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Communicating projections

Taking CES Recommendations on Communicating Population Projections one step further: a joint exercise in the European Statistical System

Note by Eurostat*

Summary

In 2018, UNECE published its *Recommendations on Communicating Population Projections*, as discussed and prepared by the Task Force on Population Projections and endorsed by the Conference of European Statisticians (CES) in June 2017.

In the European Statistical System, this work was taken further by the Working Group on Population Projections. Under the *Joint communication* point of its May 2018 meeting, the group worked on a presentation of population projections as 'what-if' scenarios. The text was intended as a tool that members could adapt and include in their communication in order to address the elements considered relevant for their specific users and dissemination means. At the same time, the exercise enabled a broader reflection on the nature of population projections and the existing production and communication practices in the European Statistical System.

The paper presents the outcome of this joint exercise, starting from the specific UNECE Recommendations, presenting the way discussions and drafting evolved, as well as the final text. The key elements of this text are already being in use, for example by Eurostat when presenting its most recent population projections (EUROPOP2018). Moreover, the Group considered it important to continue addressing and discussing issues linked to communicating population projections.

*Prepared by Ms. Diana Ivan (Diana-Monica.Ivan@ec.europa.eu)

I.   Introduction

1.   In June 2017, the Conference of European Statisticians (CES) endorsed its *Recommendations on Communicating Population Projections* (UNECE, 2018), as drafted by the Task Force on Population Projections. In dealing with communicating the results of population projections, the approach was inclusive as *'<communication> encompasses not only how projections should be disseminated to users, but also what should be communicated'*.

2.   At the same time, during the period 2017-2018, the broad consultation for new procedures on population projections by Eurostat involved not only producers of population projections in the European Statistical System (ESS), but also users of population projections. The ESS is the partnership between Eurostat, the Statistical authority of the European Union, and the national statistical institutes (NSIs) and other national authorities responsible in each Member State for the development, production and dissemination of European statistics. In addition to the current 28 members of the EU, the partnership includes the 4 EFTA countries. While the main objective of this work was to improve the production process by clarifying the responsibilities of Eurostat and NSIs, a key element was about how users receive and interpret population projections. One key message of the consultation was to help users distinguish among *projections* and *forecasts*, and more generally explain why *projections* are not *predictions*.

3.   The task of better explaining key terms used in population projections was a natural implementation of the UNECE recommended good practices in the international, multi-lingual and institutionally complex ESS setting. As the Working Group on Population Projections (WGPP) brings together projection-makers from the ESS, this was the ideal forum for addressing the task of improving communication of population projections. Discussions started in the meeting of 16-17 May 2018, and afterwards the text was further analysed, fine-tuned and agreed by email. The result of this work is a concise presentation of population projections as 'what-if' scenarios, ready for adaptation for inclusion in each producer's communication materials.

II.   A joint exercise towards clearly defining key terms used in disseminating population projections

4.   The key recommendations endorsed by CES were: (1) to provide pertinent and accessible results; (2) to cultivate transparency; (3) to address uncertainty explicitly and (4) to foster relationships with users. The second and the fourth recommendations found a direct application in the context of the broad consultation facilitated by Eurostat, as the consultation involved users as well as producers, and several iterations allowed the analysis of the points raised from various perspectives, in full transparency.

5.   In addition to key recommendations, the UNECE Task Force on Population Projections has also identified several good practices for improving communication of population projections. The task of clearly distinguishing among *projections*, *forecasts* and *predictions* is a direct follow-up of the good practices: #1.1 *to communicate results in clear and simple language*; #2.3 *to clearly define key terms used in dissemination products*; as well as #4.5 *to investigate and document the needs of users*. In addition, good practice #3.5 *to pay close attention to verbal expressions of uncertainty* was used to frame the points that emerged from the exchanges around population projections in the ESS.

6.   The UNECE publication in general was a rich resource that guided the process of working together in the field of communicating population projections. For example, good practice #2.3 included the warning message that '*it should not be presumed that users share the same understanding of these terms* [*projection*, *forecast*, *scenario* or *variant*] *as the projection maker*'. Indeed, WGPP members confirmed that users generally do not share the same

understanding of the terms as the projection maker. Moreover, projections makers themselves shared their own ways of understanding or using these terms, which were sometimes different.

7. The members of the WGPP took active part in the process of drafting a joint note on population projections. Their shared experiences allowed a better understanding of the communication practices by producers of population projections in the ESS. While most producers in the ESS prefer the *population projection* meaning to that of *population forecast*, there are producers who, because of tradition of linguistic consideration, prefer the *population forecast*. This is consistent with the findings of the survey conducted in 2015 by the Task Force on Population Projections. In an international sample of national statistical offices, 25 had indicated that they used the term *projections*, and 6 used the term *forecast* (UNECE, 2018).

8. Most members of the WGPP distance themselves from the term *to predict/prediction*, while others use them, but the discussion was rather inconclusive on whether the association is more frequent among *projections* and *predictions* or among *forecasts* and *predictions*. It was noted that sometimes *projections* are preferred as noun, while '*to predict*' or '*to forecast*' are almost interchangeably used as verbs but not so much for epistemological considerations as for practical considerations, given the scarcity of synonyms among verbs.

A.   Difference between projections and forecasts from an etymological perspective

9. As an input to the *Joint communication* point of the WGPP meeting, Eurostat proposed an etymological essay freely grouping signals from the origin and evolution of the key words in order to raise awareness on their linguistic nuances. The words analysed were *projection*, *forecast*, as well as *prediction*, *prognosis* or *prospect*. It was a 'prospective' analysis trying to identify the advantages as well as disadvantages of the wording used, and this from both perspectives: that of the audience and that of the communicator.

10. English was kept as pivot language, as most population projections in the ESS are published in English, most often as translations. The fact that the pages in English are often translations is an important aspect to be taken into account, as translators or linguistic editors might have a different understanding of the original terms, or might be unaware of the precise understanding that projection makers themselves had about the terms. From this perspective, the exercise of clarifying differences among *projections* and *forecasts* was seen as an important factor of awareness-raising for projections makers, who might not identify themselves with communicators.

11. All words analysed are, at least in English, abstract. In most cases they have evolved over time, and have multiple layers of meanings. When using them, we expect a simple transcoding from word to meaning but in fact we might deal with interpretations. These interpretations are sometimes voluntary and often involuntary, and are made both by producers and users. For these reasons, the etymological perspective included not only the origin of the words used and the changes in their meaning over time, but highlighted as well aspects risking to generate or reinforce mental models in an audience that are different from what communicators want to convey (Bruine de Bruin, 2013). The lack of verbs in the field is also noted, as this leads to over usage of existing verbs '*to project*' and '*to forecast*'. The most striking aspect however is the etymological proximity of the terms, which alone creates an environment where communication is challenging, and the risks of imprecision, ambiguity or even misunderstanding are real:

   - The word **projection** comes from the Latin *projectio – onis* which was the result of the action of advancing or of throwing forward. This is easily recognisable in ballistic terms like projectile. A device used for projecting images onto a screen is a projector. As geometrical transformation, a projection has an impact on the representation. An architectural project transforms a drawing into a physical reality. In psychiatry, a

projection is a transfer, and it is a defence mechanism. Population projections would come closest to moving ahead the current population structure. This wording is powerful in showing how current features are reverberated ahead, and how reducing complexity helps in identifying the key features.

- A **forecast** is literally the anticipation of the throw of dices, with Germanic etymology: before the casting, or before a throw. This anticipation of the result of a throw of dices was initially close to guessing what would happen in the extremely short term. When dices are not thrown, the forecast is a foresight, or an anticipated knowledge that has a visual dimension. To foresee means, just like the Latin *praevisio*, that one 'sees' something before the occurrence. In fact, one anticipates something, like in weather forecast. Even if it is only recently that the word evolved towards an estimate of high precision, for the short term at least, it has the advantage of having entered naturally in the common usage. Population forecasts would come close to anticipating developments just before their actual occurrence.

- A **prognosis** has Greek and Latin origins. While the act of throwing dices is missing, prognosis is about formulating a theory about something before its happening. While Gnosticism is about knowledge at absolute levels, a prognosis is made while knowledge is still incomplete. Doctors make a prognosis while the clinical evolution is ongoing. A population prognosis would come closest to formulating a theory about the future population development. There is no equivalent verb to express the action of making a prognosis.

- A **prediction** is literally the action of saying out loud what is going to happen before the events. Divination is/was the art of making predictions. The Latin *divinare* is the attribute of the divine. Predictions are, etymologically speaking, telling the future with a certain authority, or special empowerment. Population predictions would mean announcing the future population.

- A **prospect** is, given its Latin etymology, the action of watching far ahead, of perceiving or distinguishing. The looking forward towards something evolved towards expectation, or hope. When expectation is materialised, it becomes exploration, like in the action of searching for gold or oil. This is why verb 'to prospect' got a different meaning altogether. By now, '*prospective client*' is the most common association of the word. A prospect is also often positive. A population prospect started therefore from the humble action of trying to distinguish the shape of the future population, and evolved towards a message of hope about the likely future population. The lack of a corresponding verb remains a problem for its usage.

12. This etymological analysis confirms the definitions proposed by the Recommendations, as well as their observation that the distinction between projection-makers and forecast-makers reflects an epistemological posture at the same time: '*projection-makers want to accentuate the fact that projections are not predictions, while forecast-makers seem to assume more boldly, within some limits, a capacity to predict*' (UNECE, 2018).

B.   Towards defining projections from the 'what-if' perspective

13. Given that the words *projections* and *forecasts* are etymologically close, even when applied to the specific context of population development they continue to preserve their original overlap. Users on the other hand tend to expect a *prediction* of what will actually happen in the future (Keyfitz, 1972). When the audience has a strong belief and expectation, it is much harder for the communicator to break an existing mental model and be understood in the intended way (Bruine de Bruin, 2013).

14. It is however difficult to define something by a negation, or in this case define population *projections* as *non-predictions*. There are few practical examples of how a *projection*, a

forecast or a *prediction* would differ among themselves in a definite way. One such example comes from the Australian Productivity Commission, with a 2005 analogy (Statistics New Zeeland, 2016): '*someone sees a large boulder on a train track. The **projection** is that there will be a rail disaster and many deaths if the boulder is not moved or the train is not stopped. The **prediction** is that someone will move the boulder, averting the accident*'. In this example, the *prediction* is the belief that the accident would be averted. The *projection* is built on a condition: what-**if** the boulder is not moved? By answering this precise question, the *projection* would be useful in quantifying the consequences of a specific action: '*projections form a basis for developing reasonable expectations about the future; help focus attention on potential events, risks, and opportunities; and allow people and policy-makers to plan and make decisions accordingly*' (Statistics New Zeeland, 2016).

15. While the distinction among population *projections* and *predictions* is indeed made from the 'what-if' perspective, the example also shows that the distinction among terms remains subtle. In the analogy of the boulder, a pessimistic *prediction* would have come extremely close to the *projection*: both '*predicting'/'projecting'* a rail disaster. For this reason, it is essential to approach the issue holistically, and ensure that wordings are accompanied by a context in a consistent way. For example, the usage of the words *projections* rather than *predictions*, even when done systematically, will not be sufficient to make users aware of the intrinsic differences. While this can be a first step towards a consistent communication, it also needs the 'if-then' approach to improve clarity. This can be extended to population *forecasts*, by checking, mainly from the producers' side, which are the hypothesis formulated (explicitly or not), and whether they match the users' expectation of precision.

16. The *Joint WGPP note on communicating population projections* (see *Box 1*) incorporates the 'if-then' approach in communicating population *projections*, and links *forecasts* to an expected outcome. Furthermore, a *projection* would place the evolution of demographic events in a *scenario*. It is therefore essential for projection-makers to underline all '**if**'s in their model, regarding their *scenarios*, *variants*, *hypothesis* and *assumptions*.

Box 1: Joint WGPP note on communicating population projections (follow-up of the 10th Working Group on Population Projections, 2018)

Population projections show how the size and structure of a population would hypothetically evolve in the future; usually in the next few decades, up to a century. Their main goal is to help understand population dynamics and contribute to debates on possible societal changes.

Population projections are typically made according to various scenarios entailing future change. Their calculations are based on assumptions about developments in fertility, mortality and migration. Starting from different scenarios and assumptions, projections show the population changing in different and often diverging ways. As such, population projections are a type of 'what-if' analysis: they show how population changes if particular assumptions within a broader scenario remained true over the projection period.

Population projections are not forecasts: a population forecast shows what producers identify as the most probable development of a future population, while 'what-if' population projections are calculated based on assumptions, and possibly their variants, about future change. Moreover, projections can include seemingly realistic and plausible, but also implausible (like 'No migration' or 'Constant rates') 'what-if' developments.

Generally, projections by various producers differ not only in the selection of scenarios and assumptions, but also regarding the methods applied (deterministic versus probabilistic methods being only one of the many distinctions possible), and consequently they have different outcomes.

Users are invited to consult the details of the methodologies presented on specific websites and in publications, and to take into account the high degree of uncertainty applicable. Further to the inherent uncertainty of future demographic changes, which increases with the time-span, events like war, famine and medical breakthroughs – to name just a few of the events that can change the demographic course – are impossible to anticipate.

17. The members of the WGPP appreciated the chance of reflecting together at the way in which they communicate the results of their work. They agreed to consider adapting this content to their own dissemination materials, and further document the perceptions and needs of users in this field.

III.   Conclusive remarks

20. The nature of the project makes it inevitable that all result is a follow-up of work in progress, without definite and universal solutions. In order to cope with the varying practices, traditions and languages of communication used by the ESS producers, the preferred approach was the one offering most flexibility in addressing the specific needs of both users and producers. Each new release and new feedback from users is seen as a chance to further fine-tune the dissemination package, in a continuous learning cycle.

21. The members of the WGPP share information on the new releases of national projections in a dedicated online forum. It is an additional opportunity to learn from the experiences of other producers, especially when comparing the English version of the websites. The group considered it important to continue addressing and discussing issues linked to communicating population projections.

22. Eurostat has adapted the text for its website pages available in English, French and German for the release of the 2018-based projections[1]. Conceived as a question and answer fact sheet, the information presents the deterministic *population projections* by Eurostat as 'what-if' developments subject to the intrinsic uncertainty of future population dynamics. The message is repeated in the corresponding news item[2], where the difference from *forecasts* is formulated explicitly.

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