



Nico Keilman, Georgios Aristotelous

Expert opinion on migration data

Deliverable 6.1



QuantMig has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 870299.

History	of	changes
---------	----	---------

Version	Date	Changes
1.0	12 January 2021	Issued for Consortium Review
1.1	15 February 2021	First version submitted as official deliverable to the EC

Suggested citation

Keilman N, Aristotelous G (2021) Expert Opinion on Migration Data. QuantMig Project Deliverable D6.1. Southampton: University of Southampton.

Dissemination level

PU Public

Acknowledgements

Comments made by Arkadiusz Wiśniowski, Emilio Zagheni, Emanuele Del Fava, Constantinos Melachrinos, Hania Zlotnik, and Giampaolo Lanzieri are gratefully acknowledged. This document reflects the authors' views. The Research Executive Agency of the European Commission are not responsible for any use that may be made of the information it contains.

Cover photo: iStockphoto.com/Guenter Guni

Elicitation of expert opinions

Quant
Mig Deliverable 6.1 Part I *

Nico Keilman †

^{*}QuantMig is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 870299.

[†]University of Oslo, Norway. Email: nico.keilman@econ.uio.no

Contents

1	Introduction	3
2	Approach	6
	2.1 Definition of migration	6
	2.2 True migration flows and reported migration flows	8
	2.3 Undercount and accuracy	10
3	Experts	12
4	Pilot round	13
5	First Delphi round	15
6	Second Delphi round	20
7	Summary and conclusions	23
A	Questionnaire pilot round	28
в	Questionnaire second Delphi round	34

1 Introduction

The aim of the QuantMig project is to produce comprehensive, multi-perspective, and robust quantitative migration scenarios to support European policy makers when they prepare and evaluate policy on international migration to Europe, and between the countries. The QuantMig-scenarios will be based on a set of statistical estimates of international migration flows and their drivers. The scenarios rely on *estimates*, not on *observed* statistics (e.g. from statistical agencies), because there are several problems connected to these data, such as inconsistencies in data availability, quality, and collection mechanisms. Statistical agencies in some countries publish statistics on international migration annually, and they are of good quality. Other agencies provide us with crude estimates derived from a comparison of population stocks from two censuses, with inter-censal counts of births and deaths. Population registration systems result in more accurate statistics for migration flows than migration surveys. Registration of emigrants is generally thought to be less accurate than that of immigrants, but the undercount of emigration flows is larger in some countries than in others. Therefore, available information on migration flows across Europe needs to be reconciled.

This report documents some of our work in connection with Work Package 6 (WP6) of QuantMig. The project proposal of QuantMig describes the aim of WP6 as "... (t)o develop a method for estimating European migration flows based on the available data, with uncertainty assessment, and to apply it to creating a custom-made, harmonised dataset based on reconciling secondary data from different sources, augmented by using expert opinion ...". WP6 is one of the 12 work packages of QuantMig. Figure 1 shows how it is situated in the whole project. It uses migration data and other information from several sources as input, whereas its results, i.e. the estimates of (true but unknown) European migration flows, form the input to a set of other work packages that deal with the building of various scenarios for future migration in the region.

WP6 consists of several tasks. One of these (Task 6.1) concerns eliciting meta-information about systems for data collection in Europe, such as measurement accuracy and under-



Figure 1: Logical structure and key relationships of QuantMig

count, etc., from experts on European migration data. Other tasks for WP6 involve assessing the quality of information about migration flows, migrant stocks, and a range of covariates, constructing a model for estimating migration flows, and dissemination of the results.

The aim of this report is to document work done for Task 6.1. The task was to answer the following research question: how well do publicly available statistics on international migration for European countries, more in particular statistics on international migration from national statistical agencies, reflect the true migration flows? We have attempted to answer this question by eliciting expert opinions on measurement accuracy and undercount. During the summer and autumn of 2020, we carried out a two-round Delphi survey among 15 migration experts, preceded by a pilot survey with eight participants. The online questionnaire included questions on measurement accuracy of migration data from population registration systems and from migrant surveys, on possible undercount of immigration and emigration flows, and on the assumed impact of the Covid-19 pandemic on European migration flows. Our work on accuracy and undercount builds on the experience and lessons learned from the project "Integrated Modelling of European Migration" (IMEM) (Raymer et al. (2013); Wiśniowski et al. (2016)). The estimation involves Bayesian modelling (Bijak and Bryant (2016)), which provides a coherent description of uncertainty at different levels, and integrates data from different national sources. Since the parameters of the model cannot be identified from the data alone, we elicited them from our 15 domain experts in the form of probability distributions (Wiśniowski et al. (2013)).

The estimates will be calculated for 2009–2018, extending the IMEM dataset by another decade, and will be broken down by sex, age in five-year groups, broad region of origin/destination outside Europe, and nationality group (EU/non-EU).

Table 1 gives the time line of the survey. Eight migration experts took part in the pilot survey, and 16 responded to the Delphi survey. We acknowledge gratefully the help of the 24 experts. All of them contributed in their own personal capacity to the project. While the responses were anonymous, we wish to list, with thanks, the experts' names: Guy Abel, Jakub Bijak, Corrado Bonifazi, Jon Forster, Anne Goujon, Karen Haandrikman, Frank Heins, Bela Hovy, Giampaolo Lanzieri, Wolfgang Lutz, Marie McAuliffe, Beata Nowok, Nicolas Perrin, Joao Peixoto, Michel Poulain, James Raymer, Philip Rees, Luule Sakkeus, Nikola Sander, Ann Singleton, Peter Smith, Frans Willekens, Arkadiusz Wiśniowski, Hania Zlotnik.

This report consists of two parts. Part I, written by Nico Keilman, focuses on elicitation of expert opinions. Part II, of which Georgios Aristotelous is the author, documents how expert opinions on undercount and accuracy were transformed into statistical distributions. The latter distributions form part of the input for the model for estimating true migration flows.

In Part I, Section 2 summarizes our approach and gives a qualitative description of the model used for estimating migration flows. Next, in Section 3 we describe the way we

13 May 2020	Ten experts invited to take part in the pilot survey
28 May – 3 June 2020	Pilot survey opened to eight experts
28 May – 15 June 2020	Responses received from eight experts
18 – 19 June 2020	24 new experts invited to take part in the Delphi survey
8 July 2020	1 st round opened to 16 experts
8 July – 3 August 2020	Responses received from 16 experts
26 October 2020	2 nd round opened to 15 experts
27 October – 16 November 2020	Responses received from 15 experts

Table 1: Timeline for Task 6.1

selected our experts for the Delphi survey and for the pilot survey. The questionnaire for the pilot survey is presented in Section 4. Section 5 discusses the responses and feedback we received from the experts in the first round of the Delphi survey. Translation of the responses into to probability distributions (see Part II) revealed that some experts had given invalid answers to one or more questions. Hence, the second Delphi round (Section 6) included improved explanations and wording of the questions. Indeed, the results of the second round, also described in Part II, turned out to be more consistent. Section 7 summarizes our work on the Delphi survey and concludes. In Part II, after the introductory Section 1, Section 2 describes the methods used to translate experts' answers into prior probability distributions for the parameters. Next, Section 3 presents the resulting probability distributions, for both rounds of the Delphi questionnaire. Section 4 concludes with some discussion points about lessons learned from the elicitation process.

2 Approach

2.1 Definition of migration

The survey aimed at eliciting expert opinions about how a specific measurement of international migration deviates from a benchmark. As the benchmark, we have adopted the United Nations definition (United Nations 1998). This definition corresponds with the definition included in EU Regulation nr. 862/2007 on Community statistics on migration and international protection, adopted by the European Parliament in 2007. United Nations definition of international migration:

Long-term migrant. A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arrival, the person will be a long-term immigrant.

The UN definition employs the notion of "country of usual residence". This is to be understood as the country in which the person has lived or intends to live for a period of at least 12 months, where by "lived" more precisely is to be understood as the place where this person has taken his or her daily rest (see U.N. (1998)). In practice, many countries in Europe use a de jure definition (especially countries with a population register), and a country's de jure definition may very well be different from the rule of daily rest. We assumed, however, that such differences (other than the rule of 12 months, which will be captured by a factor called "duration"; cf. Section 2.2) are not very important for international migration (as opposed to migration within one country) and that these definitions will generally result in the same country of residence. Hence, we ignored possible differences in measured migration flows caused by different definitions of country of usual residence.

Related to the previous point is the notion of undocumented migration. In theory, the UN definition includes undocumented ("illegal") migrants. However, article 9 of EU regulation 862/2007 states that "This Regulation does not cover estimates of the number of persons illegally resident in the Member States". Indeed, the migration statistics in most countries do not cover undocumented migrants. When we refer to the UN definition as the benchmark, we do not include undocumented migrants.

Also, note that in some countries, short-term labour migrants apply repeatedly for renewal of their temporary (less than twelve months) months working permits. To the extent that they do not leave the country in-between, they are long-term migrants. The European Union introduced the above definition formally in 2007. At that time, a number of EU-member countries used it already in their official statistics on international migration, whereas other countries employed a slightly different one, for instance based on an intended or actual period of stay of six months, instead of twelve. Still other countries applied the rule that any person, who had left the country only temporarily, still was considered as a resident of the country. Only those who had left permanently were counted as emigrants.

2.2 True migration flows and reported migration flows

As stated in the introduction, the aim of the model developed in WP6 is to estimate European migration flows based on the available data, with uncertainty assessments, and to apply it to creating a custom-made, harmonised dataset based on reconciling secondary data from different sources, augmented by using expert opinion. The model updates and extends an earlier model developed in the framework of the IMEM project mentioned before. The model estimates counts for flows of international migration for 32 European countries: EU-27 plus EFTA countries (Iceland, Norway, Liechtenstein, and Switzerland), plus the United Kingdom. Collectively, we refer to them as EU+. The flows concern both inter-EU+ migration, immigration to each EU+ country from outside the region, and emigration from each country by persons who leave the region.

The model assumes that the reported flow between two countries (reported either by the sending or by the receiving country) is a function of the real (but unknown) flow, and four parameters that reflect certain features of the data collection system.

- 1. A duration parameter, cf. the discussion above on actual or intended duration of stay abroad.
- 2. An undercount parameter, reflecting the fraction of the true flow that is captured by the data collection system in a given country. Because migrants do not always have sufficient incentives to report their moves to the relevant authorities, migration statistics are often lower than the true total level. For immigrants this difference is

thought to be smaller than for emigrants.

- 3. A coverage parameter, reflecting the discrepancies between the observed data and the true flows that are not captured by the more general undercount parameters. Coverage refers to the fact that some countries do not include all types of migrants in their measurements, for instance international students or nationals. Hence, coverage errors in reported migration flows are a consequence of a data collection system that does not follow the UN definition. They differ from undercount errors, which are caused by individuals who do not report their moves, although they should.
- 4. A general error term, capturing any remaining difference between reported and actual flows. This term relates to random errors in migration measurement, for instance administrative errors in the processing of the data. It is different from "coverage", which refers to systematic errors ("bias"). The variance of this error term measures the accuracy of the data collection system for each country. It reflects the quality of the data and measurement mechanisms utilised to collect the data.

The four parameters listed here cannot be estimated from data alone, because the real migration flow is unknown. In case one wants to obtain such estimates, a number of additional assumptions are necessary. Our approach is to do that in a systematic way, and to involve several experts on European migration. We have organized a two-round Delphi survey among 15 experts and asked them to give their (admittedly subjective) opinions about these issues. To reduce the survey burden, we have restricted ourselves to eliciting opinions on undercount (point 2 above) and accuracy (point 4). Adoption of EU Regulation nr. 862/2007 may have resulted in less undercount and better accuracy in recent years, compared to the period covered by the IMEM-project (2002 - 2008). Hence, it was necessary to update the IMEM-estimates for undercount and accuracy. Information on duration (point 1) and coverage (point 3) is taken from the IMEM-project.

Following the approach taken in the IMEM-project, we asked each expert to give us

a set of values concerning certain parameters, which we then converted into probability distributions. The totality of resulting expert opinions was subsequently combined into a single set of distributions, allowing for the introduction of yet another source of uncertainty, related to the heterogeneity of experts; see Part II.

Undercount, accuracy, and other characteristics regarding the measurement of international migration, have varied over time. We asked the experts to answer the questions as related to the situation, on average, during the period 2009 - 2019 (before Brexit) in the EU+ countries. This means, among other things, the extent to which countries have implemented the EU Regulation 862/2007.

Given the special situation in 2020 with many countries struck by the Covid19-pandemic, we took this opportunity and asked the 23 experts to give a qualitative assessment of the effects the pandemic might have on European migration. We restricted this topic to the pilot round and the first Delphi round.

2.3 Undercount and accuracy

It is clear that measurement practices differ widely among European countries. Yet it is not feasible to ask questions for each of the EU+ countries. Instead, we asked the experts to state their estimates for each parameter in terms of a range, together with an associated level of confidence or certainty. The ranges and confidence levels should reflect the expert's belief about the variability between countries, but also how certain they were about the answers.

We asked the experts to give undercount as a percentage. This percentage refers to the ratio between not counted and the real (but unknown) flow. More formally, assume that there are no errors caused by duration, coverage, or accuracy. Let $P \times 100\%$ ($P \in [0, 1]$) denote the percentage of undercount in a given situation. The underlying assumption regarding undercount is that (1 - P)y = z, where y is the true flow and z is the reported flow. Thus, we can interpret P as a fraction of the true flow that is not captured in the reported data.

An ideal measurement system has an undercount of zero. The larger the percentage of undercount, the worse the system performs. An undercount of 100 % applies to the extreme situation in which none of the migrants is recorded by the system.

For instance, assume one expert stated that he is about 75 per cent certain that undercount was between 20 and 60 per cent in a given situation. We have used these numbers to construct a probability distribution for this type of undercount such that chances are 100 - 75 = 25 per cent that undercount was less than 20 per cent or more than 60 per cent. Hence, each range must be seen together with the stated certainty – they all reflect one probability distribution; see Part II for details.

For undercount, we have grouped the 32 countries into two categories: low undercount countries and high undercount countries. The grouping is based on the findings in the IMEM-project; see Wiśniowski et al. (2013).

<u>Low undercount countries</u>: The Netherlands, Sweden, Finland, Norway, Denmark, Germany, Iceland, Austria, Belgium, United Kingdom, Cyprus, Ireland, Italy, France, Luxembourg, Switzerland, and immigration to Spain.

<u>High undercount countries</u>: Bulgaria, Croatia, Estonia, Lithuania, Latvia, Poland, Slovenia, Slovakia, Romania, the Czech Republic, Greece, Hungary, Liechtenstein, Malta, Portugal, and emigration from Spain.

With reference to accuracy, we have distinguished two types of systems, namely population registration systems and migration surveys. Cyprus, Ireland, Portugal, and the United Kingdom use a survey for collecting data on international migration. With the exception of France, Greece, and Liechtenstein, the remaining EU+ countries use a register ¹. Whereas random errors may occur in both systems, a survey has an additional error source, namely sampling errors.

¹France uses an alien register for immigration, whereas some information on immigration to Greece is available from residence permits for foreigners. Liechtenstein does not collect any information on migration

As noted above, undercount is an error caused by the individual migrant who does not report his or her move. Clearly, this is predominantly a problem in register countries. Undercount may occur when migration information is derived from a survey, but that is, in fact, the case when a survey respondent does not answer the question about migration. Coverage errors, we repeat, occur when national authorities do not follow the UN-definition and disregard certain population sub-groups. For a survey country, this means that the survey population from which the sample was drawn excludes that subgroup and hence the migration question is not asked to the persons concerned.

Both for questions related to undercount and for those on accuracy, we distinguished between nationals, i.e. persons with nationality in one of the 32 EU+ countries, and non-nationals.

3 Experts

To select the experts for the Delphi survey was a difficult task. An expert, in this connection, should be a person who is knowledgeable about data collection systems for international migration data in many, if not all, EU+ countries. At the same time, experts should have a basic understanding of quantitative aspects of migration flows. In addition, we aimed for a certain regional distribution, and for both men and women. An important factor was to achieve a certain heterogeneity among the experts, since this was thought to stabilize the estimates of the model. For a brief discussion, see Wiśniowski et al. (2013), and the references therein.

Rowe and Wright (2001) recommend between five and 20 experts for a Delphi survey. Of the 24 experts whom we invited (6 from Eastern Europe, 12 from the remaining parts of Europe, 6 from international organisations; 7 women and 17 men), 16 agreed to take part in our survey. In the end, we received useful responses for the two Delphi rounds from 15 experts. The Delphi survey was preceded by a pilot survey among eight experts, partly selected from the group of QuantMig researchers and Advisory Board members. Following Wiśniowski et al. (2013), the expert-specific probability density functions constructed in part II got equal weights when we computed the overall density. This method is simple and robust. We could have asked the experts about a particular variable, but we did not know the real values of any of the parameters. The expertise we are eliciting is very specific – to ask related questions (e.g. about European flows) would miss the mark.

4 Pilot round

In the middle of May of 2020, we invited the eight experts to participate in the pilot round. The questionnaire was open for responses from the end of May until the middle of June, when all eight had responded.

Appendix A contains the questionnaire used in the pilot round. It is an online questionnaire, designed by means of the "Nettskjema"-package, which was developed by the University of Oslo; see https://nettskjema.no/index.html?lang=en . After an introduction, in which we explain various aspects of measuring international migration and the way we intend to elicit the participants' opinions, there are four sections with questions. Section 1 contains questions on undercount for immigration and emigration flows of nationals and non-nationals. The questions are restricted to countries with low undercount. Section 2 repeats these questions for migration flows to and from high undercount countries. The eight questions in these two sections are all of the form: "By how many per cent do you expect that emigration/immigration flows of nationals/non-nationals who enter low undercount/high undercount countries are undercounted in the published statistics of those countries, as compared to the true level of emigration/ immigration of nationals/non-national? Please provide a range in percentages between 0 and 100." After having specified the range, the experts were asked how certain they were that the undercount of the reported flow (compared to the actual flow) was within the range they had specified. The experts could select from a set of predefined percentages (50, 75, 90, or 95 per cent), but also they had the option to state a different percentage. Section 3 addresses the accuracy of data collection in countries that have a population register,

or that use a survey. A register country can collect information both for immigration and for emigration flows, whereas the information for a survey country is restricted to immigration. Again, there are separate questions for national and non-nationals. Finally, Section 4 of the questionnaire has questions on the assumed short-term (the year 2021) and long-term (2021 – 2026) impact of Covid-19 on migration flows in Europe. We asked the experts to give their assessment on a nine-point scale, ranging from very much lower flows in future years, compared to the flow for an average pre-Covid-19 year, to very much higher flows.

The results of the pilot round were encouraging. Eight experts had agreed to take part in the pilot round, and we received useful information on undercount and accuracy from seven of them. One expert informed us that (s)he did not have enough knowledge of official statistical systems to have any informed opinion on these issues, but sent us responses on the Covid-19 effects on European migration.

On average, the experts used about 35 minutes to answer the questions. The answers that the experts provided about ranges (1a to 14a) and confidence (1b to 14b) were of less interest than the comments they gave. We received a number of useful suggestions for improved formulations and lay out. Some comments indicated that the pre-amble did not explain the difference between undercount and coverage clear enough. One expert proposed to weigh up experts from countries that use a survey to collect information about international migration, because such cases are quite special. This topic is addressed in Part II. Finally, there was a comment regarding questions 15 and 16: the difference between "slightly lower/higher" and "somewhat lower/higher" was unclear. We deleted the latter category in the Delphi rounds, such that seven possible answers remained (in addition to "don't know").

The other suggestions led to a number of small changes in the questionnaire for the first Delphi round. Therefore, we do not report this version here.

5 First Delphi round

In the middle of June of 2020, we invited 24 experts to participate in the Delphi survey. The 16 experts, who had agreed to do so, were given access to the online questionnaire on 8 July. On 3 August, we had received responses for most, if not all questions from 15 experts, whereas one expert only had answered questions 15 and 16 on the effect of Covid-19 on European migration flows in the future.

Overall, the responses we received were informative, although there were a few problems. One expert was not able to answer questions 13 and 14. A few experts had difficulties to interpret questions 9-14 on accuracy correctly. In most cases, this could be resolved by direct email communication, but this was not always possible. One expert was very sceptical about the Delphi approach and about formulating subjective beliefs for undercount and accuracy in terms of ranges and levels of confidence. Another comment from this expert: "My answers are based on pure guesswork. Much better would have been to present some recent statistics on each of the collective flows and asked for probability ranges around those statistics ... These answers are pure guesses, as before." Finally, some answers revealed an impossible combination of range and confidence, i.e. a range between 0 and 100 per cent, with an associated confidence of less than 100 per cent. Problems of this kind, which did not show up in the pilot round, are demonstrated more in detail in Part II. In the second Delphi round, we reported the problematic cases back to the experts. This gave them the possibility to improve their answers. In addition, we improved the wording and explanations of relevant sections in the questionnaire for the second Delphi round. Note that the results reported in this section are based on raw data, i.e. they include a few invalid answers from some experts.

Tables 2 and 3 summarize the responses from 15 experts in the form of descriptive statistics. In Part II, we show how we used these responses to construct probability distributions.

Table 2 gives results for questions 1 - 8 on undercount of reported migration flows. The

table shows average values and standard deviations 2 for the reported lower and upper bounds of the ranges, as well as the confidence parameter. The averages and standard deviations are computed across the 15 experts.

		Low underco	unt countries				High undercou	int countries	
	Nat	ionals	Non-n	ationals		Nat	ionals	Non-n	ationals
	Emigration	Immigration	Emigration	Immigration		Emigration	Immigration	Emigration	Immigration
				Avera	age	(%)			
Lower bound	10.9	7.3	16.2	8.4		23.5	19.1	26.5	14.9
Upper bound	35.3	24.3	44.1	23.7		61.8	55.1	59.0	42.6
Confidence	72.3	75.0	69.7	73.3		61.0	63.7	62.7	65.3
				Standard de	evia	tion (% p.)			
Lower bound	8.8	7.1	11.7	6.7		15.5	15.7	18.2	12.4
Upper bound	19.1	19.4	22.6	14.8		23.8	28.2	25.4	25.5
Confidence	12.6	16.7	17.5	15.5		13.9	15.3	14.0	15.1

Table 2: Summary statistics for responses on undercount, first round of Delphi survey. The average expert thinks that the reported emigration flow of nationals from low undercount countries is between 10.9 and 35.3 per cent lower than the real flow, and is 72.3 per cent certain that this range is correct.

Not surprisingly, the upper panel of Table 2 shows that undercount is thought to be less, on average, in countries with low undercount compared to high undercount countries: the average bounds (both upper and lower bounds) for the ranges are lower and the average levels of confidence are higher. For instance, the average range for immigration of non-nationals to countries with high undercount stretches from 14.9 to 42.6 per cent, with an average level of confidence of 65.3 per cent. Compare this with the corresponding range for countries with low undercount: from 8.4 to 23.7 per cent on average, while average confidence is 73.3 per cent. In addition, the average expert gives a wider range and is less certain about this range for emigration compared to immigration. All these results are as one could expect. Indeed, as one of the respondents commented: "As far as it is known, the measurement of immigration is usually more accurate ³ than the measurement of

²Since the purpose is to present descriptive statistics, we used "population" standard deviations with N = 15 (and not "sample" versions with N - 1 = 14) in the denominator.

³Author's comment: "accurate" in the sense of low undercount.

emigration. The same occurs with the movements of non-nationals, when compared to nationals." A narrow range (for instance low undercount, compared to high undercount, or immigration, compared to emigration) combined with high confidence leads to a more peaked probability density function (i.e. having relatively low variance) than a wide range combined with low confidence; see Part II.

Is there much variation across experts in the ranges and in the confidence levels they reported? The lower panel of Table 2 gives the standard deviation in each answer. The ranges are in percentages, and hence the standard deviations are in percentage points. The standard deviations are difficult to interpret as such, but comparing them across categories may be useful. Not surprisingly, the variation in reported upper and lower bounds of ranges is a bit larger in countries with high undercount than in low undercount countries. There is no clear pattern in variation in confidence levels, which are rather stable at roughly 13 to 17 percent points.

Table 3 summarizes expert responses about accuracy (questions 9 - 14). We asked the experts to give a range, indicating how probable it is that reported migration flows are within ± 5 per cent of the true flows due to random errors only. This means that a higher accuracy parameter means a more positive view, as the answer reflects the probability that the error is within the $\pm 5\%$ interval (the smaller, the worse)⁴. Again, we report average values and standard deviations for the upper and lower bounds of each range, and average confidence.

On average, the ranges are wider for immigration to survey countries (61.9 - 38.6 = 23.3) percentage points for nationals, 19.4 percentage points for non-nationals) than for immigration to register countries (12.1 and 12.0 percentage points, respectively). At the same time, the experts have less confidence (around 60 per cent) in having stated correct intervals for survey countries, compared to register countries (between 66 and 72 per cent). Again, this looks reasonable, given the fact that sampling errors are an extra source of

 $^{^{4}}$ As opposed to the question on undercount, where a higher undercount parameter means a more negative view (the smaller, the better).

		Register	countries			Surve	y countries
	Nat	tionals	Non-r	ationals		Immigration of	Immigration of non-
	Emigration	Immigration	Emigration	Immigration		nacionals	nationals
				Average	e (%	5)	
Lower bound	45.9	62.2	46.5	59.1		38.6	43.7
Upper bound	63.4	74.3	67.2	71.1		61.9	63.1
Confidence	68.0	72.0	66.0	69.3		60.7	59.6
				Standard devia	atio	n (% p.)	
Lower bound	35.7	33.9	32.5	33.1		25.9	16.8
Upper bound	33.5	34.4	30.6	32.2		28.2	21.4
Confidence	22.8	23.7	22.7	23.7		21.0	21.4

Table 3: Summary statistics for responses on accuracy, first round of Delphi survey. The average expert thinks that it is between 45.9 and 63.4 per cent likely that the reported emigration flow of nationals from register countries is within -5 and +5 per cent of the real flow, and is 68 per cent certain that this range is correct.

uncertainty in survey countries. The standard deviations do not exhibit any clear pattern.

Table 4 shows results for questions on the effect of Covid-19 on future migration flows (questions 15 and 16). Here we give the qualitative assessments of 16 experts. Only one expert believes that Covid-19 will lead to (slightly) larger European migration flows to 2026, compared to migration in an average year in the recent past. The majority expects much smaller flows, although in the long term, i.e. for the years 2021 – 2026, about one-third foresees very much smaller flows. As one expert commented: "The COVID-19 will have depressed international migration hugely in 2020. Assuming no effective vaccine, this will continue over the medium term. Even with a vaccine, the vaccine might only confer immunity for a limited period. So migration will continue to be depressed."

Obviously, the responses reflect the experts' qualitative assessments. We are not at all certain if "slightly lower" for one expert is very different from "much lower" for another expert. Moreover, in order to keep the response burden within reasonable limits, we did not explicitly request the experts to give arguments for their choices (although a few did so when they gave comments). Hence, the results in Table 4 only give a rough indication of the assumed effects of Covid-19 on future migration flows. Yet they will provide useful input to other QuantMig work packages that deal with the building of various scenarios

for future migration in the region. In these scenarios, other drivers than Covid-19 will also have an effect on migration flows.

	be very much lower.	be much lower.	be slightly lower.	not change.	be slightly higher.	Sum
Because of Covid-19,						
			Year 2021			
migration flows between EU+ countries will	2	10	4	0	0	16
immigration flows into EU+ countries will	3	8	5	0	0	16
emigration flows from EU+ countries will	1	10	5	0	0	16
			Period 2021 – 202	6		
migration flows between EU+ countries will	7	7	0	1	1	16
immigration flows into EU+ countries will	5	9	0	2	0	16
emigration flows from EU+ countries will	6	10	0	0	0	16

Table 4: Frequency table for qualitative assessment of the effect of Covid-19 on future European migration flows. Answers received from 16 experts.

We considered carefully the critical comments by some experts. We had to be very restrictive in changing the questions for the second round, because doing so would distort the Delphi approach. A few experts commented our grouping of countries into high and low undercount countries; see the list in Section 2.3. The former group is very heterogeneous, which means that it might be difficult to answer the questions for this group. One expert commented that for non-nationals (non-EU), the use of residence permits (not available for nationals) could make a huge difference to limit the undercount. This an issue that we had not considered before. Residence permits are definitely an important data source in migration statistics. However, their use is not without issues, and there is no clear one-to-one correspondence between migrants and permits ⁵. Another expert mentioned that a number of Central and Eastern European countries allow "secondary" residency. This means that some emigrants do not de-register when they leave. However, since we use the UN definition of migration as the benchmark, this implies that in fact,

⁵For more details, see https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.10/ 2018/mtg1/Eurostat_Integration_ENG.pdf.

we focus on "primary" residency. Problems with the notion of "accuracy" were reported a few times, as mentioned in the beginning of this section.

6 Second Delphi round

Because of the problems some experts had in the first round with a correct specification of the ranges (see Part II), we improved the text that explained this notion in the questionnaire, and included automatic checks on values for upper and lower bounds (larger than zero and lower than 100 per cent) in the online questionnaire. In addition, we included for each of the 14 questions, a table with anonymous results from the first round ⁶. This allowed the experts to reconsider and revise their opinions. Appendix B contains the questionnaire for the second round.

On 26 October 2020, we invited the 15 experts to respond to the second round of the Delphi survey. They received the technical note with specific comments on their own responses in the first round, if necessary; see Part II for examples. We closed the online questionnaire on 16 November 2020, when all 15 experts had responded.

All responses on ranges were inside the interval between zero and one hundred per cent. Hence the technical note served at least one of its important purposes, namely to avoid invalid responses. As one expert commented: " ... it was very helpful to see the graphs of my answers as well as the other respondent results. In the future, you might want to integrate an interactive graph so the respondents can immediately see the results of their answers ..." Another expert: "... Maybe next time you can try and build an interface that shows the generated distribution instantly, saving the respondent the mental burden of trying to imagine the distribution that they are trying to imply.... ". Indeed, invalid answers in the first round could have been avoided in case we would have included in the survey an online tool that builds probability densities. This was not foreseen at the time when we planned this task nr. 6.1, but it is certainly a lesson learned for the future.

⁶Note that expert nr. 8708183 specified many upper and lower bounds that are not multiples of five. This expert used an explicit method for estimating undercount that builds on two tables of migration flows by country of origin and country of destination. One table contains such numbers from the perspective of the countries of origin, while a second table is based on information for the countries of destination.

Table 5 summarizes the responses for undercount. The general picture that emerges is close to that we saw earlier for the first round. Other things remaining the same, ranges on undercount are smaller for low than for high undercount countries, and for nationals compared with non-nationals. Average bounds in this second round are very similar to those in the first round. The experts have become somewhat more confident that the ranges they specified include the real undercount value, in particular for countries with high undercount.

		Low underco	unt countries			High undercount countries			
	Nat	ionals	Non-n	ationals		Nati	onals	Non-nationals	
	Emigration	Immigration	Emigration	Immigration		Emigration	Immigration	Emigration	Immigration
				Aver	age	(%)			
Lower bound	11.3	6.9	14.9	6.9		23.7	20.7	27.5	14.7
Upper bound	33.9	22.8	43.7	22.4		61.5	53.9	63.2	46.3
Confidence	75.3	78.7	74.0	73.0		71.7	70.0	69.0	73.3
				Standard de	evia	tion (% p.)			
Lower bound	7.2	6.5	9.9	4.8		14.3	15.3	18.8	9.6
Upper bound	8.4	8.9	16.0	7.8		17.5	19.1	22.3	19.4
Confidence	6.4	12.0	12.4	14.0		13.6	14.6	13.7	12.3

Table 5: Summary statistics for responses on undercount, second round of Delphi survey.

When we compare standard deviations for upper and lower bounds between the two rounds, we can notice a striking difference: expert answers became more homogeneous. With only one exception (Question nr. 7; emigration of non-nationals from high undercount countries), the second round standard deviations are smaller than those in the first round, in particular for the upper bounds of the ranges. In some cases (Questions 1 - 3; emigration and immigration of nationals from and to countries with low undercount, as well as emigration of non-nationals from these countries), they are only half as large, or even less. Since the average values of the bounds have not changed much between the two rounds, we can conclude that experts who specified an extreme value for the a certain bound (as compared to the other experts) in the first round, have given answers closer to the mean value in the second round. In other words, we observe a certain regression towards the mean. Indeed, as one expert commented " \dots modifying the immigration answers (\dots) in agreement with some of the experts in the first round results".

Some experts commented our categories of countries with high and with low undercount: " ... I am not sure that the UK should fall into this group (of low undercount) ..."; " ... I found ... the grouping of the countries to be rather problematic ..."; also, one expert found it problematic to include Slovenia in the group of high undercount countries. We agree that attempts to improve the quality of statistics on international migration during the past ten years may have made the IMEM-classification a bit outdated.

Table 6 summarizes responses on accuracy. For immigration to register countries, ranges are narrower and confidence is a few percentage points higher compared to immigration to survey countries. When the interest is in nationals versus non-nationals, both ranges and confidence are very similar. Compared to the previous round, standard deviations for answers on accuracy are substantially smaller in this round, similar to what we found for undercount. Again, the experts' opinions have become more similar.

		Register	countries			Surve	y countries
	Nationals		Non-n	ationals		Immigration of	Immigration of non-
	Emigration	Immigration	Emigration	Immigration		nationals	nationals
				Average	e (%)	
Lower bound	50.7	65.0	53.9	66.1		43.2	42.9
Upper bound	78.2	87.4	82.9	88.6		71.4	72.1
Confidence	72.5	76.8	71.4	76.4		67.9	67.9
				Standard devi	atio	n (% p.)	
Lower bound	24.1	26.5	18.3	20.5		15.5	11.5
Upper bound	20.2	15.3	11.9	8.1		17.6	12.8
Confidence	15.8	15.9	15.1	15.5		11.3	11.3

Table 6: Summary statistics for responses on accuracy, second round of Delphi survey.

The results of this second round formed the input to the probability distributions documented in Part II.

7 Summary and conclusions

This report documents the work done in connection with Task 6.1 of the QuantMig project. The task was to answer the following research question: how well do publicly available statistics on international migration for European countries reflect the real migration flows? We attempted to answer that question by eliciting meta-information about systems for migration data collection in Europe, such as measurement accuracy and undercount, etc., from experts on European migration data. This task is part of Work Package 6 (WP6) of the project. Other tasks for WP6 involve assessing the quality of information about migration flows, migrant stocks and a range of covariates, constructing a model for estimating migration flows, and dissemination of the results.

Part I describes the elicitation of expert opinions, whereas Part II explains how expert opinions were translated into probability distributions.

During the period July – November 2020, we organized a two round Delphi survey among 15 European migration experts. The questionnaire (see Appendix B) was tested by eight experts, selected from the QuantMig research team and its Advisory Board. The survey focused on two important aspects of migration flows between European countries, namely undercount and accuracy. By undercount, we mean measurement errors caused by the fact that some migrants do not report their moves to the relevant authorities, although they should do so. The consequence is that reported flows are smaller than true flows. By true flows, we mean the number of migration moves between two countries that correspond to the United Nations' definition of long-term migration. This definition states that a long-term migrant is a person who moves to a country other than that of his or her usual residence for a period of at least 12 months. By accuracy, we mean that some errors arise in reported flows purely because of randomness, for instance administrative and clerical errors, or sampling errors (in case measurement of international migration is based on a survey).

We asked the experts to give their opinions on undercount and accuracy for 32 European

countries (28 EU countries including the United Kingdom, plus four EFTA countries: Iceland, Norway, Liechtenstein, and Switzerland). Together, we refer to them as EU+ countries. We asked the experts to answer the questions as related to the situation, on average, during the period 2009 - 2019 (before Brexit) in the EU+ countries. The experts had to give their opinions in terms of a range and a level of confidence (or certainty). The range reflected the amount of undercount (as a fraction of the true count) across the 32 countries, in percentages between 0 (no undercount) and 100 per cent (none of the moves are reported by the migrants). In addition, we asked the experts how certain they were that the range they specified reflected the true range. There were separate questions for emigration and immigration, for nationals (i.e. nationality of one of the EU+ countries) and non-nationals, and for countries with high or low undercount as specified by us. For each question, the ranges and levels of confidence were translated to an aggregate probability density function. This density function is used as one (of several) inputs into the model mentioned above that estimates (true) migration flows in Europe.

Our work on accuracy and undercount builds on the experience and lessons learned from the project "Integrated Modelling of European Migration" (IMEM) (Raymer et al. (2013); Wiśniowski et al. (2016)). We have extended that work by distinguishing between national and non-nationals, and updated it, by eliciting information for the period 2009 – 2019.

Given the special situation in 2020 with many countries struck by the Covid19-pandemic, we took this opportunity and asked the experts to give a qualitative assessment of the effects the pandemic might have on European migration. We restricted this topic to the pilot round and the first Delphi round.

Sections 5 (for the first Delphi round) and 6 (second Delphi round) report our findings, in the form of average ranges and average confidence levels. Probability distributions derived from expert responses are in Part II. The results from the first round showed that in a few cases, an expert had specified a range for a certain question outside the interval between zero and one hundred per cent. In addition, some of the confidence levels were not consistent with the range the expert had specified. Extensive feedback to the experts concerned between the two rounds and improved explanations in the preamble of the second round questionnaire resolved these issues. The results we summarize here only relate to the second round.

We asked questions about undercount and about accuracy. Average ranges for undercount in the second Delphi round are lowest for immigration to low undercount countries: 7 - 23 per cent, where experts were 73 per cent (for immigration of non-nationals) to 79 per cent (immigration of nationals) certain, on average. The strongest undercount, according to the average expert, occurs for emigration of non-nationals from high undercount countries: 28 - 63 per cent, with a certainty of 69 per cent. In general, average undercount is less for low undercount countries than for high undercount countries. At the same time, the ranges are wider for high undercount countries than for low undercount countries, and the ranges tend to be wider for emigration than for immigration. The average expert is more certain about ranges for countries with low than high undercount. Moreover, (s)he is more certain about immigration ranges than about emigration ranges (but the differences are only a few percentage points). All these results are as one could expect.

When comparing the first and the second round results, we noted that experts had become somewhat more confident that the ranges they specified would include the real undercount value, in particular for countries with high undercount. We analysed standard deviations across the 15 experts for the ranges' upper and lower bounds, and noticed a certain regression to the mean between the two Delphi rounds. In other words, expert answers had become more homogeneous. With only one exception (emigration of nonnationals from high undercount countries), the second round standard deviations were smaller than those in the first round, in particular for the upper bounds of the ranges. In some cases (emigration and immigration of nationals from these countries), they were only half as large, or even less. Since the average values of the bounds had not changed much between the two rounds, we conclude that experts who specified an extreme value for a certain bound (as compared to the other experts) in the first round, have given answers closer to the mean value in the second round.

The main results in the second Delphi round for the accuracy of migration measurement systems are as follows. For immigration to register countries, ranges were narrower and confidence was a few percentage points higher compared to immigration to survey countries. When the interest is in nationals versus non-nationals, both ranges and confidence were very similar. Compared to the first Delphi round, standard deviations for answers on accuracy were substantially smaller in the second round, similar to what we found for undercount. Again, the experts' opinions had become more similar.

An important lesson learned from the elicitation process is that such processes may significantly benefit if they are conducted using visual and interactive tools. The great advantage of these tools is that, being visual, they allow the expert to see their density as they provide an answer, and, being interactive, they allow the expert to see how this density changes as their answer changes. As a result, such tools can avoid the possible confusion relating to the way answers translate to probability statements and densities.

Finally, we report the qualitative assessments of 16 experts concerning the impact of Covid-19 on European migration flows ⁷. Only one expert believes that Covid-19 will lead to (slightly) larger European migration flows to 2026, compared to migration in an average year in the recent past. The majority expects much smaller flows, although in the long term, i.e. for the years 2021 – 20126, about one-third foresee very much smaller flows. As one expert commented: "The COVID-19 will have depressed international migration hugely in 2020. Assuming no effective vaccine, this will continue over the medium term. Even with a vaccine, the vaccine might only confer immunity for a limited period. So migration will continue to be depressed."

⁷Initially, 16 experts had agreed to participate in the Delphi survey. One expert answered questions on Covid-19 and future migration flows only, but was unable to respond to undercount and accuracy questions. Therefore, we have answers for the entire survey from 15 experts, and from one more on Covid-19 questions.

References

- Bijak, J. and Bryant, J. (2016). Bayesian demography 250 years after bayes. Population Studies, 70(1):1–19.
- Raymer, J., Wiśniowski, A., Forster, J. J., Smith, P. W. F., and Bijak, J. (2013). Integrated modeling of european migration. *Journal of the American Statistical Association*, 108(503):801–819.
- Rowe, G. and Wright, G. (2001). Expert opinions in forecasting: The role of the delphi technique. In International Series in Operations Research & Management Science, pages 125–144. Springer US.
- U.N. (1998). Recommendations on statistics of international migration, revision 1. Number 58 in Statistical Papers Series M. Department of Economic and Social Affairs, Statistical Division, United Nations, New York.
- Wiśniowski, A., Bijak, J., Christiansen, S., Forster, J. J., Keilman, N., Raymer, J., and Smith, P. W. (2013). Utilising expert opinion to improve the measurement of international migration in europe. *Journal of Official Statistics*, 29(4):583–607.
- Wiśniowski, A., Forster, J. J., Smith, P. W. F., Bijak, J., and Raymer, J. (2016). Integrated modelling of age and sex patterns of european migration. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 179(4):1007–1024.

A Questionnaire pilot round

<form> in the second interval in the second interval i</form>	-	Page 1	else, will have the possibility to link your name to your answers. The survey is administered at the Department of Economics of the University of Oslo. It complets with ethical aspects of research as regulated in the Norwegian Research Ethics Law of 2017 — Lov orn or ganisering av forskningsetisk arbeid (forskningsetikkloven)?; see <u>https://kvvdata.no/dokument/NL./lov</u> /2017-04-25-22
<form><form><form><form><form><form><form><form><form><form><form></form></form></form></form></form></form></form></form></form></form></form>	8.53		
Market is a description of the set of the	A X X		O agree to these conditions,
<form>Implementant in the intervent in the intervent inter</form>	QuantMig		
<form> A control of the control o</form>	Classes fill in your some (feet name and summer) *		Finit Page Prosik
<form>metalemental</form>	Please fill in your name (first name and surname).		
 And control in the state of the sta			Page We plan to acknowledge, in project reports and the like, the help of all migration experts who provide their oninions about migration measurement. Below we offer you the ontion to have your many in-
About Gamma in the second seco			cluded in the list, or not.
<form> The state of the stat</form>	About QuantMig		
<form> In the set of the set o</form>	The aim of QuantMig is to produce comprehensive, multi-perspective and	I robust quantitative migration	
<form>Barear between the large of the large</form>	stitutions take part in the project, which is headed by Jakub Bijak of the U Department of Social Statistics and Demography. The project receives fin	iniversity of Southampton, nancial support from the	I agree to have my name included in report(s) about the results of the survey I prefer that you do not include my name
 met met Market Market<td>European Union, through its Horizon 2020 programme. See <u>http://quantm</u></td><td><u>lig.eu</u>.</td><td>0,1,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,</td>	European Union, through its Horizon 2020 programme. See <u>http://quantm</u>	<u>lig.eu</u> .	0,1,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,
<text><section-header></section-header></text>	Tage break		Lini Pape break
The support of the standard of the standa		Page 2	Page
 The determinant of the determinant of th	The survey		32 European countries
 det de du seure, true tree une de la cardie de seure de la cardie de la c	The QuantMig-scenarios will be based on a set of statistical estimates of i and their drivers. These estimates will result from a statistical model for m The statistical model uses, as part of its input, information about migratior	international migration flows nigration count data. n measurement systems,	The questions relate to migration measurement in 32 European countries: EU-27 plus EFTA countries (coland, Norway, Liechtenstein, Switzenand) plus the United Kingdom, Collectively, we refer to them as EU+.
 The draw and the standing of the draw and the draw the draw the draw draw draw draw draw draw draw draw	elicited, through a survey, from the migration experts. This is the pilot version of the survey.		
 A Decempeend on the space of the	We kindly ask you to submit the completed form not later than Wednesd	iay 10 June.	III Page troak
 A product of a produ	IMPORTANT		Pagr
<form>in a matrix a matr</form>	Your answers will be stored only once, namely, at the time you submit the	completed questionnaire	Undercount and accuracy
between the set of the field of the fie	long as you are working on the survey. Furthermore, the program that dire	ects the questionnaire will au-	This questionnaire has three main sections, with questions about undercount in two groups of coun-
i g a general in the set of the	tomatically close 4 hours (240 minutes) after you have typed your last text answering the survey within the window of 4 hours, this will not occur.	t. As long as you continue	thes (Sections 1 and 2), and accuracy of migration measurement (Section 3), These questions relate to the meaurement of migration.
brick bar	Ima Page break		contections is to be understood as the axient to which the use high autoin how is taphied by the data collection system in a given country. It is different from "coverage" (not addressed in this survey), which refers to the fact that some countries do not include all types of migrants in their measurements for instance students or nationals.
The control of the			Accuracy relates to random errors in migration measurement, for instance administrative errors in the
<text></text>	Ethics	Fage 5	
 The state of the state of the state of the state is the state of the sta	rvey cony - View - Nettskiema https://www.instable	iama no/user/form/preview.htm19id=178680#/	
be that the quadration begins related to afferent types of numericality. When we make your optimize the transport type optimizes	nups//neussj	gena no user to mispreview num nu-178080%	QuantMig pilot survey copy – View - Nettskjema https://nettskjema.no/user/form/preview.html?
Status of the degree of undercount, this refers to <u>squittering</u> uncertainty, caused by a his child water of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the shown in principal, for day we void gather of the degree of undercount and the degree of undercount a	Finally, there are two additional questions about the possible impact of Co tion flows	ovid-19 on European migra-	Quantifying pilot survey cepy – View – Nettakjema https://nettakjema.mo/user/form/preview.html? Long-term migrant A person who moves to a country offer than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. The becarbing the person will be a
Anders in a diagram on the set of the set	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe	ovid-19 on European migra-	Quantifying pilot survey cepy – View - Nettakjema https://nettakjema.mo/user/form/preview.html? Long-term migrant A person who moves to a country ofter than that of his or her usual residence for a period of al least a year (12 months), so that the country of residence effectively becomes his or her usual residence for the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arrival, the person will be a long-term emigrant.
The second back of the understanding. P per true Pre-Dersite Page 7 The see and other characteristics regarding the measurement of international migration, have varied oper (12 decess) migration may express the questions book whold relate to the situation. on average. duting the Size average average. duting the size average avera	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>egistem</u> lack of knowledge. The real degree of undercount can be known in princip	penini no iseritorin pretrevi nami ner i rosover € ovid-19 on European migra- n we ask you to specify how <u>sic</u> uncertainty, caused by a De, if only would gather	Quantifying pilot survey cepy – View – Nettakjema https://nettakjema.mo/user/form/preview.html? Long-ferm migrant A person who moves to a country ofter than that of his or her usual residence for a period of al least a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arival, the person will be a long-term emigrant and from that of the country of a Social Afriars, Statistical Piepers Series M, No. 58, rev. 1. Department of Economic and Social Afriars, Statistical Piepers
For the series of the characteristic segarating the measurement of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of international migration, nave varied point for the sequence of the sequence o	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>agaistem</u> lack of knowledge. The real degree of undercount can be known in princip enough data.	voint and use and young provide standing of the second ovid-19 on European migra- in: we ask you to specify how <u>de</u> , if only we would gather inion about accuracy. Here,	QuantMig pilot survey cery – View – Nettikjema https://nettikjema.mo/user/form/preview.html? Long-term migrant A person who moves to a country other than that of his or her usual residence for a period of at bast a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. For the perspective of the country of departure, the person will be a long-term imrigrant. 1 Unided Nations (1998) Recommendations on statistics of international migration. Statistical Papers Series M, No, 58, Rev. 1. Department of Economic and Social Affairs, Statistical Division, United Nations, New York.
Paper A Page 7 Page 7 Pag	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe retain you are about a given degree of undercount, this refers to <u>existen</u> lack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>aleatory</u> uncertainty pays a role when we ask your op random factors are responsible for the uncertainty.	void-19 on European migra- ovid-19 on European migra- in we ask you to specify how <u>the</u> uncertainty, caused by a ple, if only we would gather inion about accuracy. Here,	QuantMig pilot survey copy – View - Nettakjema https://nettakjema.aw/user/form/preview.html? Long-term migrant A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively, becomes his or her every country of usual residence. From the perspective of the country of departure, the person will be a long-term immigrant. 1 United Nations (1998) Recommendations on statistics of international migration. Statistical Papers Series M, No. 55, Rev. 1. Department of Economic and Social Affairs, Statistical Division, United Nations (1998) Recommendations for the series of international person. Immigrate Immigrate.
 Properties 	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe critarin you are about a given degree of undercount, this refers to <u>existen</u> fack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>eleatory</u> uncertainty plays a role when we ask your op random factors are responsible for the uncertainty.	void-19 on European migra- ovid-19 on European migra- <u>se</u> uncertainty, caused by a ple, if only we would gather inion about accuracy. Here,	QuantMig pilot survey copy – View - Nettskjema https://nettskjema.av/user/form/preview.html? Const-term migrant A person who noves to a country of the state of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively, becomes his or her to be control of capation: the perspective of the country of capation. Will be a long-term imrigrant. .1 under Nations (1998) Recommendations on statistics of international migration. Statistical Papers Statistics, New York. Image: Page trans
These and other characteristics regarding the measurement of international migration, have varied your then, Your answers to the questions body whould relate to the situation, on average, during the Second Packet Packet in the EU+ countries. This means, among other things, the extent to which countries have implemented the EU Regulation spratement 2007. Preserve Packet	Finally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>existem</u> fack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>deatory</u> uncertainty plays a role when we ask your op random factors are responsible for the uncertainty.	void-19 on European migra- in we ask you to specify how <u>the</u> uncertainty, caused by a ple, if only we would gather kinion about accuracy. Here,	QuantMig gibt survey copy – View - Nettskjema https://metakjema.awduser/form/precise/Mith/ Compdeterm migrant A person who noves to a country of the statement of his or her usual residence for person will be a long-term migrant A statement of the country of denature, the person will be a long-term immigrant. Statestical Papers and Statestical Papers and Statestical Division, United Nations (1998) Recommendations on statistical of international migrant. Statistical Papers and Statestical Division, United Nations (1998) Recommendations on statistical of international migrant. Statistical Papers and Statestical Division, United Nations (1998) Recommendations on statistical Division, Neuronal Nations, Neuronal Nations (1998) Recommendations on statistical Division, Neuronal Nations (1998)
over they, Your answers to the questions below should relate to the situation, on average, during the general costs. The sense county is the CV or subset of the CV	Trinally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>eqistem</u> lack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>aleatory</u> uncertainty plays a role when we ask your op random factors are responsible for the uncertainty. Proe-Brexit	ovid-19 on European migra- ovid-19 on European migra- <u>sic</u> uncertainty, caused by a ple, if only we would gather inion about accuracy. Here,	QuantMig pilot survey cory – View - Nettakjema https://tettakjema.ne/user/form/preview.html? Long-term migrant A person who noves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively, becomes his or her usual residence. For the perspective of the country of departure, the person will be a long-term imrigrant. 'United Nations (1996) Recommendations on statistics of international migrants. Statistical Papers Series M, No. 55, Rev. 1. Department of Economic and Social Affairs, Statistical Division, United Nations (1996) Recommendations on statistics of international migrants. Image track https://peat.net.gov/origin.com/origi
 This means, among other things, the extent to which countries have implemented the EU Regulation Status and international protection, adopted by the European Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Parlament is 2007 on Community of sual residence. Reparted Parlament is 2007 on Community statistics on migration and international protection, adopted by the European Countries, by the European Co	Timely, term remaindent Timely, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>celstem</u> lack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>aleatory</u> uncertainty plays a role when we ask your opi andom factors are responsible for the uncertainty. Pre-Brexit These and other characteristics regarding the measurement of internation	void-19 on European migra- in we ask you to specify how <u>inc</u> uncertainty, caused by a ple, if only we would gather inion about accuracy. Here, Page 7 val migration, have varied	QuantMig plot survey copy – View - Nettskjema https://nettskjema.mo/user/form/precise/html/ QuantMig plot survey copy – View - Nettskjema https://nettskjema.mo/user/form/precise/html/ Long-term migrant A person who moves to a country of the staffence of feet wey becomes his or her usual residence. For the perspect we of the country of person will be a bong-term imrigrant. United Nations (1998) Recommendations on staffence of infermational migration. Statistical Papers Saries M, No, 58, Rev. 1. Department of Economic and Social Affairs, Statistical Division, United Nations (1998) Recommendations on staffacts of infermational migration. Program Notes: • Notes: • Notes:
Big 22007 on Community statistics on migration and international protection, adopted by the European Parliament in 2007. Parliament in 2007. Page 8 Answers in terms of a range It is dera that measurement practices differ widely among European countries. Yet it is not feasible to ask questions for each of the EUro countries. The practice, the migration statistics in a ties do not cover undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we do not include undocumented migration. In the OX definition as the E we are example, assume that you are about 70 per cent certain that undercount was been as an 20 per cent an 60 per cent an go will use these numbers to construct a probability definition for this type of undercount such that charses are 100 – 70 = 30 per cent that undercount was been as a 20 per cent are of the E Preserver. Preserver	Trinally, there are two additional questions about the possible impact of Cc tion flows Web that the questions below relate to different types of uncertainty. Whe cartain you are about a given degree of undercount, this refers to <u>acistem</u> lack of throwdeghes. The real degree of undercount, this refers to <u>acistem</u> and/on factors are responsible for the uncertainty. Pre-Brexit Pre-Brexit Prese and other characteristics regarding the measurement of internation over time. Your answers to the questions the down the situati professor.	void-19 on European migra- in we ask you to specify how is uncertainty, caused by a ple, if only we would gather sinion about accuracy. Here, Page 7 tall migration, have varied ion. on average, during tho	Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisev.html? Quantifying pilot survey every – View – Nettakjema html? Quantifying pilot survey every – View – Nettakjema html? Quantifying pilot survey every – View – Nettakjema html? Quantifying pilot survey every – View – Nettakjema Precentakjema Precentakjema nettakjema Notes: Precentakjema • The UN definition employs the notion of "country of usual residences", This is to be understood at the country in which the person spends at least 183 nights of the year. In practice, marry country during and outry during during definition may very very lead effecting form the 183 nights of the year. Noweveet, this a country during definition may very very be different from the 183 nights role. We assume
Page treak	Trially, there are two additional questions about the possible impact of Cc tion flows Note that the questions below relate to different types of uncertainty. Whe critini you are about a given degree of undercount, this refers to <u>existent</u> the k of knowledge. The read degree of undercount, this refers to <u>existent</u> the k of knowledge. The read degree of undercount can be known in princip andom flactors are responsible for the uncertainty. Pre-Brexit These and other characteristics regarding the measurement of internation performs of the dynamic should relate to the altual period 2005 – 2019 (bafore Breat) in the EU+ counties, This means, among other things, the extent to which countries have implet	void-19 on European migra- ni we ask you to specify how <u>He</u> uncertainty, caused by a plo, if only we would gather sinion about accuracy. Here, Page 7 vall migration, have varied ion, on average, during the smented the EU Regulation	Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema https://nettakjema.me/user/form/precisive.html? Quantifying pilot survey every – View – Nettakjema pilot every form.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precision.precisitation.precisitation.precisitation.precision.precisitation.pre
Page 8 Answers in terms of reached of the LU- counting furghean countings, but is into feasible to a subject in the subject into the subjec	Triangly, there are two additional questions about the possible impact of Cc tion flows Note that the questions below relate to different types of uncertainty. Whe cartain you are about a given degree of undercount, this refers to <u>existen</u> tack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>aleatory</u> uncertainty plays a role when we ask your opi random factors are responsible for the uncertainty. Pre-Brexit These and other characteristics regarding the measurement of internation perform. Your answers to the questions below should relate to the attuat period 2009 – 2019 (before Brexit) in the EU+ countries, This means, manog other things, the extent to which countries have imple 862/2007 on Community statistics on migration and international protectio Parliament in 2007.	vid-19 on European migra- ovid-19 on European migra- sin we ask you to specify how <u>36</u> uncertainty, caused by a ple, if only we would gather xinion about accuracy. Here, Page 7 Page 7 val migration, have varied ion. on average, during the smented the EU Regulation xn, adopted by the European	A guand Mig pilot survey copy – View - Nettakjema
Pape A Answers in terms of a range It is dear that measurement practices differ widely among European countries. Yet it is not feasible to ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of asy our uncertainty in the answers. To give an example, assume that you state that you are about 70 per cent of the invites To construct any probability distribution for this type of undercount such that chances are 100 – 70 = 30 per cent that undercount wave less than 20 per cent or more than 60 per cent. Prove the C2ceh Reputete, Create, Educate, Law, Pland, Norway, Denmark, Germany, Les Statis, Beglaim, United Kingdon, Crypris, Heland, Italy, Pland, Stovenia, Stov Romany, the C2ceh Reputete, Create, Educate, Law, Pland, Stovenia, Stov Romany, the C2ceh Reputete, Create, Educate, Law, Pland, Stovenia, Stov Romany, the C2ceh Reputete, Create, Educate, Law, Pland, Stovenia, Stov Romany, the C2ceh Reputete, Create, Educate, Adata, Pland, Stovenia, Stov Romany, the C2ceh Reputete, Create, Hungary, Leatensteen, Mada, Portugal, and emigration Pape terms	Pireally, there are two additional questions about the possible impact of Cc tion flows Note that the questions below relate to different types of uncertainty. Whe cartain you are about a given degree of undercount, this refers to <u>addition</u> enough data. On the other hand, <u>deatory</u> uncertainty phys a role when we ask your opi andom factors are responsible for the uncertainty. Pipe Page treat Proe-Drext! These and other characteristics regarding the measurement of internation vowr time, Your answers to the questions below should relate to the <u>situation vowr time</u> , Your parswers The sense, among other things, the extent to which countries, have imple Siz2007 on Community statistics on migration and international protector Parliament in 2007. Pipe treats	void-19 on European migra- an we ask you to specify how <u>nic</u> uncertainty, caused by a pile, if only we would gather sinion about accuracy. Here, Page 7 nall migration, have varied <u>tion, on average, during tho</u> amented the EU Regulation <i>m</i> , adopted by the European	Quantifying plot survey every – View – Nettakjema Interplot survey every – View – Nettakjema Long-term migrant A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively becomes his or her long-term emigrant and from that of the country of arrival, the person will be a long-term emigrant and from that of the country of a privale
It is clear that measurement practices differ widely among European countries. Yet it is not feasible to ask questions for each of the EU+ countries. Instead, we invite you to state your estimates in terms of mages, together with associated beyens of confidence. To give an example, assume that you state that you are about the variability between countries, but also your uncertainty in the answers. To give an example, assume that you state that you are about 70 per cent of ant hat undercourt was between 20 and 60 per cent in a give instatuation. We will use these runnels to construct a probability distribution for this type of undercourt such that chances are 100−70 = 30 per cent that undercourt was between 20 and 60 per cent in a give instatuation. We will use these runnels to construct a probability distribution for this type of undercourt such that chances are 100−70 = 30 per cent that undercourt was less than 20 per cent or more than 60 per cent. ■ Pape treat:	Trially, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>ceistem</u> lack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>deatory</u> uncertainty plays a role when we ask your opin andom factors are responsible for the uncertainty. Pro-Brexit These and other characteristics regarding the measurement of internation over time, Your answers to the questions below should relate to <u>the statian</u> This means, among other things, the extent to which countries have imple Soz2007 on Community statistics on migration and international protection Parliament in 2007. Propertoxet	void-19 on European migra- an we ask you to specify how <u>nic</u> uncertainty, caused by a ple, if only we would gather sinion about accuracy. Here, Page 7 nall migration, have varied <u>lion, on average, during the</u> smented the EU Regulation sn, adopted by the European	Quantify gived survey every – View – Nettakjama Interpretation of the second secon
ask questions for each of the EU+ countries, Instead, we invite you to state your estimates in terms of mages, together with associated beyess of confidence. The ranges and confidence levels should raffed your belief about the variability between countries, but aboy our uncertainty in the answers. To give an example, assume that you state that you are about 70 per cent of that in that undercount wass between 20 and 60 per cent in a give instatution. We will use these runness to construct a probability distribution for this type of undercount such that chances are 100 – 70 = 30 per cent that undercount of the intercount was less than 20 per cent or more than 60 per cent. Prestruct Devents Devent	Trinally, there are two additional questions about the possible impact of Co tion flows Note that the questions below relate to different types of uncertainty. Whe certain you are about a given degree of undercount, this refers to <u>ceistem</u> lack of knowledge. The real degree of undercount can be known in princip enough data. On the other hand, <u>decatory</u> uncertainty plays a role when we ask your op random factors are responsible for the uncertainty. The sear and other characteristics regarding the measurement of internation period 2009-2019 (before Brexit) in the EU+ countries, have imple 82/2007 on Community statistics on migration and international protection Parliament in 2007. Properticek	ovid-19 on European migra- an we ask you to specify how <u>the</u> uncertainty, caused by a ple, if only we would gather kinion about accuracy. Here, Page 7 hall migration, have varied on an average, during the emented the EU Regulation n, adopted by the European	Quantify gript a warvy wary - y low - Natikity in the standing of the stan
The ranges and confidence levels should reliable ty our belief about the variability between countries, but also your uncertainty in the answers. To give an example, assume that you state that you are about 70 per cent ortain that undercount was been about the type offic of the type offic of	Pireally, there are two additional questions about the possible impact of Cc tion flows Note that the questions below relate to different types of uncertainty. Whe cartain you are about a given degree of undercount, this refers to <u>addition</u> enough data. On the other hand, <u>deatory</u> uncertainty phys a role when we ask your opi andom factors are responsible for the uncertainty. Pre-Brexit Pre-Brexit Pre-Brexit This means, among other things, the extent to which countries, have imple Sig22007 on Community statistics on migration and international protector Parliament in 2007. Prestexe Answers in terms of a range It is clear that measurement practices differ widely among Euronean count	void-19 on European migra- an we ask you to specify how <u>nic</u> uncertainty, caused by a pile, if only we would gather vinion about accuracy. Here, Page 7 nall migration, have varied tion. on average. during the emented the EU Regulation on, adopted by the European Page 8 trifes, Yet it is not feasible to	A manufact processes of the processes of the control of defaultion. The processes of the control of defaultion of the control of defaultion of the control of defaultion of the control of the con
Ing undercount countries. The grouping is based on our findings in the IMEM-project ing undercount countries. The State that you state that you are about 70 per cent certain that undercount was between 20 and 80 per cent in a given situation. We will use these numbers to construct a probability distribution for this type of undercount such that chances are 100 – 70 = 30 per cent that undercount was less than 20 per cent or more than 60 per cent. By the state of t	Prop. New retrongence Prop. New ret	void-19 on European migra- ovid-19 on European migra- n we ask you to specify how <u>nic</u> uncertainty, caused by a pile, if only we would gather vinion about accuracy. Here, Page 7 nall migration, have varied <u>tion, on average, during the</u> emented the EU Regulation on, adopted by the European Page 8 trifes. Yet it is not feasible to te your estimates in terms of	Control to the service of the se
between 20 and 50 per cent in a given situation. We will use these numbers to construct a probability distribution for this type of undercount such that chances are 100 – 70 = 30 per cent that undercount was less than 20 per cent or more than 60 per cent. Preprinter	Pread-transfer of the end of the EU- countries, Indexed of international protection Pread-transfer of the EU- countries, Indexed of the EU- Pread-transfer of the Pread- Pread-transfer of the EU- Pread-tran	void-19 on European migra- n we ask you to specify how nic uncertainty, caused by a ple, if only we would gather sinion about accuracy. Here, Page 7 nall migration, have varied tion, on average, during tho emented the EU Regulation on, adopted by the European Page 8 thies, Yet it is not feasible to te your estimates in terms of lability between countries, but	Quantify glot survey exp y − yew - Nettakisma Description of a lass ta year (12 months), so that the country of residence effectively, becomes his or her usual residence. For the perspect year of the country of departure, the perspect year of the country of advantant. The perspect of the perspect of the country of the perspect year of the country of departure, the perspect year of the perspect year of the country of departure, the perspect year of the perspect year of the country of departure, the perspect year of the persp
The space track of the space tra	The set of	void-19 on European migra- ni we ask you to specify how <u>nic</u> uncertainty, caused by a plo. If only we would gather plo. If only we would gather plo. If only we would gather plo. To nice the second second second plo. To nice the second second second place 7 nall migration, have varied tion, on average, during the emented the EU Regulation on, adopted by the European Page 8 ttries. Yet it is not feasible to te your estimates in terms of lability between countries, but t certain that undercount was	Auge de la parte autory our y − View - Nettakjama Auge de la parte autory de la parte de la
Deep 5	The set of	void-19 on European migra- ovid-19 on European migra- in we ask you to specify how <u>the</u> uncertainty, caused by a plo. If only we would gather plot of one of the second second plot of the second second second Page 7 nall migration, have varied <u>toos</u> , on average, during the emented the EU Regulation on, adopted by the European Page 8 trifes, Yet it is not feasible to te your estimates in terms of iability between countries, but technin that undercount was are to construct a probability to are not that to production	Aurand big plot survey exp y − View - Nettakignan Aurand big plot survey exp y − View - Nettakign
Entropy of the second s	The set of	vid-19 on European migra- ovid-19 on European migra- an we ask you to specify how <u>be</u> uncertainty, caused by a plo. If only we would gather plot of one about accuracy. Here, Page 7 nall migration, have varied tion, on average, during the emented the EU Regulation on, adopted by the European Page 8 triles. Yet it is not feasible to te your estimates in terms of lability between countries, but t certain that undercount was are to construct a probability 30 per cent that undercount	Control of particular dependence of the control of particular dependence of the control of particular dial basis a year (12 months), so that the country of residence effectively becomes his of the control of particular dial basis a year (12 months), so that the country of residence effectively becomes his of the perspecte of the country of genarus, the perspecte of the country of genarus, the perspecte of the country of regidence. The particular dial basis a year (12 months), so that the country of residence effectively becomes his of the perspecte of the country of genarus, the perspecte of the country of genarus, the perspecte of the country of regidence. The perspecte of the country of particular dial basis a year (12 months), so that the country of arrival, the person will be a benerus will be a perspecte of the country of particular dial basis and the the perspecte of the country of adminut, the person will be a perspecte of the country of particular dial basis and the perspecte of the country of adminut particular, the person will be a perspecte of the country of particular dial basis and the perspecte of the country of adminut particular. Statistical Division, United Nations (19 months) for the person of country of usual residence. This is to be understood a the country of usual residence dial basis (13 minhs of the year. In practice, mary countri in Europe use a de jure officiant (genarus) may and you the person perspected different form the 23 mights of the year. In practice, mary countri in Europe uses a de jure officiant (genarus) may and you the state different form the 23 mights of the year. In practice, mary countri in Europe uses a de jure officiant (genarus) migrants. In practice, the migrants in the state country of residence, the registrate, and the person will be a state and the state different form the state differe
Page 9	The set of the set o	vid-19 on European migra- ni wa ask you to specify how <u>nis</u> uncertainty, caused by a <u>nis</u> uncertainty, caused by a <u>nis</u> uncertainty, caused by a <u>nis</u> uncertainty, caused by a plo. If only we would gather plot of the specify how page 7 nall migration, have varied lion, on average, during the emented the EU Regulation on, adopted by the European Page 8 trifes. Yet it is not feasible to te your estimates in terms of lability between countries, but t construct a probability 30 per cent that undercount	Control of participant process of the person of the control of participant process will be a base to person will be p
United Nations definition as benchmark for migration	Indextage Indext Tensor International Questions about the possible impact of Co Ion flows Note that the questions below relate to different types of uncertainty. Whe control again of the possible interface of undercount, this rofers to <u>order</u> enough data. On the other hand, <u>aleatory</u> uncertainty plays a role when we ask your op andom factors are responsible for the uncertainty. " " Pre-Brext! These and other characteristics regarding the measurement of infermation your firms. Your answers to the questions below should relate to the atual prince 2009_2019_2019_2019_2019_2019 Pre-tense Pre-Brext: Insee and other characteristics regarding the measurement of infermation port firms. Your answers to the questions below should relate to the atual prince 2009_2019_2019_2019_2019_2019_2019_2019 Pre-tense Pre-tense Answers in terms of a range The ranges and confidence in the data life widely among European coun ask questions for each of the EU- countries. Instead, we limit you to stat ansign confidence levels should relate to the variat range. Confidence with saturations with the state of the data life widely among European coun ask questions for each of the EU- countries. Instead, we limit you to stat anse, together with associated levels of confidence. The ranges and confidence levels should relate to the life about the variat anse, together with associated levels of confidence. The ranges and confidence levels should relate to the life about the variat as questions for each of the EU- countries. Instead, we limit you to stat anse, together with associated levels of confidence. The ranges and confidence levels should relate to the life about the variat about on confidence levels should relate to the life about the variat anse, together with associated levels of confidence. The ranges and confidence levels should relate to the life about the variat about uncertain	vid-19 on European migra- ne wa aak you to specify how <u>ne</u> uncertainty, caused by a plo, if only we would gather sinion about accuracy. Here, Page 7 nal migration, have varied tion, on average, during the emented the EU Regulation on, adopted by the European Page 6 thries. Yet it is not feasible to te your estimates in terms of lability between countries, but t certain that undercount was rs to construct a probability 30 per cent that undercount	<form><form><text><text><text><text><list-item><list-item><list-item></list-item></list-item></list-item></text></text></text></text></form></form>
In many cases, we ask you to give your opinion about how a specific measurement of international Section 1. Undercount in migration to and from "low undercount c	The search of the contractoristics regarding the measurement of information and other hand, <u>alcolory</u> uncertainty plays a role when we ask your op and/on factors are responsible for the uncontainty. Pre-Brexit Pre-Brexit These and other characteristics regarding the measurement of information over time, Your answers to the questions below should relate to the abuat period 2002 _ 2019 Question Breach in the extent of when we are imple B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on migration and international protection B82/2007 on Community statistics on under the and the active statistic on the statistic on	void-19 on European migra- ny wa aak you to specify how ric uncertainty, caused by a ple, if only we would gather sinion about accuracy. Here, Page 7 nal migration, have varied too, on average, during the emented the EU Regulation on, adopted by the European Page 8 ntries, Yet it is not feasible to te your estimates in terms of te your estimates in terms of	<page-header><page-header><text><text><text><text><list-item><list-item><list-item><list-item></list-item></list-item></list-item></list-item></text></text></text></text></page-header></page-header>

In mary cases, we ask you to give your opinion about how a specific measurement of international migration deviates from a benchmark. As the benchmark, we have adopted the **United Nations definition**, which corresponds with the defi-nition included in the EU Regulation 862/2007 mentioned earlier. The definition is given below. On the next page, we give a few darking comments. It, at any stage, you would like have another look at the UV definition, you can scroll back to this page, or scroll down to a copy of this page at the end of the questionnaire. United Nations definition of international migration¹

Because migrants do not always have sufficient incentives to report their moves to the relevant author-titles, migration statistics are often lower than the true total level. For immigrants this difference is thought to be smaller than for emigrants. When we ask you't o give undercourt as a percentage, this refors to the ratio between not counted and the real (but unknown) flow, An indeal measurement system has an undercount of zero. The larger the percentage you give, the worse is your assessment of the system.

he following questions are restricted to migration to and from countries defined as "low undercount ountries" (The Netherlands, Sweden, Finland, Norway, Denmark, Germany, Iceland, Austria, Belgium,	2b) Approximately, ho range that you provide	ed above?	
inited Kingdom, Cyprus, Ireland, Italy, France, Luxembourg, Switzerland, and immigration to Spain). irst, we ask your opinion about immigration and emigration flows for <u>nationals</u> , i.e. persons with na-	O 50 %	0 75 %	0 99 %
onality in one of the 32 EU+ countries. Next, there are questions for non-nationals.	0 95 %	 other (please s 	-
d Page broak	0	O eases (Meases	nuc,
Page 13 Page 13	This element is only	shown when the option "ot	ther (please state)" is selected in
	the question "2b) Ap nationals will lie with	proximately, how certain an in the range that you provid	e you that the true undercount of ded above?"
dercount countries are undercounted in the published statistics of those countries, as	other		
mpared to the true level of emigration of nationals? Please provide a range in percentages tween 0 and 100. by writing in the box below "xx to vy %".			
	Page broak		
b) Approximately, how certain are you that the true undercount of nationals will lie within the			
	Question 3. Emig	ration of non-nati	iona ls
	3a) By how many per	cent do you expect th	at emigration flows of non-nationals who leave
95% Oother (please state)	low undercount count compared to the true centages between 0 a	ries are undercounted level of emigration of r and 100.	l in the published statistics of those countries, as non-nationals? Please provide a range in per-
This element is only shown when the option "other (please state)" is selected in the question "1b) Approximately, how certain are you that the true undercount of articlest the state is the state of			
nationals will lie within the range that you provided above?"	3b) Approximately, ho	w certain are you that	t the true undercount of non-nationals will lie
Jer	O 50 %	0 75 %	0 90 %
	0	0	
Page broak	U 95 %	O other (please s	nare)
Page 14	This alamant is only	shown when the option "of	ther (please state)" is selected in
uestion 2. Immigration of nationals	the question "3b) Ap non-nationals will lie	proximately, how certain an within the range that you p	e you that the true undercount of provided above?"
) By how many per cent do you expect that immigration flows of nationals who enter low dercount countries are undercounted in the published statistics of those countries, as	other		
mpared to the true level of immigration of nationals? Please provide a range in percent-			
es between 0 and 100.			
	Page break		
12/18/2020, 9:13 PM 6 of y copy – View - Netiskjema noluser/form/preview.html?id=178680#/ Qu	(17 mtMig pilot survey copy – View - Nettakju	ema	12/18/20/2 https://nettskjema.no/user/form/preview.htm17/d
12/18/2020, 9:13 PM 6 ot ry copy – View - Nettskjema no/user/form/preview.html73d=1786808// Que	17 mtMig pilot survey copy – View – Nettakju In this soction, we ask y group of countries that y Lithuania, Latvia, Polan	ema ou to answer the same o ve defined as "high unde d. Slovenia, R. Slovakia, R.	12/18/202 https://nettakjema.no/user/form/yreview.html?rid questions as before, but now the questions refer to the procurt countries? Bulgaria, Croata, Estoria, omaria, the Czece, Humary.
12/18/2020, 9:13 PM 6 of ey copy – View – Nettskjema مەرادەتلەللەر مەرادەتلەر مەرادەتلەر مەرادەتلەر مەرادەتلەر مەرادەتلەر مەرادەتلەر مەرا Page 16 uestion 4. Immigration of non-nationals	117 mtMig pilot survey copy – View – Nettskju In this soction, we ask y group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Po	rma ve defined as "high unde J. Slovenia, Slovakia, RC rutugal, and emigration fr a about immicration and	12/18/202 https://hetiskjema.no/user/form/yreview.html?rid questions as before, but now the questions refer to the srcount countries": Bulgaria, Croata, Estonia, omania, the Czech Republic, Greece, Hungary, en Spain, d emicration flows for nationals. i.e. persons with na-
ا 12/۱8/2020, 9:13 PM 6 of ey copy – View – Nettikjema مەرابعد بالاستان 12/۱8/2020, 9:13 PM 2 Que uestion 4. Immigration of non-nationals) By how many per cent do you expect that immigration flows of non-nationals who enter	117 mtMig pilot survey copy – View – Nettskju In this section, we ask y group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Po First, we ask your opinic tionality in one of the 32	ou to answer the same of we defined as "high unde d, Stovakia, Rovakia, Rov ritugal, and emigration an o about immigration an EU+ countries. Next, the	12/18/202 https://httskjema.no/user/form/yreview.html?rid questions as before, but now the questions refer to the procurt countries": Bulgaria, Croata, Estonia, omania, the Czech Republic, Greece, Hungary, om Spain, d emigration flows for <u>notionals</u> , i.e. persons with na- ere are questions for <u>non-nationals</u> .
2218/2020, 9:13 PM 6 of av copy – View – Nettakjema مەرالمعد //معد // https://liettakjema.no/later/form/preview.html?id=1766996/ Qu Page 16 uestion 4. Immigration of non-nationals b) By how many per cent do you expect that immigration flows of non-nationals who enter w undercount countries are undercounted in the published statistics of those countries, as majored to the use level of immigration flows provide a range in per-	117 Int Mig pilot survey copy – View – Nettakju In this soction, we ask y group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Pol First, we ask your opinic tionality in one of the 32 Question 5. Emig	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, Rc rutugal, and errigration an na bout immyration an EU+ countries. Next, th pration of national	12/18/202 https://httlskjema.no/user/form/yreview.html?rd questions as before, but now the questions refer to the procurt countries": Bulgaria, Croata, Estonia, omania, the Czech Republic, Greece, Hungary, om Spain. d emigration flows for nationals, i.e. persons with na- ere are questions for <u>non-nationals</u> .
2218/2020, 9:13 PM 6 of any copy – View - Nettakjema ممانعer/form/preview.html?id=1766896/ Qu Page 16 uestion 4. Immigration of non-nationals b) By how many per cent do you expect that immigration flows of non-nationals who enter w undercount countries are undercounted in the published statistics of those countries, as mpared to the true level of immigration of non-nationals? Please provide a range in per- ntages between 0 and 100,	117 mtMig pilot survey copy – View – Nettskji in this section, we ask y group of countries that y Lithuania, Latvia, Polan- Liechtenstein, Malla, Pol First, we ask your opinic tionality in one of the 32 Question 5. Emig 5a) By how many per	cma ou to answer the same o we defined as "high unde d. Slovenia, Skovakia, Ro trutugal, and erruigration an eutor and the state of the eutor of a state of the cent do you expect th	12/18/202 https://nettskjema.no/user/form/yreview.html?/rd questions as before, but now the questions refer to the rocunt countries": Bulgaria, Croata, Estoria, om Spain, d emigration flows for nationals, i.e. persons with ne- ere are questions for <u>non-nationals</u> .
2118/2020, 9:13 PM 6 of any copy – View - Nettakjema ممانعer/form/preview.html?id=1766896/ و westion 4. Immigration of non-nationals by how many per cent do you expect that immigration flows of non-nationals who enter w undercount countries are undercounted in the published statistics of those countries, as mpared to the true level of immigration of non-nationals? Please provide a range in per- ntages between 0 and 100,	117 mtMig pilot survey copy – View – Nettskji group of countries that y Lithuania, Latvia, Polan- Liechtenstein, Malla, Po- First, we ask your opinic tionality in one of the 32 Question 5. Emig 5a) By how many per undercount countries compared to the true.	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, Ro rutugal, and errigration an EU+ countries. Next, th pration of national cent do you expect th are undercounted in th level of empiration of	12/18/202 https://httlskjema.no/user/form/yreview.html?/rd questions as before, but now the questions refer to the prount countries": Bulgaria, Croata, Estonia, om Spain. d emigration flows for nationals, i.e. persons with na- ere are questions for <u>non-nationals</u> . IS at emigration flows of nationals who leave high he published statistics of those countries, as mationals? Diesas provide a zone in percentances
2118/2020, 9:13 PM 6 of y copy – View - Nettakjema w/user/form/preview html?id=1766996/ Qu Page 16 Usestion 4. Immigration of non-nationals 9 by how many per cent do you expect that immigration flows of non-nationals who enter w undercount countries are undercounted in the published statistics of those countries, as mpared to the true level of immigration of non-nationals? Please provide a range in per- ntages between 0 and 100.	117 mtMig pilot survey copy – View – Nettskji group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Pol First, we ask your opinic tionality in one of the 32 Question 5. Emig 5a) By how many per undercount countries compared to the true between 0 and 100, b	cma ou to answer the same o we defined as "high unde defined as a strong and a strugal, and emigration and EU+ countries. Next, the pration of national cent do you expect th are undercounted in th level of emigration of ny writing in the box be	12/18/202 https://httlskjema.no/user/form/yreview.html?/rd questions as before, but now the questions refer to the procurt countries": Bulgaria, Croata, Estoria, om Spain. d emigration flows for nationals, i.e. persons with na- ere are questions for <u>non-nationals</u> . IS at emigration flows of nationals who leave high he published statistics of those countries, as nationals? Please provide a range in percentages alow "xx to yy %".
1218/2020, 9:13 PM 6 of y copy – View - Nettakjema https://nettakjema.no/user/form/yreview.html?id=1786896// Quite uestion 4. Immigration of non-nationals Page 16 0 by how many per cent do you expect that immigration flows of non-nationals who enter undercount countries are undercounted in the published statistics of those countries, as majered to the true level of immigration of non-nationals? Please provide a range in per-ntages between 0 and 100, 0 Approximately, how certain are you that the true undercount of non-nationals will lie thin the range that you provide above?	117 mtMig pilot survey copy – View – Nettskji group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Pol First, we ask your opinic tionality in one of the 32 Question 5. Emig Sa) By how many per undercount countries compared to the true between 0 and 100, b	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, Rk rutugal, and emigration fan EU+ countries. Next, th are undercounted in th level of emigration of ny writing in the box be	۱۲/۱۹/202 https://httlskjema.no/user/form/yreview/html?/d questions as before, but now the questions refer to the forcourt countries: Bulgaria, Croata, Estonia, omoraina, the Czech Republic, Greece, Hungary, om Spain. de enrigration flows for nationals, i.e. persons with na- ere are questions for <u>non-nationals</u> . bl at enrigration flows of nationals who leave high he published statistics of those countries, as nationals? Please provide a range in percentages with 'xx to yy %'.
y copy – View - Nettakjema https://nettakjema.no/user/form/yreview.html?id=1766996/ Quite y copy – View - Nettakjema https://nettakjema.no/user/form/yreview.html?id=1766996/ Quite usestion 4. Immigration of non-nationals Page 16 ub phow many per cent do you expect that immigration flows of non-nationals who enter undercounted in the published statistics of those countries, as may are undercounted in the published statistics of those countries, as may are undercounted in the published statistics of those countries, as may are undercounted in the published statistics of those countries, as may are undercounted in the published statistics of those countries, as may are undercount of non-nationals? Please provide a range in per-ntages between 0 and 100.	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malla, Malla, Malla, Liechtenstein,	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, Rc na bout immigration an (EU+ countries. Next, the pration of national cent do you expect th are undercounted in th level of emigration of ny writing in the box be	لله المعالم ا
for the set of th	117 mtMig pilot survey copy – View – Nettskji proup of countries that y Lithuania, Latvia, Polan Liechtenstein, Malta, Liechtenstein, Malta, Liechtenstein, Liechten	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, Re rutugal, and enrigration an EU+ countries. Next, th pration of national cent do you expect th are undercounted in th level of emigration of y writing in the box be we certain are you that ed above?	https://nettskjema.no/user/form/yreview.html?/cd guestions as before, but now the questions refer to the forcourt countries: Bulgaria, Croata, Estoria, comania, the Czech Republic, Greece, Hungary, om Spain. endigration flows for nationals, i.e. persons with native are questions for <u>non-nationals</u> . Ib at enigration flows of nationals who leave high he published statistics of those countries, as nationals? Please provide a range in percentages dow "xx to yy %". the true undercount of nationals will lie within the
y copy – View - Nettskjema https://nettskjema.ac/user/form/preview.html?bd=7786990 Qut y copy – View - Nettskjema Par 10 By Dynow many per cent do you expect that immigration flows of non-nationals who enter y undercounted in the published statistics of those countries, as meaned to be the level of immigration of non-nationals? Please provide a range in per-tages between 0 and 100. Approximately, how certain are you that the true undercount of non-nationals will lie hin the range that you provide a above? 0 50 % 0 75 % 0 90 % 0 55 % 0 other (please state)	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y group of countries that y Lithumania, Latvia, Polan Liechtenstein, Malta, Pol First, we ask your opinic tionality in one of the 52 Question 5. Emig 5a) By how many per undercount countries compared to the true between 0 and 100, b 5b) Approximately, ho range that you provid 0 50 %	cma ou to answer the same o we defined as "high unde (, Slovenia, Skovakia, R mature and a stranger and a stran	Interview task interview that if it where it is that is a schedule of the schedule of the schedule outlines: Bulgering, Create, Estoria, constant, at Excert Republic, Greece, Hungary, om Spain. deviations as before, but now the questions refer to the constant, at Excert Republic, Greece, Hungary, om Spain. deviations to the schedule, Schedule, Expersions with no- ere questions for <u>non-nationals</u> . deviation flows of nationals who leave high he published statistics of those countries, as nationals? Please provide a range in percentages dow 'nx to yy %'. the true undercount of nationals will lie within the O so %
y opp - View - Nettakjema https://nettakjema.ne/user/form/preview.html?id=17863997 Qut y opp - View - Nettakjema Par 16 used on the set of the published statistics of those countries, as more level with milligration of non-nationals? Please provide a range in per- ntages between 0 and 100. Please provide a the true undercount of non-nationals will lies hin the range that you provided above? 0 30% 0 75 % 0 90 % 0 5% 0 other (please state)	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y group of countries that y Lithumania, Latvia, Polan Liechtenstein, Malta, Pol First, we ask your opinion tionality in one of the 32 Question 5. Emig 5a) By how many per undercount countries compared to the true between 0 and 100, b 5b) Approximately, ho range that you providi 5 50 % 9 5%	ema out to answer the same of defined as "high unde d. shownia, Showkia, Ro rutugal, and emigration for n about immigration are: EU+ countries. Next, the intermediate of antional cent do you expect the are undercounted in the level of emigration of ro y writing in the box be we certain are you that ed above? O 75 % O other (please s	12/19/202 https://nettskjema.no/user/form/preview.html?/c questione as hefore. but now the questions refore to the roomain, the sector is bugaing. Consults, Estonia, omaina, the Czech Republic, Greece, Hungary, om Spain, et enginetion flows for <u>nationals</u> , i.e. persons with ne- ere are questions for <u>non-nationals</u> . I.e. b tat emigration flows of nationals who leave high he published statistics of those countries, as nationals? Please provide a range in percentages allow "xx to yy %". the turue undercount of nationals will lie within the 90% tato;
	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y proup of countries that y Liechtenstein, Malta, Pe First, we ask your opinic tionality in one of the 32 Question 5. Emig Sa) By how many per undercount countries compared to the true between 0 and 100, b 5b) Approximately, hor range that you provide 0 50 % 0 95 %	ema ou to answer the same or defined as 'high unde d. Showaka, Ro retugal, and emigration fin an about immigration ane iEU+ countries. Next, the ration of national cent do you expect the are undercounted in the level of emigration of r uy writing in the box be writing in the box be writing in the box be writing in are you that ed above? O 75 %	https://nettakjema.no/user/form/preview.html?/c uppedicence are before. but now the questions refore to the rown for mating but is. Extension contrainer, is uppedic correctly. Hungary, orn Spain, uppedicence are before. but now the questions refore to the rown for mationales. Leave the case of the published case to the published statistics of those countries, as an an an analysis of the published statistics of those countries, as an analysis Please provide a range in percentages alow "xx to yy %". ute the true undercount of nationals will lie within the the lie in the countries.
	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y proup of countries that y Liechtenstein, Maila, Po First, we ask your oplin tionality in one of the 32 Question 5. Emig Sa) By how many per undercount countries compared to the true between 0 and 100, b Sb) Approximately, ho range that you provide 0 50% 0 95%	ema out to answer the same of which answer the same of	Interview task for a layer of a lay
2012 2020, 9:33 2M 30 2000 30	117 mtMig pilot survey copy – View – Nettskji In this section, we ask y proup of countries that y Liechtenstein, Maila, Pol First, we ask your opinic tionality in one of the 32 Question 5. Emig Sa) By how many per undercount countries compared to the true between 0 and 100, b () 5b) Approximately, ho range that you provide 0 50 % 0 95 %	ema out to answor the same or defined as "high unde d, Slovena, Shopkia, R, email of the same of the s	https://petitikjema.no/user/form/preview.html?/c specifiers as before, but now the questions refer to the procure counties." Bugains, Croatis, Estories, on spain, on spain, or spain
2012 2020,9:33 M 30 Marriely and Advanced Complexity and Advanced Com	117 mtMig pilot sarvey copy – View – Nettskip group of countries that y Litchienstein, Malta, Polan- Liechtenstein, Malta, Polan- Sa) By how many per- undercount countries compared to the true between 0 and 100, b 	ema out to answer the same event of the same eve	https://nettakjema.no/user/form/preview.html?/c upper/instruktiona.no/user/form/preview.html?/c upper/instruktiona.no/user/form/preview.html?/c upper/instruktiona.no/user/form/preview.html?/c upper/instruktiona.no/user/form/preview.html?/c upper/instruktiona.no/user/form/preview.html?/c upper/instruktionalise.html upper/instruktionalise.html?/c upper/instruktionalise.html?/c<
g ugorg - View - Nettstigtema Mater. And table gives and user. Of compression with mail the d = 70.0000 mm g and user. The mail the distribution of the down and user of the down and user of the down and user. The mail the down and user of the down and user	117 mtMig pilot sarvey copy – View – Nettakju group of countries that y Lith this section, we ask y group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malta, Polan Liechtenstein, Malta, Polan Liechtenstein, Malta, Polan Liechtenstein, Malta, Polan Sa) By how many per undercount countries Sa) By how many per undercount countries compared to the true between 0 and 100, b 5b) Approximately, hor range that you provide 0 50 % 95 % This element is only the question '50 Approximately will be with other	ema out to answer the same of we defined as "high unde model and array and or any and any and any and any	the true undercound of a statistic of the actionality of the o
grown many per cent do you expect that immigration flows of non-nationals who entries are used to the true level of immigration of non-nationals? Please provide a range in perturbative when the option in non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigration of non-nationals? Please provide a range in perturbative do the true level of immigrative do the true undercourte do the underco	117 mtMig pilot sarvey copy – View – Nettakju mtMig pilot sarvey copy – View – Nettakju In this section, we ask yo group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malta, Polan Sa) By how many per undercount countries compared to the true l between 0 and 100, b 5b) Approximately, hor range that you provid 5b) Approximately, hor range that you provid 55 % 95 % . This element is only the question '5b) Approximately well the weth other	ema ou to answer the same of we defined as "high unde to a same of the same of	the relevance of the set of the s
<page-header></page-header>	117 mtMig pilot sarvey copy – View – Nettakju mtMig pilot sarvey copy – View – Nettakju In this section, we ask yg group of countries that y Lithuania, Latvia, Polan Liechtenstein, Malta, Polan Sa) By how many per undercount countries compared to the true between 0 and 100, b 5b) Approximately, ho range that you provid 5b) Approximately, ho range that you provid 5b) So % 95 % This element is only the question "5b) Approximately will be with other	ema out to answer the same of we defined as "high unde not any out the same of	Interviewiewiewiewiewiewiewiewiewiewiewiewiewi
<page-header></page-header>	117 mtMig pilot sarvey coys – View - Nettakju mtMig pilot sarvey coys – View - Nettakju In this section, we ask yo group of countries that y Lithuania, Latvia, Polan- Liechtenstein, Malta, Ma	ema out to answer the same of we defined as "high unde the same of	
a ya	 117 mtMig pilot sarvey coys – View - Nettakju In this section, we ask y group of countries that y unania, Lavia, Polan Liechtenstein, Malta, Ma	ema out to answer the same of we defined as "high unde the same of	Interviewiewiewiewiewiewiewiewiewiewiewiewiewi
<pre>space of the space of the</pre>	117 mtMig pilot survey copy – View – Nettakju mtMig pilot survey copy – View – Nettakju in this section, we ask yo group of countries that y thumania, Latvia, Polan- Liechtenstein, Malta, Polan- malta, Po	ema out to answer the same of we defined as "high unde is defined as a statement is defined as a statement of the same undercounted in the level of emigration of r is writing in the box be of the same undercounted in the level of emigration of r is writing in the box be of the same undercounted in the level of emigration of r is writing in the box be of the same undercounted in the level of emigration of r is writing in the box be of the same undercounted in the level of emigration of r is writing in the box be of the same undercounted in the level of emigration of r is writing in the same undercounted in the same undercounted in the same undercounted in the same undercounted in the same under of the same undercounted in the same undercounted in the same under of the same under of the same under of the same undercounted in the same under of the same undercounted in the same under of the same undercounted in the same under of the	The relativity of the set
<pre>target of the true level of immigration for some of non-nationals will be true level of immigration of non-nationals? Please provide a range in pro- range of the true level of immigration of non-nationals? Please provide a range in pro- range between 0 and 100. () ()</pre>	117 mtMig pilot survey copy – View – Nettakju mtMig pilot survey copy – View – Nettakju in this section, we ask ye group of countries that y Lithuania, Latvia, Polan Liechtenstein, Mala, Polan Liechtenstein, Ma	ema ou to answer the same of we defined as "high unde (a Slovenia, Skovakia, RR itugal, and emigration and EU- countries. Next, th iration of national cent do you expect th are undercounted in th level of emigration of r y writing in the box be we certain are you that ed above? 75 % cother (please s shown when the option "d proximately, how certain ar in the range that you provid gration of national cent do you expect th	Instructure instruction in the questions refer to the formula in the questions refer to the formula in the questions refer to the formula in the case. Fundament is the grant of the publicity of the publi
<form><pre>content of the content of a regulation of a regulation of the content of th</pre></form>	117 mtMig pilot survey copy – View – Nettakji mtMig pilot survey copy – View – Nettakji ti this section, we ask ye group of countries that y tithuania, Laivia, Polan Liechtenstein, Mala, Polan Sa) By how many per undercount countries compared to the true ages between 0 and 100, b	cma Out to answer the same of defined as "high unde d. Shownia, Showkia, Re itugal, and emigration fi eU+ countries. Next, th introd of national cent do you expect th are undercounted in th level of emigration of n are undercounted in th evel of emigration of other (please s shown when the option "of proximately, how certain ar in the range that you provid gration of national cent do you expect th are undercounted in th level of firmingration of 100.	Interview takes of the set of the
<form><pre>target the set of the set o</pre></form>	117 mtMig pilot survey copy – View – Nettakji mtMig pilot survey copy – View – Nettakji titte southies that y tittuania, Latvia, Polan Liechtenstein, Mala,	cont to answer the same of we defined as high under discount of the same of th	Interview taken is before. But now the questions refer to the control taken is control to the control taken is the public forence, the public is a solution is one for antionalish. Is persons with not even even even taken is the public hole statistics of those or units will be even the public hole statistics or those out is an even even to the control taken is the public hole statistics or those will be even the term of the public hole statistics or those will be even the term of the solution and statistics or those will be even the term of the solution and statistics or those will be even the term of the solution and statistics or those solutions are solution. In the true undercount of nationals will be within the term of the public hole statistics or those solutions. In the true undercount of nationals will be within the term of the solution and statistics of those solutions. In the true undercount of nationals will be within the term of the solution and statistics of those solutions. In the true undercount of nationals will be within the term of the solution and solution and the solutis and the solutis and the solution and the s
<form><form><form><form><form><form><form><form><form><form><form><form><form></form></form></form></form></form></form></form></form></form></form></form></form></form>	117 mtMig pilot survey copy – View – Nettakji mtMig pilot survey copy – View – Nettakji titte southies that y tittuania, Latvia, Polan Liechtenstein, Mala,	cena Control answer the same or control of an about immigration an cent do you expect th are undercounted in th level of emigration of are undercounted in th level of emigration of control (please s aboon when the option "of gration of national cent do you expect th are undercounted in th level of immigration of too.	The statistical of the statis
<page-header></page-header>	117 mtMig pilot sarvey copy – View – Nettskip mtMig pilot sarvey copy – View – Nettskip from the section, we ask yog prop of countries that y thumania, Latvia, Pohan Liechtenstein, Malta, Pohan Sa) By how many per undercount countries compared to the true l between 0 and 100, b 5b) Approximately, ho range that you provid 5b) Pohan This element is only the question 6. Immi 6a) By how many per undercount countries compared to the true l ages between 0 and 10 6b) Approximately, ho range that you provide (b) Approximately, ho range that you provide (b) Approximately, ho range that you provide (b) Approximately, ho range that you provide (c)	cena Conto answor the same or defined as "high unde d. Slovenia, Shovkia, R. Particol of national cent do you expect th are undercounted in th level of emigration of are undercounted in th level of emigration are over the source of the source of control co	Experience of the second s

50 % 75 % 90 % 95 % 0 other (please state)	caj by now many per cent do you expect that immigration flows of non-nationals who ent high undercount countries are undercounted in the published statistics of those countries compared to the true level of immigration of non-nationals? Please provide a range in per centages between 0 and 100.
This element is only shown when the option "other (please state)" is selected in the question "bb) Approximatily, how certain are you that the true undercount of methods will be within the many that will be write the many the many that will be write the many that will be write the many that will be write the many the many the many that will be write the many the many that will be write the many that will be write the many the many the many that will be write the many the many the many that will be write the many the many the many the many the write the many t	8b) Approximately, how certain are you that the true undercount of non-nationals will lie within the concertaint was provided about?
nautinas via ne vicini) are range ana you provided above i	
other	
	O 95 % O other (please state)
IIII Page book	
	This element is only shown when the ontion "other (nlesse state)" is selected in
Page 20	the question "80 Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?"
Question 7, Emigration of non-nationals	other
(a) By now many per cent do you expect that emigration nows of non-nationals who leave high undercount countries are undercounted in the published statistics of those countries, as	
compared to the true level of emigration of non-nationals? Please provide a range in per-	
	III Page break
7b) Approximately, how certain are you that the true undercount of non-nationals will lie	P
within the range that you provided above?	Comments
O 50 % O 75 % O 90 %	If you have comments or arguments related to your answers to questions 5 - 8, please st them here.
O 95 % O other (please state)	
•	
This element is only shown when the option "other (please state)" is selected in	
 are question. For paperior manage, now certain are you may the true true intercount of non-nationals will lie within the range that you provided above?" 	III Pape broak
other	
	р
	Section 3. Accuracy of migration measurement
Page break	The following questions are about random fluctuations in measured emigration and immigration. W distinguish between nationals and non-nationals, and, moreover, between population registers and
	gration surveys as data collection systems. Consider a hypothetical European country with a population register in which there is no systemati
Page 21	bias in the measurement of migration. In this case, we may expect random factors, for instance ad
12/18/2020, 9:13 PM 10 o. 1 survey copy – View - Nettskjema https://nettskjema.no/user/form/preview.htm?/d=178680#/ Quar	17 12/1 nMig pilot survey copy – View - Netskjema https://nettskjema.no/user/form/preview.h
12/18/2020, 9:13 PM 10 o t survey copy – View - Nettskjema https://nettskjema.no/user/form/preview.html?id=1786500// Quast Questions 9 - 12 all relate to this hypothetical register country. Image: Comparison of the survey country. Image: Comparison of the survey country.	f17 12/1 this plotsent is only shown when the option "other (please state)" is selected in This element is only shown when the option "other (please state)" is selected in The usestion "100 Approximately how certain are you that the true value will lie
12/18/2020, 9:13 PM 10 or 1 survey copy - View - Nettskjema https://mettskjema.no/user/form/preview.html?id=178690% Quar Questions 9 - 12 all relate to this hypothetical register country. Question of nationals Html	17 12/1 1/2 1/2 1/2 This element is only shown when the option "other (please state)" is selected in the question "10b) Approximately, how certain are you that the true value will lie within the range that you provided above?"
12/18/2020, 9:13 PM 10 or survey copy - View - Nettskjema https://mettskjema.no/user/form/preview.htm?hd=178699// Quar Questions 9 - 12 all relate to this hypothetical register country. E Question 9, Emigration of nationals Spaj For emigration of nationals, how probable do you think it is that the published statistics are writing any use 564, do new 564, compared to the two level of registering 0.044 Hermitering 1000 million 10000 million 1000 million 1000 million 1000 million 1000 mi	17 12/1 12/1 12/1 12/1 This element is only shown when the option "other (please state)" is selected in the question "10b) Approximately, how certain are you that the true value will lie within the range that you provided above?"
10 or survey copy – View - Nettskjema https://mettskjema.no/user/form/preview.htm?hd=178699// Quar Questions 9 - 12 all relate to this hypothetical register country. Questions 9 - 12 all relate to this hypothetical register country. Bays For emigration of nationals, how probable do you think it is that the published statistics are within an interval from minus 5% to plus 5% compared to the true level of emigration? (If it helps, think of how often the annual published statistics are within this interval during a pe-	17 12 1 17 12 1 1 1 1 1 1 1 1 1 1 1 1 1
10 or t survey copy – View - Nettskjema https://nettskjema.no/user/form/preview.htm?hd=1786890/ Quare Questions 9 - 12 all relate to this hypothetical register country. Question 9 - Emigration of nationals, how probable do you think it is that the published statistics are within an interval from minus 5% to plus 5% compared to the true level of emigration? (If thelps, think of how often the annual published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100. how within the interval from minus 16% to plus 5% compared to the true level of emigration? (If thelps, think of how often the munual published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100. how within the interval from minus 16% to plus 5% compared to the true level of emigration? (If the published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100. how within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100 how within the second to the true level of the true the true the second to the true the true the top the true the true the second to the true the the true	17 12 12 1 13 14 15 17 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
10 o t survey opy – View - Nettskjema https://mettskjema.no/user/form/preview.htm?/hd=1786800/ Quar Questions 9 - 12 all relate to this hypothetical register country. Question 9 - Emigration of nationals 9a) For emigration of nationals, how probable do you think it is that the published statistics are within in interval from minus 5% to plus 5% compared to the true level of emigration? (If theles, thick of how offent the annual published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100, by writing in the box below "bx to yo %".	17 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15
10 or t survey copy – View - Nettskjema https://settskjema.no/user/form/preview.htm?/sd=1786800/ Quar Questions 9 - 12 all relate to this hypothetical register country. Questions 9 - 12 all relate to this hypothetical register country. Bay For emigration of nationals, how probable do you think it is that the published statistics are within an interval from minus 5% to plus 5% compared to the true level of emigration? (If it helps, think of how often the annual published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100, by writing in the box below "xx to yy %".	17 12/ 12/ 13/ 12/ 13/ 14/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15
10 o 12/18/2020, 9:13 PM 10 o tsurvey copy — View - Nettskjema thtps://settskjema.no/user/form/preview.htm?/hd=1786800 Qua Quastions 9 - 12 all relate to this hypothetical register country. Questions 9 - 12 all relate to this hypothetical register country. Question 9, Emigration of nationals, how probable do you think it is that the published statistics are writin an interval from minus 5% to plus 5% compared to the true level of emigration? (If thelps, think of how often the annual published statistics are writin this interval during a pe- tiod of 100 years.) Please give your assessment as a range in percentages between 0 and 100, by writing in the box below "xx to yy %".	17 12 12 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15
10 or 12/18/2020, 9:15 PM 10 or tsurvey copy — View - Nettakjema they //settakjema.no/user/form/preview.htm?/id=1786800 Quar Quar Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9 - 12 all relate to this hypothetical register country. Quarsions 9, Fore emigration of nationals, how probable do you think it is that the published statistics are within an interval from minus 5% to plus 5% compared to the true level of emigration? (If it helps, think of how often the annual published statistics are within this interval during a pe- iod of 100 years.) Please give your assessment as a range in percentages between 0 and 10, by writing in the box below "xx to yy %".	17 12/ 12/ 13/ 12/ 13/ 13/ 14/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15/ 15
100 tarvey copy - View - Nettakjema tarvey copy - View - Nettakjema Questions 9 - 12 all relate to this hypothetical register country. Questions 9 - 12 all relate to this hypothetical register country. Say For emigration of nationals, how probable do you think it is that the published statistics for the published statistics are within in interval during a published statistics are within this interval during a published statistics are within the range that you published statistics are within the range that you provided above?	117 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/
100 tarvey copy - View - Nettakjama https://mettakjama.nou/user/form/preview.http?/id=1786900 Quer Cuestions 9 - 12 all relate to this hypothetical register country. Guersions 9 - 12 all relate to this hypothetical register country. Say For emigration of nationals, how probable do you think it is that the published statistics are within in interval form minus 5% to plus 5% compared to the true level of emigration? (If the dys, think of how often the annual published statistics are within this interval during a period of 100 years). Please give your assessment as a range in percentages between 0 and 100, by writing in the box below "xx to yy %". 9b) Approximately, how certain are you that the true value will lie within the range that you provided above?	117 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/ 12/
100 tarrery copy - View - Nettakjama https://metakjama.na/user/form/preview.http?/d=1786900 Quet Clusterious 9 - 12 all relate to this hypothetical register country. Description of nationals, how probable do you think it is that the published statistics are within in interval from minus 5% to plus 5% compared to the true level of emigration? (If is the dry evolution sector). Outprovide the annual published statistics are within this interval during a period of 00 yeers. Neeses (if yee your assessment as a range in percentages between 0 and 10, by writing in the box below "xx to yy %". 9b) Approximately, how contain are you that the true value will lie within the range that you provided above? 0 x04 0 x04 0 x5% 0 x04 0 x04 0 x04 0 x04	17 17 12/ 13 14 17 12/ 14 15 15 15 15 15 15 15 15 15 15 15 15 15
tarrent opp - View - Nettskipma Inter/IndekSipma.na/user/Ord/IndexInter/Ind	17 17 12 1 17 12 14 17 12 14 17 12 14 17 12 14 15 15 15 15 15 15 15 15 15 15 15 15 15
100 starver opp - View - Nettskiptma mtps://nettskiptma.neu/user/form/preview.html/hil-1786900 Quer Cuestions 9 - 12 all relate to this hypothetical register country. Description of nationals, how probable do you think it is that the published statistics for ewingingation of nationals, how probable do you think it is that the published statistics for ewingingation of nationals, how probable do you think it is interval during a period of 600 years). Please give your assessment as a range in percentages between 0 and 100, by writing in the box below "xx to yy %". (b) Approximately, how contain are you that the true value will lie within the range that you provide above? 0 wher (please state) (c) 35 d 0 ther (please state) (c) 0 starver lie nonly show when the option "other please state" is selected in generation of % option when the true value will lie within the range that you provide above?	117 127 127 127 128 118 119 119 119 119 119 119 119 119 11
100 tarrent opp - View - Nettakjama tarrent opp - View - Nettakjama close to set 3 - 12 all relate to this hypothetical register country. Constraint 9 - 12 all relate to this hypothetical register country. Opp - O	11 127 121 127 121 https://frettakjema.no/user/form/preview.https://frettakjema.no/user/form/previ
100 tarvey org - View - Nettskjema carvey org - View - Nettskjema So - Por emigration of nationals, how probable do you think it is that the published statistics are within this interval during a period of 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) Please give your assessment as a range in percentages between 0 and 100 years.) give so in the provide above? 0 to 4 give so in the please states in the published statistis as t	11 127 127 127 128 https://fietdkjema.no/user/form/preview.ht
2020 Description of nationals, how probable do you think it is that the published statistics of writin an interval from minus 5% to plus 5% compared to the true level of emigration? (If the ennual published statistics or writin an interval from minus 5% to plus 5% compared to the true level of emigration? (If the ennual published statistics or writin an interval from minus 5% to plus 5% compared to the true level of emigration? (If the ennual published statistics or writin an interval from minus 5% to plus 5% compared to the true level of emigration? (If the ennual published statistics are writin this instrueval during a postication of nationals, how probable do you think it is that the published statistics are you writin in the box below "x to yy %".	11 121 atMag pilot survey copy - View - Nettakjema https://hettakjema.no/user/form/preview.https://hettakjema.
<form><pre>tarrent in the solution of antionals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think it is that the published statistics are emigration of nationals, how probable do you think the true value will lie within the range that you are emigration of a the published statistics are emigration of the published statistics are emigration</pre></form>	11 121 11 Import / Nettakjema Import / Nettakjema Import / Nettakjema.ax/userif/orm/preview.lin Import / Nettakjema Import / Nettakjema Import / Nettakjema Import / Nettak
<form> target of the series of t</form>	17 121 atMig plot survey copy - View - Netakjema https://hetakjema.no/user/form/preview.htttps://hetakjema.no/user/form/preview.htttps://hetakjema.no/user/f
<page-header></page-header>	17 121 atMig pilot survey copy - View - Nettakjema https://hettakjema.no/user/form/preview.https://hettakjema.
<page-header></page-header>	1/1 1/1 1/2 1/2 atMig pilot survey copy - View - Nettakjema https://hettakjema.nohaser/form/preview.h
<page-header></page-header>	1.12 control that is a actually measure to a product ingration inter is actually measure to a product in the question "(b) Approximately, how certain are you that the true value will lie within the range that you product above?" other
<form> target of the set of</form>	<pre>112 control that is a collecting of the base, is an even to regret of regretation fracts a actually measure 112 control that is actually measure 113</pre>
<page-header></page-header>	117 127 ntMig pilot survey copy - View - Nettikjema https://nettikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.https://netkikjema.noluser/form/preview.httpsintergena.noluser/form/preview.https://netkikjema.nol
<page-header></page-header>	<pre>11 control to the processing of the take, to allow the Port of ingulation that is actually measure 11 control to the question 'T(b) Approximately, how certain are you that the the value will be 11 the question 'T(b) Approximately, how certain are you that the the value will be 12 control to the true between the processing of the true to the true between the true value will be 12 control to the true between the processing of the true to the true between the true value will be 12 control to the true between the processing of the true to the true between the true value will be 13 control to the true between the processing of the true to the true between the true value will be 13 control to the true between the processing of the true to the true between to the true between the true true between the true true true true true true true tru</pre>
<page-header></page-header>	11 the constant are proceeding of the state, to effect of ingulation that is actually measure that y actually measure that y actually measure that y actually measure that y actually in the state of the state o
<form><form><form></form></form></form>	1.1. The element is only shown when the option "other (please state)" is selected in the question "10b Approximately, how certain are you that the true value will lie within the range that you provided above?" other
<page-header></page-header>	1. Indexe and the processing of the data, to anoth the PPH of ingulation that is actually measure in the presence of the processing of the data of the da
<page-header></page-header>	112 The element is only shown when the option "other (please state)" is selected in the question "10b Approximately, how certain are you that the true value will lie within the range that you provided above?" other

O 50 %	() 75 %		0	90 %					O 50 %		0 75 %	6		0	90 %				
O 95 %	() other	(please state							O 95 %		O othe	r (please	state)						
*										*										
This element is on the question "12b) within the range th	ly shown Approxim at you pro	when the ately, how wided ab	option "other (w certain are y ove?"	please stat ou that the	e)" is sele true value	cted in will lie				This element is on the question "13b) within the range the	y shown Approxir at you pr	when the nately, ho ovided al	a option "o w certain pove?"	other (ple are you	ase state that the t)" is sele rue value	cted in will lie			
other										other										
Page break										Page break										
Commonts								Page 27		Question 14 Im	niara	tion o	fnon	nation	aale					Pa
If you have commer	ts or are	uments	s related to	our ans	wers to	questions	9 - 12. p	ease state		14a) For immigration	ngra	⊢nation	als. hov	v proba	able do v	vou thir	n kitist	hat the	publishe	ed s
them here.		,				4	, p	-		tistics are within an in tion, as defined by th tween 0 and 100	nterva l ne UN d	from m lefinitio	inus 5% n of mig	to plu ration?	s 5% co Please	mpare provid	d to the le a ran	true le ge in pe	vel of intercentage	nmig ges
Page break					J					14b) Approximately, provided above?	how ce	rtain ar	e you th	nat the	true va	ue will	lie withi	n the ra	inge tha	at yo
										O 50 %		0 75 %	6		0	90 %				
								Page 28		O 95 %		🔿 othe	r (please	state)						
Now, consider a hypot sume that there is no a the accuracy to be affer	netical E systemat ected by	uropean ic bias in for exan	country that the measur	uses a <u>su</u> ement of r g error H	<u>irvey</u> to c nigration ere. we v	ollect mign . In this cas vill only cor	ation data se, we ma nsider inv	a, and as- ay expect migration												
Questions 13 and 14 r	elate to t	his hypo	thetical cour	try that us	es a sun	/ey.				•										
Question 13. Im	migrat	ion of	national	;						This element is on the question "14b) within the range the	y shown Approxin at you pr	when the nately, ho ovided al	e option "o w certain pove?"	aner (ple are you	rase state that the t	n is sele rue value	cted in will lie			
13a) For immigration	n of nati	ona l s, h	ow probabl	e do you	think it i	s that the	publishe	ed statistics		other										
are within an interva defined by the UN d	from m efinition	of migr	∿ to p∎us 5% ation? P∎ea	compar se provid	ed to the e a rang	e true leve je in perce	el of imm entages	ngration, as between 0												
and 100.										=										
										Im Page creak										
neuron Vien Mattal	kiama				https://act	telleinen en fe		12/18/2020	:13 PM 14 of 17	at supravious and the Mattele	ioma					******	telejom e z	n han en le	1	12/18
urvey copy — View - Netts	kjema				https://net	tskjema.no/t	user/form/p	12/18/2020 preview.html?id=	:13 PM 14 of 17 /8680#/ QuantMig pilo	st survey copy – View – Nettsk What is your <u>qualitative</u> average during the yea	jema 2 asses: ars 2021	sment of -2026, c	f the imp compare	act of C d to the	tiovid=19	ttps://net on migra ran ave	tskjema.r ation flov rage pre	to/user/fo ws for El ≻Covid–	ım/previe U+ couni 19 year?	w.htm tries
urvey copy – View - Nettsl Comments	kjema				https://net	tskjema.no∕t	user/form/p	12/18/2020 preview.html?id= Page 30	:13 PM 14 of 17 /8680#/ QuantMig pilo	ot survey copy — View - Nettsk What is your <u>qualitative</u> average during the yea Because of Covid-19, .	jema assess ars 2021	sment of -2026, c	the imp compare	act of C d to the	: ovid=19 flows for	nttps://net on migra r an ave	tskjema.r ation flor rage pre	so/user/fo ws for El ≻Covid-	m/previe U+ count 19 year?	12/18 w.htm tries
arvey copy – View - Nettal Comments If you have commer state there here	^{kjema} its or arg	guments	s related to	your ans	https://net	tskjema.no/t questions	user/form/p	12/18/2020 preview.html?id= Page 30 14, please	:13 PM 14 of 17 78680#/ QuantMig pilo	t sarvey copy – View - Nettsk What is your <u>gualitative</u> average during the year Because of Covid-19, .	jema <u>●</u> assest <u>Irs 2021</u> very much Jower	sment of -2026, o much bower	f the imp compare some- what lower	act of C d to the slightly lower	:ovid=19 flows for change	uttps://net on migra r an ave sightly higher	tskjema.r ation flov rage pre somo- what higher	ws for El ≻Covid- much higher	m/previe U+ count 19 year? very much higher	tries
arvey copy – View - Nettal Comments If you have commer state them here.	^{kjema} Its or arg	guments	s related to	your ans	https://net	tskjema.no/u questions	user/form/p 13 and 1	12/18/2020 preview.html?id= Page 30 14, please	:13 PM 14 of 17 86800// QuantMig pilo	tt sarvey copy – View - Nettak What iis your <u>qualitative</u> mercange during the year Because of Covid-19, . 	jema assess assess ars 2021 	much	f the imp compare what lower	act of C d to the slightly kover	tiovid=19 filows for change	attps://net on migra r an ave dightly higher	tskjema.r ation flor rage pre what higher	ws for El ≻Covid- higher	m/previe U+ count 19 year? very much higher	tries
urvey copy – View - Nettal Comments If you have commen state them here.	kjema Its or arg	guments	s related to	your ans	https://net	tskjema.no/t	user/form/p	12/18/2020 review.html?id= Page 30 14, please	:13 PM 14 of 17 786808/ QamtMig pilo	t survey copy – View - Nettak What is your <u>gualitative</u> <u>average during the year</u> Because of Covid-19, migration flows whith EU- countries will be itemigration flows into EU- countries will be	jema assest irs 2021 very mach lower	much bower	f the imp compare what lower	act of C d to the slightly kover	tiovid=19 tilows for change	attps://net on migra r an ave sightly higher	tskjema.r ation flov rage pre what higher	ws for El ≻Covid- much higher	m/previe U+ count 19 year? very msch higher	tries
arvey copy – View - Nettal Comments If you have commer state them here.	kjema Its or arg	guments	s related to	your ans	https://net	tskjema.no/t	user/form/p	12/18/2020 preview.html?id= Page 30 14, please	:13 PM 14 of 17 186808/ QuantMig pilo	t survey copy — View - Nettak What is your <u>qualitable</u> <u>average during the veg</u> Beccure of Covid-19, . migration flows whin EU- ountries will be emigration flows into EU- counties will be emigration flows from EU- countries will be	jema 2 assess rs 2021 veny much lower O O	much levver	some- what lower	act of C d to the dightly lower	tiovid-19 flows for change	on migr r an ave ilighter	takjema.r rage pro somo- what higher	mo/user/fo ws for El much higher O	m/previe U+ count 19 year? very much higher	12/18 w.htr tries (((
arvey copy – View - Nettal Comments If you have comment state them here.	its or arg	gument:	s related to	your ans	wers to a	tskjema.no/t questions	13 and	12/18/2020 rreview.htm17id= Page 30 14, please Page 31	:13 PM 14 of 17 186808/ QuantMig pilo	tt survey copy View Nettak What is your <u>unalitative</u> <u>survaga duration</u> <u>survaga duration</u> <u>sur</u>	jema 2 assoss irs 2021 irs 2021 irs were irs were irs were irs were irs of the second	sment of -2026, c much levver	the imporpare	act of C d to the dignly lower	E tovid=19 flows for change	sāgsidy	tskjema.r rage pr some- what higher	ws for El S-Covid- nuch higher	U+ country U+ country 19 year? very mach higher	tries dikr
arvey copy – View - Nettal Comments If you have commer state them here. Prept break Prept break Two final questi The following how que forw, The kind of info ios and story lines on Quantifia proteines on	ons: C stions are possible	ovid-1	s related to 19 and EL to the possi ope to receive	your ans your ans ropear de impact future, w	wers to o migration of Covidence of Covidence will be	tikjema.no/t questions ttion -19 on Eur useful whe so an impo	13 and 1 ropean min	12/18/2020 werview.html?id= Page 30 14, please Page 31 igration jing scenar- c in the	:13 PM 14 of 17 186800/ QuantMig pilo	It sarvey copy — View - Nettak What is your <u>qualitative</u> mercinge during the year Because of Covid-19, , 	jema 2 assess IIII 2021 Very mach Jower O O O S ts or an	sment of a	the important in the im	act of C d to the lower	E tovid-19 flows for change	ittps://net	ation flor rage pro- what Napher	so/user/fo ws for Ei ⊳⊂ovid- higher ○ ○	nt 16, p	12/18 w.htm tries ((() Pag
arvey copy – View - Nettal Comments If you have commer state them here. Prove trease Prove final questi The following two que the do linfo los and story lines on Quantifying project. With a sky two is done of the done	kjema ons: C possible	ovid-1	s related to 19 and EU to the possi ope to receive 1 gows in the	your ans ropear te inpact o from yo future, w	wers to o migra of Covid u will be Covid-11	tskjema not questions ttion -19 on Eur - 19 on Eur	13 and 1 ropean min	12/18/2020 weview.btml?id= Page 30 14, please Page 31 ligration ping scenar- in the	:13 PM 14 of 17 786800/ QanntMig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> average during the year Because of Covid-19, . migration flow into EU- counties will be minipation flows into EU- minipation	jema 2 assess s 2021 ** very mach bower O O O	sment of a	f the important in the important is related	act of C d to the lower O O d to yo	Eavid-19 flows for change	titps://net on migrer r an ave higher 0	tskjema r. flor rage pro- what higher	ws for El ws for El much higher 0 0 0 0 0 0 0 0 0 0 0 0 0	um/previe 19 year? very mach higher 0	tries de km (((Pag Pag
arvey copy – View - Nettal Comments If you have commen state them here. Propertnese Propertnese Two final questi The following two que down, The Kind of Info ics and story lines on CountMig propert, We ask you to give a compared to the flows	ons: C stions are possible <u>qualitative</u> for an a sa quest	guments ovid-1 e related at we h migration 2 assess cerage p 2 assess on 16 is	s related to	ropear form your ans form your and the second secon	https://aet wers to o of Covid u will be hinch is all Covid-15 stion 15]	tikjema novi questions rito on Europ 20 on Europ 20 on Europ	ropean mi n develoj vrant task ean migra e short-le	12/18/2020 weiview.html?ide Page 30 14, please Page 31 ligration ping scenar- cin the ation flows, me affect	:13 PM 14 of 17 186800/ QaantMig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> average during the year Because of Covid-19, . 	ijema a assossi rs 2021 wery mach bower O O O ts or ar	sment of -2026, c o o o gument	the importance in the importan	act of C d to the dignly lower 0 0	E tovid-19 flows for change	• stips://net	tskjema r rage pro somo- what higher O Q questio	woluser/fo Covid- nuch higher O	1 un/previe U- count 19 year? wey much higher 0	tries da kn ((Pag
arvey copy – View - Nettal Comments If you have commer state them here. Propertness Two final questi The following two que town, The kind of Info ices and story lines on Compared to the flows We ask you to give a s compared to the flows We ask you to give a s compared to the flows Please give your answ	kjema tits or arg stions ar matitati v for an ar a quest vers on a	ovid-1	s related to	ropear te impact form you impact of you e average sging from	https://net wers to o of Covid u will be covid-11 Covid-11 covid-11 e effect fc	taijema novi questions useful who so an impo s about the s about the s about the next	13 and 1 n development n developk ean migra s short-be s short-be	12/18/2020 retrieve html?ide Page 30 14, please Page 31 igration ping scenar- in the ation flows, rm effect space" to	:13 PM 14 of 17 186804/ QaamtMig pilo	th survey copy - View - Nettak What is your qualitable waverage during the yeas Because of Covid-19, ,, magation flow within EU- ounnites will be, immigration flows from EU- ounnites will be, emigration flows from EU- ounnites will be, and the second s	ijema <u>e</u> assessi <u>us 2021</u> wery mech bower 0 0 0 0 ts or ar	sment of -2026, c bevor O	the impare compare what lower	act of C d to the algeby kover	E tovid-19 flows for change	Https://net	ation floring of the second se	woluser/fo ≻Covid- higher ○	U- count 19 year? very mach higher	tries de kn (((Pag
Anvey copy – View - Nettal Comments If you have comment state them here. Properties Properties Properties Two final questi The following two que the of info ios and story lines on Quantifying project. We ask you to give a 1 compared to the fitnes (2021-2026), Please give your annow 'very much higher', We distinguish betwee	kjema tis or arg ons: C stions ara mation to possible aualitative for an an as quees n fl refs on a n fl m flows v	puments ovid-1 o related nat we h migration g assess grassess rerage refage to fi in inte-poi	s related to	ropear ropear lee impact of future, w impact of eaverage rear, Que rear, Que rear, Que rear, Que rear, Que	https://net wers to o www.sto o of Covid will bo will	takjema novi questions upon taking s about that on Europe s about that or the next	13 and 1 13 and 1 15 and 1 16 short-brief 16 short-brief 16 short-brief 16 short-brief 10 short-	12/18/2020 weview.html?id= Page 30 14, please Page 31 ligration ping scenar- cin the spact" to les, and emi-	:13 PM 14 of 17 186800// QanntMig pilo	It survey copy — View - Nettak What is your <u>qualitative</u> Because of Covid-19,	jema a assosi urs 2021 very mech bowr C C C ts or ar	sment of -2028, c -2028, c -20	I the imp compare what is relate	act of C d to the kover	Ecovid-19 Bows for duage	ittps://net	ation flor rage pro- websi operation operation questio	ws for El ⇒Covid- Higher O O	LJ+ count J9 year? Nigher O	12/18. ww.htm tries. do kn (((() Pag
arvey copy – View - Nettid Comments If you have commer state them here. Proverment Prove	kjema ons: C stions ar ar ons: in flows to a quest to the standard stand standard standard s standard standard stand standard standard stan	ovid-1 related natwe h migration 2 assess 2 asses 2 assess 2 asses 2 asse 2 asse 2 asse 2 asses 2 asse 2 ass 2 asse 2 asse 2 ass 2 ass 2 asse 2 ass 2 asse 2 ass 2 asse 2 asse 2 asse 2 ass 2 ass 2 asse 2 asse 2 ass 2 ass 2 asse 2 ass 2 asse 2 ass 2 ass 2 asse 2 ass 2 ass 2 asse 2 asse 2 ass 2 ass 2 asse 2 ass 2 ass 2 asse 2 ass 2 ass 2 ass 2 asse 2 ass 2	s related to	ropear ele impact future, w impact of future, w impact of fu	https://net wers to o wers to o of Covid u will be covid-15 stion 15 covid-15 stion 15 covid-	takjema novi questions ution -19 on Euro so an impo s about the s about the r the next uuch lower ^a	13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 14 and 1 14 and 1 15	12/18/2020 werview bitm17id= Page 30 14, please Page 31 lighting scenar- cin the space to space to ies, and emi-	:13 PM 14 of 17 786800// QanntMig pilo	It survey copy — View - Nettak What is your <u>qualitative</u> Because of Covid-19	jema a assess <u>yrs 2021</u> ware ware ware bower O O ts or ar	sment of -2028, c much erver	the impare	act of C d to the sover	L bouid-19 Bows for damage	ers to	ation flor rage pro- screace what higher	ws for El Covid- nuch Higher O O nns 15 a	und 16, p	tries
arvey copy – View - Nettid Comments If you have commen state them here. Properties Properties Two final questi The following two que to distinguish to two you do you do you do you do you you do you do you do you you do you do you do you you do you do you you do you do you	kjema tts or arq ons: C stions ar mation t possible valitative for an a sa ques rers on a EU+ cou ort-ter	ovid-1 orelated at we h migration 2 assess ion 16 is nine-poi within the ntries. ment of	IS and EL to the possi ope to receive the tothe possi news in the ment for the re-Covid-19 related to the scale, ra EU+ countr act of Cov the impact o	ropear te impact of future, w impact of	wers to a migrat	tion tion 19 on Europ s about the was into EU the next the n	13 and 1 13 and 1 13 ropean mi n develop rtant task ean migra e short-be short-be trive years to "no im J+ countri	12/18/2020 weiview.btm1?ide Page 30 14, please Page 31 igration flows, s s ation flows, s s ation flows, s s ation flows, s s	:13 PM 14 of 17 186800// QanntMig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> waverage during the yeag Because of Covid-19,	jema 22 assess Isr 2021 mach Iswer	sment of -2028, c bover	the impare compare what bower	act of C d to the algorith bover O O d to yo	E touid-19 Bows for charge	ittps://net	ation flor rage pro- source what higher	wa for El ⊳Covid- mach Najaer O O O	nd 16, p	12/18. w.htm tries do kn (((() Pag Pag Pag
arvey copy – View - Nettid Comments If you have commer state them here.	tis or arg ons: C C stitons ara mation ti mation ti mati	ovid-1 o related o related at we h migration 2 assess ion 16 is inine-polo within the thrtries. m effer ment of r an ave	Is related to	ropear the impact of future, w impact of future, w impact of rear, Que a warage inging from es, immig id-19 yea	wers to o migra of Covid-16 stion 15 of Covid-16 stion 15 of Covid-16 stion 15 of Covid-16 stion 15 of Covid-16 stion 16 of Covid-16 st	tion questions tion I to neur sabut the sabut	user/form/p 13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 14 royels 10 royels	12/18/2020 weiview.html?ide Page 30 14, please Page 31 ligration pring scenar- in the ation flows, sm effect suppact" to ies, and emi- countries in wey	:13 PM 14 of 17 186804/ QaantMig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> waverage during the yeag Because of Covid-19, ,, magnitor flows into EU- counties will be, immigration flows into EU- counties will be, emigration flows into EU, emigratio	ijema 2) assors in 2021 in 202	sment of 0	the importance of the importan	act of C d to the wowr O O d to yo d to yo	a comp	Https://net on migre signer bigher o	tskjema r rage pro vrhat higher O O Questio	ws for El ⊳Covid- mach hghar 0 0 0 0 0 0 0 0 0 0 0 0 0	I J- counting year?	12/18 w.htm tries da km (((() Pag Deast
arvey copy – View - Nettid Comments If you have commer state them here. Propertness Two final questi The following two que to wanth do Info ice and stay here or Compared to the flows and they meet of the flows (2021-2021), where (2022-2021), We ask you to give a s compared to the flows (2022-2021), We distinguish the We de distinguish the We de distinguish the We de distinguish the We	tis or arg ons: C C stions are mation to socialitative for an au rualitative for au rualitative for au rualitative for au rualitative for au for au fo for au for au fo for au fo fo	ovid-1 related at we h migration 16 is nine-poi within the tratices. ment of r an ave sweet	Is related to Is and EL to the possi- ope to receive ment for the re-Covid-19 related to th nts scale, ra be EU+ countri- to to for Cov- the impact or range pre-Cov- the impact or range pre-Cov- range pre-C	ropear Me impact of future, w impact of a siverag nging from es, immig id-19 yeas r of any results of a single for id-19 yeas	wers to a migration floor of Covid-16 covid-16 covid-16 station 16 covid-16 reflect fr a very m rration floor on migrat holeweither hole	tion questions rigon Europo a sout the next of the next was into EU aton flows a con control and the sout a sout the next a control of the sout a sout the sout a sout a sout the sout a sout a sout the sout a sout a sout a sout a sout a sout a sout a sout a sout a sout a sout a sout a sout	13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 13 and 1 14 roles 1 15	12/18/2020 review bitm17:de Page 30 14, please Page 31 igration ping scenar- in the signation flows, rm effect signation flows, in the countries in very very very very very very very very	:13 PM 14 of 17 186804/ QaamtMig pilo	It survey copy - View - Nettak What is your qualitative waverage during the yeag Because of Covid-19, ,, magnitor flow the EU- counties will be, immigration flows into EU- counties will be, immigration flows into EU- counties will be, immigration flows from EU- coun	ijema a assosts us 2021 very meth bowe 0 0 0 0 0 ts or ar r answe r answe	sment of 0 -2026, c bover 0 0 0 0 0 0 0 0 0 0 0 0 0	the importance of the importan	act of C d to the bower C C C C C C C C C C C C C C C C C C C	e covid-19 flows for	titips://aet on migrar higher o	ation floor rage pro- what higher O	woluser/fo >Covid- meth- higher 0 0 0 0 0 0 0 0 0 0 0 0 0	nttl/previe countil year? o o nd 16, p ablet, et	12/18 w.htm tries dc km ((() Pag Pag Pag C_
arvey cepy – View - Nettid Comments If you have commers state them here. Propertness Two final questi The following two que down, The kind of Info Gounthig project, We ask you to give a s compared to the flows (bit you cauthig project, We distinguish betwee gration flows from the Question 15, Sh What is your qualitativ 2021, compared to the flows	kjema ons: C stions are mation to sas quest rers on a m flows to EU+ cou ort-ter ort-ter source isover for same and same are source isover for same are source in flows to same are source in flows in flows to same are source in	ovid-1 related at we h at whe h at we h at whe	Is related to Is and EL to the possi ape to racein a flows in the re-Covid-19 could be to the re-Covid-19 to EU+ countri the impact of the impact	ropear terminación terminaci	thitps://net wers to of of Covid u will be to of Covid u will be t	up the next into	13 and in develop in develop intart task ean migre s short-be s short-be to "no im J+ countri for EU+ to d-19,	12/18/2020 review html?ide Page 30 14, please Page 31 igration ping scenar- in the station flows, sm effect ses, and emi- countries in countries in type o o	:13 PM 14 of 17 186804/ Qaunthfig pilo	It survey copy - View - Nettak What is your qualitative waverage during the year Because of Covid-19,	ijema 2 assess i regenta 2021 very mech bower 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	sment of -2028, c	the importance of the importan	act of C d to the boor O O O d to yo d to yo	e covid-19 Bows for ange	Https://aet	tskjema r ation flori obal obal operation	woluser/fo wes for EI we for a fill we for a fill we follower follower for a fill we follower	nttl/previe countil very mach higher 0 0 0 0 0 0 0 0 0 0 0 0 0	12/18 w.htm tries (((Pag Deas
arvey cepy – View - Nettid Comments If you have commer state them here. Propertoxx Two final questi The following two que forw. The following the foll	kjema ons: C stions are mathematican for an a mathematican for an a for an a mathematican for an a for a	ovid-11 orelated at we h at we here the the the the the the the the the th	IS and EL to the possi ope to receive flows in the recovid-19 to related to the ints scale, ra be EU+ countries the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of th	ropear ropear te impacta e from yo future, of e average e average rear, Que e average rear, Que rear, Que rear	wers to o wers to o of Covid- u will be covid-15 and to effect fc covid-15 e effect fc covid-	ttion -I to n European -I to n European useful who who European on European -I to n European -I	I 3 and 1 13 and 1 13 and 1 14 and 1 15	12/18/2020 reveview.html?ide Page 30 14, please Page 31 14, please Pag	:13 PM 14 of 17 186804/ Qaunthfig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> Because of Covid-19,	i assess assess very meder o o o ts or ar r answe lid you	sment of -2026, c	the importance of the importan	act of C d to the kower O O O d to yo d to yo vser on vey?	E tovid-19 Bows for a comp C C C C C C C C C C C C C C C C C C C	ittps://net on migrr lange higher o	tskjema r ation flor what higher O Q questio	w/user/fo w/s for El wigher much higher 0 0 0 0 0 0 0 0 0 0 0 0 0	nttrifferevie very mach nubber o o o nd 16, p	12/18 w.htm da n (() Pag Pag Pag C_
arvey copy – View - Nettal Comments If you have comment sale them here. Properman Pro	kjema ons: C stions are rmation ti for an ar avas quesi telut court telut court telut court ort-ter orte	ovid-1 orelated orela	IS and EL to the possi ope to receive ment for the recovid-19 is related to the rest of COV is related to the rest of COV is related to the r	ropear termination of the second of the sec	wers to o migra of Covidi u will be covid-15 effect fr covid-15 effect fr covid-15 effect fr or migra normality setter from the performance of the normality setter for the	tion -19 on Euro so an impo you be should who so an impo you be compo- se of Covir was into EU atten flower -19 on Europa -19 on Eu	13 and 1 13 and 1 14 and 1 15 and 15 and	12/18/2020 werview html?ide Page 30 14, please Page 31 igration igration in flows, mm effect s s updc? to es, and emi- countries in cou	:13 PM 14 of 17 186800/ QuantMig pilo	It survey copy — View - Nettak What is your <u>gualitative</u> Because of Covid-19, ,	jema 2 assesses is 2021 is 202	sment of 2026, c 2026, c 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	the important of the im	act of C d to the kover C C C d to yo d to yo	etuange	Ittps://net on migrary higher O O Vers to o	takjema r rage pro- solat higher O	ws for El scovid- nuch higher 0 0 0 0 0 0 0 0 0 0 0 0 0	nd 16, p	tries definitions ((() Particular
arvey copy – View - Nettid Comments If you have comment state them here. Proprometer Proprometer Proprometer Two final questi The following two que to distinguist and of info ics and story lines on Compared to the flows they var 2021, where (2021-2020). Please give your answ Yvey much higher'. We distinguist helve Question 16.5 Sh What is your qualitativ Question 15.5 Sh What is your qualitativ Question 15.5 Sh What is your qualitativ Question 15.5 Sh What is your qualitativ Question 16.5 Sh What is your qualitativ Questi	kjema tits or arg ons: C stions ar stions ar mation ti possible was rers on a n flows to c the sessess or the sessessess or the sessessessessessessessessessessessesse	ovid-1 prestade at we h prestade g assess g asses g assess g asses g assess g asses	IS and EL to the possi ope to receive to the possi new to the to the scale, ra EU+ countre the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact of the impact	ropear te impact te from you future, w impact of future, w impact of rear, Que e average id-19 Covid-15 C	https://net wers to o or migr of Covid u will be stion 15 of Stion 15 of Sti	tion tion -19 on Europ s about the set with the next tion force s about the over s about the ov	13 and 1 13 and 1 13 and 1 14 and 1 15 and 1 15 and 1 16 and 16 16 an	12/18/2020 werview bitm1?ide Page 30 14, please Page 31 igration ping scenar- cin the sation flows, s ation flows, s countries in verview countries in coun	:13 PM 14 of 17 786800// QanntMig pilo	It survey copy - View - Nettak What is your <u>qualitative</u> waverage during the yeag Because of Covid-19,migration flows into EU- counties will beemigration flows into EU- counties will be	jema 2 assess r 2021 www meth bowv 0 0 0 ts or ar r answu id you	sment of 2028, C	the important sources what is relate	act of C d to the kover C C C C C d to yo d to yo	L covid-19 of the second secon	vers to n	tskjema r ation flori rage pro- what hapher O	wofusec/for ws for El ws for El much higher 0 0 0 0 0 0 0 0 0 0 0 0 0	I J- count by early were much hubber o nd 16, p	L2/18 white tries defined and tries of the second sec

e interested in any general com n in the box below.	nts, suggestions or questions you might have. These can be w
ou many minutes, approximate	fid it take you to approve the questions?
ow many minutes, approximatel	did it take you to answer the questions?
ow many minutes, approximate	did it take you to answer the questions?
ow many minutes, approximate	did it take you to answer the questions?
low many minutes, approximatel	did it take you to answer the questions?

Long-term ingrant A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arrival, the person will be a <u>long-term intrujutative</u>, we set ¹ United Nations (1998) Recommendations on statistics of international migration. Statistical Papers Series M, No. SR. Rev. 1. Department of Economic and Social Affairs, Statistical Division, United Nations, New York,

B Questionnaire second Delphi round
QuantMig Delphi 2nd round copy

Page 1



Please fill in your name (first name and surname), * Note: questions marked by an asterisk (*) require an answer

Second round of QuantMig Delphi survey

As you may recall, the aim of QuantiNig is to produce comprehensive, multi-perspective and robust quantitative migration scenarios to support various areas of European migration policy. The QuantiNig-scenarios will be based on a set of statistical estimates of international migration flows and their driv-ers. These estimates will result from a statistical model for migration count data. The statistical model uses, as part of its input, information about migration measurement systems, elicited, through a two-round Deliphi survey, from the migration experts.

This is the second round of the Delphi survey. This introduction repeats, to a large extent, the introductory comments of the first round.

IMPORTANT

Your answers will be stored only once, namely, at the time you submit the completed questionnaire. Until then, all your answers are in your browser, <u>This means that you should not close your browser as</u> for a <u>svoi</u> are working on the survey. Furthermore, the program that directs the questionnaire will au-tomatically close 4 hours (240 minutes) after you have typed your last test, As long as you continue answering the survey within the window of 4 hours, this will not occur,

32 European countries

The questions relate to migration measurement in 32 European countries: EU-27 plus EFTA countries (Iceland, Norway, Liechtenstein, Switzerland) plus the United Kingdom. Collectively, we refer to them as EU+.

Undercount and accuracy

This questionnaire has three main sections, with the same questions as in the first round. The ques-tions refer to undercount in two groups of countries (Sections 1 and 2), and accuracy of migration me surement (Section 3).

surement (section 3). Undercount is bo understood as the extent to which the true migration flow is captured by the data collection system in a given country. It is different from "coverage" (not addressed in this survey), which refers to the fact that some countries do not include all types of migrants in their measurements, for instance students or nationals.

Accuracy relates to random errors in migration measurement, for instance administrative errors in the processing of the data.lt is different from "coverage", which refers to systematic errors ("bias").

12/20/2020, 9:18 PM 2 of 20

Delphi 2nd round copy - View - Nettskjema

where they apply for asylum, because the 12 months criterion cannot be applied. Asylum seekers who have their application rannoted in a particular year are part of the immigration flow for that year. Asylum seekers whose application is no right and the discussion in principle haves to leave the country, are not in-discussion to be origination of the form of the years in the second second

Therefore, when we refer to the UN definition as the benchmark, we only include those asylum seekers who have been granted asylum and in the year it was granted.

Low and high undercount countries

For undercount, we have grouped the 32 countries into two categories: two undercount countries and high undercount countries. The grouping is based on our findings in the IMEM-project (http://www.coc.au/koroied/31/ad/34/ad/weniew). Autria, Balgim, United Kingdom, Cyprus, Indiand, Baly, France, Luxembourg, Switzedand, and Immigration to Spain. Mich undercount countries: Telefand: Craftic External Libits Defand Schart Steamin Steaming Tenzies.

- High undercount countries: Bulgaria, Croatia, Estonia, Lithuania, Latvia, Poland, Slovenia, Slovakia, Romania, the Czech Republic, Greece, Hungary, Liechtenstein, Malta, Portugal, and emigration from Spain.

Feedback from first round

Each question in this second round is accompanied by a table with the answers from all respondents of the first round, including your own answers. This will allow you to consider whether you wish to re-vise your answers from the first round, or not.

There is one column for each respondent. The rows give, for each range, its lower bound (r1) and its upper bound (r2), as well as the level of confidence (indicated by the letter c). upper bound (12), as well as the server or commence (indicated by the enter 5). The respondents are anonymous - only their identification number (given. You find your own identifi-cation number (id) in the recent email and in the report on first round results that I attached to that email.

Revising your answer is particularly important in case the report explicitly mentioned, under the head-ing "Comments and clarifications", that some of your ranges were outside the interval from 0 to 100 per cent. or that they were inconsistent otherwise.

Page break

Section 1. Undercount in migration to and from "low undercount countries"

Because migrants do not always have sufficient incentives to report their moves to the relevant author-ities, migration statistics are often lower than the true total level. For immigrants this difference is throught to be smaller than for emigrants.

When we ask you to give undercount as a percentage, this refers to the ratio between not counted and the real (but unknown) flow. An ideal measurement system has an undercount of zero. The larger the percentage you give, the worse is your assessment of the system. An undercount of 100 % applies to the extreme situation in which none of the migrants are measured by the system. As stated before, we disregard undocumented migrants.

The following questions are restricted to migration to and from countries defined as "low undercount countries" (The Kehnefands, Sweden, Finland, Norway, Demmark, Germany, Iceland, Austria, Begium United Kingdom, Cynsus, Ireland, Hully, France, Luembourg, Switzerland, and immigration to Spain). First, we ask your opinion about immigration and emigration flows for <u>nationals</u>. Le, persons with na-tionally in one of the 32 EU+ countries. Next, there are questions for <u>non-nationals</u>.

Pre-Brexit

Undercount, accuracy and other characteristics regarding the measurement of international migration have varied over time. Your answers to the questions below should relate to the <u>situation, on average</u> <u>during the period 2009 - 2019 (before Brexit)</u> in the EU+ countries. This means, among other things, the extent to which countries have implemented the EU Regulation 862/2007 on Community statistics on migration and international protection, adopted by the European Parlament in 2007

Answers in terms of a range

It is clear that measurement practices differ widely among European countries. Yet it is not feasible to ask questions for each of the EU- countries, instead, we invite you to state your estimates in terms of ranges, together with associated levels of confidence.

The ranges and confidence levels should reflect your belief about the variability between countries, but also your uncertainty in the answers.

and you understand the understand that you state that you are about 75 per cent certain that undercount was between 20 and 60 per cent in a given situation. We will use these numbers to construct a probability distribution for this type of undercount such that chances are 100 - 75 = 25 per cent that undercount was less than 20 per cent or more than 60 per cent.

Further explanations on the probability distributions have been provided in the report on the first round results that you received by separate email.

Page break

United Nations definition as benchmark for migration

In many cases, we ask you to give your opinion about how a specific measurement of international migration deviates from a benchmark.

As the benchmark, we have adopted the United Nations definition, which corresponds with the defi-nition included in the EU Regulation 862/2007 mentioned earlier. The definition is given below.

United Nations definition of international migration¹

Concer various elements of international implations Long-term migrant A person who noves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of residence effectively becomes his or her new country of usual residence. From the perspective of the country of departure, the person will be a long-term emigrant and from that of the country of arrival, the person will be a long-term immigrant.

¹ United Nations (1998) Recommendations on statistics of international migration. Statistical Papers Series M, No, 56, Rev. 1, Department of Economic and Social Affairs, Statistical Division, United Nations New York.

Notes

unsecumented migration
In theory, the UN definition includes undocumented ("illegial") migrants. In practice, the migration statis-tics in most countries do not cover undocumented migrants. This is also in line with the EU Regulation 82/2007.

Therefore, when we refer to the UN definition as the benchmark, we do not include undocu-mented migrants.

 Asylum seekers Asylum seekers are not included in the immigration flow for the year in which they arrive in the country

12/20/2020, 9:18 PM

https://nettskjema.no/user/form/preview.html?id=178711#/

https://nettskjema.no/user/form/preview.html?id=178711#/ QuantMig Delphi 2nd round copy - View - Nettskjema

Question 1. Emigration of nationals

(a) By how many per cent do you expect that emigration flows of nationals who leave low undercount countries are undercounted in the published statistics of those countries, as compared to the true level of emigration of antionals? Please provide a range in percentages between 0 and 100, in other words, the lower end of the range (r1) is larger than 0, whereas the upper end of the range (r2) is smaller than 100 - but larger than r1. r1 =

-		

1b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above?

0	50 %
0	75 %
0	90 %
0	95 %
0	other (pease state)
•	

r2

This element is only shown when the option "other (pease state)" is selected in the question "1b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above?"

Answers from round 1 for this question

id	8526257	8533066	8546148	8553207	8593119	8628621	8673705	8675156
r1	0 %	0 %	10 %	5 %	10 %	20 %	10 %	25 %
r2	20 %	50 %	20 %	35 %	30 %	40 %	20 %	35 %
с	75 %	95 %	75 %	75 %	75 %	50 %	75 %	75 %
id	8681334	8696877	8698827	8700689	8707108	8708183	8709921	
r1	30 %	7%	20 %	5 %	10 %	1%	10 %	
r2	90 %	10 %	40 %	20 %	30 %	59 %	30 %	
с	50 %	90 %	75 %	75 %	75 %	75 %	50 %	

Page break

Рала 2

									Page 4	
Que	estion 2	. Immig	ration o	of nation	nals					Page
2a) E coun	by how mai tries are un	ny per cen idercounte	t do you e ed in the p	xpect that ublished st	immigration tatistics of t	n flows of i those cour	nationa l s w	ho enter lo mpared to	v undercount the true level	Question 3. Emigration of non-nationals 3a) By how many per cent do you expect that emigration flows of non-nationals who leave low under-
ofim a low	migration of ver end of	of nationals the range	s? Please (r1) and a	provide a n upper en	range in pe d of the ra	ercentages nge (r2).	between 0) and 100 a	s before, with	count countries are undercounted in the published statistics of those countries, as compared to the true level of emigration of non-nationals? Please provide a range in percentages between 0 and 100
r1 =										as before, with a lower end of the range (r1) and an upper end of the range (r2).
										n =
r2 =										
										12 =
2b) /	Approxima	ate l y, how	/ certain a	are you th	at the true	e underco	unt of nati	ona l s will	ie within the	
rang	e that you	ı provideo	d above?							3b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?
0	75 %									O 50 %
0	90 %									○ 75%
0	95 %									O 90 %
0	other (pea	se state)								○ 95 %
-										O other (pease state)
*										
	This eleme	ent is on i v si	hown when	the option "	other (pease	e state)" is s	elected in			•
6	the question nationals v	on "2b) Appr vill lie within	roximately, I the range t	how certain that you pro	are you that vided above	t the trúe un ?"	dercount of			This element is only shown when the option "other (pease state)" is selected in the question "3b) Approximately, how certain are you that the true undercount of non-microades will is writin the range that you provided above?"
othe										other
Ans	wers fr	om rou	nd 1 for	r this qu	iestion					A second data and the second data and the second data
id	8526257	8533066	8546148	8553207	8593119	8628621	8673705	8675156		Answers from round 1 for this question
r1	0 %	0 %	5 %	0 %	5 %	20 %	20 %	3 %		
r2	5 %	25 %	10 %	35 %	10 %	30 %	30 %	5 %		
c	50 %	90 %	95 %	95 %	90 %	50 %	50 %	75 %		
id	8681334	8696877	8698827	8700689	8707108	8708183	8709921			
r1	20 %	0 %	10 %	5 %	5 %	7 %	10 %			
r2	50 %	5 %	30 %	20 %	10 %	79 %	20 %			
c	50 %	90 %	75 %	90 %	75 %	75 %	75 %			

12/20/2020, 9:18 PM 6 of 20

12/20/2020, 9:18 PM

https://nettskjema.no/user/form/preview.html?id=178711#/

https://nettskjema.no/user/form/preview.html?id=178711#/ QuantMig Delphi 2nd round copy - View - Nettskjema

 Id
 8523627
 853308
 8543148
 8553207
 8593119
 8628621
 8673705
 8673758

 r1
 10 %
 0 %
 20 %
 10 %
 20 %
 20 %
 40 %
 30 %

 r2
 30 %
 50 %
 30 %
 80 %
 40 %
 40 %
 40 %
 40 %

 c
 50 %
 90 %
 75 %
 85 %
 50 %
 50 %
 50 %
 50 %
 75 %

 id
 8681334
 6686877
 868827
 8700588
 8707108
 8708188
 870921

 r1
 30 %
 8 %
 10 %
 5 %
 10 %
 0 %
 30 %

 r2
 20 %
 15 %
 30 %
 20 %
 20 %
 36 %
 60 %

 r5
 50 %
 20 %
 25 %
 75 %
 50 %
 75 %
 50 %

Page break

r1 =

elphi 2nd round copy - View - Nettskjema

Page 6

4a) By how many per cent do you expect that immigration flows of non-nationals who enter low under-count countries are undercounted in the published statistics of those countries, as compared to the true level of immigration of non-nationals? Please provide a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2).

r2 =

Question 4. Immigration of non-nationals

4b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?

O 50 % 0 75 % 0 90 % O 95 %

O other (pease state)

*

This element is only shown when the option "other (pease state)" is selected in the question "4b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?"

other

Answers from round 1 for this question

id	8526257	8533066	8546148	8553207	8593119	8628621	8673705	8675156
r1	5 %	0%	10 %	10 %	10 %	10 %	20 %	5 %
r2	15 %	10 %	20 %	40 %	30 %	20 %	40 %	10 %
с	50 %	90 %	90 %	90 %	75 %	75 %	50 %	75 %
id	8681334	8696877	8698827	8700689	8707108	8708183	8709921	
r1	20 %	0 %	5 %	5 %	5 %	1 %	20 %	
r2	60 %	7%	20 %	10 %	10 %	24 %	40 %	
с	50 %	90 %	75 %	90 %	75 %	75 %	50 %	

Comments

If you have comments or arguments related to your answers to questions 1 - 4, please state them here.

Page break

Section 2. Undercount in migration to and from "high undercount countries"

In this section, we ask you to answer the same questions as before, but now the questions refer to the group of countries that we defined as "high undercount countries". Bulgaria, Croatia, Estonia, Lithurania, Laiva, Pedand, Slovevia, Romania, the Czech peuble, Greece, Hungary, Liechtenstein, Malla, Portugal, and emigration from Spain. First, we ask your ophion about immigration and emigration flows for <u>nationals</u>. Lee, persons with na-tionally in one of the 32 EU+ countries. Next, there are questions for <u>non-nationals</u>.

Question 5. Emigration of nationals

5a) By how many per cent do you expect that emigration flows of nationals who leave high undercount countries are undercounted in the published statistics of those countries, as compared to the true level of emigration of nationals? Please provide a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2).

5b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above? 0 50 % 6b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above? 0 75% 0 50 % O 90 % 0 75 % 0 95 % O 90 % O other (pease state) 0 95 % O other (pease state) This element is only shown when the option "other (pease state)" is selected in the question "5b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above?" This element is only shown when the option "other (pease state)" is selected in the question "6b) Approximately, how certain are you that the true undercount of nationals will lie within the range that you provided above?" other other Answers from round 1 for this question id 8526257 8533066 8546148 8553207 8593119 8628621 8673705 8675156
 r1
 20 %
 0 %
 20 %
 10 %

 r2
 40 %
 100 %
 40 %
 45 %

 c
 50 %
 50 %
 75 %
 50 %

 50 %
 20 %
 50 %
 30 %

 80 %
 40 %
 70 %
 50 %

 75 %
 50 %
 50 %
 50 %
 Answers from round 1 for this question
 Id
 852257
 853306
 854148
 855327
 859310
 862821
 8673705
 8675156

 I1
 5 %
 0 %
 30 %
 5 %
 50 %
 30 %
 5 %
 50 %
 10 %

 I2
 10 %
 100 %
 50 %
 45 %
 80 %
 30 %
 50 %
 20 %
 2 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 50 %
 <
 id
 8681344
 8696877
 8698827
 8700989
 6707108
 8708183
 870921

 r1
 50 %
 10 %
 20 %
 20 %
 20 %
 3 %
 30 %

 r2
 100 %
 20 %
 80 %
 75 %
 40 %
 60 %
 60 %
 60 %
 60 %
 60 %
 50 %
 75 %
 50 %
 60 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 75 %
 50 %
 id 8681334 8696877 8698827 8700689 8707108 8708183 8709921
 Id
 Borlis - Source
 Page break Page break Page 8 Question 6. Immigration of nationals 6a) By how many per cent do you expect that immigration (bows of nationals who enter high under-count countries are undercounted in the published statistics of those countries, as compared to the true level of immigration of nationals? Please provide a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2), Question 7, Emigration of non-nationals 7a) By how many per cent do you expect that emigration flows of non-nationals who leave high under-count countries are undercounted in the published statistics of those countries, as compared to the true level of enrigation of non-nationals? Please provide a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2). r1 = r1 = r2 = 12/20/2020, 9:18 PM 10 of 20 12/20/2020, 9:18 PM elphi 2nd round copy - View - Nettskjema https://nettskjema.no/user/form/preview.html?id=178711#/ QuantMig Delphi 2nd round copy - View - Nettskjema https://nettskjema.no/user/form/preview.html?id=178711#/ r2 = r2 = 7b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above? O 50 % 8b) Approximately, how certain are you that the true undercount of non-nationals will lie 0 75% within the range that you provided above? 0 50 % O 90 % O 75 % O 95 % 0 90 % O other (pease state) O 95 % other (pease state) This element is only shown when the option "other (pease state)" is selected in the question "7b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?" * This element is only shown when the option "other (pease state)" is selected in the question "8b) Approximately, how certain are you that the true undercount of non-nationals will lie within the range that you provided above?" other other Answers from round 1 for this question id 8526257 8533066 8546148 8553207 8593119 8628621 8673705 8675156 r1 40 % r2 60 % c 50 % 0 % 100 % 75 %
 10 %
 50 %
 60 %
 40 %
 50 %

 20 %
 90 %
 90 %
 60 %
 80 %

 75 %
 75 %
 50 %
 50 %
 50 %
 30 % Answers from round 1 for this question 50 % id 8526257 8533066 8546148 8553207 8593119 8628621 8673705 8675156
 0 %
 10 %
 40 %

 100 %
 20 %
 60 %

 75 %
 90 %
 75 %
 20 % 20 % 40 % 30 % 75 % 50 % r1 10 % r2 20 % 40 % 10 %
 Id
 8691334
 8698877
 8700580
 8707108
 8708183
 870921

 I1
 30 %
 10 %
 10 %
 25 %
 3 %
 30 %

 I2
 90 %
 25 %
 50 %
 25 %
 35 %
 60 %
 60 %

 c
 50 %
 75 %
 50 %
 90 %
 75 %
 50 %
 c 50 % 50 % 50 %
 id
 869837
 8698827
 870698
 670710
 870818
 870921

 rl
 30.4
 0.5
 10.4
 10.4
 10.4
 30.4
 10.4

 2
 80.4
 7.5
 50.4
 50.4
 20.4
 20.4
 20.4

 2
 6.54
 7.55
 50.4
 50.4
 7.5
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4
 50.4</td Page break Comments Page 10 Question 8. Immigration of non-nationals If you have comments or arguments related to your answers to questions 5 - 8, please state 8a) By how many per cent do you expect that immigration flows of non-nationals who enter high under-count countries are undercounted in the published statistics of those countries, as compared to the true level of immigration of non-nationals? Please provide a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2).

r1 =

	within the range that you provided above?"
	other
Page broak	Answers from round 1 for this question
Page 11	id 8526257 8533086 8546148 8553207 8593119 8628621 8673705 8675156
ction 3. Accuracy of migration measurement	r1 50 % 60 % 90 % 80 % 50 % 10 % 80 % 90 %
following questions are about random fluctuations in measured emigration and immigration, We nguish between nationals and non-nationals, and, moreover, between population registers and mi-	r2 75 % 100 % 100 % 70 % 20 % 90 % 95 % c 50 % 95 % 75 % 90 % 50 % 75 % 50 %
ion surveys as data collection systems, sider a European country with a population register in which there is no systematic bias in the	id 8681334 8696877 8698827 8700689 8707108 8708183 8709921
surement of migration. In other words, there is no undercount, and the measurement system cov- all persons who migrate (in the sense of the UN definition). In this case, still we may expect ran- increase of the data to address the sense of the data to address the based of micro-	r1 -25 % 90 % 40 % 10 % 50 % 8 % 5 %
factors, to instance automaticative errors in the processing of the data, to anect the proof of migra- that is actually measured, stions 9, -12 all relate to this hypothetical country.	c 50 % 95 % 85 % 75 % 75 % - 75 %
	Page treak
astion 9. Emigration of nationals, REGIS I ER Country	
terval from minus 5% to plus 5% compared to the true level of emigration? (If it helps, think of how n the annual published statistics are within this interval during a period of 100 years.) Please give	Page 1
assessment as a range in percentages between 0 and 100 as before, with a lower end of the e (r1) and an upper end of the range (r2),	Question 10. Immigration of nationals, REGISTER country
	an interval from minus 5% to plus 5% compared to the true level of immigration? (if it helps, think of how often the annual published statistics are within this interval during a period of 100 years.) Please
	give your assessment as a range in percentages between 0 and 100 as before, with a lower end of the range (r1) and an upper end of the range (r2).
	ri =
Approximately, how certain are you that the true value will lie within the range that you	12 =
ided above?	
50 %	10b) Approximately, how certain are you that the true value will lie within the range that you
9% C1,	provided above?
90 90 96 20 20 20 20 20 20 20 20 20 20 20 20 20 2	0 50 %
other (pease state)	0 75 %
the first court	0 90 %
	0 95 %
12/20/2020, 9:18 PM 14 o round copy – View • Nettskjema https://nettskjema.no/user/form/preview.html?id=178711#/ Quan	O other (pease state) (20 12/20/20 ntMig Delphi 2nd round copy – View - Nettskjema https://nettskjema.no/user/form/preview.html?/
12/20/2020, 9:18 PM 14 o round copy – View – Nettskjema https://nettskjema.no/user/form/preview.html?/id=1787/11#/ Quan This element is only shown when the option "other (pease state)" is selected in the question "100/ Approximately, now ortain are you that the true value will le III is element is only shown when the option "other (pease state)" is selected in the question "100/ Approximately, now ortain are you that the true value will le	other (pease state) 20 12/20/20 12/20 1
12/20/2020, 9:18 PM 14 o round copy – View – Netiskjema https://jsttiskjema.no/user/form/preview.html?kd=178711#/ Qua This element is only shown when the option "other (pease state)" is selected in the question "100) Approximately, how certain are you that the true value will lie within the range that you provided above?" are you that the true value will lie	other (pease state) 20 20 22020 22020 22020 20 22020 20 22020 20
12/20/2020, 9:18 PM 14 o round copy – View – Netakjema https://tettakjema.no/user/form/preview.html?ki=178711#/ Qua This element is only shown when the option "other (pease state)" is selected in the question "100) Approximately, how certain are you that the true value will le within the range that you provided above?" Pr	other (pease state) 20 20 20 20 20 20 20 20 20 20 20 20 20
12202020, 9:18 FM 14 o round copy – View • Nettskjema https://nettskjema.no/user/form/preview.html?id=178711#/ Quar This element is only shown when the option "other (pease statu)" is selected in the question "100) Approximately, how cortain are you that the true value will le may be used to provide a lacver?	other (pease state) 20 20 22020 22020 22020 22020 22020 22020 22020 22020 20
14 or round copy – View - Nettakjema https://settakjema.mo/user/form/preview.html?id=178711#/ Quar This element is only shown when the option "other (pease state)" is selected in the question "109/ Approximately, how ontain are you that the true value will be within the range that you provided above?" r sweers from round 1 for this question 8529257 853216 8529257 853216 8529257 853216	other (pease state) 220 22020 22020 22020 22020 22020 22020 20Mig Delphi 2nd round copy – View - Nettskjema https://nettskjema.no/user/form/preview.html? other (pease state) . This dement is only shown when the option "other (pease state)" is selected in the question "11b) Approximately, how certain are you that the true value will lie within the range that you provided above?" other
22202020, 9:18 PM 14 o usuad copy – View - Nettikjema https://nettikjema.no/user/form/preview.html?id=1787114/ Qua This element is only shown when the option "other (pease state)" is selected in the question "100/ Approximately, now certain are you that the true value will be within the range that you provided above?" r severs from round 1 for this question <u>8556257 8533066 8546148 855327 8593119 8628621 8673705 8675156 00% 80% 80% 80% 85% 70% 10% 00% 80% 85% </u>	other (pease state) 20 20 22020 20 20 20 20 20 20 20 20 20
14 or vound copy – View - Nettskjema https://nettskjema.no/uscr/form/preview.html?id=1787114 Quas This element is orly shown when the option "other (pease stata") is selected in the question "00b Approximately, how ontain are you that the true value will be within the range that you provided above?" r swers from round 1 for this question 8054257 853006 8540148 8553207 8593119 8024821 8673705 8675156 100 % 100 % 90 % 90 % 93 % 100 % 90 % 90 % 95 % 00 % 00 % 95 % 00 %	other (pease state) 20 20 202020 20/20 20/2020 20/20 20/2020 20/20 20/2020 20/20 20/202 20/20 20/202 20/20 20
20202020,9:18 M 14 or outed copy – View - Nettskjema https://nettskjema.no/user/form/preview.html?id=1787110 Quas This element is only shown when the option "other (pease statp") is selected in the question "10b) Approximately, how certain are you that the true value will be within the range that you provided above? Maintain and the option "other (pease statp") is selected in the question "10b) Approximately, how certain are you that the true value will be within the range that you provided above? Maintain and the option "other (pease statp") is selected in the option "0 the true value will be within the range that you provided above? Maintain and the option "0 the true value will be within the true value will be within the range that you provided above? Maintain and the option "0 the option "0 the true value will be within the true value will be within the range that you provided above? Maintain and the option "0 the option "0 the option" option and the option "0 the option "0 the option" option and the option "0 the option" option and the option and the option and the option option and the option and the option and the option	other (pease state) 120 122020 12Mig Delphi 2nd round copy – View - Nettskjema https://nettskjema.no/user/form/preview.html? other (pease state) • <p< td=""></p<>
20202020,928 20 303006 553019 Mtpts://httts/jema.no/user/form/preview.html?id=1787110 Quad This element is only shown when the option "other (peese state)" is selected in twe queetion "'060 Approximately, now certain are you that the twe value will be within the range that you provided above?" The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in twe value will be within the range that you provided above? The selement is only shown when the option "other (peese state)" is selected in the option "other (peese	other (pease state) 2.20 2.20 2.20 2.20 2.20 2.20 2.20 2.
20202020,928 20 3000 000000000000000000000000000000000000	other (pease state) (20 12020 atking Delphi 2nd round copy – View - Nettskjema https://nettskjema.no/user/form/preview.html? other (pease state) • <p< td=""></p<>
20202029,918.201 https://nettskjema.no/user/form/preview.html?/id=787110 Quar This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? This element is only shown when the option "other (pease stata)" is selected in buyen to no you provided above? Stata in the option to no you provided above? This element is only shown when the option to no you provide above? This element is only shown when the option to no you provide above? Stata in the option to no you provide above? This element is only shown when the option to no you provide above? This element is only shown when the option to no you provide above?<	other (pease state) 122020 1200 (2000) https://netRidgema.no/user/form/preview.html? indig Delphi 2nd round copy – View - Nettskjema https://netRidgema.no/user/form/preview.html? o other (pease state) . . This efement is only shown when the option "other (pease state)" is selected in the upeater within the range that you provided above?" other . . .
generation 2020209,018.00 Quart constraining on point on the option "other (peese statish)" is selected in the user value wells wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The interference on the option "other (peese statish)" is selected in the user value wells. The option opti	o other (pease state) 22020 12010 120200 12010 11011
<text><text><text><text><text><text></text></text></text></text></text></text>	other (pease state) (20) 12020 atkgs Delphi 2nd round copy – View - Nottskjema other (pease state) This dement is only shown when the option "other (pease state)" is selected in the use within the range that you provimately, how cortain are you that the true value will be within the range that you provimately, how cortain are you that the true value will be within the range that you provimately, how cortain are you that the true value will be within the range that you provimately, how cortain are you that the true value will be within the range that you provimately how cortain are you that the true value will be within the range that you provimately how cortain are you that the true value will be within the range that you provimately how cortain are you that the true value will be within the range that you provide above?" Other Constant Const
2020209,201200 2020209,201200 Quart water copy — View - Nettakijema Inter/Institutijema noviker/Institutije/Instititi/Institutije/Institutije/Instititutije/Inst	gener (pease state) 200 ax803 Deba12 Dal round copy - View - Nottakjema arbitry - Display - Display - Nottakjema arbitry - Display - Display - Nottakjema arbitry - Display -
1202002.01.2003 DisplayInstantion Quart The demending only shown wheth the option "other (peese state)" is selected in the user allow only only objection wheth the option "other (peese state)" is selected in the user allow only only objection wheth the option only on provided above? Image: Comparison on	g other (pease state) 2000 ax80x Debpla Dad round copy - View - Nottakjema arbiter, pease state) g other (pease state) arbiter, pease state) b other (pease state) arbiter, pease state) arbiter, pease state) b other (pease state) c other (pease state)
<text><text><text><text><text><form><form><form></form></form></form></text></text></text></text></text>	c) other (pease state) (2) 12020 atMg Delphi 2nd round copy – View - Nettskjema https://nettskjema.no/user/form/preview.html? • other (pease state) • • other (pease state) • • This dement is only shown when the option "other (pease state)" is selected in the use in the true value will be within the around betwo?" • the question "10b Approximately, how cortain are you that the true value will be within the around betwo?" • the cuestion "10b Approximately, how cortain are you that the true value will be within the around the double. • the cuestion "10b Approximately, how cortain are you that the true value will be within the around be double." • the cuestion "10b Approximately, how cortain are you that the true value will be within the around be double. • the cuestion "10b Approximately, how cortain are you that the true value will be within the around be double. • the cuestion "10b Approximately, how cortain are you that the true value will be within the around be double. • the cuestion "10b Approximately, how cortain are you that the true value will be within the around be double. • the cuestion of the cuestion
<text><text><text><text><text><form><form><form></form></form></form></text></text></text></text></text>	c) other (pease state) (2) (2) (2)
<text><text><text><text><text><form><form><form></form></form></form></text></text></text></text></text>	 general (pease state) (20) (2020) (21) (21) (21) (21) (21) (21) (21) (21)
<text></text>	c) other (pease state) (2) to the (pease state) (2) the (pease state) (2) other (pease state) (2) other (pease state) (3) other (pease state) (4) other (pease state) (5) other (pease state) (5) other (pease state) (6) other (pease state) (7) other (pease state) <p< td=""></p<>
<text></text>	c) other (pease state) (2) to the (pease state) (2) the (pease state) (2) the (pease state) (2) other (pease state) (3) other (pease state) (4) other (pease state) (5) other (pease state) (6) other (pease state) (7) Other (pease state) (7) Other (pease state) (8) other (pease state) (
	<pre>d per (pesse state) () per (pesse state) () () per (pesse state) ()</pre>
<form> Inspresentation Inspresentation Inspresentation Inspresentation</form>	c) protect (peese state) (2) to transmission of the state of
<form> wata components to compare the control of the fue sector of the fue se</form>	c) other (pease state) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)
<form></form>	_ other (pease state) (2) (2) (3) (2) (4) (2) (5) (

1 45 %										how	nterval from often the a	n minus 5% Innua l pub	to plus 59 ished stati	% compar istics are v	ed to the t vithin this	rue level o interval du	f immigrati Iring a peri	on? (If it he od of 100 ye	lps, th ears.)
0 95 %										give the	your asse range (r1)	ssment as and an upp	a range in er end of t	percentag	ies betwe (r2).	en 0 and 1	00 as befo	re, with a l	owere
O other (peak	se state)									r1 =									
*																			
This eleme	nt is only sh	hown when	the option "	other (pease	state)" is a	elected in				r2 =									
within the r	ange that y	ou provideo	above?"	r are you uie	11 110 110 4	alge will lie													
other										13b) Approxir	natelv. ho	w certain	are vou t	hat the tr	ue value	will lie wit	hin the ran	ae th
										prov	vided abo	/e?	oortaari			uo rajuo			90 11
Answers fro	om roui	nd 1 for	this qu	estion						0	50 %								
id 8526257	8533066	8546148	8553207	8593119	8628621	8673705	8675156			0	75 %								
r1 50 %	90 % 100 %	90 %	85 %	60 %	20 %	80 %	90 %			0	90%								
c 50 %	95 %	90 %	90 %	75 %	75 %	75 %	50 %				other (per	no ctato)							
id 8681334	8696877	8698827	8700689	8707108	8708183	8709921					outer (per	ac auto)							
r1 -10 % r2 10 %	95 % 100 %	60 % 90 %	70 % 80 %	80 % 90 %	17 % 27 %	10 % 20 %													
c 50 %	95 %	75 %	90 %	75 %	-	50 %					This elem	entis only s	hown when	the option	other (pea	se state)" is	selected in		
Comments										0	within the	range that y	ou provideo	above?"	n are you t	nai ine true	vanue will lie		
f you have co	mments o	or argume	ents re l ate	ed to your	answers	to questi	ons 9 - 12	2, please sta		othe	r								
hem here.				-		-													
										An	swers fi	om rou	nd 1 for	this au	estion				
										id	8526257	8533066	8546148	8553207	8593119	862862	8673705	8675156	
										r1	50 %	50 %	20 %	40 %	40 %	20 %	30 %	60 %	
Page break										r2 c	50 %	75 %	95 %	75 %	75 %	50 %	50 %	50 %	
										id	8681334	8696877	8698827	8700689	8707108	870818	8709921		
Now consider o	Europea	a country *	hat uses o	survey to	collect m	gration de	ta and and	Page sume that the		r1 r2	-15 %	75 % 90 %	30 % 70 %	60 % 70 %	80 % 90 %	0% 5%	•		
s no systematic	bias in th	e measure	ement of m	igration. In	this case	we may e	expect the	accuracy to b		с	50 %	50 %	75 %	75 %	75 %	-	-		
2nd round copy -	View = Nett	gration	of natio	onals, Si	URVEY	country	y no/user/form	12/20/2 m/preview.html	9:18 PM 18 of 2	20 Mig Delphi 2nd	round copy -	- View - Net	skjema			http:	s://nettskjems	a.no/user/form	1/prev
2nd round copy –	View - Nett	gration skjema	of natio	ona i s, Si	URVEY	country	y no/user/form	12/20/2 m/preview.html	9:18 PM 18 of 2	20 Mig Delphi 2nd Co	round copy - mments	- View - Net	skjema			http:	e://nettskjem/	a.no/user/form	ı/prev
2nd round copy –	View-Nett	gration skjema	of natio	nals, S	https:/	country //nettskjema	y .no/user/form	12/20/2 m/preview.html Page	9:18 PM 18 of 2 178711#/ Quanti	20 Mig Delphi 2nd If yo stat	round copy - mments ou have ca e them he	-View - Net	skjema or argume	ents re l ati	ed to you	http: ir answer:	s to questi	a.no/user/form	1/prev
2nd round copy – Question 14 14a) For immigr	View-Nett 4. Immig	gration skjema gration on-nationa	of natio	national bable do y	https://	country //nettskjema VEY co	y .no/user/form untry a published	12/20/2 m/preview.html Page d statistics are	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yo stat	round copy - mments ou have co e them he	- View - Net	skjema Dr argume	ents re l ati	ed to you	http: ir answer:	r://nettskjems s to questi	a.no/user/form	u/prev
2nd round copy – Question 14 14a) For immigr within an interva funk of how ofte	View – Nett 4. Immig ation of no al from min	gration skjema gration on-nationa us 5% to μ	of natio	national bable do y mpared to servite	Is, SUR	very co	y o/user/form untry e published ingration? g a period of	12/20/2 m/preview.html Page 1 statistics are (If it helps, of 100 years,	9:18 PM 18 of 3	20 Mig Delphi 2nd Co If yc stat	round copy - mments ou have co e them he	- View - Net	skjema pr argume	ents rellati	ed to you	http: ir answer:	s to questi	a.no/user/form ions 13 and See recent chara	1/prev d 14,
2nd round copy – Question 14 14a) For immigrr within an interva think of how ofte Please give ofte Please give and	View – Nett 4. Immig ration of no al from min on the ann r assessm e (r1) and a	gration skjema gration on-nationa nus 5% to ju ual publist ient as a r an upper e	of natio	national phatienal phable do y pompared to cs are with roentages range (r2).	https:// https:// ls, SUR rou think it the true lu in this inter between 0	VEY co	untry published nigration? g a period as before, v	12/20/7 m/preview.html Page d statistics are (If it helps, of 100 years, with a Jower	9:18 PM 18 of 2	20 Mig Delphi 2nd If ye stat	round copy - mments ou have cr e them he	- View - Net	skjema or argume	ents rellati	ed to you	http: ir answer:	s to questi	a.no/user/form ions 13 and See recent charg	1/prov 1 14, es in Ne
2nd round copy – Question 14 14a) For immigrr within an interve think of how oftk Please give you and of the range 1 =	View = Nett 4. Immig ration of no al from min en the ann r assessm e (r1) and i	gration skjema on-nationa us 5% to ual publisi ent as a n an upper e	of natio	national phable do y mpared to cs are with rcentages range (r2).	Is, SUR	VEY co	y 	12/20/2 m/preview.html Page J statistics are (ff it helps, of 100 years, with a lower	9:18 PM 18 of 2	20 Mig Delphi 2nd If yc stat	round copy - mments ou have co e them he	- View - Net	skjema or argume	ents rellati	ed to you	http: ir answer:	r://nettskjema	a.no/user/form ions 13 and	1)/prev
2nd round copy – Question 14 14a) For immigr Within an intervative Within of how of other Please give you and of the range 1 =	View – Nett 4. Immig ation of no al from min n the ann r assessm a (r1) and a	gration skjema gration on-nationa uus 5% to uual publisi ent as a n an upper e	of natio	national obable do y mpared to s cs are with reentages range (r2).	Interest Int	VEY co	y no/user/form untry e published nigration? g a period as before, 1	12/20/3 m/preview.html Page d statistics arc (If it helps, of 100 years, of 100 years, with a lower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yc stat	round copy - mments ou have cr e them he age break	- View - Net	skjema pr argume	ents re l ati	ed to you	http: ir answer:	r://nettskjem/	a.no/user/form ions 13 and	1/prev
2nd round copy – Question 14 14a) For inmigration indication of the second think of how offer Jease give your please give your of the range 1 = 2 =	View = Nett 4. Immig ration of nc al from mine on the ann r assessm o (r1) and :	gration skjema gration on-nationa nus 5% to ual publisi nent as a n ent as an an upper e	of natio	national bable do y mpared to cs are with roentages range (r2).	Is, SUR	VEY co is that the evel of imm rval during and 100 i	y no/user/Torr ountry published nigration? g a period o as before, v	12/20/3 m/preview.html Page 4 statistics ard (If it helps, of 100 years, with a j ower	9:18 PM 18 of 2	20 Mig Delphi 2nd f yo stat	round copy - mments bu have co e them he age break	- View - Net	skjema or argume	ents rellat	ed to you	http: ir answer:	r://nettskjem	a.no/user/form ions 13 and	1/prev d 14,
2nd round copy – Question 14 (4a) For inmigration of the comparison of the compariso	View – Nett 4. Immig ation of ne al from min on the ann r assessr e (r1) and a	gration skjema gration on-nationa uus 5% to uual publisi sent as a n ent as an upper e	of non- blas, how pro- plus 5% con- red statistic ange in pe- end of the r	nationals, Si national obable do y mpared to mpared to cs are with reentages range (r2).	https:// https:// nou think it the true it in this inte between 0	VEY co is that the well of imm rval during and 100 i	y untry e published nigration? g a period as before, t	12/20/7 m/preview.html Page 3 statistics are (fi fi helps, of 100 years, with a lower	9:18 PM 18 of 2	Mig Delphi 2nd	round copy - mments bu have co e them he age break	- View - Net	skjema or argume	ents reliati	ed to you	http: ir answer	r://nettskjem/	a.no/user/form ions 13 and	1/prev d 14,
2nd round copy – Question 1/ 14a) Foi Imrig Within an intervitina in the range 1 = 2 = 14b) Approxim	View - Nett 4. Immig ation of ne al from mina nor meann or assess or (r1) and hately, how	gration skjema gration on-nationa nus 5% to ual publisi ment as a ru ent as a ru an upper e w certain	of natio	national bable do y mpared to cs are with roentages range (r2).	Is, SUR Is, SUR rou think it in this inte between C	vertiskjema VEY co is that the verel of imm rival during and 100 i	y untry published nigration? g a period as before, t as before, t	12/20/7 m/preview.html Page di statistics ara (If it helps, of 100 years, with a lower nge that you	9:18 PM 18 of 2	mi ^p 20 Mig Delphi 2nd Co If yc stat E P Fin Man este	round copy - mments ou have cr e them he age break age break age break	- View - Net	skjema pr argume g these qu ments, sug	ents rellati jestions, 1	our help in or question	nttp: ir answer: s very mua	r://nettskjemi s to questi ch apprecia jht have, T	a.no/user/form ions 13 and servortities sted, We wo	ulid b
2nd round copy – Question 14 (4a) For Immig within an interview Passe give you fasse give you faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give faste give give faste give faste give faste give faste give faste give faste give give faste give give faste give fast faste give faste give give faste give give fast faste give faste give faste give faste give faste give fast faste give faste give faste give faste give faste give fast faste give faste give faste give faste give fast fast fast faste give give fast fast fast fast fast fast fast fast fast fast fast	View - Nett 4. Immig ation of na 1 from min at the ann r assessm a (r1) and a (r1) and a nately, how e?	gration gration on-nationa us 5% to ua publish us publish an upper e	of natio	national national bable do y mpared ho ccs are with rcentages range (r2).	https:///www.https://www.https	country //nettskjema vel of immune vel of im	untry a published nigration? (g a period as before, v	12/20/7 m/preview.html Page di statistics ara (If it helps, of 100 years, with a Jower mith a Jower	9:18 PM 18 of 2	min P 20 Mig Delphi 2nd Co If yy stat min P Fin ester box	round copy - mments nu have co e them he age break age break al comm y thanks for d in any go below.	- View - Net	skjema or argume g these qu ments, sug	ents relations, a	our help i	http://www.http://wwww.http://www	r://nettskjems s to questi s to questi netto questi ch apprecie sht have, T	a no/user/form ions 13 and <u>Benirost class</u> sted. We wo hese can be	ulid b vwrit
2nd round copy – Question 14 14a) For Immigr Within an intervent Passe give you Passe giv	View - Nett 4. Immi, 4. Immi,	gration gration gration ual publis and publis w certain	of non- bs, how program States and the states of the state	national national bable do y magned to cs are with centages ange (r2), nat the tru	https:// https:// is, SUR is,	VEY co is that they ed of immune veal during is and 100 p	y untry published as before, -	12/20/7 m/preview.html Page d statistics are (If it helps, of 100 years, with a lower nge that you	9:18 PM 18 of 2	Mig Delphi 2nd Mig Delphi 2nd Co If yc stat ■ P Fin Man estabox	mments but have or e them he age break all comm y thanks for below.	- View - Net somments of re, nents or answerin eneral com	y these questions and the second s	ents relations, v	iour help i r questio	http://	://nettakjem s to questi ch apprecia	a po/user/form ions 13 and Becade theory steed. We wo hese can be	ulid k
2nd round copy – Question 14 14a) For Immigr Within an intervention Passe give you Passe	View - Nett 4. Immit ation of n I from mir an the ann of (1) and bately, ho e?	gration gration on-nationa ual puble an upper é w Certain	of non b, how pro- b, how p	national babbe do yo mparaed to care with the care with contages ange (2),	https:// https:// is, SUR is, SUR in this into the true le between C	VEY co is that there of the set o	y untry published ngration? g a period s before, v	12/20/7 m/preview.html Page d statistics are (If it helps, of 100 years, with a lower nge that you	9:18 PM 18 of 2	min P 20 Mig Delphi 2nd Co If yc stat min P Fin Man estabox	mments where the second s	- View • Net is mments of re, nents or answerin neral com	y these questions and the second s	ents relations, v	our help i	http:/	the state of the s	a notwerform	ulld b vwrit
2nd round copy - Question 1/ 14a) For immigr 114a) For immigr 114a) For immigr 114b) Approxim 2 2 14b) Approxim 75 % 90 % 95 %	View - Nett 4. Immig ation of n d from min m the ann m the ann m the assessm (r1) and interpretation (r1) and hately, how	gration gration on-nationa us 5% to ual public ual public ment as a ra an upper e	of non bs, how pro- plus 5% code statistic ange in pee ange in pee ange in pee ange in pee statistic ange in	national bable do yo mpared to sare with the true the true hat the true	https:// https:// is, SUR is,	VEY co is that have a constraint of the second seco	y untry published as before, v	12/20/2 m/preview.html Page d statistics are (If it helps, of 100 years, with a lower nge that you	9:18 PM 18 of 2	Mig Delphi 2nd Co If yc stat Fin estat	mments with the second se	- View • Net	skjema or argume g these qu	ents relations, i	əəd to you Your həlp i or questio	http://www.http://wwww.http://www	the state of the s	a notwerform	ulld b
2nd round copy - Question 14 14a) For immigr within an intervery within an intervery wit	View = Nett 4. Immin ation of n n the ann the ann an the ann the assessment (r1) and it hately, how e?	gration gration non-nationa us 5% to up public us public nent as a ra up public w certain	of natio	national bable of bable of care with contages ange (/2),	https://www.https://ww	VEY co	y untry o published or publishe	12/20/2 m/preview.html Page 4 statistics are (If it helps, of 100 years, of 100 years, with a jower	9:18 PM 18 of 2	Mig Delphi 2nd Mig Delphi 2nd Co If yc stat Fin Garage Fin Marcete box	mments bu have cr e them he age treak al comm before.	- View - Net ormments (re, nents answerin renaria com	skjema or argume g these qu	uestions, v	our helpi	http://www.http://wwww.http://www	//nethkjem s to questi ch apprecia	a nolwerforr ons 13 an answeringe	ulld b
2nd round copy - Question 14 t4a) For immigration of the second s	View - Nett 4. Immig ation of nr. arasesar or (r1) and hately, ho: e?	gration gration on-nations 5% to to ual public w certain	of natio	national bable of bable of care with contages ange (/2),	https:// https:// workinkikk.com/ subschedule/ https:// h	VEY co	y untry o published or published so before, s	12/20/2 m/preview.html Page 4 statistics are (If it helps, of 100 years, of 100 years, with a jower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yy stat Fin este box	mments bu have cr e them he age treak all comm below.	- View - Net in mments (re, nents or answerin reneral com	skjema or argume g these qu ments, sug	uestions, v	our help i	http: r answer:	//netrikjem s to questi ch apprecis	a notwerform	ulld b
2nd round copy - Question 14 Ha) For immigration within an interval within an interval place of a star 1 = 2 = 14b) Approxim provided abov 50 % 50 % 0 50 % 0 50 % 0 ther (pease *	View - Nett 4. Immig ation of nn assess n the ann in the ann is the ann in the ann in the ann in the ann in the ann is the annn is the ann is the annn is the annn is the ann is the an	gration gration on-nations 5% to to ual public w certain	of natio	national bable of bable of care with contages ange (/2),	https://www.https://ww	VEY co	y untry o published or publishe	12/20/2 m/preview.html Page 4 statistics are (if if helps, of 100 years, of 100 years, with a jower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yc stat B P Fin Gas este box	mments bu have or e them he age treak all comm below.	- View - Net ormments : nents nents com	skjema or argume g these qu ments, sug	ents relat	əd to you our help i	http: r answer:	//nethkjem s to questi ch apprecia ht have, T	a nolwer/for ons 13 an answeringe	ulld b
2nd round copy - Question 14 14a) For inner Within an interver Within an interver	View - Nett 4. Immig ation of nn assessm (r1) and r1 is only as as state) n 140) Acc	gration gration on-nation on-nation s5% to to ual public w certain w certain	of natio	national babile do babile do care with roombages ange (/2), hat the tru	https://www.htttps://www.htttps://www.htttps://www.httttps://www.httttps://www.httttps://www.httttttttttttttttttttttttttttttttt	VEY co	y untry o published or published so before, v	12/20/2 m/preview.html Page 4 statistics are (if if helps, of 100 years, of 100 years, with a lower	9:18 PM 18 of 2	Mig Delphi 2nd Mig Delphi 2nd If yc stat Fin Garage Fin Garage Co	mments bu have cr e them he age treak all community thanks for an any gr below.	nents	g these que ments, sug	ents relat	our helip i	http: r answer:	ch apprecia	a notwerform	ulld b
2nd round copy - Question 14 14a) For immigree within an intervee within an intervee within an intervee within an intervee of the range 1 = 2 = 14b) Approxim provided abov 5 5% 5 5% 5 5% 0 other (pease • • • • • • • • • • • • •	View - Nett 4. Immig ation of nn assess n the ann hately, hor e? nt is only at "14b) App nt is only at "14b) App	gration gration on-nations S% to log w certain w certain	of natio	national bable do bable of the second scale of the second second ange (2).	https://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.httttps://www.httttps://www.httttps://www.httttps://www.httttps://www.httttps://www.htttttps://www.httttttttps://www.htttttttttps://www.httttttttttttttttttttttttttttttttt	VEY co is that they do they do they do they well of immediate they do they do they well of they do they do they do they well they do they do they do they do they well they do they do they do they do they well they do they do they do they do they do they well they do they do they do they do they do they do they well they do they well they do	y untry o published or published so before, s	1220/3 m/preview.html Page 4 statistics are (if if helps, of 100 years, of 100 years, with a jower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yc stat B P Fin date box	mments bu have cr e them he age treak all comm below.	nents	g these que ments, sug	ents relat	our help i	http: r answer:	://netfikjem	a notwerform	ulid b
2nd round copy – Question 14 14a) For immigr within an interver- link of how other Passe give you and of the range 1 = 14b) Approxim provided abov 6 50 % 9 50 % 0 other (pear * This element the question within the r	View - Nett 4. Immig ation of nn assess n the ann hately, hor- e? nt is only as "14b) App hately haty	gration gration on-nations S% to loss s% to loss w certain w certain	of natio	national bable do bable of the second control of the second ange (/2), hat the tru	https://www.htttps://www.https://www.https://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.htttps://www.httttps://www.httttps://www.httttps://www.htttttttttps://www.httttttttttttttttttttttttttttttttt	VEY co is that they will be of firming and 100 f is and 100 f will lie with	y untry o published or published so before, t	1220/3 m/preview.html Page d statistics are (fi it helps, of 100 years, with a lower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yy stat Fin este box	nound copy - mments bu have cr e them he e them he age treak all common y thanks for any gr below.	nents	g these que ments, sug	uestions, \	our helip i	http: r answer:	ch apprecia	a notwerform	ulid b
2nd round copy – Question 14 14a) For immigr within an interver- link of how draw 1 = 2 = 14b) Approxim provided abov 6 50 % 75 % 9 05 % 0 other (pear * This eleme the question the seleme *	View - Nett 4. Immig ation of nn assess n the anno hately, hor- e? nt is only as "14b) App hately haty	gration gration on-nations S% to to us 5% to to w certain w certain	of natio	national battle do	https://www.https://ww	VEY co is that there will be will lie with will lie with	y untry o published or published se before, t	1220/3 m/preview.html Page d statistics are (fi it helps, of 100 years, with a jower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yy stat Fin este box	mments bu have cr e them he age break all common below.	nents	g those qu ments, sug	uestons, \	our help i	http: r answer:	ch apprecia	a notwerform	ulld b
2nd round copy - Question 14 14a) For immigr within an interver- link of how other Passe give you and of the range 1 = 14b) Approxim provided abov 50 % 50 % 0 50 % 0 other (pear * This element the question within the r	View - Nett 4. Immig ation of nn assessm n the ann hately, hore e? nt is only as "14b) App mage that y	gration gration on-nations S% to us 5% to us 5% to us 5% to us 2% to the start w certain w certain w certain ou providec	of natio	national bable do bable of the second second second second ange (/2), nat the tru other (pease are you the section	https://www.internet.com/ https://www.internet.com/ www.internet.com/ https://www.internet.com/ wwww.internet.com/ www.i	VEY co is that they will be with well the with will lie with	y untry o published or published so before, s	1220/3 m/preview.html Page d statistics are (fi it helps, of 100 years, with a lower	9:18 PM 18 of 2	20 Mig Delphi 2nd Co If yc stat E Fin este box	mments bu have cr e them he age treak all comm below.	nents	g these que ments, sug	ents relat	our help i	http: r answeri s very muu ns you mig	ch apprecia	a notwerfor	ulid b ∍ writt
2nd round cepy - Question 14 14a) For immediate Within an intervention within of how one intervention 1 = 2 = 14b) Approxim or 50 % 50 % 05 % 0 ther (pear * * * * * * * * * * * * *	View - Nett 4. Immig ation of n assessment n the ann in hately, hone e? nt is only all n "14b) App ange that y DTM FOUL 8533066	gration skjema gration on-nations s% to ual puble w certain w certain w certain ou providec	of natio	national bable of the second bable of the second second second manage of the second second second second manage (2), which is a second second second manage (2), which is a second second second second second second second second secon	Interior of the second	Country //nettakjemaa VEY co is that that we do finance and during well of the second during well of the second during well of the second during will lie with lie selected in abue will lie 8673705	y untry o published as before, s sin before, s solutions of the second second second second second second second second second second second second second s	1220/3 m/preview.html Page d statistics arc (fi it helps, of 100 years, of 100 years,	9:18 FM 18 of 2	20 Mig Delphi 2nd Co If yc stat E Fin Man eete boo	mments bu have or e them he age treak all comm y thanks du namy or below.	nents	g these que ments, sug	ents relat	our help i	http: r answeri	//nethkjem	a nolwer/for	ulid b
2nd round cepy - Question 14 14a) For immediate 14b) Approximation 1 = 2 = 14b) Approximation 1 = 14b) Approximation 0 50 % 0 50 % 0 75 % 0 90 % 0 85 % 0 other (pear *	View - Nett 4. Immig ation of n and if from nim in the ann of the ann in the ann of the ann in the only and in the only	gration skjema gration on-nations s% to ual puble w certain w certain ou providec nd 1 for 8546148 50 %	of natio	national bable of the second bable of the second second second second second second second second ange (/2), nat the true section second secon	Interior of the second	VEY co is that they during of the second during well of immediate of the second during well of the second during of the second during will lie with lie with lie with lie with lie with lie selected in lie with lie with lie second during during of the second during duri	y untry a published a published as before, v	1220/3 m/preview.html f statistics arc (f it helps, with a lower	9:18 FM 18 of 2	20 Mig Delphi 2nd Co If yc stat B P Fin Mar este box	mments bu have or e them he age treak al comm y thanks of a many or before.	nents	g these que ments, sug	ents relat	our help i	http: r answer:	://netfikjem	a nolwer/for	ulid b
2nd round cepy - Question 14 14a) For immediate 15or immediate within an intervention 1 = 2 = 14b) Approxim 1 = 14b) Approxim 50 % 90 % 95 % other (pear * <t< td=""><td>View - Nett 4. Immig ation of n and is on the ann n the ann is only at hately, hone e? int is only at m '140) App that y m roull 8533066 50 %</td><td>gration skjema gration on-nations S% to i ual public w certain w certain w certain hown when an upper d w certain to y to y</td><td>of natio</td><td>national bable of the second bable of the second second second second second second second second second ange (/2), hat the true section second secon</td><td>bittps:// bittps</td><td>VEY co is that have well lie with well lie with lie with will lie with lie extended in make will lie</td><td>y untry a published a published as before, s b</td><td>1220/3 m/preview.html Page d statistics arc (f) it helps, with a lower</td><td>9:18 FM 18 of 2</td><td>20 Mig Delphi 2nd Co If yc stat E P Fin Man eete box</td><td>mments bu have or e them he age treak al comm y thanks of a many gr</td><td>nents</td><td>g these que the second se</td><td>ents relat</td><td>our help i</td><td>http: r answer:</td><td>//nethkjem</td><td>a nolwer/for</td><td>uld blank</td></t<>	View - Nett 4. Immig ation of n and is on the ann n the ann is only at hately, hone e? int is only at m '140) App that y m roull 8533066 50 %	gration skjema gration on-nations S% to i ual public w certain w certain w certain hown when an upper d w certain to y to y	of natio	national bable of the second bable of the second second second second second second second second second ange (/2), hat the true section second secon	bittps:// bittps	VEY co is that have well lie with well lie with lie with will lie with lie extended in make will lie	y untry a published a published as before, s b	1220/3 m/preview.html Page d statistics arc (f) it helps, with a lower	9:18 FM 18 of 2	20 Mig Delphi 2nd Co If yc stat E P Fin Man eete box	mments bu have or e them he age treak al comm y thanks of a many gr	nents	g these que the second se	ents relat	our help i	http: r answer:	//nethkjem	a nolwer/for	uld blank
2nd round copy - Question 1/ 14a) For immigrithin an intervitinity of how drug the lease give you and of the range 1 = 2 = 14b) Approxim range 1 = 2 = 14b) Approxim range 1 = 2 = 14b) Approxim range 1 = 2 = 0 50 % 0 50 % 0 95 % 0 other (pear * *	View - Nett 4. Immig ation of n are assess (r1) and i hately, hoo e? in its only as n "140) App hately, hoo e? in its only as n "140) App hat y in the anni of the anni set of the assess n "140) App hat y in the anni of the anni set of the assess in the assess in the assess in the assess in the anni of the anni set of the assess in the assess	gration skjema gration on-nations s% to ual puble w certain w certain w certain w certain ou providec	of natio	national bable of the first of	Interior of the second	VEY co is that they are of the second	y untry a published a published a published a published as before, s before,	1220/3 m/preview.html Page d statistics are (if it helps, with a jower	9:18 FM 18 of 2	Z0 Mig Delphi 2nd Co If yc stat Fin Man este box	mments bu have cr e them he age treak all comm y thanks du namy ge below.	nents	g these que the second se	ents relat	our help i	http: r answeri s very mu ns you nig	//nethkjem	ons 13 an	uld b writ

Transforming experts' answers into probability distributions Quant Mig Deliverable 6.1 Part II *

Georgios Aristotelous †

 $^{^{*}\}mbox{QuantMig}$ is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 870299.

[†]University of Southampton, UK. Email: G.Aristotelous@soton.ac.uk

Contents

1	Intr	oduction	42								
2	Methods										
	2.1	.1 Method 1									
		2.1.1 Transforming experts's individual answers into individual densities	44								
		2.1.2 Combining experts' individual densities into an aggregated density	47								
	2.2	Method 2	47								
3	Res	ults	49								
	3.1	Round 1	50								
	3.2	Feedback to experts	59								
	3.3	Round 2	60								
4	Disc	cussion	76								
A	Exp	ressions for g and g^{-1}	79								
	A.1	Questions 1-8 (undercount questions)	79								
	A.2	Questions 9-14 (accuracy questions)	80								
в	Star	ting values for the minimization algorithms	82								
	B.1	Questions 1-8 (undercount questions)	82								
	B.2	Questions 9-14 (accuracy questions)	82								
С	Exa	mple expert-specific feedback document	85								
D	Plot	ts of Round 2 densities (without the Round 1 densities)	92								

1 Introduction

Deliverable 6.1 (D6.1) consists of two parts, Part I and Part II. What follows below is Part II. As explained in the introduction of Part I, the aim of both parts is to document the work done for Task 6.1, as part of Work Package 6 (WP6). Part I, entitled "Elicitation of expert opinions", described what Task 6.1 is concerned with, provided an overview of the migration flow modelling framework and the parameters, described how the Delphi survey was carried out (choice of experts, rounds, questions, feedback), and provided some summary statistics of the responses (see Part I for more details).

Part II, proceeds to explain how expert opinions on undercount and accuracy were transformed into statistical distributions. Part II is structured as follows. Section 2 describes the methods used to translate experts' answers into prior probability distributions for the parameters. Then, section 3 presents these resulting probability distributions, for both rounds of the Delphi questionnaire. Lastly, section 4 concludes with a summary of the main results of the analysis and some discussion points about lessons learned from the elicitation process.

We note that many of the steps we undertook, towards performing the task of translating answers into probability distributions, follow the work of Wiśniowski et al. (2013), where the same task was performed, under the same modelling framework; references to Wiśniowski et al. (2013) are made at the relevant points.

The computational analysis conducted for the purposes of the prior elicitation process (prior parameter estimation algorithms and prior probability distribution plots) was performed in the statistical programming language R (R Core Team, 2020). The code was written by the author and can be provided upon request.

2 Methods

In this section we describe how experts' answers were transformed into prior probability distributions for the parameters, for both rounds of the questionnaire. Consider any one of the questions 1-14 of the questionnaire, and let X denote the unknown quantity (random variable) of interest, for which a distribution was desired to be elicited. Note that for questions 1-8, X was related to undercount, whereas for questions 9-14, X was related to accuracy (a description of what X represents in each question is provided in section 3 below). All questions of the questionnaire had a common formulation with a given respondent being asked to provide a range of values (in part (a) of the question), along with a certainty value (in part (b) of the question), for the quantity in question to lie withing that range (all questions of the questionnaire are included in the Appendix of Part I). Note that, instead of asking the experts to provide these values directly for the quantity of interest X, we asked them to provide these values for some quantity g(X), taking values in [0, 1], were g was a suitably chosen continuous, strictly monotone deterministic function (a description of what g(X) represents in each question is provided in section 3 below, while the explicit expression of the function g(x) in each question is given in the Appendix A). Asking the experts to implicitly provide information for X, through g(X), as opposed to asking them for X directly, made the questions more accessible.

The experts were asked to provide the range values and the certainty value as percentages. On what follows below we transform the provided percentage values to real numbers (proportions), to be in line with the mathematical framework, and we use the notation $r_{i,1}, r_{i,2}$ to denote the range values, and c_i to denote the certainty value, provided by an expert *i*. For example if, for a given question, an expert *i* provided a range of 50% to 70% in part (a), and a certainty of 80% in part (b), then $r_{i,1} = 0.5$, $r_{i,2} = 0.7$ and $c_i = 0.8$. For an answer to be translatable to a probability distribution it was required that $0 \leq r_{i,1} < r_{i,2} \leq 1$ and $0 \leq c_i \leq 1$. Answers that did not satisfy these restrictions were not translated to probability distributions. We note that, as in Wiśniowski et al. (2013), answers of 0 and 1 were changed to 0.0001 and 0.9999, respectively, for algorithm stability reasons.

Before proceeding further we note that the probability distribution of a continuous random variable can be characterized by its cumulative distribution function, which we henceforth refer to as cdf, or by its probability density function, which we henceforth refer to as density. We considered two methods for translating experts' answers into probability distributions. The first method, referred to as method 1, follows along the lines of Wiśniowski et al. (2013) and it is a two-step procedure, where first the experts' individual answers are translated into individual densities, and second, the individual densities are combined into an aggregated density. The second method, referred to as method 2, is a one-step procedure where experts' individual answers are directly combined (without being first translated into individual densities) into an aggregated density. Sections 2.1 and 2.2, respectively, provide a description of the two methods, with technical details being included in the Appendix.

2.1 Method 1

As mentioned right above, method 1 is a two-step procedure, where we first translate experts' individual answers into individual densities and then combine the individual densities to form an aggregated density. As above, consider any one of the questions 1-14, and let X denote the unknown quantity (random variable) of interest, for which a distribution was desired to be elicited. For each expert i, i = 1, 2, ..., n, where n the number of experts which provided an answer such that elicitation was possible (see the beginning of section 2 for which answers were not possible to be translated to probability distributions), let θ_i , $F(x;\theta_i)$ and $f(x;\theta_i)$, respectively denote the parameter (vector), the cdf and the density of X, corresponding to expert i. Notice that the dependence of the cdf and the density of X on expert i is made explicit in the notation through θ_i . This notational choice serves for two purposes. First, it highlights that under method 1, an expert's individual answer corresponds to an individual density. Second, it reveals that these individual densities differ on the parameter θ_i , and not on the family of the distribution of X (the choice of family for the distribution of X is described below). The same notational rule is followed below with all quantities corresponding to expert i having an i subscript in their notation.

2.1.1 Transforming experts's individual answers into individual densities

In a nutshell, to translate an expert's answer into a density we performed three tasks. First, we translated the expert's answer into two points of the cdf of X. Second, we made a suitable choice for the family of the distribution of X. Third, we specified the value of the expert-specific parameter of the distribution of X, by substituting the two points on the cdf of X and finding the solution of the resulting system of equations. Below we provide more information on how each of these three tasks was performed.

To translate the expert's answer into two points of the cdf of X we worked as follows. As mentioned above (see section 2), in any given question, a given expert i, i = 1, 2, ..., n, provided a range of values for g(X) (in part (a) of the question), say $r_{i,1}$ and $r_{i,2}$ ($0 \le r_{i,1} < r_{i,2} \le 1$), and a certainty/probability value (in part (b) of the question), say c_i ($0 \le c_i \le 1$), for g(X) to lie within the interval $[r_{i,1}, r_{i,2}]$. Such an answer translates to the following probability statement about g(X):

$$P(r_{i,1} < g(X) < r_{i,2}) = c_i \tag{2.1}$$

Note that the above statement directly implies that the probability for g(X) to lie outside of the interval $[r_{i,1}, r_{i,2}]$, that is in $[0, r_{i,1}]$ or $[r_{i,2}, 1]$, is equal to $1-c_i$. Following Wiśniowski et al. (2013) we assigned the remaining probability of $1 - c_i$ (that not directly assigned by the expert) to be proportional to the length of the intervals $[0, r_{i,1}]$ and $[r_{i,2}, 1]$. In probability terms, this assignment is expressed as:

$$P(g(X) < r_{i,1}) = k_i r_{i,1}$$

$$P(g(X) > r_{i,2}) = k_i (1 - r_{i,2}),$$
(2.2)

where $k_i = \frac{1-c_i}{1+r_{i,1}-r_{i,2}}$ is the proportionality constant, calculated by substituting equations (2.1) and (2.2), into equation $P(g(X) < r_{i,1}) + P(r_{i,1} < g(X) < r_{i,2}) + P(g(X) > r_{i,1}) = 1$. Utilizing the properties of the function g, the probability expressions for g(X) in equation (2.2) right above, can be reexpressed in terms of X as:

$$P(X < g^{-1}(r_{i,1})) = k_i r_{i,1}$$

$$P(X > g^{-1}(r_{i,2})) = k_i (1 - r_{i,2}),$$
(2.3)

or as

$$P(X > g^{-1}(r_{i,1})) = k_i r_{i,1}$$

$$P(X < g^{-1}(r_{i,2})) = k_i (1 - r_{i,2}),$$
(2.4)

depending whether g is strictly increasing or strictly decreasing, respectively. In the above equations, and in what follows, g^{-1} denotes the inverse function of g. Since the cdf of X corresponding to expert i, $F(x; \theta_i)$, is such that $F(x; \theta_i) = P(X < x)$, the probability expressions in equations (2.3) and (2.4) right above, specify two points of $F(x; \theta_i)$, point $(x_{i,1}, y_{i,1})$ and point $(x_{i,2}, y_{i,2})$, where $x_{i,1} = g^{-1}(r_{i,1})$ and $x_{i,2} = g^{-1}(r_{i,2})$, and, $y_{i,1} = k_i r_{i,1}$ and $y_{i,2} = 1 - k_i(1 - r_{i,2})$, for g strictly increasing, or $y_{i,1} = 1 - k_i r_{i,1}$ and $y_{i,2} = k_i(1 - r_{i,2})$, for g strictly decreasing (the explicit form of g^{-1} in each question, required to calculate $x_{i,1}$ and $x_{i,2}$, is given in the Appendix A).

Regarding the second task, that is the task of specifying a family for the distribution of X, we followed the specification of Wiśniowski et al. (2013). Specifically, for the undercount questions (questions 1-8), we assumed a Beta (α, β) distribution for X, parametrized by the two shape parameters, α and β . In these questions, the expert-specific parameter θ_i was therefore $\theta_i = (\alpha_i, \beta_i), i = 1, 2, ..., n$. For the accuracy questions (questions 9-14), we assumed a Gamma (ν, ρ) distribution, parametrized by the shape parameter ν and the rate parameter ρ . For these questions, the expert-specific parameter θ_i was $\theta_i = (\nu_i, \rho_i), i = 1, 2, ..., n$. These families are naturally suited for the parameters in question and also bind well with the underlying modelling framework (see Wiśniowski et al. (2013) for more details). As mentioned above, the choice of family was common across experts and the individual densities differed only on the expert-specific parameter θ_i .

To perform the third task, that is to specify a value for expert-specific parameter θ_i , we substituted the two points provided by the expert, $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$, on the cdf of X and computed the solution of the resulting system of equations

$$F(x_{i,1};\theta_i) = y_{i,1}$$

$$F(x_{i,2};\theta_i) = y_{i,2}$$
(2.5)

The solution of the above system was computed numerically by minimizing the function $d(\theta_i) = (F(x_{i,1}; \theta_i) - y_{i,1})^2 + (F(x_{i,2}; \theta_i) - y_{i,2})^2$, the (squared) Euclidean distance between the cdf of X and the two points, $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$, i.e. by computing argmin $d(\theta_i)$. This is because the solution of the above system, say $\hat{\theta}_i$, is such that $d(\hat{\theta}_i) = 0$ and therefore, since $d(\theta_i) \geq 0$, it is the case that $\hat{\theta}_i = \underset{\theta_i}{\operatorname{argmin}} d(\theta_i)$ (sections B.1 and B.2 in the Appendix give the initial values used for these minimization algorithms, for question 1-8 and 9-14, respectively). A similar procedure to solve system 2.5 was also followed in Wiśniowski et al. (2013) (only that there, the minimization was conducted with respect to the inverse cdf, as opposed to the cdf). Notice that the specification of $\hat{\theta}_i$, simultaneouly specifies the density of expert *i* to be $f(x; \hat{\theta}_i), i = 1, 2, ..., n$.

2.1.2 Combining experts' individual densities into an aggregated density

Following Wiśniowski et al. (2013), to combine the experts' individual densities, $f(x; \hat{\theta}_i)$, into a single, aggregated, prior density for X, say $\pi(x)$, we used an equally weightedmixture density. That is, $\pi(x)$ was specified as:

$$\pi(x) = \sum_{i=1}^{n} \frac{1}{n} f(x; \hat{\theta}_i)$$
(2.6)

As discussed in Wiśniowski et al. (2013), such an equally-weighted opinion pool offers a simple, robust and general method for aggregating expert knowledge.

2.2 Method 2

Method 2 offers an alternative way for specifying prior distributions for the parameters. As already mentioned in the beginning of section 2, method 2, unlike method 1, directly combines experts' answers to specify a single, aggregated density, without first translating them into individual densities. The main difference between method 2 and method 1, as far as the form of the aggregated density, is that the aggregated density, under method 2, is typically smoother, compared to that under method 1. Having smooth prior densities can be an appealing feature, especially in settings such as the present one, where the observed data contain very little information for some of the parameters, meaning that their posterior densities will largely be determined by the form of their prior densities.

The procedure that specifies the aggregated density, under method 2, is almost the same as the procedure that specifies an expert's individual density under method 1. The subtle but defining difference is that, under method 2, the procedure is applied to all experts' answers/points at once (specifying the aggregated density in a single step), whereas under method 1 the procedure is applied seperetally to each expert's answer/points (specifying each expert's individual density in a first step, with the aggregated density being specified in a subsequent step).

As in subsection 2.1, consider any one of the questions 1-14 and let X denote the quantity (random variable) of interest. Let also an expert be denoted by i, i = 1, 2, ..., n, where n the number of experts which provided an answer such that elicitation was possible (see the beginning of section 2 for which answers were not possible to be translated to probability distributions). We denote the parameter (vector), the cdf and the density of X as $\theta, F(x; \theta)$ and $f(x; \theta)$, respectively. Notice that, unlike method 1, these are not indexed by i since, as already mentioned, under method 2, we do not have any expert-specific densities but rather a single common density.

Same as for the specification of the expert-specific densities in method 1, to specify the aggregrated density using method 2, we performed the following three tasks. First, we translated all experts' answers to points of the cdf of X, with each expert's answer contributing a pair of points, as described in the second paragraph of subsection 2.1.1. For example, in Question 1 of Round 1, where 15 experts provided complete and valid answers, there were 30 points. As in section 2.1.1, we use the notation $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$ to denote the pair of points corresponding to expert i, i = 1, 2, ..., n. Second, we chose the family of the distribution of X. Same as for method 1 (see the third paragraph of subsection 2.1.1) we followed the specification of Wiśniowski et al. (2013), assuming $X \sim \text{Beta}(\alpha, \beta)$ for the undercount questions and $X \sim \text{Gamma}(\nu, \rho)$ for the accuracy questions. That is to say that, the common (over experts) parameter θ , of the distribution of X, was $\theta = (\alpha, \beta)$ and $\theta = (\nu, \rho)$, in questions 1-8 and 9-14, respectively. Third, we specified the value of θ by minimizing the (squared) Euclidean distance between the cdf of X and all points $(x_{i,1}, y_{i,1}), (x_{i,2}, y_{i,2}), i = 1, 2, ..., n$. That is, our chosen value for θ , say $\hat{\theta}$, was such that $\hat{\theta} = \underset{a}{\operatorname{argmin}} d(\theta)$, where $d(\theta) = \sum_{i=1}^{n} (F(x_{i,1};\theta) - y_{i,1})^2 + (F(x_{i,2};\theta) - y_{i,2})^2$, which is the least-squares estimate of θ resulting from fitting the cdf of X through all the provided points (sections B.1 and B.2 in the Appendix give the initial values used for these minimization algorithms, for question 1-8 and 9-14, respectively). Note that this way of specifying the parameter (using least-squares) is the same as the one applied in the prior elicitation tools, The Elicitator (Bastin et al. (2013)), SHELF (Gosling (2017)) and MATCH (Morris et al. (2014)). What the above translate to is that the resulting prior density for X, say $\pi(x)$, was set as:

$$\pi(x) = f(x;\hat{\theta}). \tag{2.7}$$

3 Results

This section presents the resulting prior densities, for both rounds of the Delphi questionnaire, under both method 1 and method 2. First, we present the densities from Round 1 of the questionnaire (section 3.1), followed by the description of some feedback (section 3.2) which we returned to the experts, after Round 1 and before Round 2. Then we present the densities from Round 2 and make comparisons between the two rounds (section 3.3).

In questions 1-8, the parameter of interest X, represents the proportion of true flow counts that are reported by a given country. More specifically, ignoring the effect of the other measurement error parameters, under our assumed modelling framework (see Raymer et al. (2013)), we can describe the effect of the parameter X via the relationship $\mu = yX$, where μ can be thought of as representing a reported flow count and y is the corresponding true flow count. Questions 1-8 asked the experts to provide information for g(X) = 1 - X, as opposed to X directly. That is, questions 1-8 asked for the proportion of true flow counts that are not reported by a given country, i.e. for the proportion of undercount associated with the reporting system of a given country. This was done to avoid causing confusion between high and low undercount questions, since for g(X) high (low) values imply higher (lower) undercount, whereas for X, it is the other way around.

In question 9-14, the parameter of interest X, is the precision (inverse variance) of the random fluctuation error term associated with the measurement of migration. More precisely, assuming that there are no sources of systematic error, under our assumed modelling framework (see Raymer et al. (2013)), we can describe the effect of the parameter X via the relationship $\mu = y \exp(\varepsilon|_X)$, where μ represents a reported flow count, y is the corresponding true flow count, and $\varepsilon|_X \sim \mathcal{N}(0, 1/X)$, where $\mathcal{N}(m, v)$ denotes a Normal distribution with mean m and variance v. Asking the experts to provide information for X directly would be too involved (due to the fact that there are two levels of randomness at work here, that of $\varepsilon|_X$ and that of X itself) and so we asked the experts to provide information for $g(X) = \mathcal{E}(\mathbb{1}_A \mid X)$, where $A = \{0.95 < \exp(\varepsilon|_X) < 1.05\}$. That is, questions 9-14 asked for the expected proportion of observations with less than 5% error, i.e. for the expected proportion of times that the published statistics of a given country are within an interval of -5% to +5% compared to the true level of immigration, when no systematic errors exist.

In all the plots to follow, we plot densities for g(X) and not for X. There are two main reasons for doing so. First, is that the questions asked information about g(X) and not for X, and so it is more informative to present densities for the quantity in question. Second, it is visually advantageous to plot for g(X), instead of X, since g(X) has the bounded support [0, 1], in all questions, unlike X whose support is not bounded in questions 9-14.

Before providing the results we make two notes. First, we note that all questions of the questionnaire are included in the Appendix of Part I, for reference. Second, as per the Delphi technique, we note that for the model, it is the prior distributions of Round 2 that are used as input. Therefore, although we fully report and comment the results of Round 1, from a modelling standpoint we are more concerned with the results of Round 2.

3.1 Round 1

Figures 1-14 respectively present the elicited densities for questions 1-14, from Round 1. Each figure presents two plots, one with all individual densities and the aggregated densities imposed, and another one with the aggregated densities on their own. The second plot uses a different y-axis scale to allow better visual illustration of the aggregated densities. For the undercount questions (questions 1-8, figures 1-8), overall, there was a fair amount of heterogeneity in the opinions of respondents, although for some questions, such as questions 2 and 4 (see figures 2 and 4), the amount of heterogeneity was less than others, such as questions 5 and 6 (see figures 5 and 6). Some respondents provided answers with very high certainty while others were much less certain, leading to highly peaked densities or densities with a lot of mass on the tails, respectively (see for example figure 4). Sensibly, the experts' densities suggested that undercount is more likely to be less in countries with low undercount compared to high undercount countries, when EU+ status (EU+ national or non-EU+ national) and type of migration (immigration or emigration) is the same (see for example figures 1 and 5 or figures 2 and 6). Also as expected, experts appear to be more certain in their assessment of immigration compared to emigration, when type of undercount (low or high) and EU+ status is the same (see for example figures 1 and 2).

For the accuracy questions (questions 9-14, figures 9-14), the opinions of respondents were again quite heterogeneous, although in some questions, such as 9 and 11 (see figures 9 and 11) the experts can be loosely divided into those that suggested that accuracy was very poor and to those that suggested that accuracy was very good, putting a lot of the mass either near 0 or 1, respectively. Reasonably, the experts' densities, overall, have more mass near 1 for register countries compared to survey countries.

Regarding the comparison of the two aggregated densities, as expected, method 2 produces smoother densities compared to method 1. As far as uncertainty, neither of the two is systematically more uncertain than the other, in the sense that in some questions it is the density from method 1 that is more peaked around a value (see for example figure 13), whereas in other questions it is the other way around (see for example figure 2). What is noticable is that, for a lot the questions, the two aggregated densities are not that similar. For example, in the accuracy questions, it appears that the aggregated density from method 2 is much more susceptible to the pattern of answers of either very poor or very good accuracy (see above paragraph) and puts a lot of its mass around 0 and 1, the boundary values of the support (see figures 9-12).



Figure 1: Experts' answers transformed to probability densities for question 1 (undercount of emigration of EU+ nationals who leave low undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 2: Experts' answers transformed to probability densities for question 2 (undercount of immigration of EU+ nationals who enter low undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 3: Experts' answers transformed to probability densities for question 3 (undercount of emigration of non-EU+ nationals who leave low undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 4: Experts' answers transformed to probability densities for question 4 (undercount of immigration of non-EU+ nationals who enter low undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 5: Experts' answers transformed to probability densities for question 5 (undercount of emigration of EU+ nationals who leave high undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 6: Experts' answers transformed to probability densities for question 6 (undercount of immigration of EU+ nationals who enter high undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 7: Experts' answers transformed to probability densities for question 7 (undercount of emigration of non-EU+ nationals who leave high undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 8: Experts' answers transformed to probability densities for question 8 (undercount of immigration of non-EU+ nationals who enter high undercount countries) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 9: Experts' answers transformed to probability densities for question 9 (accuracy of emigration of EU+ nationals who leave countries recording with a register) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 10: Experts' answers transformed to probability densities for question 10 (accuracy of immigration of EU+ nationals who enter countries recording with a register) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 11: Experts' answers transformed to probability densities for question 11 (accuracy of emigration of non-EU+ nationals who leave countries recording with a register) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 12: Experts' answers transformed to probability densities for question 12 (accuracy of immigration of non-EU+ nationals who enter countries recording with a register) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 13: Experts' answers transformed to probability densities for question 13 (accuracy of immigration of EU+ nationals who enter countries recording with a survey) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 14: Experts' answers transformed to probability densities for question 14 (accuracy of immigration of non-EU+ nationals who enter countries recording with a survey) of Round 1. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.

3.2 Feedback to experts

Before starting Round 2, we provided the experts with feedback, based on their answers on Round 1. Each expert, received two documents, an expert-specific document (providing feedback specific to the expert) along with a generic document (providing generic feedback for all experts). The generic document provided an overall summary of the results of Round 1 and an explanation on how expert answers were translated to probability statements. The expert-specific document included two sets of plots, with each set containing 14 plots, one for each question. A plot of the first set presented all expert densities, with the given expert's density being highlighted, allowing the expert to compare their density with the densities of the other experts, establish a reference, and perhaps consider revising their answer for Round 2. A plot of the second set presented the expert's density on its own, serving as a visual medium, for explaining how the expert's answer was translated to a density, as well as for comments and clarifications. For completeness, an example expert-specific feedback document is attached in the Appendix C.

Something that we made sure to include in the feedback documents, was how an expert's answer translated to a probability statement. Based on some of the answers of Round 1, it was our impression that some of the experts might had not been aware that by providing a range r_1 , r_2 and a certainty c, they essentially stated that the probability that the quantity in question g(X) lies in the interval $[r_1, r_2]$ is equal to c, and, simultaneously, the probability that it does not lie in $[r_1, r_2]$, is equal to 1 - c. For example, we speculate that some answers such that c was smaller than the length of the interval $[r_1, r_2]$ were given without realizing that by expressing (relatively) low certainty c for g(X) to lie in $[r_1, r_2]$ one automatically expresses high certainty for g(X) to lie outside of $[r_1, r_2]$. Such answers typically translated to U-shaped densities (see for example figure 7), having most of the mass near 0 and 1, which we considered to be rather implausible.

Another point that we reiterated in the documents was that for the accuracy questions, the questions asked for the sampling variability in the reporting of migration, under the assumption that there are no sources of systematic bias. We considered this reminder important to make, having speculated that perhaps some of the answers suggesting very poor accuracy in Round 1, were given by not taking into consideration the above assumption.

In the feedback documents, we also included clarifications in case an expert provided invalid answers (see section 2 for what were the requirements for an answer to be valid). In addition to that (see Part I), further explanations and online checks were included in Round 2 of the questionnaire in an attempt to avoid invalid answers.

3.3 Round 2

For Round 2, we produced the same set of plots as in Round 1. Specifically, figures 15-28 present the elicited densities for questions 1-14, respectively. To aid comparison between rounds, alongside the Round 2 plots, we included the Round 1 plots as well, using the same y-scale between rounds. For completeness, plots of the densities of only Round 2, on a different y-scale, are given in Appendix D.

For the undercount questions (questions 1-8, 15-22), similar to Round 1, the experts' densities were sensible in the sense that they put more mass on low (high) undercount values for low (high) undercount countries (see for example figures 15 and 19 or figures 2 and 20) and were more certain in their assessment of immigration compared to emigration (see for example figures 17 and 18). Compared to Round 1, the amount of heterogeneity in experts' answers was evidently lower, something that is perhaps more clearly reflected by the nature of the mixture aggregated density (aggregated density of method 1), which is typically multimodal in Round 1 and much closer to unimodal in Round 2 (see for example figures 15 and 17).

For the accuracy questions (questions 9-14, 23-28), as in Round 1, the experts' densities, as reasonably expected, had more mass near 1 for register countries compared to survey countries. Unlike Round 1, in Round 2, there was more homogeneity among experts' opinions. In particular, the pattern of experts' opinions being divided into those that suggested that accuracy was very poor and those that suggested that it was very good, was not observed in Round 2.

As far as the comparison of the aggregated densities from the two methods, they are much more similar in Round 2, compared to Round 1, reflecting the higher homogeneity among expert opinions, exhibited in Round 2. In fact, in a lot of the questions, the aggregated density of method 2 appears as a smoothed version of the aggregated density of method 1, which is what we aimed to achieve with the conception of method 2.

Based on the results of Round 2, we perceived that the feedback which we provided between the two rounds helped the experts better understand the questions. For example, it appears that, clarifying that for the accuracy questions the assumption was that no systematic bias existed, may have made some of the experts that gave answers supporting low accuracy values to revise their answers. Also, there were much fewer Ushaped densities in Round 2, compared to Round 1, suggesting that experts were more aware on how their answers translated to probability statements in Round 2. Overall, we considered that the feedback led to more informed densities in Round 2, compared to Round 1, something which was very welcome, considering that the prior distributions of Round 2 are used as input into the model.



Figure 15: Experts' answers transformed to probability densities for question 1 (undercount of emigration of EU+ nationals who leave low undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 16: Experts' answers transformed to probability densities for question 2 (undercount of immigration of EU+ nationals who enter low undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 17: Experts' answers transformed to probability densities for question 3 (undercount of emigration of non-EU+ nationals who leave low undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 18: Experts' answers transformed to probability densities for question 4 (undercount of immigration of non-EU+ nationals who enter low undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 19: Experts' answers transformed to probability densities for question 5 (undercount of emigration of EU+ nationals who leave high undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 20: Experts' answers transformed to probability densities for question 6 (undercount of immigration of EU+ nationals who enter high undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 21: Experts' answers transformed to probability densities for question 7 (undercount of emigration of non-EU+ nationals who leave high undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 22: Experts' answers transformed to probability densities for question 8 (undercount of immigration of non-EU+ nationals who enter high undercount countries). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 23: Experts' answers transformed to probability densities for question 9 (accuracy of emigration of EU+ nationals who leave countries recording with a register). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.


Figure 24: Experts' answers transformed to probability densities for question 10 (accuracy of immigration of EU+ nationals who enter countries recording with a register). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 25: Experts' answers transformed to probability densities for question 11 (accuracy of emigration of non-EU+ nationals who leave countries recording with a register). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 26: Experts' answers transformed to probability densities for question 12 (accuracy of immigration of non-EU+ nationals who enter countries recording with a register). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 27: Experts' answers transformed to probability densities for question 13 (accuracy of immigration of EU+ nationals who enter countries recording with a survey). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.



Figure 28: Experts' answers transformed to probability densities for question 14 (accuracy of immigration of non-EU+ nationals who enter countries recording with a survey). Left column corresponds to Round 1 and right column corresponds to Round 2. Top row are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2) and bottom row are the two aggregated densities on their own.

4 Discussion

Overall, the prior distributions resulting from our elicitation procedure were informative or at least weakly informative. For the undercount questions, the prior distributions were more informative for immigration, compared to emigration, and for low undercount, compared to high undercount. For example, the prior distiribution of the parameter associated with question 4 (undercount of immigration of non-EU+ nationals who enter low undercount countries; see figure 18) was the most informative from all the undecount questions, whereas the prior distiribution of the parameter associated with question 7 (undercount of emigration of non-EU+ nationals who leave high undercount countries; see figure 21) the least informative. For the accuracy questions, the prior densities for register countries had a lot of their mass near 1, as opposed to the densities for survey countries, whose mass was assigned mostly at values around 0.5. No clear distinction could be made as to whether the register or the survey densities were more informative.

In our conducted elicitation process we did not use any visual and interactive tools, such as MATCH (Morris et al. (2014)). Instead, we used the feedback documents to provide the experts with a visual illustration of their answers, between the two rounds of the Delphi questionnaire. Looking back at our conducted elicitation process, we believe that it could have significantly benefited from the use of a visual and interactive tool. For example, we believe that some of the implausible densities we encountered, such as the U-shaped densities or some very highly peaked densities, would not be encountered if the experts could see their densities while providing their answers. In addition, the use of a visual and interactive elicitation tool would also help with avoiding invalid answers, since an expert would instantly see (and be informed by the tool) that their answer can not be translated to a density. Although the Dephi structure of two rounds, along with the feedback we provided between the rounds, helped us alleviate a lot of these issues, we came to the realization tool.

Our suggestion is that similar future studies should be conducted using visual and in-

teractive elicitation tools. The great advantage of these tools is that, being visual, they allow the expert to see their density as they provide an answer, and, being interactive, they allow the expert to see how this density changes as their answer changes. As a result, such tools can avoid the possible confusion relating to how answers translate to probability statements and densities.

References

- Bastin, L., Cornford, D., Jones, R., Heuvelink, G. B., Pebesma, E., Stasch, C., Nativi, S., Mazzetti, P., and Williams, M. (2013). Managing uncertainty in integrated environmental modelling: The UncertWeb framework. *Environmental Modelling & Software*, 39:116–134.
- Gosling, J. P. (2017). SHELF: The sheffield elicitation framework. In *Elicitation*, pages 61–93. Springer International Publishing.
- Morris, D. E., Oakley, J. E., and Crowe, J. A. (2014). A web-based tool for eliciting probability distributions from experts. *Environmental Modelling & Software*, 52:1–4.
- R Core Team (2020). R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria.
- Raymer, J., Wiśniowski, A., Forster, J. J., Smith, P. W. F., and Bijak, J. (2013). Integrated modeling of european migration. *Journal of the American Statistical Association*, 108(503):801–819.
- Wiśniowski, A., Bijak, J., Christiansen, S., Forster, J. J., Keilman, N., Raymer, J., and Smith, P. W. (2013). Utilising expert opinion to improve the measurement of international migration in europe. *Journal of Official Statistics*, 29(4):583–607.

A Expressions for g and g^{-1}

As in the main document, for a given question, we will use X to denote the quantity of interest and g(X) to denote the quantity for which the question asked information for. Recall that the assumption is that g(X) takes values in [0, 1] and g is a continuous, strictly monotone, deterministic function. The assumptions of continuity and strict monotinicity ensure the existence of g^{-1} , the inverse function of g, a function which is needed to translate expert answers to points on the cdf of X (see section 2.1.1). Note also that, just like X, g(X) is a random variable and that, for clarity reasons, whenever we refer to g as a deterministic function of x, I will use the notation g(x), making a distinction from the notation g(X).

A.1 Questions 1-8 (undercount questions)

The parameter of interest X in questions 1-8 represents the proportion of true flow counts that are reported by a given country. More specifically, ignoring the effect of the other measurement error parameters, under our assumed modelling framework (see Raymer et al. (2013)), we can describe the effect of the parameter X via the relationship $\mu = yX$, where μ can be thought of as representing a reported flow count and y is the corresponding true flow count. As mentioned in the main text the choice of family for the distribution of X was Beta(α, β). Questions 1-8 asked the experts to provide information for g(X) = 1 - X, as opposed to X directly. That is, questions 1-8 asked for the proportion of true flow counts that are not reported by a given country, i.e. for the proportion of undercount associated with the reporting system of a given country. This was done to avoid causing confusion between high and low undercount questions, since for g(X) high (low) values imply higher (lower) undercount, whereas for X, it is the other way around.

It is easy to see that g(X) = 1 - X takes values in [0, 1] and that the function g(x) = 1 - x, is continuous and strictly decreasing and, therefore, invertible. It is also straightforward to see that the inverse of g, g^{-1} , is given by the expression $g^{-1}(r) = 1 - r$. Equation A.1 below collects the expressions for g and g^{-1} for questions 1-8:

$$g(x) = 1 - x$$

 $g^{-1}(r) = 1 - r$
(A.1)

A.2 Questions 9-14 (accuracy questions)

The parameter of interest X in questions 9-14 is the precision (inverse variance) of the random fluctuation error term associated with the measurement of migration. More precisely, assuming that there are no sources of systemaric error, under our assumed modelling framework (see Raymer et al. (2013)), we can describe the effect of the parameter X via the relationship $\mu = y \exp(\varepsilon|_X)$, where μ represents a reported flow count, y is the corresponding true flow count, and $\varepsilon|_X \sim N(0, 1/X)$, where N(m, v) denotes a Normal distribution with mean m and variance v. As mentioned in the main text the choice of family for the distribution of X was $\text{Gamma}(\nu, \rho)$. Asking the experts to provide information for X directly would be too involved (due to the fact that there are two levels of randomness at work here, that of $\varepsilon|_X$ and that of X itself) and so we asked the experts to provide information for $g(X) = \text{E}(\mathbb{1}_A \mid X)$, where $A = \{0.95 < \exp(\varepsilon|_X) < 1.05\}$. That is, questions 9-14 asked for the expected proportion of observations with less than 5% error, i.e. for the expected proportion of times that the published statistics of a given country are within an interval of -5% to +5% compared to the true level of immigration, when no systematic errors exist.

Mathematically, $g(X) = E(\mathbb{1}_A | X)$ is the conditional expectation of $\mathbb{1}_A$ given X, a random variable (as a function of the random variable X), and it is easy to see how it takes values in [0,1]. It is also easy to see that, as a function of x, g(x) = $E(\mathbb{1}_A | X = x)$ is strictly increasing, since the higher the value of the precision x, the higher the expected proportion of observations with less than 5% error. Now, $g(x) = E(\mathbb{1}_A | X = x) = P(A | X = x) = P(0.95 < \exp(\varepsilon|_X) < 1.05 | X = x) =$ $\Phi(\log(1.05)\sqrt{x}) - \Phi(\log(0.95)\sqrt{x})$, where Φ is the cdf of the standard Normal distribution N(0, 1). The last equality reveals that g(x) is also continuous, being the difference of continuous functions. Therefore, g(x) is invertible. To find the inverse of g, g^{-1} , we must solve g(x) = r with respect to x. Starting from the last of the above equalities for g(x), that of $g(x) = \Phi(\log(1.05)\sqrt{x}) - \Phi(\log(0.95)\sqrt{x})$, and using the approximation $\log(1.05) \approx -\log(0.95) \approx 0.05$ we solve g(x) = r with respect to x and reveal that $x = 400(\Phi^{-1}(\frac{r+1}{2}))^2$, where Φ^{-1} is the inverse of Φ . Hence, the expression for g^{-1} is $g^{-1}(r) = 400(\Phi^{-1}(\frac{r+1}{2}))^2$. Equation A.1 below collects the expressions for g and g^{-1} for questions 9-14:

$$g(x) = \mathcal{E}(\mathbb{1}_A \mid X = x)$$

$$g^{-1}(r) = 400(\Phi^{-1}(\frac{r+1}{2}))^2$$
(A.2)

B Starting values for the minimization algorithms

As in the main document, consider any one of the questions 1-14 and let X denote the quantity of interest. Let also an expert be denoted by i, i = 1, 2, ..., n, where n the number of experts providing a valid answer to the given question.

B.1 Questions 1-8 (undercount questions)

In questions 1-8, the choice of family for the distribution of X was $\text{Beta}(\alpha, \beta)$. As explained in the main text, for the purposes of method 1 (see section 2.1) the minimization algorithm is run to specify the values of expert-specific parameters $\theta_i = (\alpha_i, \beta_i)$, i =1, 2, ..., n, whereas for the purposes of method 2 (see section 2.2) it is run to specify the value of a common (over experts) parameter $\theta = (\alpha, \beta)$. For all runs, under both methods, we set the starting values, say (α_0, β_0) , as $(\alpha_0, \beta_0) = (1, 1)$. Note that, under these values, the Beta distribution reduces to a uniform distribution on [0, 1], denoted as U[0, 1], i.e. $\text{Beta}(1, 1) \equiv U[0, 1]$. These starting values were very robust and worked well for all the runs of the minimization algorithm.

B.2 Questions 9-14 (accuracy questions)

In questions 9-14, the choice of family for the distribution of X was $\text{Gamma}(\nu, \rho)$. As mentioned in the main text, in method 1 (see section 2.1) the minimization algorithm is run to specify the values of expert-specific parameters $\theta_i = (\nu_i, \rho_i)$, i = 1, 2, ..., n, whereas in method 2 (see section 2.2) it is run to specify the value of a common (over experts) parameter $\theta = (\nu, \rho)$. Under both methods, to specify reasonable starting values for the minimization algorithm, we followed Wiśniowski et al. (2013) and approximated the Gamma distribution of X with a Log-normal distribution. We use the notation $\text{LogN}(\kappa, \sigma^2)$ to denote a Log-normal distribution parameterized by κ and σ^2 so that if $Y \sim \text{LogN}(\kappa, \sigma^2)$ then $\log(Y) \sim N(\kappa, \sigma^2)$. The motivation behind the Log-normal approximation is that the parameters of a Log-normal distribution, unlike the parameters of a Gamma distribution, can be analytically calculated, given two points on the associated cdf. These calculated values, of the parameters of the LogNormal, can then be used to set reasonable starting values for the run of the minimization algorithm aimed to specify the parameters of the Gamma. Below we describe how this is done, first for the purposes of method 1, and subsequently for the purposes of method 2.

In method 1 the minimization algorithm is run to specify the values of the expert-specific parameters $\theta_i = (\nu_i, \rho_i)$, i = 1, 2, ..., n. Same as the main text, let $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$ be the two points of the cdf of X, corresponding to expert i, where $x_{i,1} = g^{-1}(r_{i,1})$, $x_{i,2} = g^{-1}(r_{i,2})$, $y_{i,1} = k_i r_{i,1}$ and $y_{i,2} = 1 - k_i (1 - r_{i,2})$, and where $r_{i,1}, r_{i,2}$ are the range values and c_i the certainty value, provided by i, i = 1, 2, ..., n. Under the assumption that $X \sim \text{LogN}(\kappa_i, \sigma_i^2)$, given $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$, we analytically solve the system of equations

$$P(X < x_{i,1}) = y_{i,1}$$

$$P(X < x_{i,2}) = y_{i,2},$$
(B.1)

and calculate σ_i and κ_i to be $\sigma_i = \frac{\log(x_{i,2}) - \log(x_{i,1})}{\Phi^{-1}(y_{i,2}) - \Phi^{-1}(y_{i,1})}$ and $\kappa_i = \log(x_{i,1}) - \sigma_i \Phi^{-1}(y_{i,1})$. Having σ_i and κ_i , we calculate the mean m_i and variance v_i of the approximating LogNormal distribution as $m_i = \exp(\kappa_i + \sigma_i^2/2)$ and $v_i = (\exp(\sigma_i^2) - 1) \exp(2\kappa_i + \sigma_i^2)$. Finally, using the calculated m_i and v_i , we conduct a method of moments (MOM) estimation to calculate parameters for the Gamma distribution, which we set as the starting values, $(\nu_{i,0}, \rho_{i,0})$, for the minimization algorithm of $\theta_i = (\nu_i, \rho_i)$. These are given by $\nu_{i,0} = m_i^2/v_i$ and $\rho_{0,i} = m_i/v_i$, i = 1, 2, ..., n.

In method 2 the minimization algorithm aims to specify the value of a common (over experts) parameter $\theta = (\nu, \rho)$. As above, let $(x_{i,1}, y_{i,1})$ and $(x_{i,2}, y_{i,2})$ be the two points of the cdf of X, corresponding to expert i, where $x_{i,1} = g^{-1}(r_{i,1})$, $x_{i,2} = g^{-1}(r_{i,2})$, $y_{i,1} = k_i r_{i,1}$ and $y_{i,2} = 1 - k_i(1 - r_{i,2})$, and where $r_{i,1}, r_{i,2}$ are the range values and c_i the certainty value, provided by i, i = 1, 2, ..., n. The intention is to work as in method 1 and use a pair of points of the cdf of X and analytically calculate the parameters of the LogNormal. However, method 2, unlike method 1, involves all 2n points provided by experts, and not just an expert-specific pair of points. To overcome this, we construct an artificial pair of points, representing all experts, by taking a sort of average over all points. Specifically, we consider the pair of points (\bar{x}_1, \bar{y}_1) and (\bar{x}_2, \bar{y}_2) , where $\bar{x}_1 = \frac{1}{n} \sum_{i=1}^n x_{i,1}, \bar{y}_1 = \frac{1}{n} \sum_{i=1}^n y_{i,1}$,

 $\bar{x}_2 = \frac{1}{n} \sum_{i=1}^n x_{i,2}$ and $\bar{y}_2 = \frac{1}{n} \sum_{i=1}^n y_{i,2}$. We then proceed as in method 1. Specifically, under the assumption that $X \sim \text{LogN}(\kappa, \sigma^2)$, we solve the system of equations

$$P(X < \bar{x}_1) = \bar{y}_1$$

$$P(X < \bar{x}_2) = \bar{y}_2,$$
(B.2)

to find $\sigma = \frac{\log(\bar{x}_2) - \log(\bar{x}_1)}{\Phi^{-1}(\bar{y}_2) - \Phi^{-1}(\bar{y}_1)}$ and $\kappa = \log(\bar{x}_1) - \sigma \Phi^{-1}(\bar{x}_1)$. We then calculate the mean m and variance v of the approximating LogNormal distribution as $m = \exp(\kappa + \sigma^2/2)$ and $v = (\exp(\sigma^2) - 1) \exp(2\kappa + \sigma^2)$. Lastly, we conduct a MOM estimation to calculate parameters for the Gamma distribution, which we set as the starting values, (ν_0, ρ_0) , for the minimization algorithm of $\theta = (\nu, \rho)$. These are given by $\nu_0 = m^2/v$ and $\rho_0 = m/v$.

C Example expert-specific feedback document

Delphi round 1: respondent-specific feedback for respondent id=8533066

Document description

This document provides plots and feedback, for the answers to questions 1-14 of round 1 of the Delphi questionnaire. Section 1 repeats the generic (not respondent-specific) feedback that was provided in the generic feedback document. Sections 2 and 3 provide plots and feedback that are specific to **respondent** id=8533066. Recall that questions 1-8 regarded undercount parameters, questions 9-14 accuracy parameters, and note that 16 participants took part in the questionnaire.

Section 1

Overall, there was a fair amount of heterogeneity in the opinions of respondents for the undercount parameters, although for some questions (e.g. question 2 and 4) the amount of heterogeneity was less than others (e.g. question 5 and 6). Some respondents provided answers with very high certainty while others were much less certain.

The opinions of respondents regarding accuracy, were again quite diverse, although in some questions (e.g. questions 9 and 11) the respondents were loosely divided into those that suggested that accuracy is very good. An important reminder is that for the accuracy questions, we assume that there is **no systematic bias in the measurement of migration**, i.e. we assume that there is no bias due to undercount, coverage, duration criteria or any other factor, and we are asking for the accuracy related only to sampling variability. That is, we assume that the only source of variability is sampling variability.

Something that we should had made clearer before the first round, was **how the answers are translated to probability statements**. Consider any one of the question 1-14 and suppose that the quantity in question is denoted by x (for questions 1-8 x denotes undercount whereas for questions 9-14 x denotes accuracy). Say that a respondent provides a range in (a) of r_1 to r_2 and provides certainty in (b) of c. What these translate to, is to the respondent saying that the probability that x lies within the provided range $[r_1, r_2]$, is equal to c. Notice though, that the former probability statement automatically implies that the probability that x lies outside of the provided range $[r_1, r_2]$ must be equal to 1 - c. For example, if a respondent provides a range in (a) of 10% to 30% (i.e. $r_1 = 0.1$ and $r_2 = 0.3$) and provides certainty in (b) of 75% (i.e. c = 0.75), then this answer translates to the respondent saying that the probability that x lies outside the provided range [0.1, 0.3] is equal to 0.75, and, simultaneously, that the probability that x lies outside the provided range [0.1, 0.3] (i.e. that x lies within [0, 0.1] or [0.3, 1]) is equal to 1 - 0.75 = 0.25. It has to be noted that these two statements are equivalent, and that giving one as an answer also implies the other.

Based on some of the answers of the questionnaire we believe that some of the answers with small certainty/probability in (b) were perhaps given without fully realizing that low certainty/probability for x to lie within $[r_1, r_2]$ automatically implies high certainty/probability for x to lie outside of $[r_1, r_2]$. Similarly, some of the answers with very high certainty/probability in (b) left very small certainty/probability for x to lie outside of $[r_1, r_2]$.

Other notable issues were answers of negative ranges, answers providing a single number instead of a range and answers not providing certainty assessments. Such answers were impossible to be translated to probability statements.

Section 2: Density curves of your answers (thick black curves) alongside the other respondents' density curves

Section 2 consists of 14 plots, one for each question. Each of the 14 plots presents your answer, alongside the answers of the other respondents, all translated to probability distributions, or more precisely to probability density curves. Your curve is highlighted as the thick black curve. The intention of these plots is to allow you to compare your answer with the answers provided by the other respondents, establish a reference, and perhaps consider revising your answer in round 2.

Plots: undercount questions

For reference:

Q1: country=sending, migrants=EU+, undercount=low

- Q2: country=receiving, migrants=EU+, undercount=low
- Q3: country=sending, migrants=non-EU+, undercount=low
- Q4: country=receiving, migrants=non-EU+, undercount=low
- Q5: country=sending, migrants=EU+, undercount=high
- Q6: country=receiving, migrants=EU+, undercount=high
- Q7: country=sending, migrants=non-EU+, undercount=high

Q8: country=receiving, migrants=non-EU+, undercount=high



Plots: accuracy questions

For reference:

- Q9: country=sending, migrants=EU+, recording=register
- Q10: country=receiving, migrants=EU+, recording=register
- Q11: country=sending, migrants=non-EU+, recording=register
- Q12: country=receiving, migrants=non-EU+, recording=register
- Q13: country=receiving, migrants=EU+, recording=survey
- Q14: country=receiving, migrants=non-EU+, recording=survey







Section 3: Density curves of your responses on their own

Section 3, just like Section 2, consists of 14 plots, one for each question. Here, the plots present your answer (again translated to a density curve), only this time on its own and not alongside the answers of other respondents. Please note that the y-axis (vertical) scale is different in these plots than the plots of Section 2. The different scale helps to better illustrate your densities. The plots are followed by feedback that is specific to you. The intention of these plots is to explain how your answers were translated to density curves and to provide a visual medium for comments and clarifications.

Plots: undercount questions

For reference:

Q1: country=sending, migrants=EU+, undercount=low

- Q2: country=receiving, migrants=EU+, undercount=low
- Q3: country=sending, migrants=non-EU+, undercount=low
- Q4: country=receiving, migrants=non-EU+, undercount=low
- Q5: country=sending, migrants=EU+, undercount=high
- Q6: country=receiving, migrants=EU+, undercount=high
- Q7: country=sending, migrants=non-EU+, undercount=high

Q8: country=receiving, migrants=non-EU+, undercount=high



Plots: accuracy questions

For reference:

- Q9: country=sending, migrants=EU+, recording=register
- Q10: country=receiving, migrants=EU+, recording=register
- Q11: country=sending, migrants=non-EU+, recording=register
- Q12: country=receiving, migrants=non-EU+, recording=register
- Q13: country=receiving, migrants=EU+, recording=survey
- Q14: country=receiving, migrants=non-EU+, recording=survey



Feedback specific to you

Translating the answers to density curves To clearly illustrate how your answers were translated to density curves, we will use question 1; the procedure was the same for all other questions (simply change the values of r_1 , r_2 and c to the values that you provided in any given question). In question 1, you provided a range in (a) of 0% to 50%, i.e. $r_1 = 0$ and $r_2 = 0.5$, and provided certainty in (b) of 95%, i.e. c = 0.95. This translated to you saying that the probability that x (x is an undercount proportion in question 1) lies within the provided range [0, 0.5] is equal to 0.95, and, simultaneously, that the probability that x lies outside the provided range [0, 0.5] (i.e. that x lies within [0.5, 1]) is equal to 1 - 0.95 = 0.05. Then, a suitable density curve was chosen so that the area under the curve, within [0, 0.5] (your provided range), was equal to 0.95 (your provided certainty), and, automatically, the area under the curve, outside of [0, 0.5] (i.e. within [0.5, 1]), was 1 - 0.95 = 0.05. These properties of the curve can be visually appreciated by looking at the relevant plot above (the two vertical red lines on the plot represent the two range values).

Comments and clarifications To complement the generic feedback (see Section 1) here are some comments and clarifications that are specific to you:

1. In all of questions 5, 6, 7 and 8 you provided range values in (a) of 0% to 100% (i.e. $r_1 = 0$ and $r_2 = 1$). That is, you provided as range values the range of all possible values of the quantity in question. This could only be translated to you saying that all values of the quantity are equally likely, irrespective of the certainty value provided in (b). To see how this is the case consider question 5; the argument is the same for questions 6, 7 and 8. In question 5, you provided a certainty in (b) of 50% (i.e. c = 0.5). This translated to you saying that the probability that x (x is an undercount proportion in question 5) lies within the provided range [0, 1] is equal to 0.5. Simultaneously though, this means that there must be probability equal to 1 - 0.5 = 0.5, for x to lie outside of the provided range [0, 1]. However, this is not possible, since the quantity in question is a proportion, thus it can not lie outside of [0, 1].

As mentioned in the generic feedback (see Section 1), a probability equal to c, for x to lie within the provided range $[r_1, r_2]$, implies a probability equal to 1 - c, for x to lie outside of this range.

We would really appreciate if you could take these feedback into consideration before providing your answers in round 2. **Thank you!**

D Plots of Round 2 densities (without the Round 1 densities)



Figure 29: Experts' answers transformed to probability densities for question 1 (undercount of emigration of EU+ nationals who leave low undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 30: Experts' answers transformed to probability densities for question 2 (undercount of immigration of EU+ nationals who enter low undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 31: Experts' answers transformed to probability densities for question 3 (undercount of emigration of non-EU+ nationals who leave low undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 32: Experts' answers transformed to probability densities for question 4 (undercount of immigration of non-EU+ nationals who enter low undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 33: Experts' answers transformed to probability densities for question 5 (undercount of emigration of EU+ nationals who leave high undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 34: Experts' answers transformed to probability densities for question 6 (undercount of immigration of EU+ nationals who enter high undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 35: Experts' answers transformed to probability densities for question 7 (undercount of emigration of non-EU+ nationals who leave high undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 36: Experts' answers transformed to probability densities for question 8 (undercount of immigration of non-EU+ nationals who enter high undercount countries) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 37: Experts' answers transformed to probability densities for question 9 (accuracy of emigration of EU+ nationals who leave countries recording with a register) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 38: Experts' answers transformed to probability densities for question 10 (accuracy of immigration of EU+ nationals who enter countries recording with a register) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 39: Experts' answers transformed to probability densities for question 11 (accuracy of emigration of non-EU+ nationals who leave countries recording with a register) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 40: Experts' answers transformed to probability densities for question 12 (accuracy of immigration of non-EU+ nationals who enter countries recording with a register) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 41: Experts' answers transformed to probability densities for question 13 (accuracy of immigration of EU+ nationals who enter countries recording with a survey) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.



Figure 42: Experts' answers transformed to probability densities for question 14 (accuracy of immigration of non-EU+ nationals who enter countries recording with a survey) of Round 2. Left plot are the experts' individual densities (thin, coloured curves) with the two aggregated densities imposed (the thick, solid, black curve corresponds to aggregation via method 1 and the thick, dashed, red curve corresponds to aggregation via method 2). Right plot are the two aggregated densities on their own.