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Title Estate Agency Rent Surveys as a basis for housing comparisons

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Abstract Accommodation costs can represent a significant proportion of total household budgets, however housing is long acknowledged to be a comparison-resistant component of spatial price indices. Eurostat has adopted a specific solution to compile high-quality statistics in this field as a basis for calculation of rent parities, which has some potential wider applications. For example there is a specific interest in housing affordability and policy responses. This paper examines the current Eurostat approach to international comparisons based on estate agency rent surveys and highlights the important statistical principles on which such work is based.

Keywords Remuneration, Cost-of-Living, Housing, Estate Agency Rent Surveys

Disclaimer The opinions expressed in this document represent the authors' points of view and are not necessarily shared by the European Commission (Eurostat).

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Introduction

Data are collected on market rent prices every year by Eurostat and the International Service for Remunerations and Pensions (ISRP) of the Coordinated Organisations¹, in collaboration with the National Statistical Institute (NSI) of each country. Together with temporal rent price indices and information about staff household expenditures, they are used to calculate cost-of-living adjustments which are applied to salaries of staff working for the main international organisations in order to equalise purchasing power across duty stations. This paper examines the approach to that work and its potential use for wider comparisons of housing.

PART ONE: Estate Agency Rent Surveys

Methodology framework

Similar core principles of *representativity* and *comparability* apply as for other areas of the calculation of correction coefficients by Eurostat. However, because of housing's unique nature, a specific approach is necessary. No two dwellings are exactly alike, especially when account is taken of all the secondary attributes which may affect prices, such as the quality of the neighbourhood, proximity to workplace, shops, transport, schools, etc. These concepts can have different meanings in larger cities like Paris or Rome, from smaller towns like Varese or Culham.

The current methodology reflects many years of discussion and refinement. The approach is reviewed annually at the Eurostat Expert Working Group on Articles 64&65 of the Staff Regulations. The methodology is based on a six-year moving-average model, which takes into account current market rents, as well as rents paid for accommodation leases over a longer period.

Moving-average model

Estate agency rent surveys are conducted annually and collect current market rents. This is clearly relevant for new tenancy agreements. However in reality, most staff do not move house every year and will probably have lived in their accommodation for some time – possibly since the original purchase or the lease began. In consequence there is a need to take historic rent levels also into account.

This problem is overcome by using a moving-average model covering a number of years. The rents data collected during each annual exercise is updated to the current year using appropriate official indices and is combined to calculate an overall average. Each year, the rents data for the oldest year is dropped and the newest year is added, and a new average is calculated.

Actual and imputed rents

In the 80 basic heading classification currently used by Eurostat/ISRP, housing costs are covered by BH 20 'actual rents of tenants' and BH 21 'imputed rents of owner-occupiers'.

In the Eurostat calculations, standard economic approach is followed by imputing actual market rent to owner-occupiers. Conceptually, imputed rent thinks of a home-owner as paying rent to themselves: they are both the tenant and landlord of the property. Since the home-owner could obtain the equivalent benefit by renting the property out, imputed rent reflects the opportunity cost of housing for owner-occupiers.

¹ Coordinated Organisations: Council of Europe (CoE), European Centre for Medium-range Weather Forecasts (ECMWF) and European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), European Space Agency (ESA), North Atlantic Treaty Organization (NATO), Organisation for Economic Co-operation and Development (OECD).

Coverage

Rent surveys take place in each duty station (usually the capital), for which a cost-of-living index (correction coefficient, PPP, Post Adjustment) is required by the systems of the European Union (EU), the Coordinated Organisations (CO) or the United Nations (UN).

Financing arrangements

EU Member States receive funding for these surveys via ECP grants. Specific arrangements are made for the work in non-capital city duty stations within the EU (IT-Varese, DE-Bonn, DE-Karlsruhe, DE-Munich, UK-Culham) to ensure the work is done in identical manner. A contribution towards funding this work is possible via IPA grants in certain non-EU countries (TR, AL, BH, MK, ME, RS).

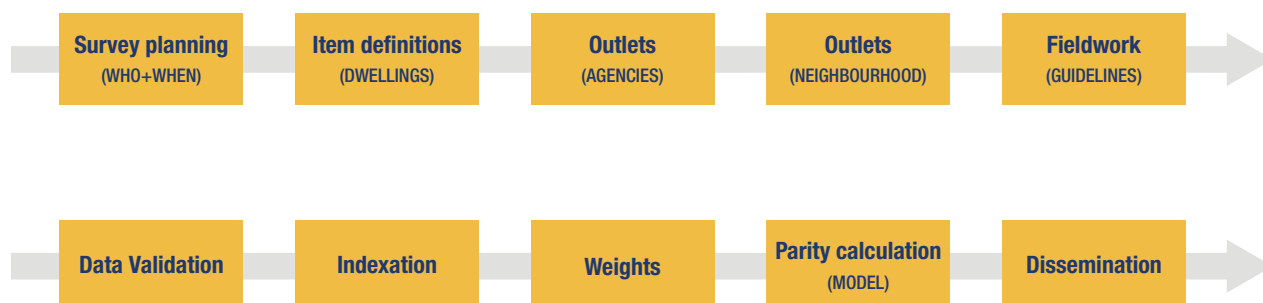
There are 9 capital city duty stations outside the EU for which Eurostat coordinates price surveys in the European Comparison Programme (IS, NO, CH, TR, AL, BH, MK, ME, RS); 5 capital cities surveyed by OECD in the joint programme (CA, JP, KR, MX, US); plus CH-Geneva, CA-Montreal and US-New York. OECD makes specific arrangements for work in AU and NZ, and also survey a number of additional locations (UK-Reading, FR-Lyon, Singapore).

The rents information is shared between Eurostat, ISRP and ICSC under the terms of the trilateral memorandum signed in 2009 on the exchange of statistical information in the field of cost of living measurement for the adjustment of remuneration.

Annual workflow

Figure 1 summarises the annual work phases:

Figure 1: EARS annual work phases



Organisational arrangements for 2019 fieldwork participation

A strategy to distribute survey work between national statistical institutes (NSIs) and Eurostat/ISRP was agreed by the Eurostat Expert Working Group on Articles 64&65 of the Staff Regulations in March 2011, reducing the frequency of the Eurostat/ISRP fieldwork participation from every year in every location, to once every two years. Particular attention nevertheless continues to be paid to Brussels and other major duty stations where large numbers of EU/CO staff are located: this list currently includes Paris, Luxembourg, The Hague and some non-European locations. In the intermediate years, the preparatory phases, fieldwork, and ex-post data processing are all ensured by the NSI.

Under this approach, the NSI ensures the appropriate characteristics of the rental market in each location surveyed, i.e. the aspect of *representativity*, while periodic Eurostat/ISRP participation ensures continued *comparability* between each location and the base city Brussels.

On the whole, the tasks of the NSI ensuring fieldwork locally may be summarized as follows:

- selecting the estate agencies;
- arranging appointments with participating agencies;
- selecting appropriate districts for the comparison in agreement with Eurostat and ISRP;
- conducting the interviews with estate agents;
- verifying the results, including checking any inter-temporal inconsistencies in the data;
- produce and submit final rent data and a survey report to ISRP for review and eventual incorporation into the global calculations submitted to Eurostat.

In accordance with separate grant agreements, participating countries are also expected to return the questionnaire to Eurostat via eDAMIS.

The planned allocation of tasks for 2019 is presented in **appendix 1**. NSIs will ensure the fieldwork without Eurostat/ISRP participation in a total of 21 duty stations. Surveys in the remaining 22 duty stations (out of the total 43 Eurostat/ISRP common locations) will be carried out jointly by the ISRP and the NSI.

Organisational arrangements for 2019 – timing

The cycle of rent surveys are usually launched in March extending to no later than the month of June. For the 2019 cycle of rent surveys, the ISRP initiated contact with all participating NSIs early in the year, and by March 2019, survey dates/periods were already fixed for most locations where the respective NSI will be ensuring the fieldwork without Eurostat/ISRP participation. In parallel, survey dates have been commonly agreed between the ISRP and the NSI for other locations.

The proposed survey timetable for 2019 exercise, reflecting situation as known in March 2019, is shown in **appendix 2**. Launch letters for the exercise are sent out progressively to the NSI of locations once the survey dates have been fixed.

Detailed survey guidelines

Poor estimates of the rent levels will not lead to good parities even if highly sophisticated methods are applied. Close attention is therefore paid to the organisation and conduct of rent surveys.

In each place, fieldwork is usually conducted by a team of 2 surveyors from NSI, accompanied by Eurostat/ISRP coordinator.

Detailed survey guidelines are reviewed annually and updated as necessary. They are sent to NSIs together with the launch letters.

Questionnaire design and item definitions

Principles on good questionnaire design were followed in drafting the questionnaire.

As regards the technical content, the definitions can be considered as “generic” with multiple, structured parameters to focus on the precise factors likely to have an influence on price. **Figure 2** summarises general quality characteristics.

Figure 2: general quality characteristics

GENERAL CHARACTERISTICS	
Property	Unfurnished
Location	Residential area of good quality
Age	(Year of construction/major modernisation): Recent (within the last 10 years)
Situation	(if apartment): Middle floor
Outlook	In good, well-lit position
Finish	Floors, walls, sanitary fittings, doors, etc. of good quality
Duration	Rental contract of at least one year
Rent	Monthly amount, excluding charges

The questionnaire seeks to compile information about actual monthly rent payable. Thus if the asked-for rent is typically negotiable downwards, the lower value should be recorded. Similarly, if the asked-for rent has to be supplemented by separate cash payment (as sometimes happens in some places) it is the total rent that is required.

The questionnaire seeks the “pure” rent of the accommodation only. Charges made for general services (e.g. concierge, common cleaning, lighting of common parts, central heating, lift services, etc.) are excluded. Charges for gas consumption, electricity consumption, water consumption, telephone/internet/TV consumption, insurance, etc. are also excluded. These are covered separately in the correction coefficient calculation.

The rents to be recorded are those payable by individuals: accommodation rented by employer organisations for their staff are excluded, as such corporate rents can be quite different.

Living area

This is defined as the total internal habitable area; excluding garage and terraces. It should include cellars and attics, if habitable. Careful attention is paid to this aspect during interviews, as the dwelling type size variant is used to establish a rent per m² for use in the imputation process.

There are occasional allegations that promotional literature sometimes includes different descriptions than actual dimensions measured on moving into dwellings. For that reason, surveyors explicitly review this aspect during interviews with estate agents to ensure the broad category is not misstated.

In some countries (e.g. UK and Ireland), it can be less typical to refer to dimensions and more typical to refer to number of rooms. Correct attribution of the dwelling for which rent is quoted to the dwelling type size variant is ensured during interviews with estate agents.

In some places it may be impossible to find unfurnished dwellings. Furnishings may sometimes be provided to reflect a legal minimum requirement, or due to rules about contract duration/criteria for ending tenancies. In such cases the impact on rent price is considered unlikely to be significant.

Selection of estate agents

The precise roles and responsibilities of real estate agents and their equivalents can vary, depending on the national legal system framework, but their basic task is to bring together buyers and sellers or tenants and landlords, and to coordinate the transaction of agreements. An EU consumer market study in 2018 identified that as part of their search process, 63% of potential purchasers/tenants looked at website of real estate agents, 54% looked at general property websites and 33% did specific searches for property advertisements. They are consequently the appropriate, objective source of information about typical rent levels.

During fieldwork the surveyors visit a certain number of experienced estate agents in order to obtain a good estimate of current rental values in the pre-selected neighbourhoods. At least ten agencies are visited in the larger cities, while in the smaller places it is possible to cover the market adequately with a smaller number. However six agencies are regarded as the absolute minimum. Interviews are typically conducted in local language. NSI participation provides valuable continuity of experience and local knowledge.

Planning the schedule of visits can be an important element in the efficiency and effectiveness of the fieldwork. It is important that the list of agencies reflects specialisms (e.g. by residential district, or by dwelling type). Typically, a number of new agencies are visited each year, and some drop out of the survey (e.g. due to closure, relocation). Where available, this selection should be done on the basis of market penetration data. In some duty stations the market is dominated by large chains of national or international agencies, or networks of affiliated agencies; in other locations, there can be a number of independent agents.

Interviews with estate agents and use of alternative data sources

The fieldwork data collection is done using CAPI/PAPI techniques (“computer-assisted personal interview”/“paper-assisted personal interview”). Interviews are generally conducted with a principal of the firm, someone who has a deep personal knowledge of the local housing market.

One of the main practical problems is extreme values (outliers). Estate agents may have little difficulty in identifying the lower value of a range, but the upper values can be harder to identify. Sometimes agents prefer to give an average value than information for a recent individual transaction. They are asked to focus on as narrow a range as possible; the range within which the majority of agreements fall.

In recent years, NSIs in some countries have reported that they find it increasingly difficult to identify traditional estate agents and persuade them to participate, because an increasing number of transactions in their countries is being conducted via internet. This phenomenon is being closely monitored by Eurostat/ISRP.

Under the current approach, data compilation via postal surveys is only acceptable as a last resort, because there is limited opportunity to interrogate anomalies. Use of commercial databases is prohibited for similar reasons. By contrast, in some countries, there are national registers of transactions, and this administrative source is a potential complementary source of data.

Another potential solution in future could be web scraping (a technique used to automatically extract data from websites). An increasing number of tools has become available in recent years to facilitate such research. The focus for such a survey might be classified advertisements for property which are published online by landlords. Of course, the tools can only analyse the information that is published: this may not include sufficient detail to match the existing rent questionnaire factors which are known to have an influence on price – and there is no opportunity to interrogate anomalies. Information obtained from one website may not match information available from another. A pilot study will be done in Germany during 2020 to examine data availability from alternative sources (online survey) and to compare the impact on average prices recorded under traditional approach.

Selection of residential locations

The current methodology emphasises that the selection criteria for the areas to be surveyed are of great importance. Location is probably the most important determinant of rent.

Dwellings and districts cannot be compared by physical characteristics alone as the duty stations vary enormously in both size and desirability. Practical implementation has to be subject to continual review to ensure *representativity* and *comparability* is maintained. Areas presently covered by the survey in each duty station are reviewed and agreed bilaterally with respective NSI before the start of each annual round of surveys to take into account the city-specific circumstances.

Since the aim of the exercise is to compare “like with like”, the neighbourhoods surveyed may not necessarily be in those areas where expatriates actually choose to live. Similarly, the information gained about representative residential choices in duty stations is used to inform the choice of locations for which prices are collected in Brussels (even if they are not the most representative for Brussels). This dual approach is an essential feature to avoid bias in the price comparisons.

In many duty stations, the location of private international schools may be an important criterion, particularly those recognised in standard British (“COBIS”), French (“AEFE”) and German (“ZfA”) international networks. However, this criterion may not always apply because national language schools may be suitable (e.g. Anglophones living in Ireland or England, Francophones living in Belgium or France, Germanophones living in Austria or Germany). Where relevant, the practical focus should be on location of primary schools rather than secondary schools (as older children can often travel to school themselves).

New infrastructure developments may significantly affect commuter times, changing the attractiveness of locations. These projects are typically known in advance.

Socio-economic data (e.g. from national census) may help to identify residential locations of comparable households (e.g. national professionals such as doctors, lawyers, engineers, higher education teachers, senior civil servants; expatriates such as middle managers of multinational companies). In terms of the European Socio-Economic Classification this corresponds to ESeC1 “higher managers/professionals” and ESeC2 “lower managers/professionals; higher supervisory/technical”. By contrast, luxury residences in diplomatic quarters are excluded.

The neighbourhoods covered by the survey are reviewed annually with NSIs and with real estate agencies as part of the survey process. Residential areas which are mentioned by the real estate agencies during the survey fieldwork as becoming more popular or less popular among the reference population, are noted in the report and monitored in subsequent surveys. A new district is then included, or those no longer pertinent are dropped from the survey, once there is a consensus between the views of estate agencies, rent surveyors, the NSI and Eurostat/ISRP.

A list of the residential areas for 2018 is included as [appendix 3](#).

Selection of dwelling types

The methodology defines 5 dwelling categories as shown in [Figure 3](#):

Figure 3: dwelling type size variants

1 bed flat	2 bed flat	3+ bed flat	Joined house	Detached house
40-60 m ²	60-80 m ²	80-100 m ²	80-100 m ²	110-140 m ²
60-80 m ²	80-100 m ²	110-130 m ²	110-130 m ²	150-180 m ²
		140-160 m ²	140-160 m ²	190-220 m ²

Within each category, there are different standardised sizes. All 13 size variants are priced in Brussels; only the most representative size variant within each of the 5 dwelling categories is priced in the other duty stations.²

A list of the current size variants per duty station is included as [appendix 4](#). As with the coverage of the survey in terms of neighbourhoods, the extent to which dwelling sizes remain representative of the market is reconfirmed with NSI ahead of the survey, as well as with estate agencies during the subsequent interviews.

² With effect from 2013, price data for all 5 dwelling categories is collected in all Intra-EU duty stations. Prior to that date, price data for houses was not fully included for London, Paris, Madrid, The Hague, Rome or Athens. 2011 and 2012 were transitional years in those places, adding joined houses and then detached houses.

Source of updating indices

All rent data used in the calculation are updated to the current year by using the most appropriate price indices. Such indices shall reflect the common practice of specific indices used in a lease contract for updating rents. In most countries, the national Consumer Price Indices (CPI) are collected to update the data from previous years; however, for certain countries, specific index series, such as the '*Indice Santé*' for Belgium and the '*Indice de référence des loyers*' for France are used. For Germany, the updating indices are calculated from the weighted average of HICP '*COICOP 4.1 - Actual rentals for housing*' and '*COICOP 4.4 - Water supply and miscellaneous services relating to the dwelling*'.

These indices are collected annually by the ISRP from the official NSI websites or directly received from the NSI. The index series currently used are listed in [appendix 5](#).

Data processing

For each of the 5 dwelling types an average rent is calculated by aggregating all the agencies' results (simple unweighted arithmetic mean).

PART TWO: Staff Housing Surveys

Staff Housing Surveys

Eurostat conducts periodic Staff Housing Surveys in Brussels and the other duty stations³. These surveys have two main objectives. The first is to establish “preference weights” between the 5 dwelling categories. The other is to establish duration-of-occupancy “taper weights” for use in the six-year moving-average model. Even if such information were easily available for other population groups such as retired officials or national indigenous population, these could give a quite different weighting due to the important differences in circumstances and behaviours of expatriate officials.

The survey is conducted online with a CASI approach (“computer-assisted self-interview”). Confidentiality and anonymity is assured. The questionnaire is short, and designed using best practice principles. Response levels are high. Technical content focuses (a) on the type of dwelling, the size in square metres and related characteristics, and (b) on the current monthly rent.

The most recent survey was conducted in 2016, covering all Intra-EU duty stations. Eurostat managed data collection from EU institutions and partner international organisations (EuroControl, European Schools, European Centre for Nuclear Research, European Southern Observatory, European Molecular Biology Laboratory). ISRP managed data collection from Coordinated Organisations and European Patent Organisation. In total, 23,355 replies were received, which represents an excellent response rate.

[In a possible future improvement, with ever closer cooperation under Memorandum of Understanding signed 2009, it may be possible to integrate results from similar surveys amongst staff of United Nations.](#)

To increase sample sizes in certain duty stations with small populations, responses could theoretically be combined over time – however the delay between surveys means there is possibility of considerable change. In line with standard practice, where there were insufficient replies from an individual location to allow calculation of robust statistics, the values were combined (“pooled”) with neighbouring duty stations, or the overall EU average (outside Brussels) was used. **Figure 4** below summarises the outcomes:

³ From six founder members in 1951, by 2019 the EU has expanded to comprise 28 Member States, with a number of additional candidate countries. The number of institutions, and in particular the number of decentralized agencies distributed around the EU, has increased significantly. In some countries there are multiple duty stations. Total staff numbers have increased in line with these developments.

Figure 4: SHS 2016 pooling and individual structures

Individual structure	24	BE, BG, CZ, DK, DE ^{Ber} , DE ^{Bon} , DE ^{Kar} , DE ^{Mun} , IE, EL, ES, FR, IT ^{Rom} , IT ^{Var} , LU, HU, NL, PL, PT, SI, FI, SE, UK ^{Lon} , UK ^{Cal}
Pool structure	4	AT+DE ^{Mun} ; EE+LV+LT
Overall average	5	HR, CY, MT, RO, SK
TOTAL	33	

Dwelling preference weights

Figure 5 below shows how weights are calculated from the SHS responses. Data for tenants is firstly used to impute rents for owner-occupiers. A combined figure is then computed as shown in the table. Finally, information for each dwelling type is expressed relative to the total.

Figure 5: combining SHS results for tenants and owners

Kind of dwelling	TENANTS		OWNER-OCCUPIERS		TENANTS+OWNERS
	Number	Global expenditure	Number	Global expenditure (Imputed rent)	Global expenditure (rents + imputed rents)
[1]	[2]	[3]	[4]	[5]	[6]
1 bedroom	tn ₁	tx ₁	on ₁	ox ₁ = on ₁ *tx ₁ /tn ₁	tx ₁ +ox ₁
2 bedrooms	tn ₂	tx ₂	on ₂	ox ₂ = on ₂ *tx ₂ /tn ₂	tx ₂ +ox ₂
3 bedrooms	tn ₃	tx ₃	on ₃	ox ₃ = on ₃ *tx ₃ /tn ₃	tx ₃ +ox ₃
detached houses	tn ₄	tx ₄	on ₄	ox ₄ = on ₄ *tx ₄ /tn ₄	tx ₄ +ox ₄
non-det. houses	tn ₅	tx ₅	on ₅	ox ₅ = on ₅ *tx ₅ /tn ₅	tx ₅ +ox ₅
TOTAL	TN	TX	ON	OX	TX+OX

Dwelling-type weights (w_i) are then the ratios between the global expenditure (tenants + owners) by kind of dwelling and the total expenditure for all dwellings:

$$w_i = \frac{tx_i + ox_i}{TX + OX}$$

There is often a link between the characteristics of the population and the housing pattern. For example, the typical length of stay may be different for “permanent” and “temporary” officials, and there may also be an influence on the size of dwelling. Affordability and personal choice will also have an influence. The weights actually applied are the average for all respondents.

Figure 6 shows the dwelling preference weights now applied for Brussels⁴: there is a high degree of similarity between the most recent survey results (2016) and results from the previous survey.

4 Note: [Appendix 6](#) presents the results for all duty stations.

Figure 6: dwelling type preference weights for Brussels per 2016 SHS

	New weights	Existing weights
1 bed flat	8.48	10.64
2 bed flat	21.01	23.53
3+ bed flat	15.00	13.06
Joined house	32.28	30.24
Detached house	23.23	22.53
Sum	100%	100%

Taper weights

Analysis of the Staff Housing Survey responses also provides information about length of stay in current dwelling.

Figure 7 below shows the “taper weights” currently applied in the six-year model. There is a high degree of similarity between the most recent results (2016 survey) and results from the previous survey.

Within last	New weights	Existing weights
0-12 months ... t0	25	25
12-24 months ... t-1	21	23
24-36 months ... t-2	18	17
36-48 months ... t-3	14	13
48-60 months ... t-4	11	12
60-72 months ... t-5	11	10
Total	100	100

Figure 7: taper weights per 2016 SHS

Price parity calculation

The average rent information obtained for each of the 5 dwelling types from the latest annual survey, is combined with information derived from similar surveys in earlier years, to establish a six-year moving-average value. This requires: (a) updating the old average rents to the current year price level, using appropriate rent price indices; (b) calculating an overall average, using the taper weights.

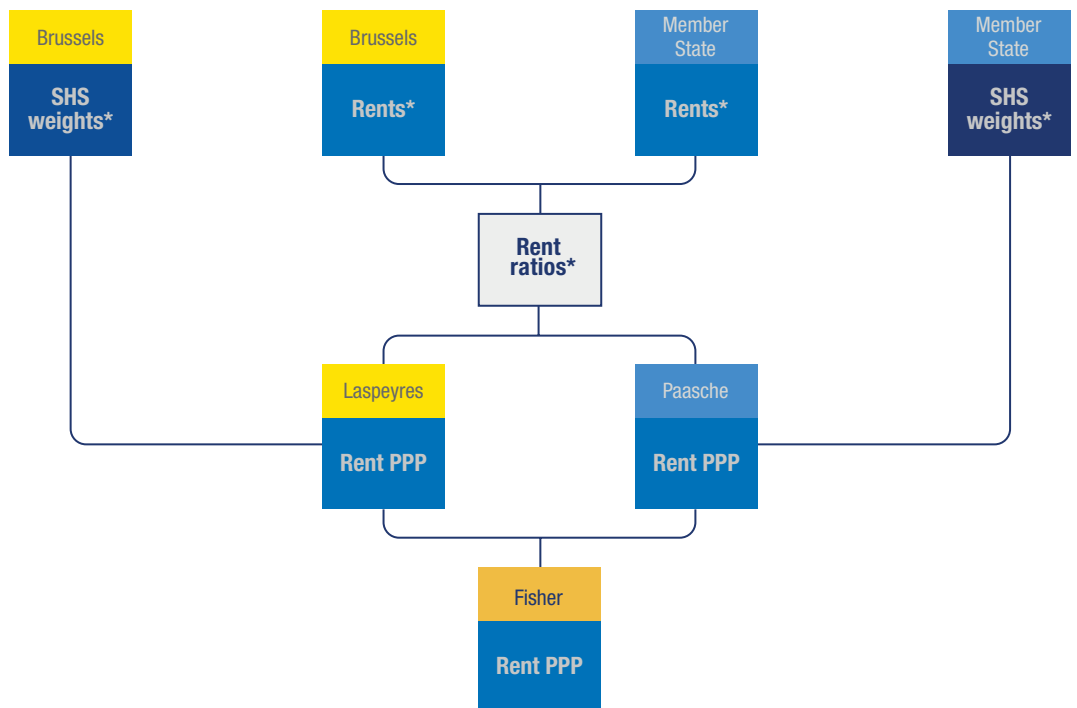
For each duty station, the resulting six-year moving-average by dwelling type, can then be expressed as a price relative to the corresponding value for Brussels.

In accordance with the approved methodology, the overall rent PPP is firstly calculated as a weighted arithmetic mean of the price ratios for the 5 dwelling types using the preferences for Brussels (this is a Laspeyres-type index). Secondly it is then calculated as a weighted harmonic mean using the preferences for the Member State concerned (this is a Paasche-type index). Finally the geometric mean of the two results is calculated (this is a type of Fisher index). Statistical formulae for these three calculations are shown below:

$${}_x PPA_B^L = \frac{\sum_{i=1}^{50} PPA_i \times W_{xy}}{\sum_{i=1}^{50} W_{xy}} \quad {}_x PPA_B^P = \frac{\sum_{i=1}^{50} W_{xy}}{\sum_{i=1}^{50} \left(\frac{1}{PPA_i} \times W_{xy} \right)} \quad {}_x PPA_B^F = \sqrt{({}_x PPA_B^L \times {}_x PPA_B^P)}$$

This Fisher-type calculation is summarised diagrammatically in **Figure 8** below:

Figure 8: Fisher-type rents index calculation



* by dwelling type

A hypothetical example is shown in **Figure 9** below:

Figure 9: example rent parity calculation

	1 bed flat	2 bed flat	3+ bed flat	Joined house	Detached house
Avg.rent (1)	783	1,026	1,307	1,385	1,908
Weight (1)	10.64	23.53	13.06	30.24	22.53
Avg.rent (2)	983	1,272	1,695	1,824	2,713
Weight (2)	7.80	17.10	17.80	32.10	25.20
Ratio 2/1	1.2550	1.2397	1.2969	1.3170	1.4219

Laspeyres (1): **1.3706**

Paasche (2): **1.3759**

Fisher: **1.3759**

Dissemination of results

The results for each annual exercise are integrated in the Eurostat Remuneration Report, and are summarised in a separate brochure produced by ISRP/Eurostat and distributed among participating estate agencies as a way to thank them for their collaboration in rent surveys.

Appendix 7 reproduces an extract from the 2018 report showing current market rents. Eurostat has prepared a web page to briefly describe the work done on EARS, and this includes a time series of the brochures published since 2003: <http://ec.europa.eu/eurostat/web/civil-servants-remuneration/estate-agency-rent-surveys>

PART THREE: Expanding policy interest

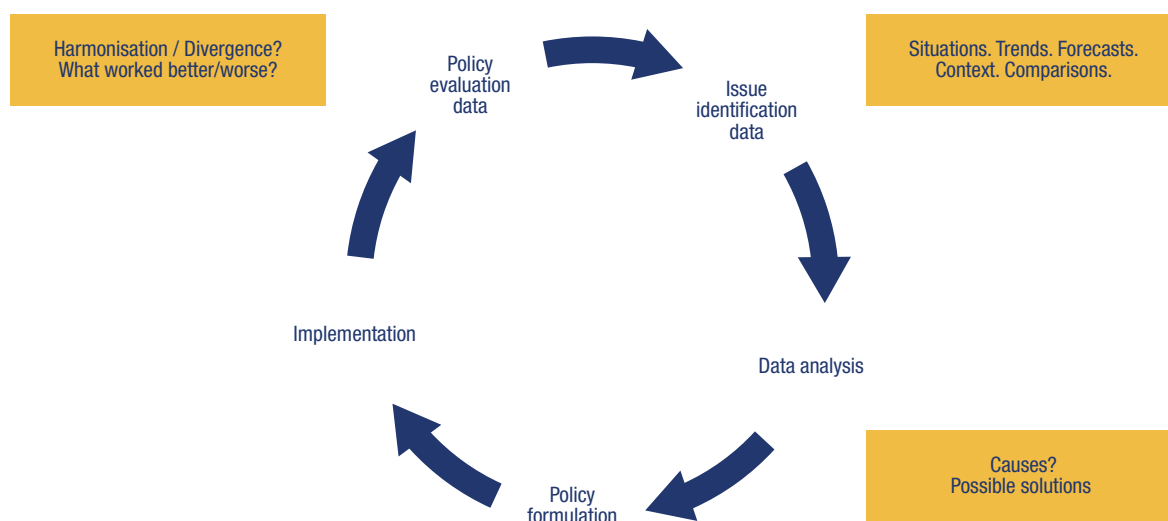
Relevance for alternative purposes

Important Note: In this section, it should be remembered that the various information sets discussed in the earlier parts of this report (estate agency rents, dwelling type preferences, taper weights, ancillary information) were compiled and published for a specific objective. Consequently, to the extent that alternative data sources exist to measure similar phenomena which have been developed according to alternative methodologies, analyses based on those alternative approaches may give rise to different conclusions.

The policy cycle

The diagram in **Figure 10** emphasises the different points at which availability of data may be helpful in designing and evaluating policies:

Figure 10: the policy life cycle



Housing affordability

For most people, accommodation is about more than just satisfying basic shelter requirement, with high emotional content linked amongst other things to family aspirations, lifestyle choices, perceptions of comfort and success. A variety of social inclusion indicators have been developed in recent years, some of which relate to housing affordability. This is a hot topic at national level, particularly since the mortgage crisis in 2008 – but such measurements may also be relevant for employer organisations in considering for example the adequacy of staff benefit and welfare policies.

Academic literature distinguishes between “purchase affordability” (e.g. ratio of house prices to income/earnings), and “payment affordability” (e.g. proportion of income/earnings spent on housing). These can be linked with policy indicators, for example “one week’s pay for one month’s rent” (25% threshold) or “30:40” rule (what proportion of households in bottom two income quintiles spends more than one-third of their income on housing) or “housing cost overburden” (proportion of households spending more than 40% of equivalised disposable income on housing). Context indicators might include population breakdowns according to tenancy status, expatriate status, household size, dwelling type, length of residence.

For national populations within the EU, information is available from the EU-SILC (“statistics on income and living conditions”) survey about payment affordability. Analysis of 2017 data shows that on average across EU 21.4% of household disposable income is spent on housing.

However the difference is stark between higher and lower income households. In the vast majority of countries, spending is above one-third of income when income is below 60% of the median. One reason is attributed to tenancy status. Examining 10 years of data, for the EU28 on average, the ratio of owners to tenants remained stable around 73%: 27% for households with income above 60% of median but changed from 60%: 40% to 49%: 51% for households with income below 60% of median. [Such analyses may also be interesting to attempt for international officials.](#)

Figure 11 below presents context indicators for international officials using data from the 2016 staff housing survey for tenancy status, expatriate status, household size. Figure 6 earlier (dwelling type preference weights) shows dwelling choices made. Figure 7 earlier (“taper weights”) shows duration-of-stay:

Figure 11: context indicators for international officials per 2016 SHS

Tenancy status (renter/owner)	43%	57%
Expatriate status (yes/no)	69%	31%
Household size (single/other)	19%	81%

Analysis of Family Budget Survey (FBS) data suggests that expenditure on housing represents 237.0 ‰ of total budget for staff of international organisations in Brussels, and 234.1 ‰ of total budget for staff on average across remaining Intra-EU duty stations. This average masks variation from 160.9 ‰ of total budget to 358.4 ‰ of total, with standard deviation around the average of 44.3 ‰.

The FBS data reflects situation for whole population of EU officials. Instead, the information about rent price levels could be combined with salary scale data, to identify an affordability indicator. This figure could then be contrasted with national population data to compare the situation of international officials. The analysis at national level is typically focused on first-time buyers and low-income households. For mobile international officials, the focus might instead be on new recruits or new arrivals in a duty station.

Analysing SHS questionnaire responses

The Staff Housing Survey is currently designed with a specific objective. If there is sufficient policy interest, it might be possible to adapt the questionnaire to include a small number of targeted questions modelled on those in the EU-SILC survey at national level, for example to help identify housing stress.

The Staff Housing Survey already compiles information about mortgage repayments by owner-occupiers, however this information has not been analysed in similar way to the rent expenditure information. Subject to resource constraints, analysis of the most recent (2016) survey data may provide interesting information regarding staff circumstances.

Conclusions

In this paper some core principles for the comparison of housing costs experienced by international staff have been identified. Eurostat is satisfied that the current approach is producing high-quality statistics for rents as an input for calculation of global correction coefficient values used for adjusting salaries of international staff. Subject to resource constraints, it will continue to refine the approach and achieve greater effectiveness, efficiency and economy to meet user needs.

In addition, recognising that in recent years the analysis of housing markets has intensified, and that there are growing policy needs for high-quality statistical evidence in this field, Eurostat has identified possible innovative ways in which the existing estate agency rents data and staff housing survey data which underlie the calculation of correction coefficients, could be integrated for wider purposes.

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Appendix 1 DISTRIBUTION OF FIELDWORK TASKS FOR 2019

Survey locations							EARS
		2014	2015	2016	2017	2018	2019
ISRP-Eurostat surveys							
AT	Vienna	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
CZ	Prague	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
DE	Berlin	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
DE	Bonn	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
DE	Karlsruhe	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
DK	Copenhagen	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
EE	Tallinn	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
FI	Helsinki	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
IE	Dublin	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
LT	Vilnius	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
LV	Riga	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
PL	Warsaw	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
SE	Stockholm	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
SK	Bratislava	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
UK	Oxford	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
UK	Reading	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
AL	Tirana	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
MK	Skopje	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI
BE	Brussels ¹	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI
NL	The Hague ¹	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI
CH	Bern ²	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI
FR	Paris ¹	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI	ISRP-NSI
BG	Sofia	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
CY	Nicosia	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
DE	Munich	ISRP-NSI	ISRP-NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
ES	Madrid	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
GR	Athens	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
HR	Zagreb	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
HU	Budapest	ISRP-NSI	ISRP-NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
IS	Reykjavik	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
IT	Rome	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
IT	Varese	ISRP-NSI	ISRP-NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
LU	Luxembourg	ISRP-NSI	ISRP-NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
MT	Valletta	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
NO	Oslo	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
PT	Lisbon	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
RO	Bucharest	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
RS	Belgrade	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
SI	Ljubljana	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
TR	Ankara	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
UK	London	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
ME	Podgorica	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
BA	Sarajevo	ISRP-NSI	NSI	ISRP-NSI	NSI	ISRP-NSI	NSI
Total EARS		43	43	43	43	43	43

NOTES: ¹ Brussels, The Hague, Paris : ISRP/Eurostat fieldwork presence required every year

² Bern: regular ISRP fieldwork presence requested by the NSI

Appendix 2 RENT SURVEYS TIMETABLE FOR 2019

	Survey dates	Working days	Surveyor	2018 surveys Dates	Surveyor	
Europe						
Valletta	6-7 March	2	NSI	4-5 April	WG	Valletta
Paris	25-27 March	3	SG/MJ	20-22 March	SG	Paris
Varese	25-29 March	1.5	NSI	28-29 May	AL	Varese
Oslo	March	2	NSI	15-16 May	WG	Oslo
Oxford/Reading	1-2 April	1	RR	19-20 April	NSI	Oxford/Reading
Brussels	2-4 April	3	RP/MJ	27-29 March	RP	Brussels
Munich	2-4 April	2	NSI	10-11 April	WG	Munich
London	3-5 April	3.5	NSI	30 Apr - 3 May	RR	London
Skopje	4-5 April	2	WG	12-13 April	NSI	Skopje
Tirana	8-9 April	2	WG	12-16 April	NSI	Tirana
Zagreb	11-12 April	2	NSI	14-15 May	RR	Zagreb
Sarajevo	1st 2 weeks April	2	NSI	21-22 May	RR	Sarajevo
Geneva	15-17 April	3	AL	24-26 April	WG	Geneva
Ljubljana	15-19 April	2	NSI	18-19 April	WG	Ljubljana
Luxembourg	16-17 April	2	NSI	26-27 April	RP	Luxembourg
Dublin	25-26 April	2	ISRPrep	23-24 April	NSI	Dublin
Lisbon	April	2	NSI	11-12 April	AL	Lisbon
Athens	6-9 May	2	NSI	3-4 May	WG	Athens
Karlsruhe	6-7 May	2	WG	23-25 April	NSI	Karlsruhe
Rome	6-10 May	2	NSI	14-15 May	AL	Rome
Podgorica	6-17 May	2	NSI	24-25 May	RR	Podgorica
Madrid	8-9 May	2	NSI	17-18 April	EA	Madrid
Prague	9-10 May	2	AL	28-30 May	NSI	Prague
Nicosia	15-16 May	2	NSI	31 May - 1 June	RR	Nicosia
Berlin	20-22 May	3	WG	28-30 May	NSI	Berlin
Sofia	20-21 May	2	NSI	14-15 June	WG	Sofia
Stockholm	20-21 May	2	AL	7-9 May	NSI	Stockholm
Bucharest	2nd half May	2	NSI	4-5 June	WG	Bucharest
Warsaw	27-28 May	2	WG	17-28 May	NSI	Warsaw
Belgrade	May	2	NSI	7-8 May	RR	Belgrade
Budapest	May	2	NSI	14-15 June	RR	Budapest
Helsinki	4-5 June	2	WG	12-23 June	NSI	Helsinki
The Hague	12-13 June	2	WG	7-8 May	WG	The Hague
Bern	26-27 June	2	WG	26-27 June	WG	Bern
Bonn	2-3 July	2	WG	23-25 April	NSI	Bonn
Copenhagen		1.5	RR	March	NSI	Copenhagen
Ankara		2	NSI	4-5 April	RR	Ankara
Tallinn		2	RR	24-31 May	NSI	Tallinn
Vilnius		2	RR	15-16 May	NSI	Vilnius
Reykjavik		1.5	NSI	3-4 May	SG	Reykjavik
Riga		2	RR	7-8 May	NSI	Riga
Bratislava		2	RR	May	NSI	Bratislava
Vienna		2	RR	4-8 June	NSI	Vienna
Lyon		2	RR	19-20 June	RR	Lyon
Americas & Asia						
New York	10-13 June	4.5	LK/MJ	14-17 May	LK/MJ	New York
Mexico		3	NSIc	30 April- 11 May	NSIc	Mexico
Montreal		2	NSIc	19-21 June	NSIc	Montreal
Ottawa		2	NSIc	June	NSIc	Ottawa
Seoul		2	RR	June	GG	Seoul
Singapore		3	ISRPrep	9-13 April	RR	Singapore
Tokyo		2	RR	11-12 June	GG	Tokyo
Washington		3	LK	9-11 May	LK	Washington

Appendix 3
RENT SURVEYS TIMETABLE FOR 2019

EUROPEAN UNION	
Athens	Kolonaki, Glyfada, Voula, Psychiko, Filothei, Kifissia, Agia Paraskevi.
Berlin	Pankow-Prenzlauer Berg, Mitte, Steglitz-Zehlendorf, Kreuzberg-Friedrichshain, Charlottenburg-Wilmersdorf.
Bonn	<i>Bonn</i> : Südstadt, Poppelsdorf, Kessenich, Ippendorf, Venusberg, Dottendorf; <i>Beuel</i> : Schwarz-Rheindorf, Oberkassel, Beuel-Süd; <i>Bad Godesberg</i> : Plittersdorf, Rüngsdorf, Villenviertel Bad Godesberg, Schweinheim, Stadtwald, Muffendorf.
Bratislava	Old Town, Koliba, Centre, Borik, Nove Mesto, Karlova Ves, Ruzinov.
Brussels	Bruxelles 1000, Schaerbeek, Etterbeek, Ixelles, Uccle, Auderghem, St.Gilles, Woluwe St-Pierre, Woluwe St-Lambert, Watermâel-Boitsfort.
Bucharest	Primaverii, Dorobanti, Domenii, Floreasca, Victoriei, Cotroceni, Romana-Magheru, Unirii, Universitate, 1 Mai, Sala Palatului, Băneasa (-Pipera), Nordului-Herastrau.
Budapest	<i>Buda side</i> : Districts 1, 2, 3, 12; <i>Pest side</i> : Districts 5, central parts of 6 & 7.
Copenhagen	Centre, Østerbro, Frederiksberg, Hellerup, Gentofte, Lyngby.
Dublin	Dublin1, 2, 4, 6; Sandymount, Ballsbridge, Donnybrook, Blackrock, Clonskeagh, Clontarf, Lucan, Dalkey, Killiney, Booterstown, Swords, Smithfield, Drumcondra, Santry.
Helsinki	<i>Flats</i> : Kaivopuisto, Eira, Munkkiniemi, Töölö, Lauttasaari, Katajanokka, Kruunuhaka, Tapiola; <i>Houses</i> : Kauniainen, Westend, Kuusisaari, Lehtisaari, Kulosaari, Haukilahti, Nuottaniemi.
Karlsruhe	Durlach, Geigersberg, Musikerviertel, Rüppur, Südweststadt, Weststadt.
Lisbon	Quinta do Lambert, Campo de Ourique, Avenidas Novas, Lumiar, Telheiras, Parque Expo, Restelo. <i>Out of Lisbon</i> : Carcavelos, Estoril, Cascais, Oeiras.
Ljubljana	Centre, Bežigrad, Vic (Trnovo-Murgle-Grbina-Rozna dolina), Siska (Koseze-Podutik-Mostec), Brdo.
London	Islington, Fulham, Putney, Greenwich, Blackheath, St. John's Wood, Notting Hill, South Kensington, Battersea.
Luxembourg	Belair, Merl, Centre, Strassen, Limpertsberg, Kirchberg, Senningerberg, Weimershof.
Lyon	<i>Flats</i> : districts 2,3,4,6 & 7; <i>Houses</i> : Ecully, Monplaisir, Francheville, St.Genis-Laval, Ste Foy-Lès-Lyon, St. Cyr, Montchat.
Madrid	<i>Flats</i> : Retiro, Salamanca, Chamartin, Chamberi, Arturo Soria, Parque Norte Mirasierra, Las Tablas; <i>Houses</i> : Arturo Soria, Parque del Conde Orgaz, Majadahonda, Las Rozas, Pozuelo de Alarcón, Soto de la Moraleja, Mirasierra.
Munich	<i>Centre</i> : Lehel, Maxvorstadt, Ludwigsvorstadt, Isarvorstadt; <i>South</i> : Harlaching, Solln, Pullach; <i>East</i> : Bogenhausen, Herzog-Park, Waldtrudering, Haidhausen; <i>North</i> : Schwabing; <i>West</i> : Neuhausen, Nymphenburg, Gern, Obermenzing.

Nicosia	Acropolis, Aglangia, Archangelos, CYBC area, Dasoupolis, Engomi, Hilton Hotel area, Latsia, Makedonitissa, Stavrou area.
Oxford/Abingdon	North Oxford, Summertown, East Oxford, Abingdon.
Paris	<i>Flats: Districts 7, 8, 15 & 16, Boulogne Billancourt, Neuilly-sur-Seine,</i> <i>Flats & Houses: Saint-Germain-en-Laye, Versailles.</i>
Prague	<i>Flats: Prague 1 (Old Town), Prague 2 (Vinohrady), Prague 5 (Smíchov) and Prague 6 (Dejvice);</i> <i>Houses: Prague 4 (Modřany, Chodov), Prague 5 (Smíchov, Stodůlky, Jinonice), Prague 6 (Dejvice, Nebušice, Střešovice).</i>
Reading	Centre, University area, Lower Early, Reading West, Caversham, Henley.
Riga	Old Riga, Centre, Mezaparks, Pardaugava, Kipsala, Pinki, Marupe (only houses).
Rome	<i>Flats: Prati, Parioli, centre (non-historic), Trieste, Aventino, EUR;</i> <i>Houses: Casal Palocco, Cassia-Flaminia, Olgiata, Frascati, Grottaferrata.</i>
Sofia	Centre, Lozenec, Beli Brezi, Ivan Vazov, Iztok, Lagera, Simeonovo, Dragalevci, Boiana, Malinova Dolina, Bistrica, Strelbishte, Krastova Vada, Manastirski Livadi, Mladost.
Stockholm	<i>Flats: Östermalm, Kungsholmen, Södermalm, Vasastan, Norrmalm, Birkastan; Houses: Solna,</i> <i>Näsby Park, Lidingö, Danderyd kommun/Djursholm/Stocksund, Täby, Nacka/Saltsjöbaden,</i> <i>Bromma, Sollentuna/Sjöberg/Esviken.</i>
Tallinn	<i>Flats: Centre. Houses: Piritä-Merivälja, Nõmme, Kakumäe, Kristiine.</i>
The Hague	Archipel, Duinoord, Statenkwartier, Van Stolkpark, Westbroekpark, Belgische Park, Scheveningen, Duttendel, Benoordenhout, Centre, Bezuidenhout, Mariahoeve, Marlot, Voorburg, Leidschendam, Ypenburg, Voorschoten, Wassenaar, Vogelwijk, Kijkduin.
Valetta	Sliema, St. Julian's, Gzira, Msida, Ta' Xbiex, San Gwann, Swieqi, Tal-Ibragg, Swatar, Valletta, Mellieha, St. Paul's Bay, Xemxija, Qawra, Bugibba, Manikata, Bidnija, Wardija, Vittoriosa, Senglea, Cospicua, Marsaskala, Marsaxlokk, Birzebbugia.
Varese	Centro-Montello, S. Ambrogio, Casciago, Casbeno, Masnago, Luvinata, Barasso, Bosto-Boderi.
Vienna	<i>Flats: districts 1 Innere Stadt (City), 2 Leopoldstadt (Karmeliterviertel), 6 Mariahilf, 7 Neubau, 8 Josefstadt, 9 Alsergrund, 13 Hietzing, 18 Währing, 19 Döbling;</i> <i>Houses: districts 13 Hietzing, 18 Währing, 19 Döbling.</i>
Vilnius	Old Town, Centre, Šnipiškės, Naujamiestis, Antakalnis, Zverynas, Užupis (central).
Warsaw	Mokotów, Śródmieście, Wola (Bliska), Ursynów, Wilanów, Konstancin, Saska Kępa, Żoliborz, Ochota.
Zagreb	Centre, Maksimir, Šalata, Pantovčak, Mlinovi, Tuškanac, Vukovarska-Radnička.

OTHER EUROPEAN LOCATIONS	
Ankara	<i>Centre:</i> Çankaya, Gasi Osman Paşa, Kavaklıdere, Yıldız, Oran; <i>Outer area:</i> Bilkent, Konutkent, Beysukent, Mesa-Koru, Çayyolu.
Belgrade	New Belgrade, Centre, Vracar, Dorcol, Senjak, Dedinje.
Bern	Centre, Muri, Gümligen, Herrenschwanden, Bremgarten bei Bern, Köniz (Buchseeweg, Dreispitz, Spiegel, Wabern), Brünnen, Ittigen, Münsingen.
Geneva	Centre / Plainpalais, Petit Saconnex, Grand Saconnex, Champel, Florissant, Malagnou, Eaux-Vives, Chêne-Bougeries, Chêne-Bourg (maisons), Mies, Nyon.
Oslo	<i>Flats:</i> Frogner, Homannsbyen, Briskeby, Bislett, Vika-Aker Brygge, Barecode/Sørenga, Majorstuen, Grünerløkka; <i>Houses:</i> Ullern, Bærum, Smestad, Lilleaker, Nedre Hollmenkollen.
Podgorica	<i>Flats:</i> Centre, Gorica C, Preko Morace, Rimski Trg, Delta City; <i>Houses:</i> Gorica C, Tolosi, Zabjelo, Donja Gorica, Zagoric.
Reykjavik	Reykjavik (postcodes 101-108), Kópavogur, Garðabær.
Sarajevo	<i>Flats:</i> Centre, Old Town, Grbavica (part of new Sarajevo); <i>Houses:</i> Ilidža.
Skopje	<i>Municipality "Aerodrom":</i> Old Aerodrom; <i>Municipality "Center":</i> Debar Maalo, Kapistec, Univerzalna Sala, Vodno; <i>Municipality "Karpos":</i> Bardovci, Kozle, Mida complex, Taftalidze (Mlečen, Pedagoska), Trnodol, Zdanec; <i>Municipality "Kisela Voda":</i> Crnice, Przino.
Tirana	Zona 2/1 (Rruga e Elbasanit), Zona 2/2, Zona 5/1 (including Blloku), Zona 5/2, Zona 7/1, Zona 7/2, Zona 10/3, Selite, Kodra e Diellit, Sauk.
NORTH AMERICA & ASIA	
Mexico	<i>Westside:</i> Polanco, Granada (Nueva Polanco), Lomas, Tecamachalco, Santa Fe, Bosques, Interlomas. <i>Southside:</i> Pedregal, Jardines de la Montaña, La Condesa.
Montreal	Downtown, Westmount, Outremont, NDG, Hampstead, Mont Royal, Le Plateau, Old Montreal, Nun's Island.
New-York	<i>Flats:</i> East Manhattan (plus Roosevelt Island, Waterside complex), Forest Hills (Queens) Brooklyn (Brooklyn Heights, Carroll Gardens, Cobble Hill, Boerum Hill, Fort Greene, Park Slope) Westchester, North New Jersey; <i>Houses:</i> Forest Hills (Queens), North New Jersey, Westchester areas.
Ottawa	Centretown, Glebe, New Edinburgh, Orleans, Kanata.
Washington	<i>NW DC:</i> Tenley Circle, A.U. Park, Spring Valley, Georgetown, Western Avenue, Downtown, 14th Street corridor, U Street corridor; <i>Suburban Maryland:</i> Bethesda, Chevy Chase, Cabin John; <i>North Virginia:</i> McLean, Alexandria, Arlington, Crystal City.
Seoul	UN village, Hannam-dong, Itaewon-dong, Bangbae-dong, Seongbuk-dong.
Singapore	D9, D10, D11 (<i>Novena, Thomson, Holland area</i>), D15, D16, D20 (<i>East Coast</i>), D19 (<i>Serangoon</i>).
Tokyo	Azabu, Hiroo, Aoyama, Roppongi, Akasaka, Azabudai, Mita, Shibuya, Shiba, Yoyogi, Oyamacho, Idabashi, Ichigaya, Takanawa, Meguro.

Appendix 4
DWELLING SIZE VARIANTS PER DUTY STATION (in m²)

COUNTRY / City	Flat			House		
	3 bedroom	2 bedroom	1 bedroom	Non-detached	Detached	
Austria	Vienna	110-130	80-100	60-80	110-130	190-220
Belgium	Brussels	110-130	80-100	60-80	110-130	150-180
Bulgaria	Sofia	140-160	80-100	60-80	-	190-220
Croatia	Zagreb	110-130	80-100	60-80	140-160	190-220
Cyprus	Nicosia	110-130	80-100	60-80	140-160	190-220
Czech Rep.	Prague	110-130	80-100	60-80	110-130	150-180
Denmark	Copenhagen	110-130	60-80	40-60	110-130	150-180
Estonia	Tallinn	80-100	60-80	40-60	110-130	150-180
Finland	Helsinki	110-130	60-80	40-60	110-130	190-220
France	Paris	110-130	80-100	40-60	110-130	150-180
	Lyon	110-130	80-100	40-60	110-130	150-180
Germany	Berlin	110-130	80-100	60-80	110-130	150-180
	Bonn	110-130	80-100	60-80	110-130	150-180
	Karlsruhe	110-130	80-100	60-80	110-130	150-180
	Munich	110-130	80-100	60-80	110-130	150-180
Greece	Athens	140-160	80-100	60-80	140-160	190-220
Hungary	Budapest	110-130	60-80	40-60	140-160	190-220
Ireland	Dublin	110-130	60-80	40-60	80-100	110-140
Italy	Rome	110-130	80-100	60-80	110-130	190-220
	Varese	110-130	80-100	60-80	110-130	190-220
Latvia	Riga	110-130	80-100	60-80	140-160	190-220
Lithuania	Vilnius	80-100	60-80	40-60	110-130	150-180
Luxembourg	Luxembourg	110-130	80-100	60-80	140-160	190-220
Malta	Valletta	110-130	80-100	40-60	110-130	190-220
Netherlands	The Hague	110-130	80-100	60-80	140-160	150-180
Poland	Warsaw	110-130	80-100	40-60	110-130	190-220
Portugal	Lisbon	140-160	80-100	60-80	140-160	150-180
Romania	Bucharest	110-130	80-100	40-60	-	150-180
Slovakia	Bratislava	110-130	80-100	60-80	110-130	150-180
Slovenia	Ljubljana	110-130	80-100	40-60	110-130	150-180
Spain	Madrid	110-130	60-80	40-60	140-160	190-220
Sweden	Stockholm	110-130	80-100	60-80	110-130	150-180
UK	London	80-100	60-80	40-60	80-100	110-140
	Oxford	80-100	60-80	40-60	80-100	110-140
	Reading	80-100	60-80	40-60	80-100	110-140
Albania	Tirana	110-130	80-100	60-80	-	190-220
Bosnia-Herz.	Sarajevo	110-130	80-100	60-80	110-130	190-220
Iceland	Reykjavik	80-100	60-80	40-60	140-160	190-220
Macedonia	Skopje	110-130	60-80	40-60	-	190-220
Montenegro	Podgorica	110-130	80-100	60-80	110-130	190-220
Norway	Oslo	110-130	80-100	60-80	140-160	190-220
Serbia	Belgrade	110-130	80-100	60-80	140-160	190-220
Switzerland	Bern	110-130	80-100	60-80	110-130	150-180
	Geneva	110-130	80-100	60-80	110-130	150-180
Turkey	Ankara	140-160	80-100	60-80	140-160	190-220
Canada	Ottawa	140-160	80-100	60-80	140-160	190-220
	Montreal	140-160	80-100	60-80	140-160	190-220
Mexico	Mexico	140-160	80-100	60-80	140-160	190-220
USA	Washington	110-130	80-100	60-80	110-130	190-220
	New York	140-160	80-100	60-80	140-160	190-220
Japan	Tokyo	110-130	80-100	60-80	110-130	150-180
Singapore	Singapore	110-130	80-100	60-80	140-160	190-220
South Korea	Seoul	110-130	80-100	60-80	110-130	190-220

European Union

Europe (others)

America

Asia

Appendix 5
RENT UPDATING INDICES IN EU COUNTRIES

Country	Survey cities	INDEX
AT	Vienna	CPI
BE	Brussels	Indice santé / Gezondheidsindex
BG	Sofia	CPI
CY	Nicosia	CPI
CZ	Prague	CPI
DE	Berlin/Bonn/Karlsruhe/Munich	HICP COICOP 4.1+4.4
DK	Copenhagen	CPI
EE	Tallinn	CPI
ES	Madrid	CPI
FI	Helsinki	CPI
FR	Paris/Lyon	Indice de référence de loyers (CPI hors tabac et hors loyers)
GR	Athens	CPI
HR	Zagreb	CPI
HU	Budapest	CPI
IE	Dublin	Sub-index rents from HICP
IT	Rome/Varese	CPI-FOI (indice per famiglie di operai e impiegati - senza tabacco)
LT	Vilnius	CPI
LU	Luxembourg	CPI
LV	Riga	CPI
MT	Valletta	RPI
NL	The Hague	CPI
PL	Warsaw	CPI
PT	Lisbon	CPI
RO	Bucharest	CPI
SE	Stockholm	CPI
SI	Ljubljana	CPI
SK	Bratislava	CPI
UK	London/Oxford/Reading	CPI sub index for private renters

Appendix 6
DWELLING PREFERENCE WEIGHTS

Member State	BE	BG	CZ	DK	DE	DE ^{Bou}	DE ^{Kar}
1 – bed flat	8.48	13.40	15.71	12.50	8.51	18.96	5.58
2 – bed flat	21.01	30.44	28.19	18.08	15.52	19.06	18.28
3+ bed flat	15.00	12.59	27.40	27.30	15.98	17.49	10.05
Non detached house	32.28	14.20	0.00	9.65	26.83	22.91	28.61
Detached house	23.23	29.37	28.70	32.47	33.16	21.58	37.47
Total	100	100	100	100	100	100	100
Member State	DE ^{Maa}	EE	IE	EL	ES	FR	HR
1 – bed flat	7.48	33.40	6.41	5.64	3.79	18.92	9.87
2 – bed flat	17.46	43.09	13.18	29.74	21.11	28.56	21.10
3+ bed flat	19.67	16.33	4.66	30.67	32.35	25.37	17.11
Non detached house	32.49	7.18	39.77	17.57	19.56	6.83	26.80
Detached house	22.89	0.00	35.98	16.37	23.19	20.32	25.12
Total	100	100	100	100	100	100	100
Member State	IT	IT ^{Var}	CY	LV	LT	LU	HU
1 – bed flat	7.17	10.07	9.87	33.4	33.4	11.30	15.38
2 – bed flat	34.33	18.87	21.10	43.09	43.09	23.44	32.63
3+ bed flat	28.75	12.24	17.11	16.33	16.33	12.62	20.54
Non detached house	15.55	18.06	26.80	7.18	7.18	23.08	12.42
Detached house	14.20	40.76	25.12	0	0	29.57	19.03
Total	100	100	100	100	100	100	100
Member State	MT	NL	AT	PL	PT	RO	SI
1 – bed flat	9.87	5.52	7.43	17.99	7.65	9.87	22.02
2 – bed flat	21.10	16.13	17.45	27.93	22.12	21.10	37.32
3+ bed flat	17.11	11.83	19.86	23.88	43.92	17.11	16.24
Non detached house	26.80	50.35	32.22	20.21	10.63	26.80	10.51
Detached house	25.12	16.17	23.04	9.99	15.68	25.12	13.91
Total	100	100	100	100	100	100	100
Member State	SK	FI	SE	UK	UK ^{Cal}		
1 – bed flat	9.87	20.20	12.07	23.61	3.78		
2 – bed flat	21.10	24.35	14.17	25.15	13.86		
3+ bed flat	17.11	21.74	26.09	10.00	1.13		
Non detached house	26.80	15.02	7.54	21.52	41.24		
Detached house	25.12	18.69	40.13	19.72	39.99		
Total	100	100	100	100	100		

Appendix 7
2018 CURRENT MARKET RENTS

COUNTRY / City		Flats			Houses		Currency
		3-bedroom	2-bedroom	1-bedroom	Non-detached	Detached	
<i>European Union</i>							
Austria	Vienna	1 700	1 250	970	1 850	3 100	EUR
Belgium	Brussels	1 300	1 050	800	1 400	1 850	EUR
Bulgaria	Sofia	1 700	1 100	700	-	2 550	BGN
		880	570	360	-	1 300	EUR
Croatia	Zagreb	11 450	7 000	4 600	11 450	18 100	HRK
		1 550	950	620	1 550	2 450	EUR
Cyprus	Nicosia	900	710	620	1 100	1 900	EUR
Czech Rep.	Prague	43 800	32 000	23 600	44 700	72 600	CZK
		1 700	1 250	910	1 700	2 800	EUR
Denmark	Copenhagen	18 700	13 200	10 600	19 200	24 500	DKK
		2 500	1 750	1 400	2 600	3 300	EUR
Estonia	Tallinn	1 150	850	600	1 250	1 750	EUR
Finland	Helsinki	2 100	1 450	1 150	2 200	3 300	EUR
France	Paris	2 700	2 000	1 200	2 750	3 450	EUR
	Lyon	1 450	1 050	710	1 450	1 800	EUR
Germany	Berlin	1 750	1 250	990	1 750	2 600	EUR
	Bonn	1 300	970	780	1 350	1 800	EUR
	Karlsruhe	1 300	1 000	810	1 400	2 000	EUR
	Munich	2 150	1 650	1 350	2 450	3 650	EUR
Greece	Athens	1 350	910	690	1 450	2 150	EUR
Hungary	Budapest	468 000	312 000	203 500	604 000	831 500	HUF
		1 450	950	620	1 850	2 550	EUR
Ireland	Dublin	2 700	2 050	1 650	2 650	3 250	EUR
Italy	Rome	1 550	1 200	910	1 350	1 900	EUR
	Varese	1 000	740	580	1 250	1 900	EUR
Latvia	Riga	1 250	860	610	1 350	1 750	EUR
Lithuania	Vilnius	1 000	820	600	1 400	1 950	EUR
Luxembourg	Luxembourg	2 550	1 950	1 500	3 400	4 500	EUR
Malta	Valletta	1 400	1 100	820	1 800	2 700	EUR
Netherlands	The Hague	2 000	1 400	1 050	2 350	3 200	EUR
Poland	Warsaw	5 150	4 000	2 400	6 450	9 250	PLN
		1 200	920	550	1 500	2 100	EUR
Portugal	Lisbon	1 800	1 500	1 050	2 200	2 500	EUR
Romania	Bucharest	5 350	4 000	2 450	-	7 700	RON
		1 150	860	530	-	1 650	EUR
Slovakia	Bratislava	1 150	860	630	1 350	2 000	EUR
Slovenia	Ljubljana	1 350	920	610	1 350	1 800	EUR

COUNTRY / City	Flats			Houses		Currency
	3-bedroom	2-bedroom	1-bedroom	Non-detached	Detached	

European Union

Spain	Madrid	1 750	1 300	960	2 150	3 000	EUR
Sweden	Stockholm	32 000	24 300	15 500	25 800	32 300	SEK
		3 050	2 350	1 500	2 500	3 100	EUR
UK	London	2 650	2 000	1 550	3 150	4 150	GBP
		3 000	2 250	1 750	3 550	4 700	EUR
	Oxford	1 250	1 050	880	1 250	1 550	GBP
		1 400	1 200	990	1 400	1 750	EUR
	Reading	1 400	1 150	900	1 200	1 650	GBP
		1 600	1 300	1 000	1 350	1 850	EUR

Europe (Others)

Albania	Tirana	91 900	68 000	46 600	-	176 000	ALL
		730	540	370	-	1 400	EUR
Bosnia-Herz.	Sarajevo	1 600	1 050	770	1 650	2 800	BAM
		820	540	390	840	1 450	EUR
Iceland	Reykjavik	260 500	217 000	180 500	319 450	386 500	ISK
		2 100	1 750	1 450	2 550	3 100	EUR
Macedonia	Skopje	30 100	19 100	14 100	-	73 800	MKD
		490	310	230	-	1 200	EUR
Montenegro	Podgorica	970	620	370	1 200	1 750	EUR
Norway	Oslo	23 800	18 400	14 200	25 600	31 900	NOK
		2 500	1 950	1 500	2 700	3 350	EUR
Serbia	Belgrade	159 500	113 500	75 600	212 500	336 500	RSD
		1 350	960	640	1 800	2 850	EUR
Switzerland	Bern	2 350	1 800	1 550	2 800	3 550	CHF
		2 050	1 550	1 350	2 400	3 050	EUR
	Geneva	3 500	2 650	2 100	4 200	5 200	CHF
		3 050	2 300	1 800	3 650	4 500	EUR
Turkey	Ankara	2 150	1 750	1 400	2 800	4 700	TRY
		400	330	260	530	880	EUR

America

Canada	Ottawa	2 800	2 150	1 650	2 750	3 900	CAD
	Montreal	3 000	2 150	1 500	3 400	4 950	CAD
Mexico	Mexico	27 000	20 900	17 300	28 900	35 100	MXN
USA	Washington	3 250	2 750	2 100	3 250	3 900	USD
	New York	6 000	4 100	2 900	3 450	4 750	USD

Asia

Japan	Tokyo	787 000	585 000	407 000	679 000	1 012 000	JPY
Singapore	Singapore	4 900	3 900	3 050	5 600	8 300	SGD
South Korea	Seoul	3 917 000	2 896 000	1 986 000	4 725 000	8 296 000	KRW