for social housing (Crook and Kemp 2014; Andrews, Sánchez, and Johannson 2011; Oxley, Lishman, and Brown 2010; Peppercorn and Triffin 2013; Scanlon and Kochan 2011).

Data Sources

This analysis relies (mostly) on three data sets containing microdata (individual responses) from household surveys conducted (mostly) in 2013. For the 10 European countries included here, the primary data source is the European Union Statistics on Income and Living Conditions (EU-SILC), obtained from Eurostat, the European Union's statistical office. Eurostat coordinates and assembles data from the 28 EU member countries, as well as from a few non-EU countries such as Switzerland and Norway. The countries included here were those with the largest number of renters and/or survey records.

For the EU-SILC program, national governments are instructed to collect and submit data based on a "common framework" of definitions and methodology, but they do not use identical surveys.[1] For some variables, it is not clear that all countries followed the framework consistently, that the framework includes adequately precise definitions, or that the situations in every country can be measured according to the criteria specified. As discussed below, the identification of "below-market rate" rental housing is particularly problematic. Still, the EU-SILC program has helped to greatly improve comparability. Further details about the EU-SILC data and the adjustments made to facilitate comparisons with the US and Canada are described in Appendix 1.

For Canada, most of the data are from the 2011 National Household Survey (NHS). That is not an annual survey, and 2011 was the most recent available.

For the US, most of the housing data used in this analysis are from the 2013 American Housing Survey (AHS). The AHS is conducted every two years and includes very detailed questions about housing.

In addition to the EU-SILC, Canadian NHS, and US AHS household surveys, this report incorporates data from the US Annual Social and Economic Supplement to the Current

[1] Anais Santourian and Eleni Ntakou, "Working Paper with the description of the 'Income and living conditions dataset,'" Eurostat, December 2014 (https://circabc.europa.eu/sd/a/038d0218-6ec6-41e1-8b37-9d293b5fef49/0.%20Description%20of%20Datasets%20on%20Income%20and%20Living%20Conditions.pdf).

Population Survey (CPS-ASEC), from European national censuses, from the Canadian Survey of Household Energy Use, and from the English Housing Survey.

Components of the Rental Housing Supply

The rental housing stock is often divided into components based on ownership, types of occupants, types of structures, or other distinctions. Regarding ownership, the usual categories include ownership by government agencies, by nonprofit organizations, or by private for-profit companies or individuals. Occupancy of some rental housing may be restricted to particular groups, such as low-income households or the elderly. For this analysis, we use EU-SILC categories characterizing housing as "rented at prevailing or market rate," "rented at a reduced rate," and "provided rent-free." These are related to, but not equivalent to, categories based on ownership and occupancy. We also consider structure types in a later section.

Below-Market Rent

The EU survey guidelines defining accommodation "rented at a reduced rate" state that "reduced-rate renters would include those (a) renting social housing, (b) renting at a reduced rate from an employer, and (c) those in accommodation where the actual rent is fixed by law" (Eurostat 2013, p. 172) The guidelines indicate that only rentals with supply-side rent discounts should be classified as below-market-rate. Housing allowances (demand-side subsidies) are treated separately. The guidelines go on to say that if there is no clear distinction available to separate market-rate from below-market-rate, all renters should be coded as renting at market rates (Eurostat 2013).

The term "social housing" is commonly, and ambiguously, used in Europe to refer to public housing and also to privately-owned housing that is not profit-maximizing, that has occupancy restricted or targeted to low-income or other disadvantaged groups, that has rents based on costs rather than on supply and demand, or that benefits from public subsidies (Oxley and Smith 1996; Braga and Palvarini 2013). In Europe, social housing is generally owned by government agencies or by nonprofit organizations. In Germany and some other European countries, however, there are also arrangements, similar to those in the US, whereby for-profit

owners agree to limit rents and serve low-income and other targeted groups in return for subsidies or other incentives (Oxley et al. 2011).

The Netherlands was one of two countries in the EU-SILC data (along with Denmark, which is not included in this analysis) to characterize all rental units as being at prevailing or market rate, despite (or because of) the fact that the majority of rental units in the Netherlands are owned by nonprofit housing associations ("woningcorporaties") (Haffner and Boumeester 2010). Indeed, according to Housing Europe (the European Federation for Public, Cooperative and Social Housing), the Netherlands has the highest social renting share in the EU (Pittini et al. 2015).[2] The classification in the EU-SILC data of all Netherlands rental housing as market-rate illustrates the lack of consistency in the classification of rental housing as market-rate versus below-market. Another example is Sweden, with only 1.1 percent of cash rentals shown as below-market in the SILC data, even though other data indicate that about half of the rental stock there consisted of nonprofit social housing (Dol and Haffner 2010; Donner 2011; Czischke 2007).

Even where the European national statistical agencies have determined clear criteria that are consistent with the SILC guidelines, the households answering the surveys may not be able to provide accurate information for determining whether or not they fit into the below-market category.

[2] One Dutch departure from the social housing model has been an absence of explicit income targeting, at least in some localities. The European Commission ruled in 2005 and 2009 that the absence of nationwide tenant income restrictions meant that the housing associations, and the government support they receive, mainly in the form of loan guarantees, violated EU competition policy. In response, greater income targeting has been initiated (Elsinga and Lind 2013).

	Table 1	US	Canada	Austria	Belgium	France	Germany	Italy	Netherlands	Spain	Sweden	Switzerland	UK
	Households by Tenure												
1	**Total Households**	**115,853**	**13,317**	**3,701**	**4,791**	**27,868**	**39,408**	**25,701**	**7,569**	**18,190**	**4,635**	**3,373**	**26,995**
2	Owner-Occupied	75,650	9,146	1,849	3,197	17,006	17,530	18,476	4,268	14,130	2,880	1,342	17,141
3	**Cash Renters**	**38,411**	**4,073**	**1,569**	**1,511**	**9,902**	**20,628**	**4,765**	**3,267**	**2,805**	**1,720**	**1,973**	**9,577**
4	Market Rate	31,048	3,533	1,138	1,089	5,997	18,048	3,695	3,267	2,355	1,700	1,859	4,612
5	Below Market Rate	7,363	540	431	422	3,905	2,581	1,070	0	450	20	114	4,965
6	Rent-free	1,791	48	284	80	960	1,250	2,460	31	1,255	0	49	277
	Share of Households:												
7	Owner-Occupied	65.3%	68.7%	50.0%	66.7%	61.0%	44.5%	71.9%	56.4%	77.7%	62.1%	39.8%	63.5%
8	**Cash Renters**	**33.2%**	**30.6%**	**42.4%**	**31.5%**	**35.5%**	**52.3%**	**18.5%**	**43.2%**	**15.4%**	**37.1%**	**58.5%**	**35.5%**
9	Market Rate	26.8%	26.5%	30.7%	22.7%	21.5%	45.8%	14.4%	43.2%	12.9%	36.7%	55.1%	17.1%
10	Below Market Rate	6.4%	4.1%	11.6%	8.8%	14.0%	6.5%	4.2%	0.0%	2.5%	0.4%	3.4%	18.4%
11	Rent-free	1.5%	0.4%	7.7%	1.7%	3.4%	3.2%	9.6%	0.4%	6.9%	0.0%	1.4%	1.0%
	Cash Renter Share by Income Quintile												
12	Lowest Quintile	54.8%	58.3%	57.8%	57.7%	59.7%	80.2%	25.8%	81.8%	24.7%	68.3%	66.7%	59.3%
13	2nd	42.5%	41.5%	51.9%	40.8%	45.0%	60.3%	21.4%	66.7%	19.2%	53.6%	69.3%	44.2%
14	3rd	33.1%	27.7%	46.9%	32.0%	35.5%	53.2%	21.4%	40.4%	15.6%	35.3%	62.8%	35.1%
15	4th	23.2%	16.1%	34.4%	20.2%	25.0%	42.4%	15.9%	18.2%	9.9%	19.4%	53.0%	24.5%
16	Highest	14.1%	8.1%	20.9%	7.1%	12.5%	25.7%	8.2%	8.9%	7.7%	10.3%	41.5%	14.3%
	Median Gross Household Income ($US)												
17	Owners	**$64,353**	$58,781	$64,638	$53,948	$51,706	$58,773	$40,683	$70,270	$36,865	$60,029	$86,116	$42,788
18	Renters + rent-free	$32,196	$27,070	$37,327	$26,495	$30,239	$31,655	$28,763	$28,157	$23,783	$28,523	$61,960	$22,062
19	Cash Renters	**$32,600**	$27,844	$39,175	$26,497	$29,851	$31,505	$29,979	$28,086	$23,656	$28,523	$62,633	$22,114
20	All Households	$50,706	$47,180	$49,693	$42,144	$41,851	$42,226	$36,631	$48,812	$33,250	$44,709	$70,769	$33,582
	Median Gross Household Income by Quintile (All Households)												
21	Lowest Quintile	$12,423	$13,148	$16,111	$15,272	$16,546	$12,311	$12,362	$17,053	$11,692	$15,188	$27,678	$10,388
22	2nd	$30,000	$29,391	$32,469	$26,521	$28,635	$26,805	$24,807	$30,660	$21,956	$29,670	$48,895	$21,085
23	3rd	$51,012	$47,180	$49,690	$42,144	$41,851	$42,226	$36,631	$48,804	$33,247	$44,709	$70,768	$33,582
24	4th	$81,200	$71,156	$70,657	$65,602	$59,518	$62,981	$54,548	$72,670	$49,171	$66,906	$97,066	$52,662
25	Highest	$146,685	$118,336	$114,214	$101,773	$94,713	$104,468	$90,010	$114,083	$83,607	$98,508	$148,029	$89,124
	Mean Gross Household Income ($US)												
26	Owners	$85,017	$72,297	$75,203	$62,186	$63,453	$70,435	$51,926	$78,502	$45,781	$65,201	$99,477	$53,487
27	Renters + rent-free	$46,556	$35,400	$44,939	$34,413	$36,632	$39,445	$34,964	$35,642	$30,065	$34,332	$72,772	$29,741
28	Cash Renters	$46,916	$35,484	$46,562	$34,215	$36,216	$39,389	$35,251	$35,488	$30,450	$34,332	$73,684	$29,874
29	All Households	$71,586	$60,836	$60,057	$52,958	$52,998	$53,230	$47,158	$59,819	$42,273	$53,660	$83,426	$44,819
	Disposable Household Income												
	Median Disp/Total												
30	Owners	81.7%	87.1%	76.1%	78.7%	82.7%	75.9%	77.9%	63.6%	88.0%	75.5%	72.2%	81.0%
31	Cash renters	92.3%	95.4%	80.0%	86.2%	84.1%	80.6%	80.7%	73.7%	91.9%	78.2%	72.9%	93.6%
32	All Households	84.7%	89.1%	78.1%	80.8%	83.2%	78.3%	78.5%	67.7%	88.7%	76.6%	72.6%	84.1%
	Median												
33	Owners	$52,800	$51,047	$48,934	$41,995	$42,071	$43,936	$31,422	$45,579	$32,241	$45,165	$61,883	$34,508
34	Cash renters	$31,045	$25,524	$30,439	$21,968	$24,672	$24,695	$23,864	$21,293	$21,019	$22,381	$45,416	$20,417
35	All Households	$43,773	$41,766	$38,151	$33,611	$34,417	$31,880	$28,775	$33,197	$29,323	$34,211	$50,674	$28,696
36	**Mean-All HH**	$56,949	$50,830	$44,271	$40,306	$42,472	$38,683	$34,972	$38,749	$35,307	$39,905	$59,189	$34,653
	Income Inequality - Gini Coefficient												
	All Households												
37	Gross Income	0.468	0.433	0.384	0.383	0.388	0.412	0.400	0.383	0.398	0.371	0.349	0.426
38	Disposable Income	0.425	0.397	0.344	0.343	0.364	0.378	0.364	0.338	0.365	0.346	0.343	0.373
	Cash Renters												
39	Gross Income	0.469	0.430	0.368	0.369	0.351	0.412	0.368	0.352	0.402	0.368	0.333	0.415
40	Disposable Income	0.421	0.397	0.324	0.312	0.328	0.369	0.333	0.309	0.378	0.342	0.326	0.368
	Ratio of 10th Percentile Income to Median Income												
	All Households												
41	Gross Income	0.245	0.279	0.325	0.362	0.395	0.292	0.338	0.349	0.352	0.340	0.391	0.309
42	Disposable Income	0.268	0.296	0.387	0.430	0.430	0.338	0.375	0.409	0.394	0.369	0.398	0.341
	Cash Renters												
43	Gross Income	0.261	0.278	0.350	0.454	0.404	0.269	0.345	0.490	0.321	0.380	0.417	0.349
44	Disposable Income	0.278	0.303	0.420	0.530	0.458	0.304	0.373	0.513	0.352	0.412	0.435	0.364

see table notes in appendix 3

Figure 1 and lines 3 to 5 of Table 1 show the breakdown between market-rate and below-market-rate rental units for European countries as recorded in the EU-SILC data, as well as estimates for the US and Canada of the number of below-market rental units based on the EU-SILC guidelines. Among the European countries considered in this report, the largest below-market share reported in the SILC data was for the UK. For the US, applying the relatively expansive EU definition of below-market rental housing—including units subject to rent control and those with rents that are reduced because of the tenants' employment or relationship to the owner, but excluding cases where a voucher is used to rent a market-rate unit—the AHS data suggest there were about 7.4 million below-market rentals in 2013, representing about 19 percent of cash rentals. The derivation of the estimate for the US is described in Appendix 2.

In Canada, the NHS data simply indicate whether or not a unit is "subsidized," including social housing, nonprofit housing, and units where the tenant benefits from a provincial housing allowance. Thus the NHS data do not provide a basis for separating housing allowances from below-market rentals. The calculations here treat all Canadian subsidized rentals as below-market.

Neither Owners nor Renters

It is common to separate households into owners and renters, with everyone who is not an owner-occupant counted as a renter, including those who live in housing for which they pay no rent. Many of the households living rent-free are provided housing in connection with their jobs. Examples include farm workers, clergy, resident managers in rental properties, and caretakers. Other households live rent-free because they are relatives of the owners. In some cases, tenants in subsidized housing may end up paying no rent, and it is unclear whether the various national surveys and censuses include such households among those in accommodations "provided free," but the category is intended to cover those where there is no rent, not households who live in rental housing with the rent paid by government subsidies.

In the U.S., about 1.8 million households live rent-free in housing that they don't own, representing less than 2 percent of all households and about 4.5 percent of all non-

homeowners. In some other countries, the share is quite a bit larger, with nearly 10 percent of all households in Italy, for example, living in rent-free housing, accounting for more than a third of the 28 percent of Italian homes that are not owner-occupied. Austria and Spain also have large rent-free shares. The analysis here mainly focuses on "cash rentals," consisting of market-rate and below-market units and excluding rent-free units

Characteristics of All Households and of Renters

There are a number of differences in the overall mix of households in each country, and in the proportions of households with various characteristics who are renters, that affect the types of rental housing demanded and the proportion able to afford the cost of rental housing. Here we will consider a few key household characteristics: income, household size, nativity (i.e., native householders as opposed to foreign-born), and age.

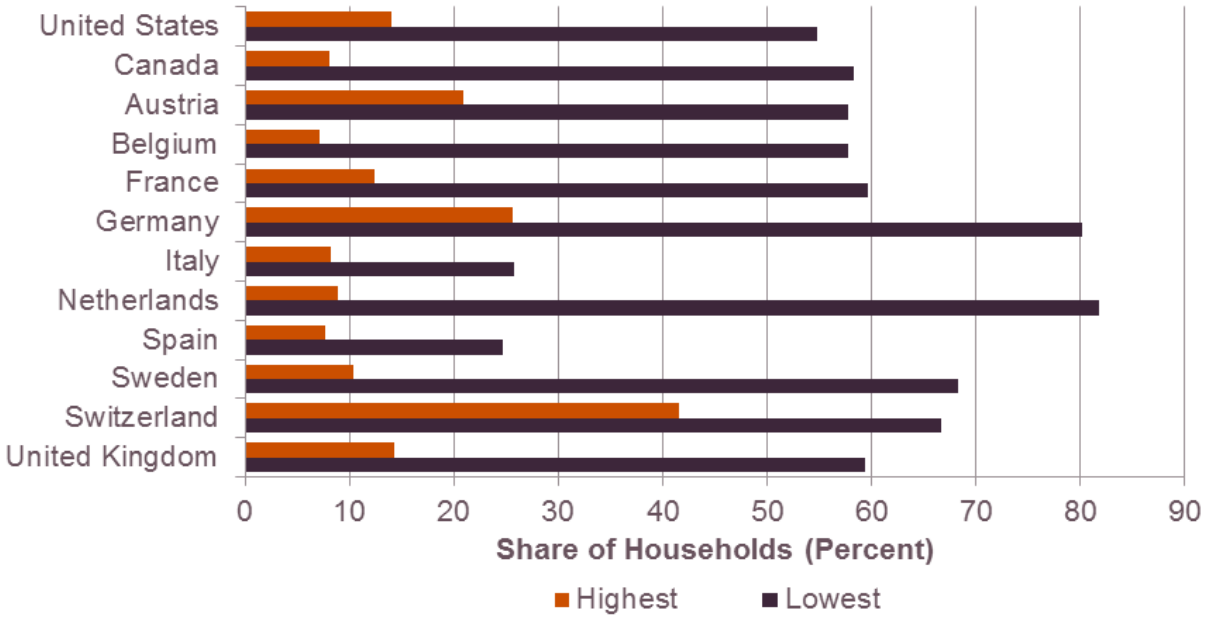
Income

Housing affordability is generally assessed based on the relationship of housing cost to income. The definition, measurement, and distribution of income for renter households, and for all households, are central to the analysis of affordability, as well as to analysis of tenure choice and of the physical characteristics of housing demanded.

In each country, renting is more common among those with below-median incomes than with higher incomes. Lines 12 to 16 of Table 1 show, for each country, the share of households in each income quintile who were cash renters. Rentership among the highest and lowest quintiles is shown in Figure 2. In some cases, the tenure shares were vastly different for different income groups. In the Netherlands, over 80 percent of households in the lowest income quintile were renters, compared to only 9 percent of the top quintile. Belgium and Canada also had relatively lopsided tenure shares across income quintiles: less than 10 percent of households in the highest quintiles in those countries renting, compared to a majority of those in the lowest quintile. In Switzerland, the correlation with income was much weaker, with 67 percent of households in the lowest income quintile, 69 percent in the next quintile, and more than 41 percent in the highest quintile renting their homes. In Italy, although few

households in the highest income quintile were renters, rentership among the other four quintiles was not highly concentrated among those with the lowest incomes. The US was in the middle of the pack in terms of the concentration of renting in the lower end of the income distribution.

Figure 2. Rentership in Highest and Lowest Income Quintiles



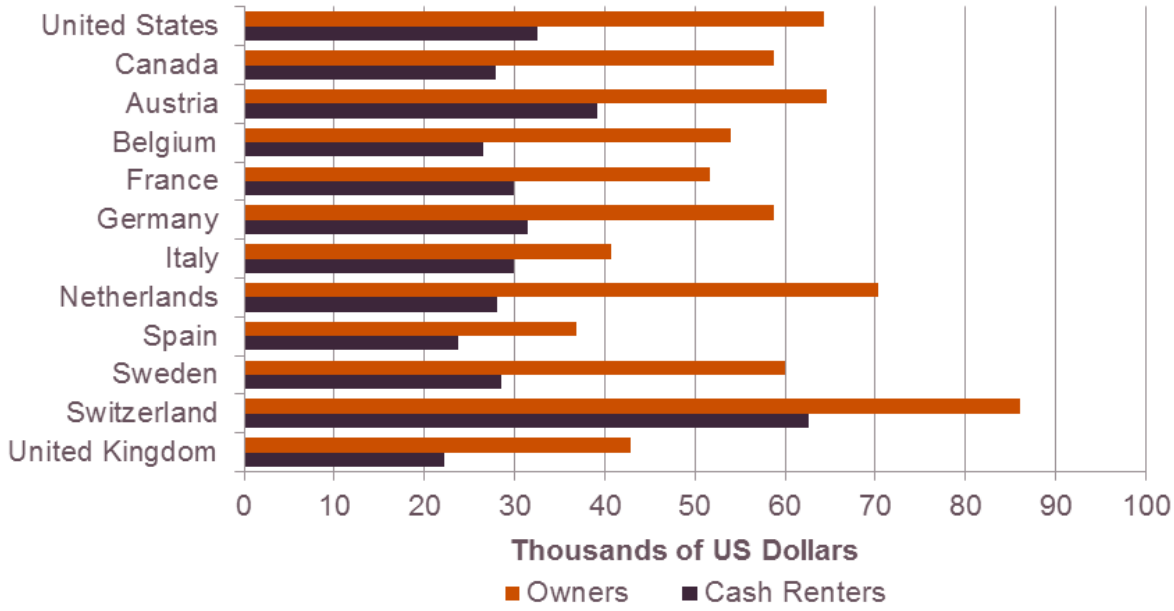
Sources: JCHS tabulations of US Census Bureau, 2013 Current Population Survey Annual Social and Economic Supplement; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions.

Although rentership within each country was more common among lower-income households, the countries with the lowest national median household incomes were not the ones with the highest national rentership rates. Indeed, it seems like the opposite is true, with Spain having the lowest rentership rate, as well as the lowest median gross income, among the countries shown, while high-income Switzerland has the highest rentership rate.

The median pretax money incomes of owners and renters are shown in Figure 3, with those values, as well as the median among all households, shown on lines 17 to 20 of Table 1,

expressed in US dollars and converted using purchasing power parity.[3] The differences between the medians for owners and renters in each country reflect the extent to which renters were concentrated at the low end of the income distribution, as well as the overall degree of income inequality. In most countries, the median income among renters was about half that of owners. In the Netherlands, with a heavy concentration of renters at the low end of the income distribution, the median income among renters was only 40 percent of the median for owners. In Switzerland and Italy, on the other hand, the median income among renters was more than 70 percent of the median among owners.

Figure 3. Median Gross Household Income



Sources: JCHS tabulations of 2013 US Census Bureau CPS Annual Social and Economic Supplement; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions.

The incomes for owners and renters shown here for the US are based on data from the CPS-ASEC, which has the most extensive set of questions regarding income of the major US

[3] Purchasing power parity (PPP) estimates are from the Organization for Economic Cooperation and Development. The measure used is the 2013 PPP index for private consumption. If the translation to dollars had used exchange rates, foreign incomes and costs would have appeared higher, particularly in 2013 when the Euro and Canadian dollar were, to a greater extent than in 2015, overvalued relative to purchasing power. With PPP conversion rates, unlike market exchange rates, the translation from euros to dollars differs among countries in the euro zone, depending on prices.

household surveys, although that survey does not measure housing costs. As discussed in Appendix 2, other US household surveys measuring income show incomes that are somewhat higher (ACS) or lower (AHS). The inconsistency in measuring income suggests the possibility that the high cost burdens for renters in the US discussed below are due, at least in part, to understatement of income. That may indeed be so, but the ACS survey that shows higher income also shows higher housing cost, so that the resulting median cost burdens based on AHS and ACS data are nearly identical. Household incomes in other countries may also be subject to misreporting.

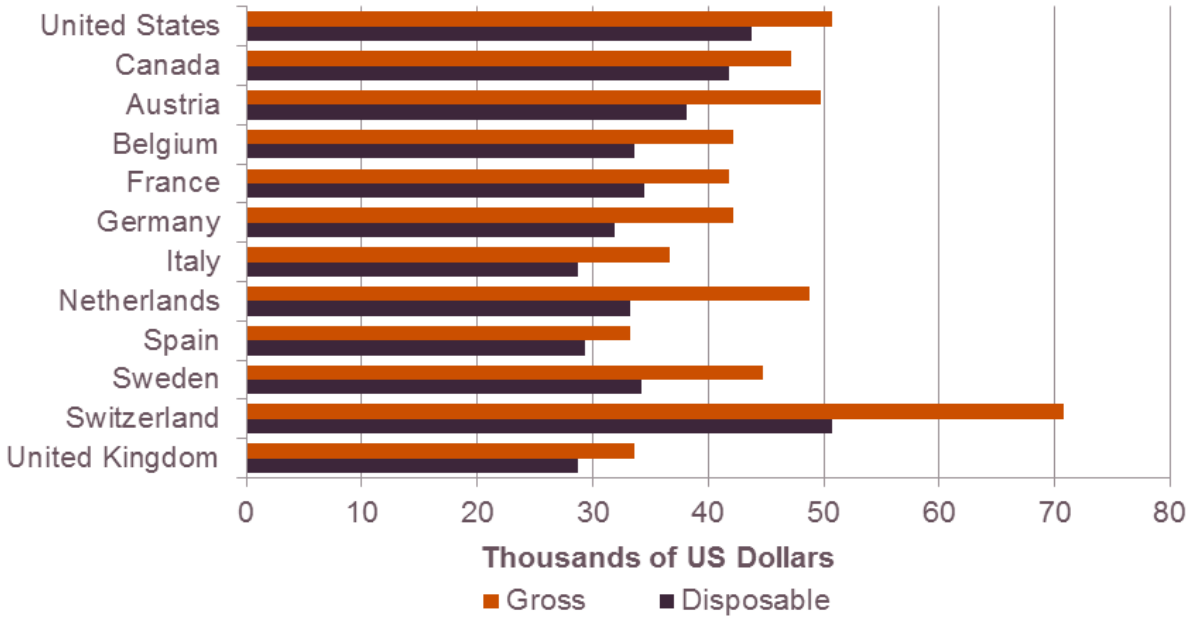
Published comparisons of income across countries are typically on a per capita basis, and usually indicate that incomes are clearly higher in the US than in most or all of the other countries considered here.[4] The overall median shown for the US in Table 1 ($50,706) is not much higher than for countries like Austria ($49,693) or the Netherlands ($48,812). The mean household income for the US, however, is substantially higher than the means for all of the other countries except Switzerland, as shown on line 29 of Table 1.

An alternative to pre-tax money income is disposable income, defined as total money income minus personal taxes on income and wealth and social insurance contributions. Figure 4 compares median total and disposable income and shows that disposable income is lower, relative to gross income, in all countries, but the difference between the two measures is greater for most other countries than for the US, because households in European countries generally pay higher shares of their incomes in taxes than households in the US. Lines 30 to 32 of Table 1 show the median ratios of disposable income to gross household income. The values for median and mean disposable income are shown on lines 33 to 36. Some countries actually had higher ratios of disposable income to total pre-tax money income than the US, mainly because they rely more on other forms of taxation, such as value-added taxes and excise taxes, than on taxes on personal income and wealth. Indeed, although taxes are a smaller share of

[4] For other comparisons of income and/or GDP per capita, see OECD data on household disposable income (https://data.oecd.org/hha/household-disposable-income.htm) and United Nations Economic Commission for Europe "Country Overviews" (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/?rxid=a7d16e61-44b6-4123-bac8-1e641a7fc291).

GDP in the US than in any of the other countries shown, the share of total tax revenues coming from taxes on personal income and wealth is greater (OECD 2014).

Figure 4. Gross vs. Disposable Median Income – All Households

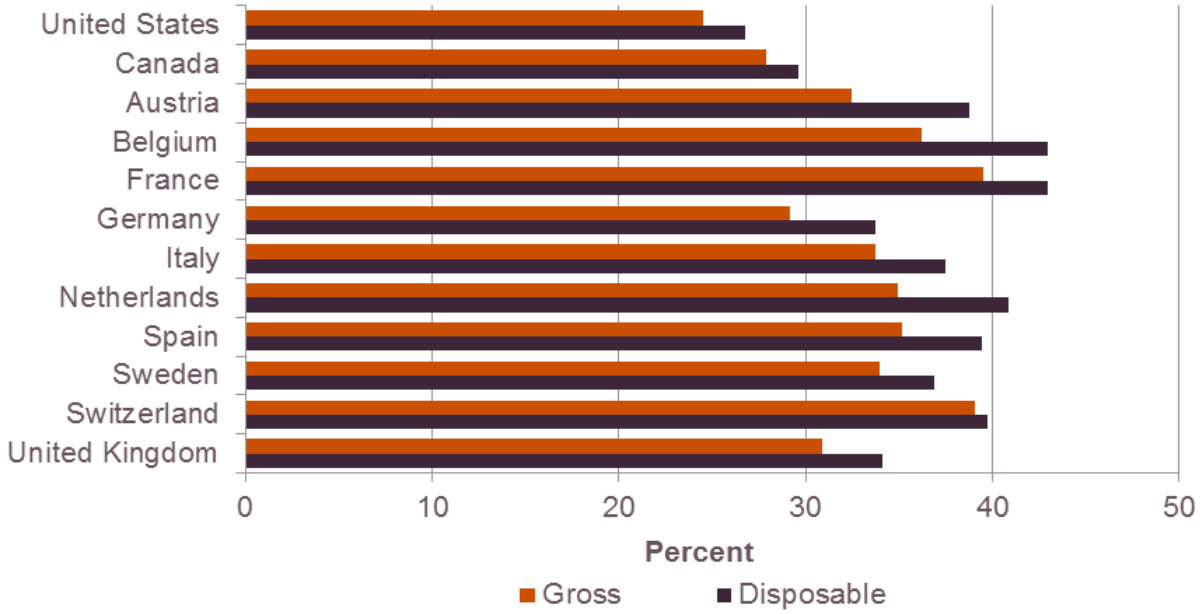


Sources: JCHS tabulations of US Census Bureau, 2013 Current Population Survey Annual Social and Economic Supplement; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions.

High ratios of mean incomes to median incomes for the US relative to other countries reflect income inequality. A standard measure of income inequality is the Gini coefficient, which ranges from zero, if all households have the same income, to one, if a single household receives all the income. Lines 37 to 40 in Table 1 show the Gini coefficients for household incomes for the 12 countries in this analysis. The US, with the highest Gini values, is clearly the country with the greatest inequality.

Another, perhaps more relevant and intuitive measure of inequality is the ratio of income among those lower in the income distribution to the overall median income. With those ratios, a lower value indicates greater inequality.

Figure 5. Ratio of 10th Income Percentile to 50th Income Percentile – All Households



Sources: JCHS tabulations of US Census Bureau 2013 Current Population Survey Annual Social and Economic Supplement; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions.

Figure 5 shows the ratio of the 10th income percentile to the 50th (equivalent to the ratio of the median for the lowest quintile to the overall median) for gross income and disposable income, for all households. Lines 41 to 44 of Table 1 show the ratios for renters, as well as for all households. There is less inequality in each country based on disposable income than based on total income, since lower-income households generally pay smaller shares of their incomes in taxes. The US ratio of the 10th percentile to the 50th percentile among all households was 0.245 for gross income and 0.268 for disposable income, lower than for all the other countries.

Other studies of inequality, using additional measures, adjusting for household size, or based on individuals rather than households, have similarly found income inequality in the US to be greater than in any of the countries considered here, as well as greater than in other high-income countries (World Economic Forum 2015, OECD 2011, Piketty 2014).

Household Size

The tendency to rent is also related to household size. Lines 1 to 12 of Table 2 show the distribution of all households, and of cash renter households, by the number of people in the household. Rentership rates by household size are given in lines 13 to 18. In all of these countries, single-person households were more likely to be renters than households with 2 to 4 people. In about half of the countries, households with 5 or more people were also more likely to be renters than those with 2 to 4 members.

The average cash renter household in the US contained 2.39 people, more than in any other country except Spain (2.62), although only slightly more than Italy (2.37). In Sweden, the Netherlands, Germany, and Belgium, more than half of all renter households consisted of people living alone, and the average number of people per cash renter household in those four countries ranged from 1.66 to 1.91. In the US, 36 percent of renter households consisted of people living alone, and the share was similar in Switzerland, Italy, and the UK. In Spain, only 25 percent of renter households (and only 23 percent of all households) were people living alone.

In Germany, over 40 percent of all households consist of people living alone, more than in any of the other countries being considered. Among German households consisting of 2 or more people, only 41 percent are cash renters, but among German one-person households, 69 percent are cash renters. Household size is not the only influence on the rentership rate in Germany, however, and not all countries with high rentership have unusually large numbers of one-person households. In Switzerland, only 31 percent of households consisted of people living alone, of whom 72 percent were cash renters, but cash rentership among households there with 2 or more members was 53 percent.

Table 2

		US	Canada	Austria	Belgium	France	Germany	Italy	Netherlands	Spain	Sweden	Switzerland	UK
	All Households and Renters by Number of Persons												
1	**Households**	**115,853**	**13,317**	**3,701**	**4,791**	**27,868**	**39,408**	**25,701**	**7,569**	**18,190**	**4,635**	**3,373**	**26,995**
2	1	32,268	3,663	1,357	1,651	9,791	15,822	8,305	2,802	4,268	1,851	1,045	7,708
3	2	38,677	4,536	1,066	1,489	9,256	13,646	6,782	2,432	5,581	1,527	1,216	9,839
4	3	18,134	2,087	571	728	3,691	4,963	5,060	925	3,959	476	442	4,367
5	4	15,288	1,922	475	592	3,568	3,659	4,239	982	3,352	554	468	3,571
6	5+	11,486	1,110	232	332	1,563	1,317	1,314	429	1,029	227	202	1,510
7	**Cash renters**	**38,410**	**4,073**	**1,569**	**1,511**	**9,902**	**20,628**	**4,765**	**3,267**	**2,805**	**1,720**	**1,973**	**9,577**
8	1	13,819	1,831	757	789	4,430	10,982	1,655	1,925	699	1,026	748	3,299
9	2	10,422	1,199	396	379	2,755	6,293	1,180	864	810	408	640	2,943
10	3	5,964	512	209	169	1,322	1,947	922	253	570	117	266	1,638
11	4	4,366	318	139	90	845	1,053	673	150	461	110	222	1,060
12	5+	3,839	213	68	84	550	354	335	74	265	59	97	636
13	**Rentership**	**33.2%**	**30.6%**	**42.4%**	**31.5%**	**35.5%**	**52.3%**	**18.5%**	**43.2%**	**15.4%**	**37.1%**	**58.5%**	**35.5%**
14	1	42.8%	50.0%	55.8%	47.8%	45.3%	69.4%	19.9%	68.7%	16.4%	55.5%	71.6%	42.8%
15	2	26.9%	26.4%	37.2%	25.4%	29.8%	46.1%	17.4%	35.5%	14.5%	26.7%	52.6%	29.9%
16	3	32.9%	24.6%	36.6%	23.3%	35.8%	39.2%	18.2%	27.3%	14.4%	24.5%	60.3%	37.5%
17	4	28.6%	16.5%	29.3%	15.1%	23.7%	28.8%	15.9%	15.3%	13.8%	19.8%	47.5%	29.7%
18	5+	33.4%	19.2%	29.1%	25.5%	35.2%	26.9%	25.5%	17.3%	25.7%	25.8%	47.8%	42.2%
	Share of Renters												
19	1	36.0%	44.9%	48.3%	52.2%	44.7%	53.2%	34.7%	58.9%	24.9%	59.7%	37.9%	34.5%
20	2	27.1%	29.4%	25.3%	25.0%	27.8%	30.5%	24.8%	26.5%	28.9%	23.7%	32.4%	30.7%
21	3	15.5%	12.6%	13.3%	11.2%	13.4%	9.4%	19.3%	7.7%	20.3%	6.8%	13.5%	17.1%
22	4	11.4%	7.8%	8.9%	5.9%	8.5%	5.1%	14.1%	4.6%	16.4%	6.4%	11.3%	11.1%
23	5+	10.0%	5.2%	4.3%	5.6%	5.6%	1.7%	7.0%	2.3%	9.4%	3.4%	4.9%	6.6%
	Average persons												
24	All Households	2.50	2.46	2.26	2.29	2.23	2.02	2.37	2.20	2.54	2.11	2.30	2.33
25	Cash renters	2.39	2.02	1.98	1.91	2.05	1.72	2.37	1.66	2.62	1.72	2.16	2.28
	Nativity of Householder												
26	**Foreign-born**	**14.0%**	**23.5%**	**17.2%**	**17.0%**	**9.6%**	**6.6%**	**9.9%**	**18.4%**	**14.3%**	**16.8%**	**38.1%**	**13.0%**
27	**Cash Rentership**	**33.2%**	**30.6%**	**42.4%**	**31.6%**	**35.5%**	**52.3%**	**18.5%**	**43.2%**	**15.4%**	**37.4%**	**58.7%**	**35.5%**
28	Native-born	30.9%	30.0%	36.9%	26.4%	34.6%	51.9%	14.4%	40.9%	9.5%	35.1%	51.6%	32.0%
29	Foreign-born	47.3%	32.6%	68.9%	56.6%	44.2%	58.3%	55.9%	52.9%	50.8%	48.7%	70.2%	58.4%
	Age of Householder												
30	**All Households**	**115,852**	**13,317**	**3,701**	**4,791**	**27,868**	**39,408**	**25,701**	**7,569**	**18,190**	**4,635**	**3,373**	**26,995**
31	Under 25	5,140	470	103	75	817	836	257	320	217	513	75	1,065
32	25-34	19,180	1,893	477	684	4,055	5,304	2,319	1,160	2,219	770	469	4,083
33	35-44	20,057	2,359	592	861	4,874	6,235	4,879	1,338	4,145	687	598	4,687
34	45-54	23,014	3,046	843	988	4,890	8,480	5,163	1,507	3,845	649	749	5,344
35	55-64	21,660	2,560	690	852	5,186	7,068	4,315	1,325	2,937	685	579	4,333
36	65+	26,801	2,990	996	1,331	8,046	11,485	8,767	1,919	4,828	1,332	903	7,482
37	**Cash Renters**	**38,411**	**4,073**	**1,569**	**1,511**	**9,902**	**20,628**	**4,765**	**3,267**	**2,805**	**1,720**	**1,973**	**9,577**
38	Under 25	4,211	355	77	60	724	762	84	265	94	314	68	927
39	25-34	10,724	881	326	341	2,357	4,194	820	609	737	410	413	2,570
40	35-44	7,577	716	292	275	1,905	3,375	1,199	474	851	199	393	1,826
41	45-54	6,415	766	299	290	1,721	4,064	980	496	572	188	396	1,476
42	55-64	4,820	576	245	206	1,274	3,384	686	473	252	191	263	1,121
43	65+	4,664	779	330	339	1,921	4,849	997	950	299	418	440	1,657
44	**Rentership**	**33.2%**	**30.6%**	**42.4%**	**31.5%**	**35.5%**	**52.3%**	**18.5%**	**43.2%**	**15.4%**	**37.1%**	**58.5%**	**35.5%**
45	Under 25	81.9%	75.6%	74.7%	80.2%	88.6%	91.1%	32.6%	82.6%	43.3%	61.3%	89.5%	87.0%
46	25-34	55.9%	46.5%	68.4%	49.8%	58.1%	79.1%	35.4%	52.5%	33.2%	53.3%	88.0%	62.9%
47	35-44	37.8%	30.3%	49.3%	31.9%	39.1%	54.1%	24.6%	35.4%	20.5%	29.0%	65.8%	39.0%
48	45-54	27.9%	25.2%	35.5%	29.3%	35.2%	47.9%	19.0%	32.9%	14.9%	28.9%	52.8%	27.6%
49	55-64	22.3%	22.5%	35.6%	24.2%	24.6%	47.9%	15.9%	35.7%	8.6%	27.9%	45.5%	25.9%
50	65+	17.4%	26.0%	33.1%	25.5%	23.9%	42.2%	11.4%	49.5%	6.2%	31.4%	48.8%	22.1%
	Share of Cash Renters												
51	Under 25	11.0%	8.7%	4.9%	4.0%	7.3%	3.7%	1.8%	8.1%	3.3%	18.3%	3.4%	9.7%
52	25-34	27.9%	21.6%	20.8%	22.6%	23.8%	20.3%	17.2%	18.6%	26.3%	23.8%	20.9%	26.8%
53	35-44	19.7%	17.6%	18.6%	18.2%	19.2%	16.4%	25.2%	14.5%	30.3%	11.6%	19.9%	19.1%
54	45-54	16.7%	18.8%	19.1%	19.2%	17.4%	19.7%	20.6%	15.2%	20.4%	10.9%	20.1%	15.4%
55	55-64	12.5%	14.1%	15.6%	13.6%	12.9%	16.4%	14.4%	14.5%	9.0%	11.1%	13.3%	11.7%
56	65+	12.1%	19.1%	21.0%	22.5%	19.4%	23.5%	20.9%	29.1%	10.6%	24.3%	22.3%	17.3%

see table notes in appendix 3

Nativity

Households with foreign-born householders are more likely to be renters, as shown on lines 28 and 29 of Table 2. The EU-SILC data indicate that the foreign-born share of householders in Switzerland, at 38 percent in 2013, exceeded the foreign-born share in all of the other countries considered here. Rentership among native-born householders in Germany, at 51.9 percent, was slightly above the rate for native-born householders in Switzerland, but with the foreign-born share of householders in Germany in 2013 at less than 7 percent, the overall rentership rate was lower.

The pattern of rentership by household size discussed in the last section is partly attributable to the influence of the foreign-born population. In all of these countries, households with a foreign-born householder are more likely to have 5 or more members, as well as to be renters.

Other research has similarly found that immigrant households are more likely to be renters. It was also found that households with foreign-born householders were more likely to live in overcrowded and substandard housing (OECD 2015).

Age

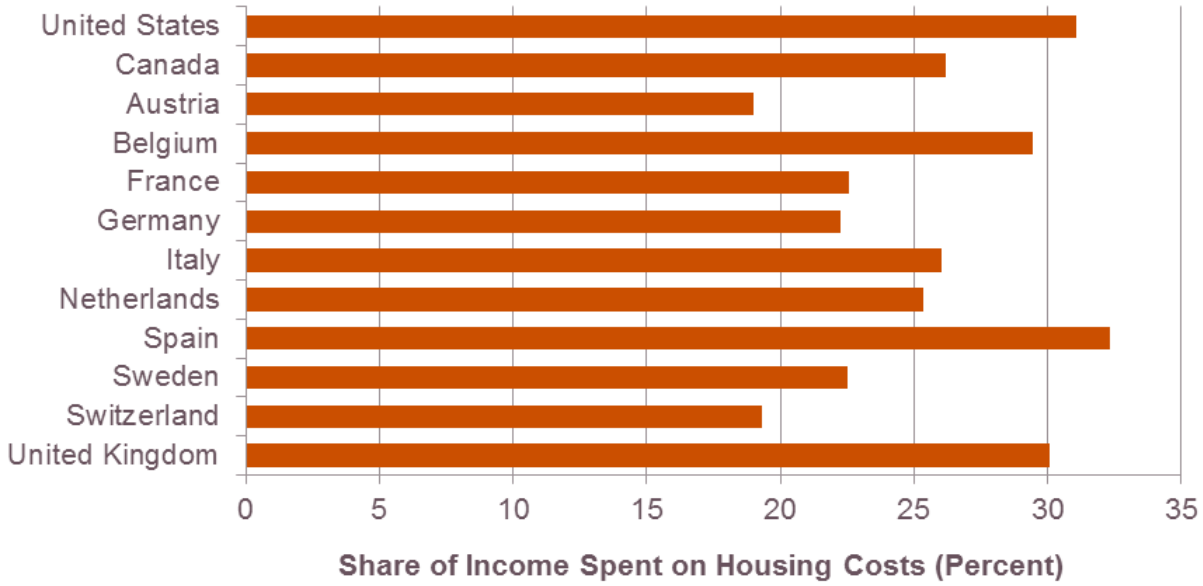
Young householders are generally more likely to be renters than older householders. In countries where young adults tend to form their own households (e.g., Sweden), that raises the rentership rate. On the other hand, where young adults tend to live with their parents (e.g., Italy), it tends to reduce the overall rentership rate.

There is a slight tendency for rentership among the oldest households to exceed rentership among middle-aged households. As shown in lines 49 and 50, the 2013 rentership rate among householders aged 65 and over was slightly higher than among householders aged 55 to 64 in five countries, but only in the Netherlands was the rentership rate among householders 65 and over higher than the overall national rate.

Rental Housing Cost and Affordability

Figure 6 and line 5 of Table 3 show the median share of gross (pre-tax) household money income spent on housing by cash renters.[5] Spain had the highest median cost burden, at 32.3 percent. The median for the US (based on AHS data) was 31.1 percent, higher than for every other country shown except Spain, although the medians for the UK and Belgium were nearly as high.

Figure 6. Median Share of Gross Household Income Spent on Housing Costs – Cash Renters



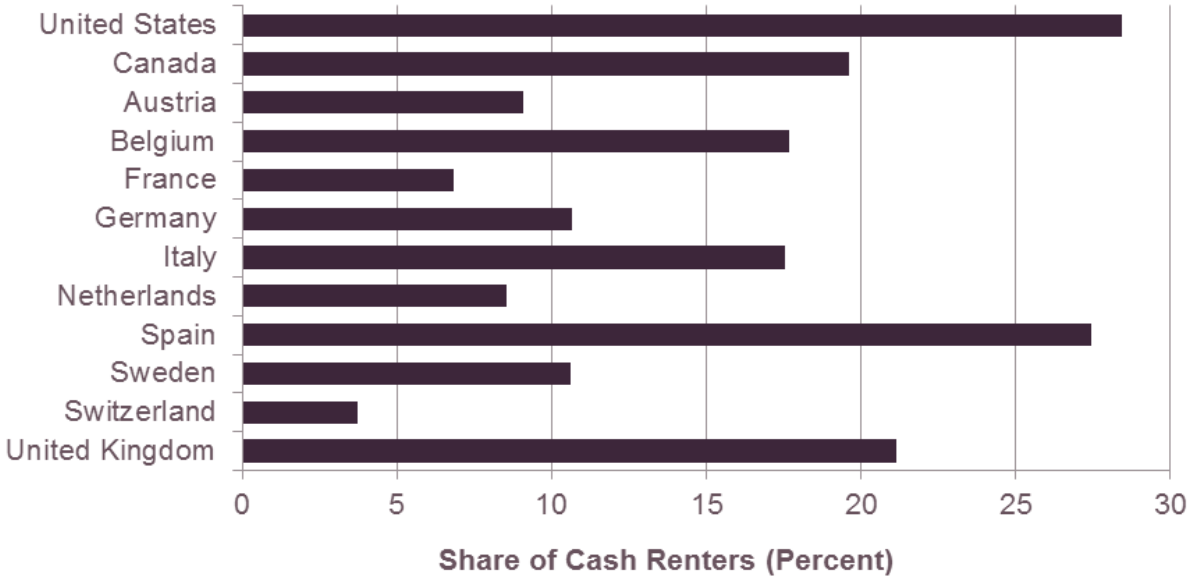
Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions (2011 for UK).

The median ratio of housing cost to income for renters is a simple, useful indication of affordability. Table 3 also includes the share of renters paying more than particular percentages of their gross incomes for housing: 30 percent, a standard commonly used in the US and

[5] The costs of rental housing used to calculate these rent burdens are based on "gross rent," including direct payments by tenants for utilities, services, repairs, taxes, and other items associated with the home. Since the extent to which those costs are included in rent varies among and within countries, gross rent is a more consistent measure of cost than contract rent. The UK surveys for 2012 and 2013 did not collect data on tenant-paid utilities, distorting the measure of cost. Therefore, data for 2011 are used here to measure costs and burdens for the UK. Also, the renters' costs are net of housing allowances, whether or not the allowances are paid directly to the landlord or paid to the tenant.

Canada to indicate the boundary of affordability, and 50 percent, used by the US Department of Housing and Urban Development (HUD) as the threshold for "severe" rent burdens. The share of cash renters paying more than 50 percent is illustrated in Figure 7. In the US, more than 28 percent of all cash renters paid more than 50 percent of their total household incomes for housing.

Figure 7. Share of Cash Renters with Housing Costs Greater than 50 Percent of Gross Income



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; Statistics Canada, 2011 National Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions (2011 for UK).

For Spain, although the median burden is greater than in the US, the share of renters paying over 50 percent of their gross incomes for housing is lower. Similarly, while the median burdens for Belgium and the UK are nearly as high as for the US, the share paying more than 50 percent of income is much lower than in the US. Thus, the median ratio of housing cost to income may not fully describe the extent to which affordability is a serious problem.

If households occupying housing units without payment are counted as renters, the median burden and the shares paying more than 30 percent or 50 percent of their incomes for rent are lower, as indicated in lines 8 to 10 of Table 3. For the US and most other countries considered, which have few households living rent-free, these figures differ relatively little from

those for cash renters. For Italy and Spain, however, the calculated measures are very different, with the median burdens falling from 26.0 percent to 17.7 percent and from 32.3 percent to 23.1 percent, respectively.

Including homes occupied without payment of rent in measures of rental affordability gives a distorted picture of the housing costs available to current or prospective true (i.e., cash) renters, since rent-free occupancy is generally due to the resident being an employee or relative of the owner. Thus, the further analyses below of cost and affordability exclude those living in rent-free units.

By all of these measures, the US appears to have more severe rental affordability problems than any other country considered except Spain, where only a small share of households are cash renters. What explains the higher housing cost burdens in the US? The possibility that there are measurement problems, such as understatement or overstatement of incomes in the survey data, was mentioned above. Several other factors are considered here, including:

1. The availability of below-market-rate rents from public housing, supply-side subsidies, and other such arrangements.
2. The impact of housing allowances.
3. Differences in personal tax burdens, affecting how much of a household's total income is available as disposable income.
4. Differences in income distributions and the tenure shares among income brackets.
5. Differences in housing consumption (the size and quality of renters' housing units).

Below-Market Rentals and Affordability

The presence of a supply of rental housing with reduced rents can potentially reduce rental affordability burdens for tenants in such housing. The median monthly housing cost for the rentals identified as below-market is typically substantially lower than the median among market-rate rentals (as indicated by lines 11 to 13 in Table 3), although the extent of the difference varies. In France, the difference in the medians is relatively small, and in Sweden, for

the small number of units reported as below-market in the SILC data, the median monthly cost is higher for below-market rentals than for market-rate units. While median rents for below-market rentals are generally lower, the incomes of the residents are also typically lower (lines 2 to 4), albeit not in France or Austria.

	Table 3	US	Canada	Austria	Belgium	France	Germany	Italy	Netherlands	Spain	Sweden	Switzerland	UK
1	**Total Households**	115,852	13,267	3,701	4,791	27,868	39,408	25,701	7,569	18,190	4,635	3,373	26,995
	Median Income												
2	**All Cash renters**	**$30,010**	**$27,844**	**$39,175**	**$26,497**	**$29,851**	**$31,505**	**$29,979**	**$28,086**	**$23,656**	**$28,523**	**$62,633**	**$22,114**
3	Market Rent	$34,974	$30,164	$37,863	$29,519	$28,124	$32,763	$30,460	$28,086	$23,769	$28,594	$63,142	$30,239
4	Below-Market	$17,087	$15,469	$41,938	$21,388	$32,815	$22,363	$28,354		$22,584	$20,521	$57,422	$17,794
	Cost and Burden Net of Housing Allowances												
	Housing Cost/Income												
	Cash Renters Only												
5	**Median Percentage**	**31.1**	**26.2**	**19.0**	**29.5**	**22.5**	**22.2**	**26.0**	**25.4**	**32.3**	**22.5**	**19.3**	**30.1**
6	Share of HH>30%	52.1%	40.4%	23.4%	49.0%	26.2%	32.4%	39.4%	31.3%	54.6%	30.7%	18.7%	50.0%
7	Share of HH >50%	28.5%	19.6%	9.1%	17.7%	6.8%	10.6%	17.5%	8.6%	27.5%	10.6%	3.7%	21.1%
	Renters + Rent-free												
8	Median Percentage	30.3	26.0	16.3	28.5	21.3	21.2	17.7	25.3	23.1	22.5	19.0	29.0
9	Share of HH>30%	50.6%	40.0%	19.8%	46.9%	24.0%	30.6%	26.9%	31.0%	38.5%	30.7%	18.2%	48.0%
10	Share of HH>50%	27.8%	19.5%	7.7%	16.9%	6.3%	10.0%	12.4%	8.5%	19.8%	10.6%	3.6%	20.3%
	Market-Rate and Below-Market-Rate Rentals												
	Median Monthly Cost												
11	**All Cash Renters**	**$846**	**$619**	**$629**	**$703**	**$595**	**$639**	**$666**	**$617**	**$702**	**$586**	**$1,023**	**$674**
12	Market Rent	$892	$619	$643	$781	$615	$657	$717	$617	$738	$580	$1,035	$949
13	Below-Market	$599	$387	$580	$524	$563	$507	$464		$391	$807	$806	$450
	Median Burden												
14	**All Cash Renters**	**31.1**	**26.2**	**19.0**	**29.5**	**22.5**	**22.2**	**26.0**	**25.4**	**32.3**	**22.5**	**19.3**	**30.1**
15	Market Rent	30.6	26.1	19.7	30.9	23.6	22.2	27.6	25.4	34.6	22.4	19.5	32.6
16	Below-Market	33.3	26.7	16.7	28.0	20.6	22.4	20.2	.	21.2	34.5	17.3	28.3
	Housing Allowances												
17	**Share with Allowances**	**2.1%**	NA	**5.1%**	**0.8%**	**23.6%**	**10.9%**	**1.4%**	**16.8%**	**1.5%**	**9.8%**	**1.1%**	**16.6%**
18	Owners	0.0%	NA	0.0%	0.7%	6.5%	1.8%	0.7%	0.7%	1.1%	3.4%	0.2%	0.3%
19	**All Cash Renters**	**6.3%**	NA	**11.4%**	**1.1%**	**55.0%**	**19.2%**	**4.4%**	**38.0%**	**3.8%**	**20.5%**	**1.7%**	**46.4%**
20	Market Rent	5.7%	NA	12.8%	1.1%	56.5%	17.4%	3.8%	38.0%	4.0%	20.6%	1.5%	29.8%
21	Below-Market	9.0%	NA	7.8%	0.9%	52.7%	32.2%	6.6%	0.0%	2.3%	15.3%	5.8%	61.7%
22	Occupied without rent	1.8%	NA	3.5%	0.0%	3.9%	2.5%	0.7%	8.5%	0.0%	0.0%	0.0%	0.0%
	Annual Amount												
23	Median	$7,200		$1,617	$2,116	$2,257	$4,229	$801	$2,170	$2,852	$2,833	$3,728	$4,988
24	Mean	$7,282		$1,843	$3,422	$2,463	$3,975	$941	$2,084	$3,352	$3,073	$4,545	$5,355
	Cost and Burden Without Housing Allowances												
	Median Monthly Cost												
25	**All Cash Renters**	**$878**	**$619**	**$645**	**$705**	**$694**	**$671**	**$672**	**$700**	**$714**	**$622**	**$1,028**	**$796**
26	Market Rent	$919	$619	$662	$782	$706	$684	$717	$700	$742	$622	$1,038	$1,039
27	Below-Market	$674	$387	$594	$525	$674	$594	$469		$391	$807	$809	$697
	Median Burden												
28	**All Cash Renters**	**32.3**	**26.2**	**19.5**	**29.7**	**26.2**	**26.0**	**26.2**	**28.0**	**32.8**	**25.0**	**19.4**	**39.1**
29	Market Rent	31.4	26.1	20.3	30.9	27.3	25.4	27.7	28.0	34.9	24.8	19.5	36.8
30	Below-Market	35.9	26.7	16.9	28.0	24.0	31.5	20.3	.	21.2	35.4	17.5	40.3
	Share of Cash Renters												
31	Pay >30%	53.8%	40.4%	25.3%	49.2%	37.6%	42.1%	39.7%	43.7%	55.4%	38.5%	19.0%	66.7%
32	Pay >50%	31.2%	19.6%	9.4%	17.8%	10.0%	15.9%	17.7%	10.1%	27.8%	11.9%	3.8%	33.0%

see table notes in appendix 3

In most countries, the median burden was higher among market-rate rentals than among those identified as below-market, but in the US (as well as in Canada, Germany, and Sweden) the median burden was *lower* among market-rate units than among those characterized as below-market. Median monthly costs for below-market rentals in the US, at $599, are about one-third lower than the $892 median for market-rate units, but residents' median annual incomes are only half as much, at $17,087 compared to $34,974. The income differential is similar in Canada, but in several countries incomes of renters in below-market units are about as high as, or higher than, incomes of renters in market-rate units.

The pattern for tenant incomes in market-rate versus below-market rentals reflects differences in policies and rationales regarding social housing.[6] Some countries have (or historically had) a "universalist" approach, seeing a government or social responsibility to provide decent, affordable housing to all. That policy perspective also favors social variety among residents in social housing, although in practice there is still often segregation by income or ethnicity.

Other countries have a more "targeted" approach, with social housing serving only those households who are not adequately served by the private market because of their low income or special needs. Most countries don't fall strictly into either the universalist or targeted categories, but the Netherlands and Sweden are probably closest to the universalist pole (perhaps explaining their failure to characterize any or many rental units as below-market in the EU-SILC data). In Austria and France, there are income ceilings for social housing, but they are set high to encourage an income mix among residents. The US and Canada generally follow the targeted approach. The UK is also, increasingly, considered to follow a targeted approach, even though the social housing share there is larger than in some countries seen as universalist (Braga and Palvarini 2013, Czischke 2007, Crook and Kemp 2014).

[6] Since the below-market category may also include rent-controlled and employer-provided units, the differences may not be due to social housing policy. The EU-SILC data do not identify the reason why a particular unit was classified as below-market.

While below-market-rate housing in the US is generally targeted to those most in need, the residents of much of that housing still face affordability problems, despite lower rents. The below-market share of the rental supply in the US, according to the data used here, is not out of line with the shares elsewhere, and thus is not an obvious explanation for high cost burdens. Given the inconsistencies discussed above in the identification of below-market rentals in the surveys, however, the comparisons shown here for the market-rate and below-market categories cannot be interpreted as more than suggestive.

Housing Allowances: Demand-Side Subsidies

In all of the countries considered here, some renters benefit from housing allowances. Those are subsidies paid to, or on behalf of, households to reduce their housing costs. Eligibility for these subsidies is typically based on household incomes, on tenure, and on household characteristics (e.g., whether they have children, are elderly, etc.). The allowance usually covers a portion of the difference between the estimated cost of housing in the local area (or the amount actually paid) and the amount the household is expected to be able to afford, which is generally a specified percentage of their income (Kemp 2007, pp. 6-7).

The version of housing allowances offered in the US, known as Housing Choice Vouchers, assists about 2 million renter households. The US voucher program differs from housing allowances found elsewhere in several key respects.

One difference is that vouchers in the US are supposed to pay for the full difference between the estimated cost of housing and the presumed affordable share of income, rather than a fraction of the difference. In reality, voucher beneficiaries commonly end up in units where the rent is higher than the designated local "fair market rent," so the vouchers don't bring their cost down to the target 30 percent of income, but the subsidy amount is still greater than under programs in other countries where the allowance is only intended to cover a fraction of the gap.

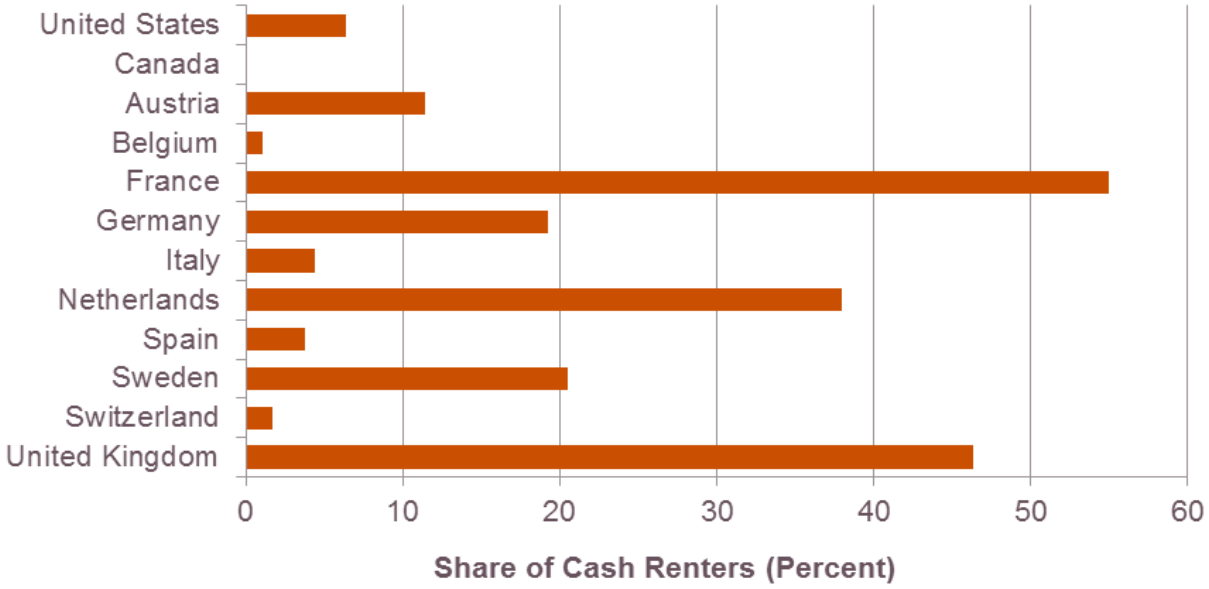
A second important difference is that the US voucher program requires beneficiaries to live in housing that passes an inspection determining whether it is of acceptable quality (in the

opinion of the government). In other countries, households generally decide for themselves whether their housing is of adequate quality. Even where other countries have stated requirements that the housing be of adequate quality, the standards are not strict or aggressively enforced. The effect of the quality standards and inspections in the US is to prevent many households from receiving benefits, or to require them to live in housing that is more expensive than they would prefer. The inspections are also a factor in the refusal of some property owners to accept tenants with vouchers. A remarkably large share of those awarded vouchers—typically after many months or years on waiting lists—have to surrender their vouchers because their current residences don't qualify as acceptable, and they are unable to move to other housing that passes inspection.[7]

Third, and most importantly, vouchers in the US are not an "entitlement," provided to all those who meet the eligibility requirements and apply. Most eligible households do not get assistance. In other countries, there may be more stringent eligibility requirements, a complicated application process may discourage participation, and the amount of assistance beneficiaries receive may be small, but there are no set limits on the number of households receiving allowances.

[7] There are no regular, comprehensive statistics measuring the "success rate" (share of households awarded vouchers who are able to lease a qualifying unit and actually receive subsidies). A nationwide study in 2000 found a success rate of only 69 percent (Finkel and Buron 2001). Subsequent studies, mainly of individual localities, do not show improved success rates (Galvez 2010, Graves 2015). Inspections are not the only impediment. For example, landlords may refuse to rent to voucher holders for other reasons, or households may be unable to pay for security deposits and other upfront costs of moving.

Figure 8. Share of Cash Renters with Housing Allowances



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions (no data available for Canada).

The share of cash renters benefitting from allowances is illustrated in Figure 8, and lines 17 to 22 of Table 3 show the shares among all tenures that received housing allowances. In France, more than half of all cash renters received housing allowances, and some owners and rent-free occupants received allowances as well. In the UK, the share of cash renters receiving allowances was almost as high, at 46 percent, and the shares in the Netherlands, Germany, and Sweden were also substantial.

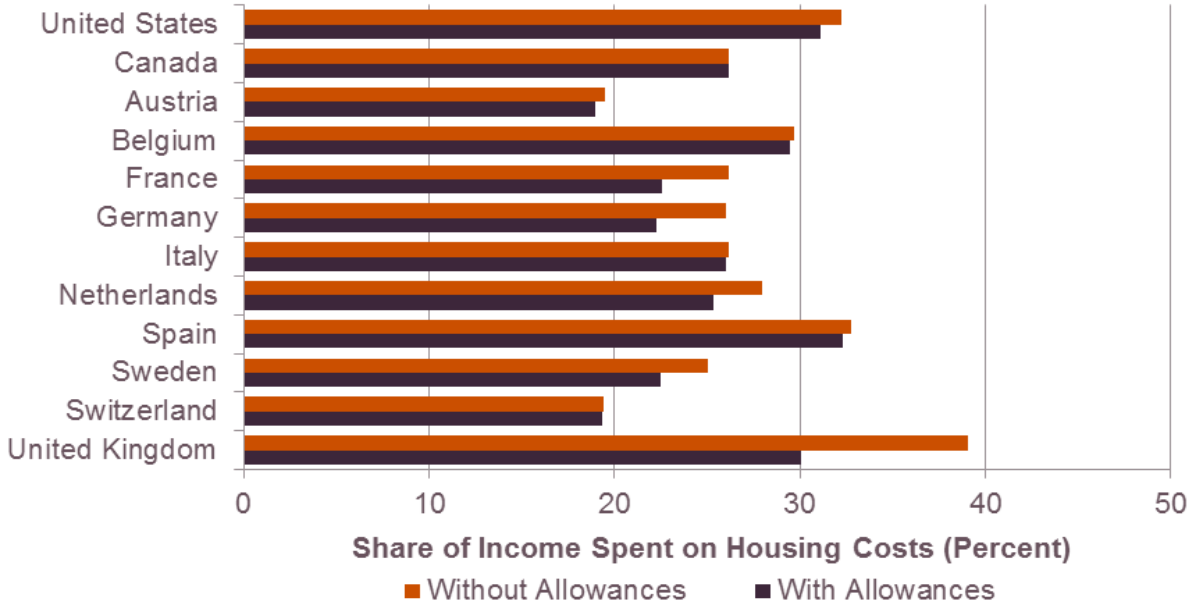
While France has the highest share of renter households receiving housing allowances, the median annual benefit for such renters in 2013 was $2,257, compared to $4,988 for those in the UK. The median annual subsidy for renters with vouchers in the US in 2013 was about $7,200.

The relationship between receipt of housing allowances and living in below-market-rate housing varies among countries. In Austria, Belgium, France, Spain, and Sweden, tenants in market-rate housing are more likely to receive housing allowances than those in below-market rentals. In the UK, Germany, Italy and Switzerland, housing allowances are more common in below-market units. For the US as well, vouchers are received by a larger share of residents in

below-market units than in market-rate units, partly reflecting the large share of tenants receiving vouchers who live in properties subsidized by low income housing tax credits (Hollar 2014).

The effect of housing allowances on the incidence and severity of renters' housing cost burdens in each country depends on the share of renters receiving allowances, the amounts of the allowances, and the extent to which allowances are targeted to those facing the greatest burdens.

Figure 9. Median Housing Cost Burden With and Without Housing Allowances



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; and Eurostat, 2013 European Union Statistics on Income and Living Conditions (no data available for Canada)

The measures of cost burdens shown above were net of housing allowances. Lines 25 to 32 of Table 3 show estimates of the costs and burdens that would be faced in each country without housing allowances, assuming that everything else remained unchanged. Figure 9 and a comparison of line 28 with line 5 and line 32 with line 7 show that the effect for the UK is especially dramatic, with the estimated median burden equal to 39.1 percent of gross income without allowances, compared to a median of 30.1 percent with the allowances. The effects in France, Germany, the Netherlands, and Sweden are also substantial. For the limited number of

renters with vouchers in the US, median monthly costs would increase from $490 to about $1,100 without the subsidy. But there would be no difference for most US renters, so without the voucher program, the median burden among all cash renters would rise only to 32.3 percent from 31.1 percent.[8]

For Canada, the NHS does not include data measuring housing allowance amounts, or even showing how many households receive housing allowances (which are not available in all provinces). In Quebec, which accounts for a large share of beneficiaries, the allowances are rather modest, providing about C$80 per month (Finkel et al. 2006; Croll 2015).

Clearly, the impact of housing allowances on cost burdens in those countries where they are provided to large shares of the renter population is substantial. That suggests that if more rental households in the US received vouchers, the incidence of severe rent burdens would be reduced, even if the subsidy amount per beneficiary was smaller.

The greater availability of housing allowances in other countries has, however, required the commitment of substantial resources. The cost of the voucher program in the US represented 0.1 percent of GDP in 2006, while the UK program absorbed 1.1 percent of GDP and the program in France cost 0.9 percent of GDP (Kemp 2007).

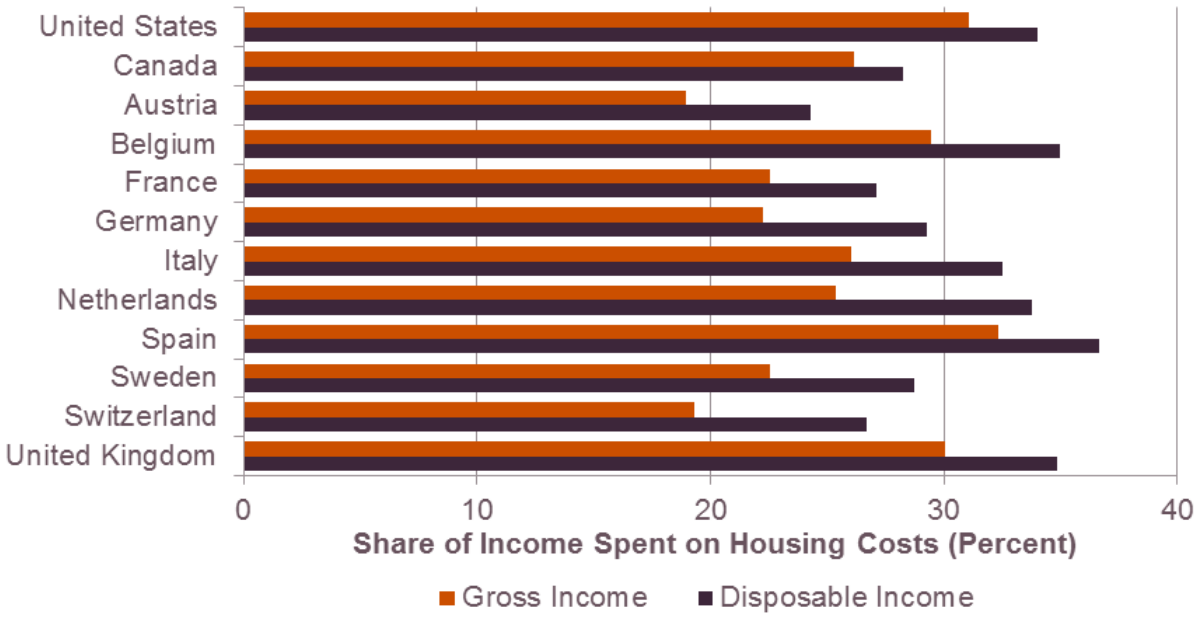
Disposable Income

Table 3 showed the relationship of housing cost to total household income for renters. This is the standard measure of housing cost burden used in the US and Canada. In European analyses, however, housing cost is instead commonly compared to disposable income. Cost burden ratios calculated using disposable income as the denominator are higher than those measured using pre-tax income, and the effects on the housing cost ratios are greater for countries with high personal taxes. Figure 10 compares the median burdens calculated using

[8] For the US, the value of the voucher received by each household is not explicitly reported, but is implied by some other variables. The assumptions used to estimate the effects of vouchers for the US are described in Appendix 2.

gross and disposable household income.[9] The actual values for the median ratios of housing cost to income and the share paying more than 50 percent of their incomes using total income and disposable income are shown on lines 1 to 4 of Table 4.

Figure 10. Median Housing Cost Burden Using Gross vs. Disposable Income



Sources: JCHS tabulations of 2013 American Housing Survey (with disposable income inferred from CPS-ASEC); Statistics Canada, 2011 National Housing Survey; and 2013 European Union Statistics on Income and Living Conditions (2011 for UK).

The affordability rankings are changed somewhat when cost burden is measured using disposable rather than total income: Spain still appears to have the highest median cost burden, but Belgium and the UK now have higher median ratios than the US, and the Netherlands is now roughly equal to the US. However, the share of cash renters paying more than 50 percent of their disposable incomes for housing (line 4) is higher for the US than for every other country except Spain.

[9] The AHS does not include disposable income, so the values used for disposable income are based on a crude approximation, taking the median ratios of disposable income to total household income by income decile from the CPS-ASEC data and applying those ratios to all renters in each income decile in the AHS.

Table 4

		US	Canada	Austria	Belgium	France	Germany	Italy	Netherlands	Spain	Sweden	Switzerland	UK
	Burdens Based on Gross and Disposable Income												
	Median Burden:												
1	Using Total Income	**31.1**	**26.2**	**19.0**	**29.5**	**22.5**	**22.2**	**26.0**	**25.4**	**32.3**	**22.5**	**19.3**	**30.1**
2	Using Disposable Income	**34.0**	**28.2**	**24.3**	**35.0**	**27.1**	**29.3**	**32.5**	**33.8**	**36.7**	**28.8**	**26.7**	**34.8**
	Share with Burden>50%												
3	Using Total Income	28.5%	19.5%	9.1%	17.7%	6.8%	10.6%	17.5%	8.6%	27.5%	10.6%	3.7%	21.1%
4	Using Disposable Income	30.4%	20.3%	11.5%	21.7%	9.2%	16.6%	24.6%	14.7%	31.3%	15.7%	10.6%	28.4%
	Burdens by Gross Income Quintile												
	Number of Cash Renters												
5	Lowest	12,301	1,576	426	553	3,107	6,233	1,325	1,213	892	618	449	2,736
6	2nd	9,692	1,128	384	390	2,604	4,785	1,097	1,029	706	490	466	2,604
7	3rd	7,973	731	348	308	2,082	4,238	1,104	611	566	335	422	2,068
8	4th	5,476	423	255	194	1,407	3,361	821	280	361	181	356	1,389
9	Highest	2,969	213	155	67	703	2,010	418	133	280	96	280	781
	Median Burden												
10	Lowest	74.8	49.4	37.0	46.2	31.1	38.5	54.9	32.8	67.6	35.1	34.5	45.3
11	2nd	35.6	25.3	22.0	30.9	23.9	28.7	30.3	25.3	36.5	24.1	22.6	34.3
12	3rd	24.1	18.1	16.4	23.6	21.1	19.9	23.3	18.8	26.9	18.5	18.2	27.7
13	4th	18.0	13.5	12.9	17.9	18.0	15.9	17.8	14.8	20.4	14.4	15.6	21.6
14	Highest	13.1	9.4	8.6	12.0	13.5	11.7	12.3	10.1	15.4	11.6	11.9	14.8
	Share with Burden>50%												
15	Lowest	69.4%	47.0%	31.1%	43.0%	18.6%	30.7%	55.1%	21.5%	66.0%	28.3%	15.7%	46.2%
16	2nd	20.5%	4.6%	2.1%	7.0%	2.0%	5.1%	8.5%	1.4%	20.0%	1.2%	0.7%	17.1%
17	3rd	4.2%	0.0%	0.5%	0.8%	0.4%	0.3%	0.7%	0.2%	4.2%	0.0%	0.1%	3.4%
18	4th	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.8%	0.0%	0.0%	1.7%
19	Highest	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%
	Conventional Units by Structure Type												
20	**All Occupied**	**108,935**	**13,135**	**3,669**	**4,752**	**27,797**	**38,848**	**25,639**	**7,159**	**18,152**	**4,572**	**3,268**	**26,699**
21	Single-family detached	74,323	7,290	1,539	1,505	11,209	8,616	5,176	997	2,508	1,849	710	6,278
22	Single-family attached	6,620	1,484	254	1,848	6,137	5,225	7,275	4,045	3,516	380	391	15,354
23	Multifamily 2-9 units	14,716	1,905	739	974	3,581	15,912	6,029	540	3,607	479	1,289	3,051
24	Multifamily 10+ units	13,276	2,456	1,137	424	6,870	9,096	7,159	1,576	8,521	1,863	878	2,016
25	**Cash Renters**	**37,045**	**4,048**	**1,553**	**1,493**	**9,862**	**20,334**	**4,749**	**3,001**	**2,803**	**1,696**	**1,926**	**9,412**
26	Single-family detached	10,447	566	89	88	1,178	686	284	61	186	136	134	518
27	Single-family attached	2,497	442	65	411	1,792	698	791	1,358	247	70	99	5,162
28	Multifamily 2-9 units	12,548	1,252	514	732	2,526	11,376	1,649	404	840	363	940	2,201
29	Multifamily 10+ units	11,553	1,787	885	262	4,367	7,573	2,024	1,179	1,531	1,127	753	1,531
	Share of Cash Rentals												
30	All Conventional Units	96.4%	99.4%	99.0%	98.8%	99.6%	98.6%	99.7%	91.9%	99.9%	98.6%	97.6%	98.3%
31	Single-family detached	27.2%	13.9%	5.7%	5.8%	11.9%	3.3%	6.0%	1.9%	6.6%	7.9%	6.8%	5.4%
32	Single-family attached	6.5%	10.9%	4.1%	27.2%	18.1%	3.4%	16.6%	41.6%	8.8%	4.1%	5.0%	53.9%
33	Multifamily 2-9 units	32.7%	30.7%	32.8%	48.4%	25.5%	55.1%	34.6%	12.4%	29.9%	21.1%	47.6%	23.0%
34	Multifamily 10+ units	30.1%	43.9%	56.4%	17.3%	44.1%	36.7%	42.5%	36.1%	54.6%	65.5%	38.2%	16.0%
	Cash Rented Share												
35	All Conventional Units	34.0%	30.8%	42.3%	31.4%	35.5%	52.3%	18.5%	41.9%	15.4%	37.1%	58.9%	35.3%
36	Single-family detached	14.1%	7.8%	5.8%	5.8%	10.5%	8.0%	5.5%	6.1%	7.4%	7.3%	18.9%	8.2%
37	Single-family attached	37.7%	29.8%	25.4%	22.2%	29.2%	13.4%	10.9%	33.6%	7.0%	18.4%	25.2%	33.6%
38	Multifamily 2-9 units	85.3%	65.7%	69.7%	75.1%	70.5%	71.5%	27.4%	74.8%	23.3%	75.7%	72.9%	72.2%
39	Multifamily 10+ units	87.0%	72.8%	77.8%	61.7%	63.6%	83.3%	28.3%	74.8%	18.0%	60.5%	85.7%	75.9%

see table notes in appendix 3

While high personal taxes constrain the ability of households to spend as much of their gross incomes on housing, the provision of free or highly-subsidized services, such as health care, child care, or higher education, could leave more money available to households for spending on housing. The countries with higher taxes are likely to be those with more free services.

Rentership and Rent Burden by Income, and Inequality

Measures such as the national median ratio of housing cost to income among renters, or the shares of all renters paying more than 30 percent or 50 percent of their incomes for housing, are affected by rentership rates at different income levels. If rentership among high income households is relatively high, and if those high-income renters can easily afford their homes, it may obscure the housing cost burdens facing lower-income households. In Switzerland, as noted above, more than 40 percent of households in the highest income quintile are renters. The presence of many middle- and high-income renters, as well as a high overall median income, helps to explain why the median ratio of housing cost to income is so low in Switzerland, even though the median monthly housing cost for renters is higher than in any other country in this analysis. The overall median ratio of housing cost to total income in Switzerland was 19.3 percent, compared to 22.5 percent in France and 25.4 percent in the Netherlands. Comparing the cost burden for renters in the lowest income quintile in those three countries, however, the median burden is higher in Switzerland (34.5 percent) than in France (31.1) or Netherlands (32.8). Even for the lowest income quintile, however, the share of renters experiencing severe cost burdens was lower in Switzerland (15.7 percent) than in any of the other countries.

The median burden on cash renters in the lowest income quintile in the US was an incredible 74.8 percent of total income, higher than in all other countries.[10] The incidence of severe rental burdens is affected not only by the extent to which renters are concentrated in

[10] The incidence of extremely high ratios partly reflects temporary disruptions to income. Longitudinal analysis of the AHS has shown that households with very high burdens often have higher incomes and lower burdens at the time of the next survey. See Eggers and Moumen (2010).

the lowest income quintiles, but also by how low the incomes for the lowest quintiles are compared to the overall median income. In other words, it is affected by the degree of income inequality, and, as discussed above, inequality is greater in the US than in any of the other countries in this study.

Quantity and Quality of Housing Consumed

It could be that US renters spend more of their incomes on housing because they consume more housing—living in bigger, better-equipped, or more luxurious homes, either by choice or because of a lack of supply of smaller, less elaborate units. Few renters in the US live in particularly large or luxurious dwellings, but given that they face generally greater cost burdens than renters in other countries, they might be expected to choose smaller, rather than larger, units.

The data available to assess quality and quantity are limited, but there are a few measures of the amount of housing consumed. Those measures indicate that rental units in the US are much more likely to be single-family detached homes, are typically larger than those in all or most of the other countries, and tend to be newer. Rentals in Canada and Switzerland are about as large as those in the US, those in the Netherlands have fewer people relative to the number of rooms, and those in Canada and Spain are somewhat newer. Overall, however, US renters appear to consume as much or more housing than renters in any other country.

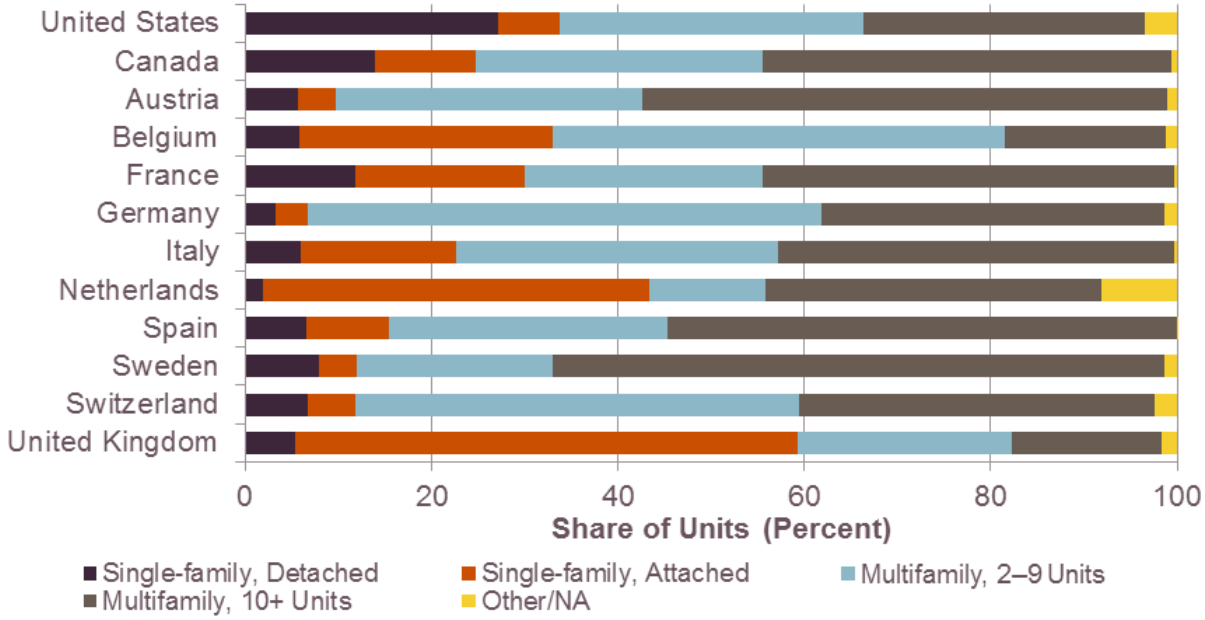
It would have been useful to have more extensive and objective measures of the quality of the rental stock, especially for the European countries. Measures that once were considered as key indicators of quality, such as the presence of private indoor plumbing or electricity, have little value for comparing modern advanced countries where such features are virtually universal.

Structure Type

One characteristic defining the amount of housing consumed is the type of structure. Figure 11 shows the distribution of structure types for rental housing in each country. In the US, 27 percent of all rentals in 2013 were single-family detached homes. Canada came closest, with

14 percent of rentals in single-family detached structures, and in France the share was 12 percent. No other country had more than 8 percent of its rental stock in the form of single-family detached structures.

Figure 11. Rental Housing Structure Type



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; Statistics Canada, 2011 National Housing Survey; and 2013 European Union Statistics on Income and Living Conditions.

With more roof, foundation, exterior wall area, and exterior doors relative to living area, single-family detached structures tend to be more expensive to build and maintain than multifamily structures (although high-rise multifamily structures have other added costs elements). Even without greater living space, single-family detached housing may represent a higher level of consumption.

The most common type of rental unit in the UK and the Netherlands was single-family attached. In Belgium, France, and Italy, the single-family attached shares were also substantial, ranging from 27 percent to 17 percent. Elsewhere, single-family attached units represented less than 11 percent of rentals. Single-family attached units arguably represent greater housing consumption than multifamily units, but less than single-family detached units. In every country except the UK, multifamily structures accounted for the largest share of rental units.

The mix of structure types among rentals is partly just a reflection of the overall housing stock in each country. Lines 21 to 39 of Table 4 show the distribution for each country of the occupied housing stock, as well as of the rented stock, by structure type (excluding mobile homes, housing units in non-residential structures, and other "unconventional" dwellings). In Germany and Switzerland, the countries with the highest overall rentership rates, more than 60 percent of all housing units are in multifamily structures. Among the relatively small shares of housing units in those countries that are single-family homes, large majorities of the residents are owner-occupants. Indeed, the homeownership rate in single-family units in Germany is 87 percent. Thus, the high overall rentership rates in Germany and Switzerland are related to large multifamily shares of their housing stocks and to high rental shares among multifamily units.

The pattern in Spain, on the other hand, illustrates that multifamily housing and rental occupancy needn't go together. The multifamily share of the housing stock is even greater in Spain than in Germany or Switzerland, but owner-occupancy predominates in all structure types in Spain. In Italy as well, most residents in multifamily housing are owner-occupants.

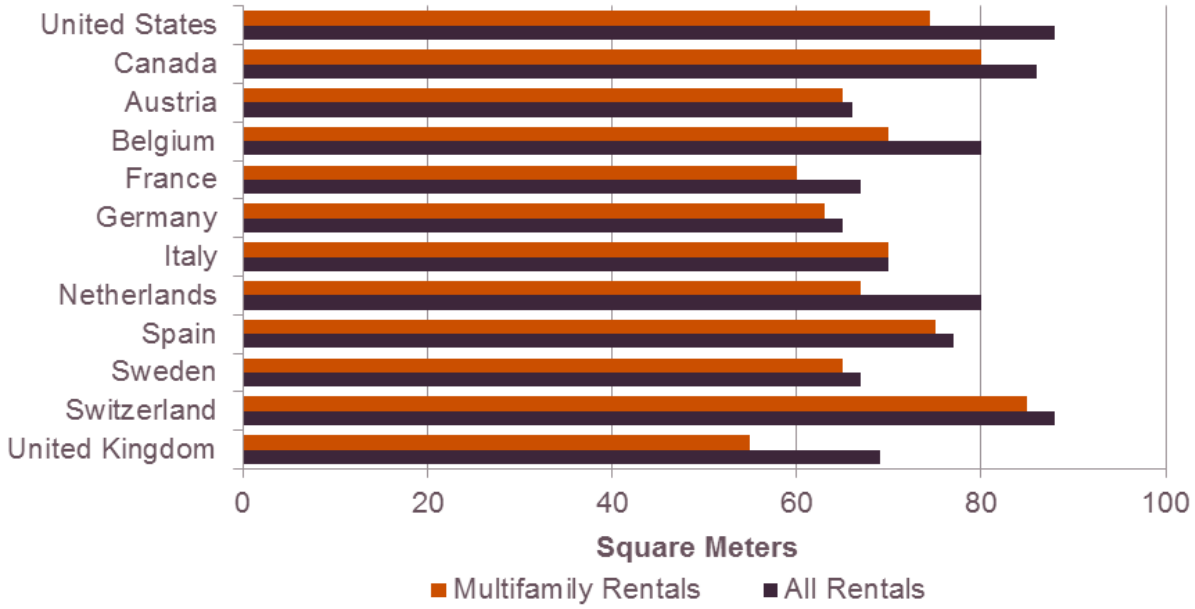
Size

Measures of the living area in rental units are shown in Figure 12 and lines 1 to 5 of Table 5.[11] At 88 square meters, the median unit size for cash renters in the US is greater than in most other countries, though roughly equal to the medians in Canada and Switzerland. The US mean of 114 square meters, however, is substantially larger, indicating a size distribution much more skewed than in other countries; this distribution partly reflects the large share of single-family detached units in the US rental stock. Line 2 of Table 5 shows the median size for multifamily cash rentals. For the countries with few single-family rentals, the multifamily median is virtually identical to the median for all rentals, but for the US, as well as for the Netherlands, England, Belgium, France, and Canada, the medians for multifamily rentals and for

[11] The US data are collected in square feet, and have been converted by dividing by 10.76. Since respondents tend to report rounded (e.g., 800 square feet, 70 square meters) rather than exact numbers (e.g., 796 square feet, 74 square meters), differences resulting from rounding off may have some effect on the comparison. Because of a very poor response rate for the size question in the SILC survey, the data shown for the UK are for England (which comprises about 84 percent of UK population) from the English Housing Survey.

all rentals differ substantially. The median size for multifamily rentals in the US was 74 square meters, less than in Switzerland and Canada, and about equal to the median in Spain.

Figure 12. Median Size of Rental Units



Sources: JCHS tabulations of US Department of Housing and Urban Development, 2013 American Housing Survey; Statistics Canada, 2011 Survey of Energy Use; Eurostat, 2012 European Union Statistics on Income and Living Conditions, and 2012 English Housing Survey.

As shown earlier in Table 2, the average number of people in US renter households is greater than in most of the other countries, and that may partly explain the differences in unit sizes. Measured in square meters per person, the median among renters in Canada is greatest among the countries considered. The median area per person for the US is a bit smaller than for the Netherlands, and is more or less equal to the medians for Belgium, Germany, and Sweden, with their large shares of single-person renter households, as well as Switzerland, where the single-person share of renters is not especially high. On a per-person basis, the mean floor areas for US and Canadian rentals are roughly equal and are greater than in other countries. Considering all of these measures of rental unit living area, the US appears to be in the upper end of the distribution among the 12 countries, but in several other countries the typical rental unit is of similar size.

The median and mean sizes for owner-occupied dwellings are also included in Table 5, on lines 6 to 9. In contrast to the sizes for rentals, where several countries are roughly comparable to the US, owner-occupied homes in the US tend to be much larger than those in all of the other countries.

	Table 5	US		Canada	Austria	Belgium	France	Germany	Italy	Netherlands	Spain	Sweden	Switzerland	UK
	Size of Unit (M2)													
	Cash Rentals													
1	Median	88		86	66	80	67	65	70	80	77	67	88	69
2	MF Median	74		80	65	70	60	63	70	67	75	65	85	55
3	Mean	114		93	68	87	68	68	74	78	80	71	92	73
	Per Person													
4	Median	47		53	40	47	35	44	35	50	30	43	45	33
5	Mean	62		63	44	56	40	47	41	56	39	48	52	40
	Owner-Occupied													
6	Median	167		130	120	130	100	120	90	120	90	116	140	95
7	Mean	203		147	123	142	110	124	99	129	100	122	145	110
	Per Person													
8	Median	74		56	50	60	50	55	43	50	40	54	60	46
9	Mean	102		67	57	73	58	63	52	61	49	62	69	56
	Rooms - Cash Rentals													
	Number of Rooms		**ex Kit**											
10	1	0.5%	2.6%	2.4%	10.7%	3.1%	8.7%	8.6%	9.5%	4.6%	2.1%	20.8%	4.6%	5.7%
11	2	2.2%	20.8%	7.8%	32.9%	5.0%	23.1%	36.3%	34.0%	14.3%	7.5%	32.9%	12.5%	21.5%
12	3	20.7%	31.3%	23.2%	37.8%	26.3%	35.1%	37.2%	40.0%	24.8%	19.5%	30.5%	31.8%	30.0%
13	4	31.3%	23.5%	29.5%	14.0%	33.3%	21.8%	13.3%	13.5%	30.2%	34.1%	10.9%	33.6%	24.3%
14	5	23.5%	13.3%	18.4%	3.6%	19.6%	8.2%	3.1%	2.3%	20.0%	27.0%	2.9%	12.1%	13.4%
15	6 or more	21.9%	8.5%	18.6%	1.0%	12.7%	3.1%	1.5%	0.7%	6.1%	9.8%	2.0%	5.5%	5.1%
	Persons/Rooms													
16	0.50 or less	63.1%	47.4%	70.7%	44.0%	71.4%	46.7%	51.7%	32.9%	72.7%	42.7%	44.2%	52.5%	43.5%
17	0.51 to 1.00	32.8%	41.6%	25.5%	42.5%	25.5%	45.6%	44.5%	42.2%	25.5%	48.5%	47.3%	42.2%	46.2%
18	1.01 to 1.50	3.6%	7.5%	2.6%	9.1%	2.5%	5.3%	3.0%	12.8%	1.6%	6.5%	4.9%	4.1%	7.1%
19	1.51 or more	0.6%	3.4%	1.2%	4.4%	0.6%	2.5%	0.7%	12.2%	0.2%	2.3%	3.6%	1.2%	3.2%
20	1.01 or more	4.2%	11.0%	3.8%	13.5%	3.1%	7.8%	3.7%	24.9%	1.8%	8.8%	8.5%	5.3%	10.3%
	Pers/Room-2+ Pers													
21	0.50 or less	43.0%	21.0%	50.4%	9.4%	46.7%	17.3%	14.3%	6.2%	44.7%	26.3%	9.3%	30.3%	20.1%
22	0.51 to 1.00	50.5%	61.9%	42.7%	64.5%	47.0%	68.7%	77.7%	55.6%	51.1%	62.1%	70.4%	61.2%	64.3%
23	1.01 to 1.50	5.6%	11.8%	4.6%	17.5%	5.1%	9.6%	6.5%	19.6%	3.9%	8.6%	12.1%	6.6%	10.9%
24	1.51 or more	0.9%	5.4%	2.3%	8.6%	1.2%	4.4%	1.5%	18.6%	0.3%	3.0%	8.1%	1.9%	4.8%
25	1.01 or more	6.5%	17.1%	6.9%	26.1%	6.3%	14.0%	7.9%	38.2%	4.2%	11.6%	20.2%	8.5%	15.7%
	Age of Housing Stock in 2011													
	Median													
26	All Occupied	37		33	39	49	41	43	41	37	33	47	43	53
27	Rentals	39		38	46			46			36			51
	Pop Growth													
28	1970-2010	51.9%		60.2%	12.2%	12.9%	23.6%	5.2%	10.3%	27.4%	36.9%	16.1%	24.8%	12.4%

see table notes in appendix 3

Rooms

Another useful measure of housing consumption is the number of rooms, as well as the number of people per room. Unfortunately, the EU-SILC measure of the number of rooms is not comparable to the AHS and NHS measures, and may not be consistent among the European countries. The EU-SILC guidelines call for kitchens to be counted as rooms only if they are used for more than cooking, while the AHS and NHS include all separated kitchens.[12] Subtracting all kitchens from the AHS room counts may provide numbers that are more consistent with the EU-SILC definition. In Table 5, data for the US are shown both as reported and with kitchens excluded.[13]

Despite the problems of comparability due to the treatment of kitchens, the data on lines 10 to 20 are revealing. Single-room rental units are fairly common in some countries, especially in Sweden (where they comprised more than 20 percent of rentals), but have become rare in the US, Canada, Belgium, and Spain.

There are substantial differences among European countries in the number of rooms in rental units. In Spain and Belgium, more than 30 percent of rentals have 5 or more rooms. The Netherlands also has a relatively high proportion of rentals with 5 or more rooms. In other European countries it is much less common to have that many rooms. In Italy, Austria, Germany, and Sweden, less than 5 percent of rental units have 5 or more rooms.

A standard, simple measure of whether there are enough rooms in a housing unit to avoid overcrowding is the number of people per room. More than one person per room may be

[12] The implementation of the EU-SILC kitchen rule varies. The survey questionnaire for Italy tells respondents to exclude all kitchens. The UK questionnaire asks whether the kitchen is more than 6.5 feet wide, suggesting that such wider kitchens are counted as rooms. The EU has established standards for national censuses, separately from the standards for the EU-SILC surveys, and those do not include the requirement that kitchens be excluded if they are only for cooking. Rather, a room is specified as a space of at least 4 square meters enclosed by walls reaching the ceiling (Eurostat 2011).

[13] The AHS appears to overstate the number of rooms anyway. Especially for studio apartments, the AHS questions may double-count rooms containing kitchen facilities. The AHS does not directly ask the total number of rooms. The American Community Survey does ask for total rooms, and shows a much larger share of housing units consisting of only one or two rooms, with 4.0 percent of rentals having one room and 5.7 percent having two rooms in 2013.

considered as overcrowded, and more than 1.5 people per room might be considered severely overcrowded. Lines 16 to 20 of Table 5 show the distribution of rentals in each country in terms of persons per room. Italy stands out as having a particularly large share of rental households with more than 1.5 people per room.

For one-person households, it is impossible to have more than one person per room. Restricting the calculation to renter households consisting of 2 or more people is perhaps a more appropriate measure, and is shown on lines 21 to 25. The overcrowded share among rental units with 2 or more residents is again highest in Italy, and is also high in Austria and Sweden.

In the Netherlands, rental housing is notably uncrowded, and the share of rentals with more than one person per room is clearly lower there than in the US, no matter how kitchens are counted. Several other countries, including Belgium and Germany, may also have a smaller overcrowded share than the US, but the differences in definitions make this difficult to assess.

While persons-per-room has generally been used in the US to measure overcrowding, analyses elsewhere often use other, more nuanced measures. The EU defines a household as living in an adequate number of rooms if there is at least one room that needn't serve as a bedroom, and considers the household composition in specifying the number of rooms needed to avoid overcrowding; it assumes, for example, that although two same-sex children aged 12 to 17 years might be expected to share a bedroom, different-sex children in the same age range should have separate rooms (Rybkowska and Schneider 2011). In the UK, the key measure is based on the number of bedrooms rather than on the total number of rooms. Canada likewise focuses on the number of bedrooms, characterizing housing as "suitable" based on the composition of the household. (In Canada, different-sex children are expected to be separated by age 6.) In general, estimates of overcrowding based on these alternative definitions are highly correlated with the simpler persons-per-room metrics.

Age of Structure

Although older units needn't be of inferior quality compared to newer units, they usually are. Lines 26 and 27 of Table 5 show the median age of the housing stock in the 12 countries in 2011. The countries with the youngest housing stock were Canada and Spain, where the median age among all occupied units was about 33 years. The median age of the overall US stock was 37 years.[14] The median in the Netherlands was the same. The housing stock was oldest in England, where the median age was 53 years. In the other countries, the medians ranged from 39 to 49 years. Among those countries for which the age of the stock was available by tenure, the median age for rentals was usually greater than the overall median, but in England the median for rentals was less than for all occupied units. The age of the stock is inversely correlated with the past rate of population and household growth, but it also depends on the rate at which older units are removed and replaced.[15]

Conclusions and Implications

This analysis was largely an exercise in extracting and presenting statistics regarding the cost, characteristics, and occupancy of rental housing. It barely scratched the surface regarding the influence of government policies on the observed housing supply, cost, and affordability, but it offers metrics that may facilitate policy analysis.

The primary focus was on housing affordability, and particularly on the reasons why rental housing is generally less affordable in the US than in other advanced countries, despite high average incomes, and often lower construction costs and greater land availability.

One factor that appears to contribute to the pervasive affordability problems in the US is the degree of income inequality. That is not a feature of the housing market per se, but there

[14] The median age of the US housing stock would be greater, by a year or two, if mobile homes were excluded from the calculation.

[15] In Japan, where population grew by a modest 22 percent between 1970 and 2010 (and where population has recently started to fall) the median age of the housing stock is only about 22 years, thanks to a high replacement rate.

may be opportunities to address the consequences of income inequality through appropriate housing policies.

Other countries have devoted more resources to ameliorating the problems of unaffordable housing. The US provides fairly generous housing benefits to only a small share of needy households. In the UK, a broadly available system of housing allowances offsets what would otherwise be a much more severe affordability problem than exists in the US. In other countries, affordable rental housing supplied by governments or nonprofits helps to address affordability issues, although the efficiency of that practice, relative to the provision of housing allowances, has been questioned, as it has been in the US. The EU-SILC data used in this analysis did not adequately identify or describe below-market-rate housing, making it impossible to adequately assess the effects of such housing.

The somewhat larger size and perhaps higher quality of units in the US rental stock also affects relative affordability, although relative quality and its effect on cost differences are difficult to assess using the available data. The large share of single-family detached rentals in the US reflects preferences, the demographic mix among renters, land availability, etc., but it could also reflect zoning and other regulations limiting the supply of less expensive multifamily rentals. It is hard to imagine that regulations are more stringent in the US than in some of the more dirigiste nations of Europe, but regulations elsewhere may dictate, rather than constrain, density and cost reductions. The size and quality of the housing occupied by low-income renters in the US reflect the fact that most of those units were originally built for owner occupancy or for higher-income renters. That's probably true in other countries as well. Whether the extent of such filtering is greater or less in various countries is perhaps worth exploring in the future.

Some key dimensions of the housing situation in each country were not addressed. Although the use of national-level data provided measures that were more typical than information for a single city in each country, the substantial regional variations within countries were obscured. The use of gross rents provided a consistent measure of renters' costs, but it would have been valuable to have been able to distinguish the cost of space rent from the costs

of energy and other utilities and services, which often account for a large share of the total cost, and which may be related to a whole different set of policy influences. Another difference among countries concerns tenant security—whether renters are more or less vulnerable to involuntary displacement or to large rent increases.

Appendix 1 - Description of EU-SILC Microdata and Adjustments

EU-SILC involves annual surveys of households conducted by national statistical agencies and includes information about household characteristics, housing characteristics, income, and housing costs, as well as other topics such as employment and health.

While some housing-related measures derived from the EU-SILC data are reported in tables on the Eurostat web site or in publications, the information provided in those forms is limited and not easily compared to data available from non-European countries. The microdata files provide an opportunity to present and analyze more extensive information from this unique data source.

For 2013, the total number of household records available for the ten European countries discussed in this report ranged from about 6,000 (for Austria and Sweden) to about 18,000 (Italy). The number of records for rent-paying households ranged from about 1,400 (Spain) to about 5,800 (Germany). Although most of the EU-SILC data used here were from 2013, data from 2012 were used for housing unit size, since that wasn't included in the 2013 surveys, and data for housing costs for the UK were taken from the 2011 survey, because the UK cost data for 2012 and 2013 were incomplete.

The data for gross and disposable household income in the EU-SILC files contain some non-money income, including use of a company car. For this analysis, the value of a company car was excluded. The value of housing allowances was also excluded from income. In calculating cost burdens, housing allowances were subtracted from housing costs. (Calculations of cost burdens by Eurostat likewise exclude housing allowances from income and treat them as reductions in housing cost, whether or not the allowances are paid to the household.)

The EU-SILC data set, and the other Eurostat data resources, are a particularly valuable byproduct of European integration. This analysis revealed, however, that there are substantial inconsistencies in the measurements conducted by different member countries.

Appendix 2 -- Detail regarding data for United States

A. Classification as Below-Market based on AHS

The American Housing Survey includes a number of questions that should provide the information needed to identify US rental housing units that fit into the EU-SILC category of "rented at a reduced rate." These include:

APPLY	"Was your household assigned to this unit or were you allowed to choose it?"
PROJ	"Is this building owned by a public housing authority?"
RCNTRL	"Does the government limit the rent on the unit through rent control or rent stabilization?"
RENEW	"Some rental agreements include a special re-certification process that determines the amount of rent a renter has to pay. Rental agreements with re-certification REQUIRE a renter to report everyone who lives with them, and all jobs, savings, and sources of income for all household members. This information is used to determine the amount of the rent payment. Do you have to re-certify to determine the amount of rent you pay?"
RNTADJ	"Is the rent adjusted because someone in the household works for or is related to the owner?"
SUBRNT	"Does the Federal, State, or local government pay some of the cost of the unit?"
VCHER	"Did a public housing authority, or some similar agency, give you a CERTIFICATE or VOUCHER to help pay the rent for this housing unit?"

The results of the household responses to those questions indicate that many renter households are unable to accurately report the answers. According to the survey responses, the number of households living in public housing (2.6 million) was more than twice the number of public housing units in the housing stock. Many of those were probably privately-owned subsidized units of some type. On the other hand, the number of voucher beneficiaries indicated by the survey responses (1.6 million) was well below the number of actual voucher beneficiaries.

The inconsistencies in the data based on household responses stem not only from misunderstandings and errors by the respondents, but also from the way the survey is conducted. For example, respondents who state (often inaccurately) that they live in public housing, or that they receive a voucher, are apparently not asked whether they are subject to rent controls or get a reduced rent because of a relationship to the owner.

In addition to the variables based on survey responses, the AHS data files include a variable (HUDADMIN) based on matching the addresses of surveyed units with administrative records for housing subsidized by the Department of Housing and Urban Development (HUD). The relevant values for this variable are:

HUDADMIN=1	Public Housing
HUDADMIN=2	Someone in unit received a voucher
HUDADMIN=3	Private-subsidized housing

The match against administrative records may include some inaccuracies, due to factors such as differences between the addresses recorded in the survey and the ones shown in the administrative records, which could show a central office for the property. Still, the administrative record match is likely to be more reliable than the household responses to the survey. One problem with the HUDADMIN variable is that there are cases where a unit is privately-owned and HUD-subsidized, but where the resident received a voucher, and there is no way to have the variable account for both conditions. Those cases are recorded only as vouchers.

The HUDADMIN variable also accounts only for units subsidized by HUD. Units subsidized by other federal programs, including the Low Income Housing Tax Credit, or under state or local programs, are not identified (Eggers and Moumen 2014).

To be consistent with the SILC below-market category, cases where the only subsidy was a housing allowance had to be excluded. Positive responses to RENEW, SUBRNT, or PROJ might come from households living in market-rate housing but receiving vouchers. Taking that into account, AHS units in this analysis were characterized as below-market based on any of the following:

1. Household answered "yes" to APPLY, RCNTRL or RNTADJ

2. Household answered "yes" to RENEW, SUBRENT, or PROJ and the HUDADMIN was not equal to 2 (voucher)
3. The value for HUDADMIN was 1 (public housing) or 3 (HUD-subsidized private housing)

To identify units/households receiving vouchers, the HUDADMIN variable was used, and the VCHER variable was ignored. Interestingly, of the 1.6 million units indicated as benefiting from vouchers based on the household responses (i.e., VCHER), only 1.1 million were among the 2.4 million identified by HUDADMIN.

B. Estimating value of vouchers and effects on burden

The AHS data do not specifically provide the dollar value of vouchers for each household, and the value of vouchers and other non-cash benefits are not included in income. The AHS does ask "How much is the rent?" and "Of the amount of rent you reported, how much is this household required to pay?" For voucher beneficiaries, the difference between those 2 amounts can be assumed to be the value of the voucher. Less than half of voucher beneficiaries reported that the rent on the unit and the amount they paid were different. The median rent discount among those reporting different amounts was $559 per month, or $6,708 per year, with a mean value of $616 per month.

To estimate the effect of vouchers on median cost burden in Table 3, the AHS data showing the difference between the rent and the amount paid were used for those voucher recipients reporting different values for total cost and for their cost. For the other voucher recipients, it was assumed that the only figure they reported was the amount that they paid, and that the total cost was higher by $600 per month.[16] These methods resulted in the estimates shown—32.3 percent as the median burden among all cash renters if there were no vouchers, compared to 31.1 percent with the vouchers. The estimated effect of removing the voucher program on the share of all cash renters paying more than 50 percent of their incomes for housing is an increase from 28.5 percent to 31.2 percent. Some voucher recipients were already experiencing severe burdens even with their vouchers, but removing the

[16] The assumption of $600 per month for voucher recipients who didn't indicate the amount they saved was a bit higher than the median among those who provided information, but it is less than the 2013 government cost of $701 per voucher per month (some of which goes to local housing agencies to pay for administering the program). See *Picture of Subsidized Housing* (http://www.huduser.gov/portal/datasets/picture/yearlydata.html#download-tab).

vouchers would imply that over 80 percent of the renters currently holding vouchers would face costs of more than 50 percent of their incomes.

C. Income Measures

Household income information is collected in several Census Bureau surveys. The information shown in Table 1 is based on the 2013 Annual Social and Economic supplement to the Current Population Survey (CPS-ASEC). The incomes shown in Tables 2-4 and used to calculate cost burdens are based on the 2013 AHS. Income data are also collected in the American Community Survey (ACS).

Although the definitions of income in the CPS-ASEC, AHS, and ACS are similar, there are some conceptual and methodological differences. Those differences do not, however, fully explain the differences in the incomes reported in different surveys.

The 2013 CPS-ASEC data were collected during February to April, using telephone and personal interviews. The respondents were asked for income received during 2012, with questions covering highly detailed income categories. Income taxes and disposable income were not asked about directly, but were estimated for each respondent based on his or her responses to the other questions. The relationship of disposable income to pretax income by decile calculated from the CPS-ASEC data was used to create a crude estimate of disposable income for the AHS. No data on housing costs were collected in the CPS-ASEC.

The 2013 AHS was conducted using telephone and personal interviews during May to September, 2013. Respondents were asked about their incomes during the 12 months preceding the interview, which implies that, on average, the data represented income during July 2012 to June 2013, although respondents might have responded based on their incomes during 2012, based on their latest tax returns, or perhaps based on the annualized value of their current incomes. The AHS asked for current rent, rather than rent in the previous year, but asked for average utility costs over the preceding year.

The ACS is conducted throughout the year, mainly by mail. It asks about income received during the preceding 12 months, about current monthly rent, about the cost of gas and electricity in the latest month, and about cost during the preceding 12 months for oil (and other less common fuels), water, and sewer. The 2013 ACS income values include a small adjustment for inflation, averaging 1.007549, to

express the income and cost data in 2013 dollars, so that responses from interviews conducted at the beginning and end of the year are comparable.

The median household incomes among all households from the 2013 surveys were $50,706 for CPS-ASEC, $47,974 for AHS, and $52,250 for ACS. For renters (including rent-free), the medians were $32,196 for CPS-ASEC, $29,987 for AHS, and $32,831 for ACS.

Median rent for cash renters was $846 for the AHS and $900 for ACS, based on the microdata. Median ratio of housing cost to gross income for cash renters was 31.1 percent according to the AHS and 31.0 percent for ACS.

Appendix 3 - Table Notes

Table 1

Lines 1-11:

Households as of 2013, except Canada 2011. Sources: AHS (US), NHS (CA), EU-SILC.

Lines 12-44:

Based on income in the current year (UK) or previous calendar year (all others).

EU-SILC income excludes values of company car, housing allowances.

US income from CPS-ASEC.

In cases where multiple records equal quintile breaks, records grouped in lower quintile.

Lines 37-40:

Gini coefficients exclude households with zero or negative income.

Lines 43-44:

Ratios compare 10th percentile among renters to median among renters, not to median among all households.

Table 2

Households as of 2013, except Canada 2011. Sources: AHS (US), NHS (CA), EU-SILC

Lines 26-28:

For some countries, nativity of householder NA for some records.

Table 3

Lines 1-4:

Data from 2013 surveys, except 2011 for Canada. All Canadian renters reported as subsidized counted as below-market, although some actually only receive housing allowances. For US, in this table, incomes are based on AHS.

Lines 5-16:

Data from 2013, except 2011 for Canada and UK.

For renters with zero or negative income, cost/income set to 100 percent.

Housing costs include utilities, etc., as well as rent.

Housing costs based on current costs, while incomes are for latest 12 months or previous calendar year.

Lines 17-24:

Data for 2013 except 2011 for Canada.

For US, receipt of housing allowances (vouchers) based on HUD administrative records.

See Appendix 2 regarding estimate of housing allowance amount and identification of below-market for US from AHS data.

Lines 25-32:

Data from 2013, except 2011 for Canada and UK.

For renters with zero or negative income, cost/income set to 100 percent.

Table 4

Lines 1-19:

Data from 2013, except 2011 for Canada and UK.

For renters with zero or negative income, cost/income set to 100 percent.

Housing costs include utilities, etc., as well as rent, net of housing allowances.

Lines 1-4:

Disposable income used in calculations for US based on applying ratios of disposable to total income by decile from CPS-ASEC to AHS income data—see Appendix 2.

Lines 20-39:

Data for 2013, except 2011 for Canada.

For Canada, assumes that half of units in MF structures with less than 5 floors are in structures with 2 to 9 units, and remainder are in structures with 10 or more units.

"Conventional" units excludes mobile homes, units in nonresidential structures, and those with structure type NA.

Table 5

Lines 1-9:

Data for continental European countries from EU-SILC 2012.

UK Data are based on values for England from 2012 English Housing Survey. (Response rate for UK to size question in EU-SILC 2012 was very low. England comprises 84% of UK population).

US data from AHS 2013.

Data for Canada from 2011 Survey of Household Energy Use, a supplement to the Households and the Environment Survey.

Lines 10-23:

Data for 2013, except 2011 for Canada (EU-SILC, AHS, NHS).

Data for US "ex Kit" subtracts kitchens from AHS room counts.

In Canadian NHS, instructions are to "Include kitchen, bedrooms, finished rooms in attic or basement, etc. Do not count bathrooms, halls, vestibules and rooms used solely for business purposes."

Line 26:

Age of stock for European countries interpolated from data on year built from EU. Censuses for 2011, extracted from https://ec.europa.eu/CensusHub2.

Data for US from 2011 AHS.

Data for Canada from 2011 NHS.

Line 27:

Age of structure data by tenure from German Federal Statistical Office, 2012 English Housing Survey, IPUMS (for Austria and Spain), AHS, NHS.

Line 28:

Population growth calculated from UN Demographic Yearbook (http://unstats.un.org/unsd/demographic/products/dyb/dybcensusdata.htm).

References

Andrews, Dan, A. Caldera Sánchez, and Å. Johansson. 2011. "Housing Markets and Structural Policies in OECD Countries." OECD Economics Department Working Paper No. 836. OECD Publishing.

Angel, Shlomo. 2000. *Housing Policy Matters: A Global Analysis*. Oxford University Press.

Arestis, Philip, Peter Mooslechner, and Karin Wagner. 2010. *Housing Market Challenges in Europe and the United States*, New York: Palgrave Macmillan.

Braga, Michela, and Pietro Palvarini. 2013. "Social Housing in the EU" (IP/A/EMPL/NT/2012-07 PE 492.469). European Parliament Directorate General for Internal Policies, Policy Department A: Economic and Social Policy.

Croll, Lara Eleanor. 2015. *Rethinking Shelter-Cost-to-Income Ratios in Housing Allowances*. Master's Thesis. Vancouver: Simon Fraser University.

Crook, Tony, and Peter A. Kemp. 2014. *Private Rental Housing: Comparative Perspectives*. Cheltenham: Edward Elgar.

Czischke, Darinka. 2007. Current Developments in Housing Policies and Housing Markets in Europe: Implications for the Social Housing Sector. Brussels: CECODHAS.

Dol, Kees, and Marietta Haffner. 2010. *Housing Statistics in the European Union 2010*. The Hague: Ministry of the Interior and Kingdom Relations.

Donner, Christian. 2011. *Rental Housing Policy in Europe*. Vienna: Christian Donner.

Eggers, Frederick J. and Fouad Moumen. 2010. *Investigating Very High Rent Burdens Among Renters in the American Housing Survey.* Washington: U.S. Department of Housing and Urban Development, Office of Policy Development and Research

___. 2014. *New AHS PUF Information on HUD-Assisted Rental Housing*. Washington: U.S. Department of Housing and Urban Development, Office of Policy Development and Research

Elsinga, Marja, and Hans Lind. 2013. "The Effect of EU-Legislation on Rental Systems in Sweden and the Netherlands." *Housing Studies* 28, no. 7: 960-970

Eurostat. 2011. *EU Legislation on the 2011 Population and Housing Censuses: Explanatory Notes*. Working Paper KS-RA-11-006-EN-N. Luxembourg: Publications Office of the European Union.

___. 2013. *Description of Target Variables, 2013 Operation* (EU_SILC 065). European Commission, Directorate F: Social Statistics and Information Society. Luxembourg: Publications Office of the European Union.

Finkel, Meryl, and Larry Buron. 2001. *Study on Section 8 Voucher Success Rates,* v. 1. Washington: U.S. Department of Housing and Urban Development.

Finkel, Meryl, Carissa Climaco, Jill Khadduri, and Marion Steele. 2006. *Housing Allowance Options for Canada*. Canada Mortgage and Housing Corporation.

Galvez, Martha M. 2010. What Do We Know About Housing Choice Voucher Program Location Outcomes?: A Review of Recent Literature. Washington: Urban Institute.

Graves, Erin M. 2015. *Rooms for Improvement: A Qualitative Meta-analysis of the Housing Choice Voucher Program*. Report no. 2015-01. Boston: Federal Reserve Bank of Boston. February.

Haffner, Marietta E. A., and Harry J. F. M. Boumeester. 2010. "The Affordability of Housing in the Netherlands: An Increasing Income Gap Between Renting and Owning?" *Housing Studies* 25, no. 6 (Nov.): 799-820

Harloe, Michael. 1985. *Private Rented Housing in the United States and Europe*. Beckenham, Kent: Croom Helm.

Hollar, Michael K. 2014. *Understanding Whom the LIHTC Program Serves: Tenants in LIHTC Units as of December 31, 2012*. Washington: U.S. Department of Housing and Urban Development, Office of Policy development and Research.

Kemp, Peter A. 2007. *Housing Allowances in Comparative Perspective*. Bristol: The Policy Press.

Malpezzi, Stephen. 2014. "Global Perspectives on Housing Markets and Policy." Working Paper #3. New York: NYU Marron Institute of Urban Management. March 21.

OECD. 2011. Divided We Stand: Why Inequality Keeps Rising. Paris: OECD Publishing.

___ .2014. *Revenue Statistics 1965-2013*. Paris: OECD Publishing.

___. 2015. Indicators of Immigrant Integration 2015: Settling In. Paris: OECD Publishing.

Oxley, Michael, Tim Brown, Marietta Haffner, Joris Hockstra, and Ros Lishman. 2011. "Using the Private Rental Sector as a Form of Social Housing." Working Paper 2011-03. Delft University of Technology, OTB Research Institute for the Built Environment.

Oxley, Michael, Ros Lishman, and Tim Brown. 2010. *Promoting Investment in Private Rented Housing Supply: International Policy Comparisons*. UK Dept. for Communities and Local Government.

Oxley, Michael, and Jacqueline Smith. 1996. *Housing Policy and rented Housing in Europe*. London: E & FN Spon.

Pareja-Eastaway, Montserrat, and Maria Teresa Sánchez-Martinez. 2014. "Spain," in Tony Crook and Peter A. Kemp, eds., *Private Rental Housing: Comparative Perspectives*, pp. 71-98. Cheltenham: Edward Elgar.

Peppercorn, Ira Gary, and Claude Taffin. 2013. Rental Housing: Lessons from International Experience and Policies for Emerging Markets. World Bank.

Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Trans. Arthur Goldhammer. Cambridge, MA: Harvard University Press.

Pittini, Alice. 2012. Housing Affordability in the EU: Current Situation and Recent Trends. Brussels: CECODHAS

Pittini, Alice, Laurent Ghekière, Julien Dijol, and Igor Kiss. 2015. *The State of Housing in the EU 2015*. Brussels: Housing Europe.

Rybkowska, Anna, and Micha Schneider. 2011. *Housing Conditions in Europe in 2009*. Cat. no. KS-SF-11-004-EB-N. Luxembourg: Publications Office of the European Union.

Santourian, Anais, and Eleni Ntakou. 2014. Working Paper with the description of the 'Income and Living Conditions dataset'. Eurostat, December 2014.

Scanlon, Kath, and Ben Kochan. 2011. Toward a Sustainable Private Rented Sector: The Lessons From Other Countries. London: LSE.

Steele, Marion. 2001. "Housing Allowances in the US under Section 8 and in Other Countries: A Canadian Perspective." *Urban Studies* 38, no. 1: 81–103.

World Economic Forum. 2015. *Outlook on the Global Agenda*. Geneva

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