Toward a Computational Immigration Assistant

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ABSTRACT

In the face of global change and impending limits on various resources, the need for people to move across borders is likely to increase. Facilitating mobility could enable people to access resources and lifestyles more suited to their abilities, and thereby reduce suffering for both humans and other species. This paper proposes the need for computational support to facilitate immigration decisions for both individuals and governments. Drawing inspiration from global systems modeling, social networking, and collaborative filtering, these computational tools would help match up individuals with host countries based on the preferences of both.

Categories and Subject Descriptors

H.4 INFORMATION SYSTEMS APPLICATIONS; J.1 ADMINISTRATIVE DATA PROCESSING: Government; K.4 COMPUTERS AND SOCIETY

General Terms

Design; Economics; Human Factors

Keywords

Immigration; Emigration; Climate Change; Limits.

1. INTRODUCTION

A decision to move to a new country is rarely undertaken lightly. Individuals may desire a better life for their children. They may be fleeing persecution. They may be starving or displaced in their home country. And yet, there are few computational tools that effectively support this decision process. People decide where to immigrate based on geographical proximity, family connections, stories they've heard, employment opportunities that arise, and many other factors. However, these factors do not necessarily lead to effective decisions.

From the other side, national governments often have preferences with regard to which kinds of people, if any, they would like to have immigrate into their countries. These preferences may not always be just, or favored by citizens of other countries, or even favored by many citizens of the country itself; nevertheless, national sovereignty typically carries with it the capacity to "control entry" (Weiner 1996). In addition, countries may have preferences about individuals or groups whom they would prefer to have move out of their country (e.g., certain kinds of criminals, whose crimes are not illegal in a different nation). In the absence of a mechanism for developing global consensus about the most equitable immigration policies, we may nevertheless hope for transparency and efficiency at enacting those policies that do exist.

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Certain countries have relatively clear and timely immigration policies. New Zealand, for example, has a "points" system that determines whether or not a person will be allowed to immigrate (https://www.immigration.govt.nz/pointsindicator/). The US immigration process, on the other hand, is renowned for its byzantine complexity. Still other countries allow very little immigration at all.

This paper proposes that computational support may be beneficial in the match-making process between individuals and nations to which they might immigrate. In this effort, I do not mean to downplay the importance of the myriad other factors that go into such a transition. An immigration tool will not change the geographic, personal, and other factors that strongly influence immigration. However, computational support could reduce many of the transaction costs involved in the process, and could prove beneficial both for immigrants and host countries.

In a world where various limits on the availability of resources (e.g., peak oil, peak phosphorous) come into play more powerfully than they do at present, a mismatch between the carrying capacity of a nation and the human population of that nation could lead to profound suffering and population reductions for both humans and other species. For example, in the face of limits to the availability of fossil fuels, Southern California's carrying capacity could drop drastically as imported water and other resources become scarce. In light of these potential transformations in carrying capacity, it is potentially valuable to have a more streamlined way to address the complex, multi-national problem of immigration.

There have been efforts to use computational modeling to support decision processes with regard to immigration between particular countries, such as between the US and Mexico (Crowe and Lucas-Vergona 2007). Computational modeling has also been used to understand the migration of various animal species (Fink, Damoulas, and Dave, 2013). There are also online tools to evaluate various aspects of quality of life in various countries, e.g., (http://www.oecdbetterlifeindex.org/). However, I have not been able to find any computational tools to support the immigration process more broadly, across a range of countries and individuals.

There are, though, many online tools in existence to help match people with other people and with institutions that are well suited to them. Facebook.com suggests friends, Match.com suggests romantic partners, and CareerBuilder.com offers potential jobs. Matching people with goods and services is also a flourishing activity online, with Amazon.com, Netflix.com, and many other online retailers suggesting appropriate purchases.

I seek to draw on the social networking and collaborative filtering that is common on the Internet and combine it with a tool for modeling the state of various geographic regions at specific points in the future given various scenarios, similar to the World3 model used in the Club of Rome's Limits to Growth (Meadows et al. 1972). I propose the need for two interacting suites of tools, one for individuals and another for governments.

2. INDIVIDUAL TOOLS

The transaction costs of moving one's whole life—family, furniture, housing, job, engagement with health and financial infrastructures, etc.—make it disadvantageous to do so frequently.

In the very short term, these transaction costs often overshadow any but the most powerful benefits that might be reaped. For some people, though, circumstances such as government persecution or environmental crises have already uprooted families, making mobility obligatory rather than optional.

On a longer time horizon, even for individuals and groups with viable livelihoods and stable homes, the desire to improve circumstances for oneself and one's descendants may overcome the challenges of uprooting many different aspects of one's way of living.

Both powerful short-term and pervasive long-term mismatches between one's present and desired ways of living feature predictable regularities that make them amenable to computational support. If one individual is starving or being oppressed in a particular context, there may be many others in a similar situation. And if there is one person in fear for his or her long term future, there are likely others as well.

There are numerous factors that could influence an individual's decision to emigrate from their current country. In the proposed system, I would begin with a global model of the carrying capacity of various regions, inspired by systems such as World3 and http://dashboard.carryingcapacity.com.au/. In addition, the system would allow individuals to input information about themselves (current citizenship, languages spoken, etc.) and use this information to predict the degree to which those individuals could take advantage of local resources. The system could also provide links to expat social networks in particular regions, as well as to skill-building and community-building resources relevant to that region. Through such a system, an individual or group could make a more informed decision about how well suited a given region is for providing their needs across particular time horizons.

From the point of view of the individual, this set of tools is an instance of a "self-obviating system" (Tomlinson et al. 2015) – "one in which the successful operation of the system in the short term renders it unnecessary in the long term". The successful deployment of an immigration assistant for individuals would help them find a better home nation and assimilate into that nation's culture; once it had done so, the individual users would gradually lose the need for such a system.

3. GOVERNMENTAL TOOLS

Coupled with the problem of individuals deciding where to immigrate is the problem of governments deciding whom to accept. Immigration policy is hotly contested in governments around the world. Governments may wish to have immigrants with particular skills, particular resources (e.g., money), or particular ages, or that fit many other criteria. Governments at particular time periods may take an active role in recruiting immigrants (e.g., "Bring me your tired, your poor…" engraved on the US Statue of Liberty), or may actively seek to prevent particular instances of immigration (e.g., the border fence between the US and Mexico) or emigration (e.g., the Berlin Wall). In addition, governments may wish to incentivize certain individuals to leave a country, and would be willing to compensate another country to accommodate them.

Creating a suite of governmental tools that pair effectively with the individual immigration tools could enable governments to recruit individuals that match their needs more effectively. This suite could include ways of specifying particular desirable attributes, and conditions on which the immigration would be predicated (e.g., New Zealand requires people above a certain age to be able to invest particular amounts of money in New Zealand-based assets for specific lengths of time). These conditions could also work the opposite direction, with countries being willing to pay particular individuals to move to their country, or offering other non-monetary incentives.

4. MATCHMAKING

Connecting the individual tools to the governmental tools has the potential to enable both systems to work more effectively. Making mutually beneficial reconfiguration faster could allow for more rapid improvement in quality of life both for the immigrants and for the other citizens of their original and new host countries. Enabling individuals and governments to learn about unsuccessful pairings more transparently and more quickly could allow everyone to move on with their lives, rather than living in a state of uncertainty while decades pass as paperwork is processed (as sometimes occurs in the US and elsewhere). The process of matchmaking could draw on computational techniques from collaborative filtering and social networking to offer both individuals and governments suggestions for appropriate matches.

Computational support for global immigration could enable the process to be more like university admissions and hiring, where there is an annual admissions/hiring season, or Match Day in the US medical school process, where individuals are dynamically matched with training programs each year. By standardizing the process, a broader market of supporting tools (travel planning, logistical coordination, legal services) could also arise.

5. CONCERNS

Such a system brings to the surface a number of problems.

If a country or other organization (UN, NGO, etc.) is willing to compensate a different country to accommodate refugees or other individuals for whom their home country is no longer a viable place to live, there must be some mechanism in place to guarantee the fair treatment of those individuals. It may be the case that such a mechanism is impossible to implement, and thus the system is non-viable. There are numerous examples of organizations such as the UN finding it challenging to establish the degree to which human rights violations are occurring in a particular region. However, a computational immigration assistant would at least provide a mechanism for documenting the identities of the migrants, and thus providing a greater level of accountability than with a country's own citizen.

A second challenge is that many people, including some who might most be in need of the services that a computational immigration assistant might provide, may not have access to computing or other resources to be able to use such a system. Without access, they would be disenfranchised from the process of improving their circumstances. Such a system could easily be biased in favor of individuals who already have access to wealth and power.

A third challenge is that the system would require individuals, groups, and nations to make explicit their preferences. Many people have preferences that others, and sometimes they themselves, may find distasteful (e.g., not wishing to live near people of a different race); these people may be reluctant to

document these preferences in a computational form. However, I would argue that is not the computational support for immigration that is problematic, but rather the fact that discrimination and oppression and poverty and many other societal ills exist at all. Making these issues more explicit via computational operationalization could help foreground them, and thereby make it more likely that they could be resolved.

6. CONCLUSION

While it is not realistic to create a perfect system for matching people seeking to leave their homelands with countries desiring to host them, there is nevertheless the possibility for a more unified system for immigration. Such a system could allow for more effective pairings between individuals and nations. In the face of global limits and climate change, enabling more rapid mobility across borders could enable people to restructure their lives more effectively, and prevent avoidable suffering.

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