

Overview

Migration is societally important, policy-relevant, yet strongly politically charged. Compared to other [demographic issues](#), relatively little is known about human migration, especially in the context of high-impact political events. While some complexity is routinely incorporated in demographic data, migration has been identified as the [most complex and uncertain component of population change](#). Migration policies never cease to disappoint – controls and targets repeatedly fail to work as intended – because most governments do not recognise uncertainty as a central feature in migration policymaking.

Multiple stakeholders are potentially interested in migration policy proposals and outcomes. Journalists, civil servants, analysts, representatives of non-governmental organisations, unions and other stakeholders who are close to governments play a fundamental role in bringing scientific evidence into policymaking. Since migration involves and responds to a multitude of drivers and driver environments, it is difficult to [isolate single effective policy instruments](#). By integrating expertise provided from demography, sociology, economics, human geography, political science with insights from a wide range of conceptual, theoretical and analytical perspectives, an [international team of researchers](#) has explored how key global challenges for migration policy can be addressed most effectively at both micro (individual) and macro (population) levels by building and analysing migration scenarios.¹

A key global challenge in the process of building scenarios designed to inform migration policymaking is how to develop the best possible [analytical tools to bridge the gaps](#) between a multidisciplinary cross-sectoral knowledge base dependent on formal measurements of uncertainty and their applications by decision-makers in variable socio-cultural, economic and political environments.

Key evidence

Research findings demonstrate that there is much more to migration uncertainty than just the lack of answers: uncertainty itself is critically worth studying. Three main ideas underpin this approach:

- 1) In the context of migration processes, **uncertainty is a feature, not a bug or a flaw**. This perspective involves separating features that are known about migration processes to enable more specific planning from those that can be known with better knowledge, for example through dedicated data collection methods, and from those that will always remain uncertain but call for greater preparedness.
- 2) Any scenarios of future migration need explicitly to **acknowledge uncertainty at their core**. In the dialogue between policy and science, prerequisites for successful communication of uncertain results include mutual understanding, honesty and trust, facilitated by professional data translation techniques that help users to navigate the intricacies of uncertain evidence.
- 3) Building migration scenarios is **an iterative process rather than a one-off event**. The nature of uncertainty is linked to the choice of analytical tools for studying current and future migration, and for setting limits on the time horizons for which useful insights can be gained. A concept worth exploring across different horizons is the relative frequency and magnitude of uncertain migration events, which allows for contingency planning, ideally matched by commitment of resources.

The scenario building process relies on knowledge about the evidence base, including data quality:

- Though far from perfect, Europe has some of the [better migration data](#) worldwide. The [UN compiles migration indicators](#), but forecasting international migration outside Europe is difficult because data quality is even poorer. When preparing migration estimates, important trade-offs can be identified between the availability and accuracy of data. Having imperfect data is better

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than having no data at all. Statistical models allow correcting for some imperfections, while explicitly acknowledging data errors.

- Evidence from forecast exercises indicates, for example, that uncertainty about future migration accounts for roughly three-quarters of [overall uncertainty about future population in Germany](#), with fertility and mortality between them accounting for the remaining quarter. Uncertainty is generally highest for irregular and asylum migration and lowest for family reunion. Scenarios of future trends based on migration drivers can be too complex to be useful, but it is important to consider the composition of flows by reason for migration or demographic characteristics.
- Qualitative and experimental studies show that the most trusted information comes from reputable international sources or from people with relevant experience, for example migrants who have made the same journey. Once migration routes are established, they tend to persist, perpetuating migration through the increased information flow along those routes.
- The assembled evidence suggests that attempts to steer complex processes with simple tools – for instance, focusing only on border enforcement without understanding background migration mechanisms – do not work. Greater model sophistication offers richer explanations, but is unlikely to reduce the overall uncertainty of simulation results. Conversely, the unpredictable nature of migration creates further sources of uncertainty that need to be factored in.

Policy contexts

Migration complexity results from the [interactions of multiple migration drivers and individuals' aspirations and constraints](#) (capabilities), which all are strongly context-specific both between and within states and regions. The [United Nations Global Compact for Migration](#), the first holistic intergovernmentally negotiated agreement covering all dimensions of international migration, suggests that there are no one-size fits all policy solutions.

- Numbers of migrants making perilous journeys, for example across the Mediterranean, the English Channel or the Sonoran Desert, trigger different policy [responses in origin and destination countries](#) that often fail to achieve their aims. By contrast, more flexible solutions can be more effective. For example the policy adopted by the European Union allowing four million people fleeing the Russian invasion of Ukraine to make their home in Europe averted an acute crisis. Political will coupled with flexibility legally offered by the [Temporary Protection Directive](#) allowed assistance to be delivered at a very large scale.
- Migration is [highly stratified by age, sex, race and socio-economic](#) factors. For example, most international migrants are young adults (ages 18–35) with dependent children. [Most migration is subnational](#) (internal) but receives less attention than international migration. Most climate-driven mobility is short term, short distance and subnational, but complexity and uncertainty in patterns of migration could be exacerbated in the context of climate change.

Recommendations

By embracing uncertainty, migration knowledge and policies can be improved in a number of ways:

- To avoid powerful illusions of prediction and control, what we understand about migration needs to be separated from what we do not.
- Mature policies must address uncertainty and complexity front and centre: not be complacent, but also not over-react to events.
- All numbers come with errors, because migration is difficult to measure. If they are to be useful long-term planning horizons need coherent visions with built-in updates.
- A key prerequisite of migration policy is the creation of a just culture in the face of uncertainty, recognising that high-impact migration events may be beyond any reasonable policy control. Unwanted outcomes should be used as learning opportunities to improve future responses.
- Preparedness requires combining the best-possible analytical tools to address the challenges of uncertainty with high levels of public buy-in and political will.