



6th European Working Conditions Survey

Sampling implementation report

Prepared by Ipsos

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Table of Contents

Outline.....	3
I. Introduction to EWCS6 Sampling.....	4
I.1 Population.....	4
I.2 Coverage.....	4
I.3 Sample size.....	5
II. Overview of the sample design.....	6
II.1 Overview.....	6
II.2 Principles.....	6
III. Sample design specifics.....	7
III.1 Sample stratification.....	7
III.2 PSU Selection.....	9
III.3 Sample frames.....	10
III.4 Enumeration.....	14
III.5 Case, household and respondent selection.....	17
III.6 Making contact.....	17
IV. Quality control of the sample process.....	19
IV.1 Quality control of PSUs.....	19
IV.2 Quality control of addresses.....	20
IV.3 Quality assurance indicators.....	21
V. Annex.....	24

Outline

This report summarises the sampling approach of the 6th European Working Conditions Survey (EWCS), carried out by Ipsos on behalf of Eurofound. It describes the probability sampling procedures and quality control measures used to implement the sample in each country. This report focuses on all 35 countries who participated in the 6th wave.

I. Introduction to EWCS6 Sampling

I.1 Population

The target population within each country for EWCS6 were all individuals aged 15 or over living in private households and in employment.

Ipsos' sampling approach applied the following definitions to achieve this:

- 'aged 15 or over' – those who were aged 15 or over at the time of the survey interview. The only exception was in Bulgaria, Norway, Spain and the UK where the age was 16 or over¹.
- 'living in private households' – those whose usual place of residence² was in the territories of the countries included in the survey and also those persons absent from the household for short periods of time (e.g. due to educational studies, illness or business trips)
- 'in employment' – those who did at least one hour of work for pay or profit during the week preceding the interview, from Monday to Sunday.

I.2 Coverage

A network of 35 national agencies led by Ipsos carried out EWCS6 in the selected countries and territories. All agencies had been involved in multilingual and multinational research projects prior to EWCS6 and all are members of ESOMAR. The countries covered in EWCS6 are shown in Table 1 (page 2).

Table 1: List of countries/territories covered by EWCS6			
Country/Territory	Country code	Country/Territory	Country code
EU MEMBER STATES			
Austria	AT	Italy	IT
Belgium	BE	Latvia	LV
Bulgaria	BG	Lithuania	LT
Croatia	HR	Luxembourg	LU
Cyprus	CY	Malta	MT
Czech Republic	CZ	Netherlands	NL
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Slovakia	SK
Germany	DE	Slovenia	SI
Greece	GR	Spain	ES
Hungary	HU	Sweden	SE
Ireland	IE	United Kingdom	UK

¹ Due to the minimum legal working age being higher in these countries.

² Two elements: i) country of residence – an individual must have stayed, or intended to stay in the country for one year or longer; ii) household residence – an individual must belong to the household that is at the centre of economic interest, where the household maintains a dwelling that members treat, and use, as their principle residence.

Table 1: List of countries/territories covered by EWCS6			
Country/Territory	Country code	Country/Territory	Country code
CANDIDATE COUNTRIES			
Albania	AL	Serbia	RS
FYROM	MK	Turkey	TR
Montenegro	ME		
OTHER COUNTRIES			
Norway	NO	Switzerland	CH

I.3 Sample size

Eurofound required a reference sample size of 1,000 per country – except in the following countries, where the reference sample size was larger: Poland (1,200); Spain (1,300); Italy (1,400); France (1,500); UK (1,600) and Germany and Turkey (2,000). Eurofound also offered countries the opportunity to top-up their sample. This was taken up by Belgium, Slovenia and Spain, which led to sample sizes of 2,500, 1,600 and 3,300 respectively in these countries.

II. Overview of the sample design

II.1 Overview

The sample selection for EWCS6 was a multi-stage process intended to deliver a clustered sample. At the first stage Primary Sampling Units (PSUs) were randomly selected with probability proportional to size (PPS). Following this, addresses, households or individuals were selected from lists. The availability of lists (registers) varied by country; where suitable lists existed, these were used otherwise lists of addresses were generated via enumeration. The final stage was the selection of households (in absence of individual registers) and eligible individuals within addresses.

II.2 Principles

The main sampling principles that Ipsos followed for EWCS6 were as follows:

- using the best probability sample design possible in each country – to ensure that every population member had a known non-zero chance of selection
- stratifying the sample according to region and degree of urbanisation and allocating the sample to strata proportionately to the number of people in employment in each stratum (see section III.1)
- using at least 50 primary sampling units (PSUs) per country to achieve a maximum of 20 achieved interviews per PSU (see section III.2)
- randomly selecting one household at an address (where applicable) (see section III.5)
- randomly selecting one eligible respondent per household (see section III.5)
- no substitution of individuals at any stage of sampling

Eurofound required that sampling plans were designed for each country. These consisted of two parts – an implementation plan and a sample breakdown. The implementation plan comprehensively documented how sampling would be approached in each country. It contained details of the sampling frame, PSUs, stratification, population statistics, geographical coverage as well as fieldwork procedures such as method of first contact, language(s), promotional materials, quality control back-checks and interviewer call patterns. The sample breakdown showed how the sample was stratified for each country according to region and degree of urbanisation. The implementation plan and sample breakdown for each country are annexes to this report and are available on request. Specific details from both files are included in the remainder of this report as appropriate.

III. Sample design specifics

III.1 Sample stratification

The sample in each country was stratified. Each country was divided into strata defined by region and degree of urbanization as specified by Eurofound. Regions were defined at the level of NUTS 2 or equivalent in each country. Eurostat's degree of urbanisation indicator DEGURBA³ was also used in as many countries as possible. This indicator has three categories: densely populated area, intermediate density area, and thinly populated area. The sample was allocated to the strata proportionately to the number of people in employment in each stratum. The population statistics were derived from Eurostat's Labour Force Survey (LFS) or an equivalent source.

The sources used for stratification in each country can be found in Table 2 below. With regard to the regions, most countries (N=18) were able to use NUTS 2 but others used NUTS 1 (5 countries) or NUTS 3 (two countries). Eight countries were unable to use NUTS data and used country-specific regions instead – for Ireland, Italy and Slovenia existing NUTS regions were merged in order to reduce the number of regions to be used. In Ireland and Slovenia, this meant merging NUTS3 regions to create 4 regions (IE) and 12 regions (SI); similarly in Italy four neighboring NUTS2 regions were merged to create 16 regions (rather than 20). Cyprus, Estonia, Latvia and Lithuania were regarded as too small for a breakdown by NUTS2; Albania, Croatia, Luxembourg and Malta did not breakdown into regions that were suitable for stratification purposes so alternative regions were used. Montenegro only has one NUTS 1, one NUTS 2 and one NUTS 3 region. Instead the official statistical regions (North, Central and South) were combined with LAU 1 regions (municipalities) to create three regions.

Most countries were able to use DEGURBA but there were 12 exceptions to this. Of these, Albania, FYROM, Lithuania and Estonia used the labels 'urban' and 'rural' only whereas Montenegro, Norway, Serbia, Spain, Latvia, France, Finland and Bulgaria used variations of DEGURBA reflecting the urbanization levels in their country. More specific details can be found in the Sample breakdown file for each country (see Annex 1 available on request). LFS data was available and utilized in most countries – where this was not the case, national statistics were used instead. This information is also displayed in Table 2.

Table 2: Stratification information			
Country/Territory	Region	Urbanity	Population statistics
EU MEMBER STATES			
Austria	NUTS 2 (9 regions)	DEGURBA (3 categories)	LFS
Belgium	NUTS 2 (11 regions)	DEGURBA (3 categories)	LFS
Bulgaria	NUTS 1 (6 regions)	Country-specific (3 categories)	LFS
Croatia	Country-specific (6 regions)	DEGURBA (3 categories)	LFS
Cyprus	Country-specific (5 regions)	DEGURBA (3 categories)	LFS
Czech Republic	NUTS 2 (8 regions)	DEGURBA (3 categories)	LFS
Denmark	NUTS 2 (5 regions)	DEGURBA (3 categories)	LFS
Estonia	Country-specific (16 regions)	Urban and Rural (2 categories)	LFS
Finland	NUTS 2 (4 regions)	Country-specific (3 categories)	LFS
France	NUTS 1 (9 regions)	Country-specific (5 categories)	2011 Census
Germany	NUTS 1 (16 regions)	DEGURBA (3 categories)	LFS

³ http://ec.europa.eu/eurostat/ramon/miscellaneous/index.cfm?TargetUrl=DSP_DEGURBA

Table 2: Stratification information

Country/Territory	Region	Urbanity	Population statistics
Greece	NUTS 2 (13 regions)	DEGURBA (3 categories)	LFS
Hungary	NUTS 2 (7 regions)	DEGURBA (3 categories)	2011 Census
Ireland	NUTS 3 (some regions merged to create 4 regions)	DEGURBA (3 categories)	2014 National Household Survey
Italy	NUTS 2 (some regions merged to create 16 regions)	DEGURBA (3 categories)	LFS
Latvia	NUTS 3 (6 regions)	Country-specific (3 categories)	LFS
Lithuania	NUTS 3 (10 regions)	Urban and Rural (2 categories)	LFS
Luxembourg	Country-specific (5 regions)	DEGURBA (3 categories)	LFS
Malta	Country-specific (6 regions)	DEGURBA (3 categories)	LFS
Netherlands	NUTS 2 (12 regions)	DEGURBA (3 categories)	LFS
Poland	NUTS 2 (16 regions)	DEGURBA (3 categories)	2013 National Statistics of employment in economy
Portugal	NUTS 2 (7 regions)	DEGURBA (3 categories)	LFS
Romania	NUTS 2 (8 regions)	DEGURBA (3 categories)	Census and LFS
Slovakia	NUTS 2 (4 regions)	DEGURBA (3 categories)	2013 National survey of employment
Slovenia	NUTS 2 (regions merged to create 6 regions)	DEGURBA (3 categories)	LFS
Spain	NUTS 2 (17 regions)	Country-specific (6 categories)	2014 National Economically active population survey
Spain	NUTS 2 (17 regions)	Country-specific (6 categories)	2014 National Economically active population survey
Sweden	NUTS 2 (8 regions)	DEGURBA (3 categories)	Registered based labour market statistics
United Kingdom	NUTS 1 (12 regions)	DEGURBA (3 categories)	LFS

Table 2 (contd): Stratification information			
Country/Territory	Region	Urbanity	Population statistics
CANDIDATE COUNTRIES			
Albania	Country-specific (12 regions)	Urban and Rural (2 categories)	LFS
FYROM	NUTS 2 (8 regions)	Urban and Rural (2 categories)	LFS
Montenegro	Country-specific (3 regions)	Country-specific (3 categories)	LFS
Serbia	NUTS 2 (4 of the 5 regions)	Country-specific (3 categories)	LFS
Turkey	NUTS 1 (12 regions)	DEGURBA (3 categories)	LFS
OTHER COUNTRIES			
Norway	NUTS 2 (7 regions)	Country-specific (4 categories)	2013 National Statistics of employees per municipality
Switzerland	NUTS 2 (7 regions)	DEGURBA (3 categories)	LFS

The implementation plan and sample breakdown for each country provides more specific information about the stratification variables. A small number of these documents were updated after initial sign-off from Eurofound meaning that further approval was sought and granted:

Once a country reached 75% of their target sample size, a distribution showing their achieved sample was created and compared to the planned sample breakdown. The percentage difference between the two figures (per cell and overall) was identified and highlighted. All countries were advised to concentrate their efforts in the cells which were furthest from the planned sample profile in the last few weeks of fieldwork. The outcomes from this activity will be documented in the Sample evaluation and weighting report.

III.2 PSU Selection

Each country was responsible for selecting the required number of PSUs using PPS and following the step-by-step instructions issued by Ipsos. Each country submitted their PSU selection file to Ipsos in order for the selection method to be verified. In each country, at least 50 PSUs were used in order to achieve a maximum of 20 interviews per PSU⁴. Table 3 summarises the number of PSUs initially selected per country and the units that served as PSUs.

Table 3: Primary Sampling Units (PSUs)		
Country / Territory	Number of PSUs	PSUs
EU MEMBER STATES		
Austria	100	Settlements
Belgium	250	Statistical sectors
Bulgaria	50	Polling sections
Croatia	125	Polling stations

⁴ During the implementation phase, both France and Norway changed the number of PSUs that they planned to use. The French team increased from 100 to 150 (and from 15 to 10 target interviews per PSU) – due to an error in their original planning. In Norway, the number of PSUs was reduced from 100 to 50 and the number of interviews increased from 10 to 20.

Table 3: Primary Sampling Units (PSUs)

Country / Territory	Number of PSUs	PSUs
Cyprus	100	Census enumeration districts
Czech Republic	100	Settlement units
Denmark	50	Postal codes
Estonia	50	Polling stations
Finland	250	Postal codes
France	150	IRIS statistical sectors
Germany	150	ADM sampling points
Greece	100	Settlement units
Hungary	100	Polling stations
Ireland	100	Enumeration districts/wards
Italy	100	Municipalities
Latvia	125	Electoral districts
Lithuania	50	Electoral districts
Luxembourg	125	Municipalities
Malta	125	Agency's own sampling areas based on Electoral Commission units
Netherlands	100	Postal codes
Poland	120	Communities (NUTS 5)
Portugal	100	Freguesias (third level administrative units)
Romania	200	Voting precincts
Slovakia	100	Settlement units
Slovenia	160	Polling stations
Spain	825	Census areas
Sweden	100	Postal codes
United Kingdom	119	Double OAs (Census output areas)
CANDIDATE COUNTRIES		
Albania	100	Polling station territory
FYROM	100	Polling station territory
Montenegro	100	Census area
Serbia	100	Polling station territory
Turkey	200	Address blocks
OTHER COUNTRIES		
Norway	50	Communities
Switzerland	100	Postal codes

III.3 Sample frames

For EWCS6, Eurofound specified that up-to-date, high quality sampling frames of addresses or individuals should be used whenever possible. When a suitable sampling frame was not available for a country, Eurofound required that a random route / enumeration method be used for generating a list of addresses/households instead.

Ipsos allocated countries to the most appropriate sampling approach based on the following considerations:

- 1) the availability of suitable information (for survey use)
- 2) the coverage offered by the sampling frame of at least 95% of the general population
- 3) the availability of up to date information (updated within a year preceding fieldwork)

Table 4 shows the different sampling approaches used per country – registers (of individuals or addresses) or enumeration. In Bulgaria and Croatia, registers of addresses were available for the majority of PSUs but some PSUs were not covered by the register so enumeration was also used in these PSUs (further details are given later in this section).

Table 4: Sampling approach per country / territory		
Country/Territory	Country code	Sampling approach
EU MEMBER STATES		
Austria	AT	Enumeration
Belgium	BE	Register - addresses
Bulgaria	BG	Register - addresses and Enumeration
Croatia	HR	Register - addresses and Enumeration
Cyprus	CY	Enumeration
Czech Republic	CZ	Enumeration
Denmark	DK	Register - individuals
Estonia	EE	Register - addresses
Finland	FI	Register - individuals
France	FR	Enumeration
Germany	DE	Enumeration
Greece	EL	Enumeration
Hungary	HU	Enumeration
Ireland	IE	Register - addresses
Italy	IT	Enumeration
Latvia	LV	Enumeration
Lithuania	LT	Register - addresses
Luxembourg	LU	Register - addresses
Malta	MT	Enumeration
Netherlands	NL	Register - addresses
Poland	PL	Register - individuals
Portugal	PT	Enumeration
Romania	RO	Enumeration
Slovakia	SK	Enumeration
Slovenia	SI	Enumeration
Spain	ES	Enumeration
Sweden	SE	Register - individuals
United Kingdom	UK	Register - addresses
CANDIDATE COUNTRIES		
Albania	AL	Enumeration
FYROM	MK	Enumeration
Montenegro	ME	Register - addresses

Table 4: Sampling approach per country / territory		
Country/Territory	Country code	Sampling approach
Serbia	RS	Enumeration
Turkey	TR	Register - addresses
OTHER COUNTRIES		
Norway	NO	Register - individuals
Switzerland	CH	Enumeration

Table 5a shows that individual (population) registers were used in five countries. The registers were provided by the national statistical office (DK, SE) by the national population register centre (FI), by a government ministry (PL) and by the national tax office (NO). These were estimated to cover 99-100% of the population in all countries (at the time of their release) and were updated on either a daily or continuous basis in each country. The versions of the register used for sampling were from March 2014 (DK), November 2014 (NO) and December 2014 (FI, PL, SE).

Table 5a: Individual (population) registers - used to select individuals			
Country/Territory	Country code	Sample frame	Supplier
EU MEMBER STATES			
Denmark	DK	CPR-register, Central Office of Public Registration	Danish Statistical Office
Finland	FI	National population register	Finnish Population Registry Centre
Poland	PL	Population register (PESEL)	Ministry of Internal Affairs
Sweden	SE	Swedish National Address Register (Statens Personadressregister) (SPAR)	Statistics Sweden
OTHER COUNTRIES			
Norway	NO	National population register	Norwegian Bureau of Statistics

Table 5b (overleaf) shows that registers of addresses were used in 11 countries. These were provided by a private company in BE, by government or state departments/offices (BG, EE, HR, LT, ME, TR) and by the national postal service (IE, NL and UK). The registers were estimated to cover between 95-100% of the population in all of the countries (at the time of their release) and were from either 2013 (EE, IE) or 2014 (BE, BG, LT, LU, NL, TR, UK). The only exceptions are the registers used in Croatia and Montenegro - which were from 2011 – as this was the last time that the data was collected (via the Census).

In Luxembourg, the frame used was developed by the survey agency for sampling purposes. The agency reported that this database combined the most up-to-date version of the register of all residential addresses in Luxembourg (provided by the Luxembourgish administration of cadastre and topography) with information from the National Postal Services database (the ‘white pages’⁵) as well as information from face to face surveys conducted by the agency (e.g. to identify private households vs business addresses and to clean or enrich address information). The agency reported that using the National Postal Services database alone would have provided coverage of 88% of the population living in Luxembourg (based on

⁵ Consisting of address information only not household contact details like telephone or email.

147,000 addresses). However, by merging this database with an additional 44,000 addresses⁶ from the Luxembourgish administration of cadastre and topography, the estimated coverage increased to almost 100% of the population.

Table 5b: Address registers - used to select addresses			
Country/ Territory	Country code	Sample frame used	Supplier
EU MEMBER STATES			
Belgium	BE	Orgassim (a list of all households in Belgium)	Private company
Bulgaria	BG	Population civil registry (of addresses)	Civil Registration and Administrative Services
Croatia	HR	Population registry (address information) and registry of voters	Croatian Bureau of Statistics and Ministry of administration
Estonia	EE	List of residential addresses	Ministry of the Interior
Ireland	IE	Geo directory	An Post
Lithuania	LT	Address registry	Statistics Lithuania
Luxembourg	LU	Combination of data from the register of all residential addresses and information from the National Postal Services database as well as information from face to face surveys conducted by the agency	Luxembourgish administration of cadastre and topography (Administration du cadastre et de la topographie); National Postal Service and TNS Ilres
Netherlands	NL	Postal code register	Post NL
United Kingdom	UK	Royal Mail Small User Postcode address file	Royal Mail
CANDIDATE COUNTRIES			
Montenegro	ME	Census list of addresses	Statistical office of Montenegro
Turkey	TR	Address Based Population Register System (ABPRS)	Turkish Statistical Institute

During the sample implementation phase, the Bulgarian and Croatian agencies realised that their sample frames did not provide sufficient information to identify addresses in some PSUs⁷. In Bulgaria no official address information was available for two small, rural villages in South West Bulgaria (PSUs 28 and 53). As a result, enumeration was carried out in these two villages. In Croatia, house numbers were not provided for the addresses for three of the PSUs included on the 2011 sampling frame. For two of these, (PSUs 123 and 125) the agency sampled from the registry of voters⁸. In the other (PSU 119) it was not possible to match the addresses to the registry of voters either so in this case the PSU was enumerated.

⁶ The addresses provided by the Luxembourgish administration of cadastre and topography were residential houses, business premises, other buildings or locations where permission for construction had been given.

⁷ Two out of 50 PSUs affected in Bulgaria; three out of 125 in Croatia.

⁸ Due to a misunderstanding it was assumed that the 'new frame' the agency reported was available for sampling was a newer version of the existing frame – rather than a different frame. Information on both frames is provided in Table 5b and in the Croatian implementation plan.

III.4 Enumeration

In 19 countries, a suitable list of addresses/households/individuals was not available so enumeration was used to create a list of addresses in each PSU. The enumeration process was carried out by trained enumerators and checked prior to interviewing. A summary of the target number of addresses to be enumerated, the number of enumerators used and the dates for enumeration can be found in Table 6. Note that in Slovenia four PSUs were enumerated during March and April – these were PSUs that had previously been inaccessible due to heavy snowfall in the area.

Table 6: Details about the enumeration process			
Country/ Territory⁹	Target N of addresses to enumerate (per PSU)	Number of enumerators	Start-End dates
EU MEMBER STATES			
Austria	40-70	26	05.12.14-21.01.15
Cyprus	35	14	12.12.14-07.01.15
Czech Republic	80	78	05.12.14-23.01.15
France	60	95	27.11.14-12.12.15
Germany	50	92	15.12.14 - 19.01.15
Greece	50	41	10.12.14- 09.01.15
Hungary	50	90	07.01.15-25.01.15
Italy	90 (rural); 180 (urban)	100	26.12.14-17.02.15
Latvia	40	34	15.12.14-12.01.15
Malta	50 (on average)	5	18.12.14- 09.01.15
Portugal	50	50	29.12.14 -14.01.15
Romania	40	61	19.12.14- 04.01.15
Slovakia	50	71	07.12.14-19.01.15
Slovenia	75	45	26.12.14-04.02.15 (156 PSUs) 25.03.15-30.03.15 (2 PSUs) 15.04.15-22.04.15 (2 PSUs)
Spain	50	81	Dec 2014-Feb 2015
CANDIDATE COUNTRIES			
Albania	40 (on average)	30	25.12.14-14.01.15
FYROM	40	58	11.01.15-23.01.15
Serbia	40	60	24.12.14-15.01.15
OTHER COUNTRIES			
Switzerland	50	26	15.12.2014 - 10.01.2015

All enumerators were trained by managers in each country following the guidance and instructions supplied by Ipsos. The materials were developed by Ipsos and approved by Eurofound before being used. The materials were:

- **Enumeration Memo for Manager Document** - This was designed for managers, and served as a guide to the enumeration process. It was intended to be the first document read and was to serve as a reference document in case of queries.

⁹ Bulgaria dates: 12.01.15-13.01.15; Croatia date: 05.05.15

- **Enumeration starting point selection instructions** - This was only for use in countries *not* using public directories to select starting points. It described how to randomly select starting points using coordinates in Google maps.
- **Enumeration starting point calculation** – This Excel file was provided to facilitate the random calculation of starting point coordinates.
- **Enumerator Manual** - This was the main document for the enumerator to use for data collection. Country managers were advised to translate a version in one or more languages (as required) for the enumerators.
- **Enumeration Form** – This was the form to be completed by enumerators in the field.
- **Enumeration Data Entry template** - This Excel file provided the template into which country managers entered the data from the enumeration process
- **Enumeration Quality Control Form** – These forms were intended to be completed by Field supervisors during the quality control stage of the enumeration.
- **Quality Control Data Entry template** - This Excel file provided the template into which country managers entered the data from the quality control checks of the enumeration process.

Ipsos instructed all agencies that all addresses in a PSU should have a chance of being selected. To ensure this, agencies were instructed to provide the enumerators with maps of the selected PSUs clearly showing the geographical boundaries of each PSU. The agencies chose whether to use Google maps service, another version of electronic maps or paper maps. Clearly marking the boundaries ensured that there was no overlap between different PSUs (which would mean an increased likelihood for certain addresses to be selected into the sample) and, vice versa, no addresses were left out between two PSUs (which would result in non-coverage of these addresses).

In 12 countries a directory of addresses (with or without telephone numbers) was used in order to select starting addresses. In the other six countries maps were used - see Table 7 (overleaf) for details¹⁰. In this case, countries were advised to split each PSU into segments and select one starting point for each segment. The enumerators did not need to stay within their segment for the entire enumeration – they were permitted to cross segments. However, they were instructed that they must stay within a PSU. The number of segments to be used was determined by the number of interviews per PSU. In Spain and Romania, the agencies were instructed to use two segments (given the small number of target interviews per PSU). In Germany and Italy, six segments were used (given the larger number of target interviews per PSU). All other countries were permitted to use four segments. The number of interviews required in each segment was planned to be divided evenly.

A sampling interval was pre-determined and included in the instructions provided by Ipsos to the agencies. It refers to the distance between two selected random addresses. The interval to be used was determined by PSU size:

- Up to 100 addresses = full enumeration
- 100-200 addresses = interval of 2
- 200 – 2000 addresses = interval of 4
- 2000 – 10000 addresses = interval of 6
- More than 10000 addresses = interval of 10

Table 7: Enumeration – starting points				
Country/ Territory	Sample frame to select starting point	Source of sample frame	Method to randomly select starting points	Starting point
EU MEMBER STATES				

¹⁰ In Malta full enumeration was carried out so no starting points were used.

Table 7: Enumeration – starting points				
Country/ Territory	Sample frame to select starting point	Source of sample frame	Method to randomly select starting points	Starting point
Austria	Telephone directory	Local telephone directory services	Random selection of address from telephone directory	Address
Cyprus	List of addresses	Cyprus Post	Random selection from list	Address
Czech Republic	Electronic list of settlement units	Map of settlement units	Random calculation of coordinates	Point on the map
France	FASTO Database (of landline and mobile phone owners)	FASTO	Random selection from list	Address
Germany	List of addresses in ADM sample point	ADM ¹¹	Random selection from list	Address
Greece	Electronic map	Google	Random calculation of coordinates	Point on the map
Hungary	Address registry	Electronic public services	Random selection from list	Address
Italy	Streets directory	Database of land line telephone owners	Random sorting of database to select a phone owner	Address of selected phone owner
Latvia	List of addresses	OCMA	Random selection by OCMA	Address
Portugal	List of "Freguesias"	Google electronic maps	Random calculation of coordinates	Point on the map
Romania	Electronic lists of the delimitations of voting precincts, including streets and building numbers.	Electronic list of all voting precincts	Random selection of a street/village using random sorting within each election precinct.	Random selection of building number (on a street)
Slovakia	Google Maps	Google Maps	Random calculation of coordinates	Point on the map
Slovenia	Polling stations	State Election Commission	Random selection using Excel RandBetween (x,y) function, with geo coordinates obtained from Google Maps	Exact address
Spain	Agency's own database of streets (and building numbers)	Database is linked to the Census areas	A random number was assigned to each street in the database.	Address (street and building number)
CANDIDATE COUNTRIES				
Albania	Electronic map	Google Earth / Maps	Random calculation of coordinates	Point on the map

¹¹ As a market research agency, Ipsos Germany was only able to access address information from ADM, a business association for private-sector market and social research agencies in Germany.

Table 7: Enumeration – starting points				
Country/ Territory	Sample frame to select starting point	Source of sample frame	Method to randomly select starting points	Starting point
FYROM	Electronic map	Google Earth / Maps	Random calculation of coordinates	Point on the map
Serbia ¹²	Belgrade - list of households Rest of the country - list of starting points	Belgrade - list of registered voters. Rest of the country - Google Earth / Maps	Belgrade - random selection from the list; Rest of the country - random coordinates	Address (all areas)
OTHER COUNTRIES				
Switzerland	Electronic telephone book	Electronic telephone book	Random selection of from list	Address

Ipsos' intention was that all starting points within a PSU should return the same number of addresses. Agencies were instructed to take the target number of addresses in a given PSU and divide it by the number of starting points in order to identify the target number of addresses per starting point. For example, if a country planned to enumerate 50 addresses per PSU, and had to use four starting points, enumerators were given a pre-defined target of 12 or 13 addresses (2x12 and 2x13).

III.5 Case, household and respondent selection

Within each PSU, cases (addresses, individuals) were selected randomly from registers (see Tables 5a and 5b) or from the enumerated lists of addresses. Ipsos provided the country teams with step-by-step instructions in order to make the selection. All addresses were sorted before selections were made – by street name, then by the house number, then by flat number (if applicable) - to ensure a good spread of addresses across the PSU. When more than one household was found at the same address, one of these was selected at random using a Kish grid. Within every household, one eligible person belonging to the target population (employed, aged 15 years and over) was randomly selected using last birthday selection method.

III.6 Making contact

For EWCS6, interviewers in all countries were required to adhere to the following principles when attempting to make contact with potential respondents:

- make at least four contact attempts (visits) to an address (at different times of the day and week – including weekends)
- leave at least two weeks between the first and the last contact attempt

Additionally, in countries using telephone recruitment, interviewers were required to make a minimum of 10 contact attempts (telephone calls).

The implementation of these strategies was important in order to ensure the integrity of the achieved sample. By maximising the opportunities to make contact with all potential respondents this also aimed to maximise the response rate and minimise non-response bias. In other words, the achieved sample was not a 'convenience sample' of individuals who happened to be available the first time the interviewer called/visited but was representative of

¹² The list of households was only available in Belgrade. This list was used as it was for the selection of starting points, rather than collapsing it to the building level.

a diverse range of individuals within each country that were (initially) harder to reach as well as those that were easier. More information about the contacting strategy can be found in the Technical Report.

IV. Quality control of the sample process

This section summarises the quality control measures that were applied at different stages of the sampling process.

IV.1 Quality control of PSUs

All countries were issued with instructions to guide them in selecting PSUs. They were instructed to identify the number of PSUs to be selected within each cell and the total number of PSUs within each cell. The selection was carried out with probability proportional to size (PPS) – meaning that the likelihood of being included in the sample was directly proportional to the size of the PSU, i.e. a PSU with the size of 100 was twice as likely to be selected as a PSU of 50. All PSUs were first ordered in the given cell (of the sample breakdown) by their size measure then the number of PSUs required for the cell was selected using PPS and random start in Excel. Each country sent the Excel file showing the selected PSUs to Ipsos for cross-checking against the agreed sample breakdown file. Where discrepancies were found, countries were advised to review these and, where necessary repeat the random selection.

In a small number of countries, PSUs were replaced during the sample implementation phase following approval from Eurofound. In Italy, Lithuania and the UK, 1 PSU was replaced per country, in Slovenia 5 PSUs were replaced and in Turkey, 35 PSUs were replaced. All of the PSUs were replaced because the addresses within them were classified as inaccessible due to safety concerns. Please refer to Table 8 (overleaf) for more information.

In addition, 63 PSUs were replaced and 12 PSUs were added to the Spanish sample during the enumeration phase. The agency has confirmed that the following actions were taken:

- Initially, two samples (each consisting of 825 PSUs) were drawn at the same time according to the target sample distribution. One was the ‘main sample’ the remainder were regarded as ‘reserve’.
- Of the 825 PSUs in the main sample, 63 were replaced during enumeration with PSUs from the reserve sample (these were taken from the same strata as the original PSUs). The agency argued that it was necessary to replace 63 PSUs because they only contained industrial areas/other invalid areas or had fewer than 10 valid addresses available for enumeration¹³.
- In addition, 12 extra PSUs were also selected from the reserve PSUs in order to ensure a sufficient number of addresses were enumerated in total.
- In total 837 PSUs were used in Spain (825 plus 12).

Table 8a: Replacement PSUs				
Country/ Territory	No. replaced	Region and Urbanity	Reason for replacement	PSU number(s) for the replacement PSUs
EU MEMBER STATES				
Italy	1	Lazio + Umbria, densely populated	Unsafe area for enumerators –illegally occupied houses and petty crime.	PSU 66
Lithuania	1	Vilnius, urban	Unsafe area for interviewers - drug sales and paraphernalia.	PSU 51

¹³ The agency aimed to enumerate 40 valid addresses per PSU (20 addresses per start point).

Table 8a: Replacement PSUs				
Country/ Territory	No. replaced	Region and Urbanity	Reason for replacement	PSU number(s) for the replacement PSUs
Slovenia	5	JV Slovenija in Spodnjeposavska, thinly populated (x2); Osrednjeslovenska, densely populated (x3)	Unsafe areas for enumerators – violent, dangerous, potentially uncooperative inhabitants	PSUs 72, 76, 83, 84 and 90
United Kingdom	1	Northern Ireland, densely populated	Unsafe area for interviewers – high crime rates; unsafe for non-residents	PSU 95MM0009
CANDIDATE COUNTRIES				
Turkey	21	Northeast Anatolia, thinly populated (x2); Middle East Anatolia, thinly populated (x3); South East Anatolia, densely populated (x4); South East Anatolia, intermediate populated (x2); South East Anatolia, thinly populated (x5); Central Anatolia, densely populated (x1); West Anatolia, thinly populated (x1) Mediterranean, densely populated (x2); Mediterranean, thinly populated (x1)	Unsafe areas for interviewers – high level of security issues including a terrorist attack and ‘special security areas’ (as defined by the Turkish government) – especially in the regions bordering Syria. In the Mediterranean region there were also clashes between the PKK and the police during fieldwork.	TR1190_v2; TR1192_v3; TR1194_v2; TR1197_v2; TR1193_v2; TR1117_v2; TR1116_v2; TR1118_v2; TR1119_v2; TR1144_v2; TR1145_v2; TR1198_v2; TR1199_v2; TR1200_v3; TR1201_v2; TR1202_v2; TR1109_v2; TR1166_v2; TR1089_v2; TR1085_v2; TR1173_v2
Turkey (contd.)	13	Istanbul, densely populated (x6); West Mamara, densely populated (x1); Central Anatolia, densely populated (x2); Mediterranean, densely populated (x1); West Anatolia, densely populated (x2); East Black Sea, densely populated (x1)	Upper class sites and apartments with private security preventing access to visitors.	TR1010_v2; TR1019_v2; TR1022_v2; TR1030_v2; TR1031_v2; TR1034_v2; TR1037_v2; TR1098_v2; TR1099_v2; TR1091_v2; TR1068_v2; TR1070_v2; TR1106_v2
Turkey (contd.)	1	Aegean sea, densely populated (x1)	Houses in this PSU were either demolished or empty because of a new tunnel being constructed.	TR1045_v2

IV.2 Quality control of addresses

The quality control checks in each country that carried out enumeration were based on paper forms completed by supervisors. The results of these checks were entered into an enumeration quality control data file. The procedures and documents were developed by Ipsos and approved by Eurofound before being implemented.

For each enumerated address within a PSU the following questions were asked:

- Was the interval applied correctly? (Y/N)
- Was the route followed correctly? (Y/N)

- Was the address noted down correctly? (Y/N)
- The supervisors were also invited to add comments on the enumeration of each address and any general remarks on the quality of the enumeration

More general questions about enumeration of the PSU were then asked:

- Has the enumerator listed the right number of addresses?
- Did enumerator use the given interval correctly?
- If it was not always applied correctly, what was the reason? [routed from Q2]
- [If starting point was given as a point on the map] Did enumerator select the correct starting point?
- [If starting point was given as an address] Was the starting address identified correctly?
- Was the route followed correctly?
- If not, what was the problem with the route?
- Were the addresses written down correctly?
- Were the addresses or additional notes enough for another interviewer to identify the addresses?
- Does any part of the route need to be enumerated again?
- Overall, would you say:
 1. Enumeration for this sampling point was done correctly; it can be used for the fieldwork.
 2. Enumeration for this sampling point was mostly done correctly, but some addresses need to be deleted or other addresses need to be added (details included in this form)
 3. Enumeration for this sampling point needs to be done again

IV.3 Quality assurance indicators

For each indicator in the quality assurance plan for EWCS6, we summarise below the extent to which these have been achieved. Further details will be provided in the Quality Assurance report.

Sample frame unit indicators

- *Indicator 3: The percentage of sampling frame units for which the contact information was incomplete and which were not contacted using other means.*

For the three countries using telephone contacting (DK, FI and SE), the proportion of register entries where a telephone number was not working/was disconnected/was a wrong number was low. Analysis of the last contact status reveals that in DK the figure is 5% (based on 344 cases of ‘non-working phone’ / 7154 contact attempts). In FI the figure is 4% (based on 228 cases of ‘non-working phone’ / 5701 contact attempts). Finally, in SE the figure is 3% (based on 381 cases of ‘non-working phone’ / 14910 contact attempts). This data refers to entries for which a telephone number was available, but which was subsequently found to be faulty (not working, disconnected or wrong number).

Addresses, for which no telephone number was available from the outset, were contacted face to face as shown in Table 9:

Table 9: Mode of first contact attempt		
Country/ Territory	Mode of contact	Number of cases
Denmark	Telephone	6053
	Face-to-face	1101
Finland	Telephone	3037

	Face-to-face	2132
Sweden	Telephone	14901
	Face-to-face	9

The number is very low in Sweden due to the fact that they looked up telephone numbers for any cases that were missing this information on the sampling frame.

- *Indicator 4: In countries using pre-selected sampling, the percentage of sampling frame units that refer to non-existent or non-eligible addresses.*

6% - based on analysis of final outcomes classified as ‘address not valid (does not exist/demolished/institution/business’ and ‘address is not occupied (empty/second home etc.)’ in 16 countries using address-based (registry) frames or individual-based (registry) frames.

- *Indicator 5: In countries using enumeration, the percentage of sampling frame units that refer to non-existent or non-eligible addresses.*

9% - based on analysis of final outcomes classified as ‘address not valid (does not exist/demolished/institution/business’ and ‘address is not occupied (empty/second home etc.)’ in 19 countries using address-based (enumeration). The percentage breakdown for the two codes is: 2% (address not valid) and 7% (address is not occupied).

Enumeration indicators

- *Indicator 20: Percentage of countries where the distributions across stratification categories of the gross sample closely approximates the distributions of the universe (sampling plan) (deviations in the proportional size of each of the strata between the two should not exceed 1 percentage point)*

This will be reported in the Sampling evaluation and weighting report.

- *Indicator 24: Percentage of enumerators that take part in enumeration training*

100% - in the 19 countries where enumeration was undertaken, all agencies have signed a declaration to indicate that all enumerators were trained.

- *Indicator 25: Percentage of countries (out of those where enumeration takes place) for which an enumeration plan is provided*

100% - the ‘enumeration plan’ consists of the information on enumeration contained within Section 4c of the implementation plans and the enumeration guidance documents provided by Ipsos.

- *Indicator 27: Percentage of countries where the country specific enumeration plan ensures random selection of respondents*

100% - see note above re: ‘enumeration plan’.

- *Indicator 28: Enumeration finalized before fieldwork*

No. This was achieved in all countries except Slovenia and Croatia. In Slovenia, four PSUs were enumerated in March and April having previously been inaccessible due to heavy snow. In Croatia, one PSU was enumerated in May.

- *Indicator 29: Percentage of countries where enumeration is checked in at least 10% of the PSUs*

100% (including Bulgaria and Croatia)

- *Indicator 30: Percentage of enumeration checks that reveal deviations from the country specific enumeration plan*

5% - based on data from 18 countries¹⁴; we calculated the number of addresses with at least one deviation divided by the total number of addresses subject to quality control checks x 100¹⁵.

The key checks and deviations were:

- Interval applied correctly (Yes/No) (No = deviation)
- Route correctly followed (Yes/No) (No = deviation)
- Address noted correctly (Yes/No) (No = deviation)
- Correct starting point used (Yes/No) (No = deviation)
- Notes enough to identify address (Always/Most of the time/Sometimes/Rarely or Never) (Rarely or Never = deviation)

A table showing the results per country can be found in the Quality Assurance report.

- *Indicator 31: Percentage of observed deviations from the country specific enumeration plan where follow up action was taken*

100% - The coordination team carried out central checks of the quality control data file and corresponded with the agencies to establish that action had been taken when a deviation was detected. The agencies all confirmed that appropriate corrective action had been taken for the problems detected.

- *Indicator 32: QC on enumeration finalised before f/w*

No. This was achieved in all countries except Slovenia and Croatia. For all countries (except Slovenia and Croatia), the last date for enumeration quality control activities was given as 13.11.14 - much earlier than fieldwork start in March 2015. The enumeration quality control activities were completed in Slovenia by the end of April and in Croatia on 5 May.

- *Indicator 33: percentage of countries where the net sample size \geq planned sample size*

100% - all 35 countries achieved a net sample size greater or equal to the planned sample size.

¹⁴ EU Member states: AT, CY, CZ, FR, GR, HU, IT, LV, MT, PT, RO, SK, SI, ES; Candidate countries: AL, MK, RS; Other countries: CH. BG and HR are excluded from the analysis as they were not regarded as enumeration countries since they were both using address based sampling frames at the outset; consequentially, neither had an enumeration plan to be compared against. DE is also excluded since they did not provide QC data in the format that was required.

¹⁵ 1213/22848 x 100

V. Annex

All 35 country-specific implementation plans and sample breakdowns are included as separate Annexes to this report and are available on request quoting Eurofound internal reference GR-15-16000). There is an implementation plan and sample breakdown for each country. The files listed below are included in two zipped files. An asterisk (*), indicates that information has been updated during the implementation phase; additionally a ^ symbol shows that only the quality control information has been updated.

EWCS6 Implementation plans and Sample breakdowns			
Country/ Territory	Country code	ANNEX 1 - Implementation plan file name	ANNEX 2 - Sample breakdown file name
EU MEMBER STATES			
Austria	AT	Implementation plan AT	Sample breakdown AT
Belgium	BE	Implementation plan BE	Sample breakdown BE
Bulgaria	BG	Implementation plan BG*	Sample breakdown BG*
Croatia	HR	Implementation plan HR*	Sample breakdown HR
Cyprus	CY	Implementation plan CY*^	Sample breakdown CY
Czech Republic	CZ	Implementation plan CZ*	Sample breakdown CZ
Denmark	DK	Implementation plan DK	Sample breakdown DK*
Estonia	EE	Implementation plan EE*	Sample breakdown EE
Finland	FI	Implementation plan FI*	Sample breakdown FI
France	FR	Implementation plan FR*	Sample breakdown FR*
Greece	GR	Implementation plan GR*	Sample breakdown GR*
Germany	DE	Implementation plan DE	Sample breakdown DE
Hungary	HU	Implementation plan HU	Sample breakdown HU
Ireland	IE	Implementation plan IE*^	Sample breakdown IE
Italy	IT	Implementation plan IT	Sample breakdown IT*
Latvia	LV	Implementation plan LV	Sample breakdown LV
Lithuania	LT	Implementation plan LT	Sample breakdown LT
Luxembourg	LU	Implementation plan LU*	Sample breakdown LU*
Malta	MT	Implementation plan MT	Sample breakdown MT
Netherlands	NL	Implementation plan NL	Sample breakdown NL
Poland	PL	Implementation plan PL	Sample breakdown PL
Portugal	PT	Implementation plan PT*	Sample breakdown PT
Romania	RO	Implementation plan RO*^	Sample breakdown RO
Slovenia	SI	Implementation plan SI	Sample breakdown SI
Slovakia	SK	Implementation plan SK*^	Sample breakdown SK
Spain	ES	Implementation plan ES^	Sample breakdown ES*
Sweden	SE	Implementation plan SE*	Sample breakdown SE
United Kingdom	UK	Implementation plan UK*	Sample breakdown UK

EWCS6 Implementation plans and Sample breakdowns (contd.)

CANDIDATE COUNTRIES			
Albania	AL	Implementation plan AL*^	Sample breakdown AL
FYROM	MK	Implementation plan MK*^	Sample breakdown MK
Montenegro	ME	Implementation plan ME*^	Sample breakdown ME
Serbia	RS	Implementation plan RS*^	Sample breakdown RS
Turkey	TR	Implementation plan TR*^	Sample breakdown TR
OTHER COUNTRIES			
Switzerland	CH	Implementation plan CH	Sample breakdown CH
Norway	NO	Implementation plan NO*	Sample breakdown NO