The Extension of Refugees Migration Model

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Abstract. In order to make the optimization of model, firstly, supporting policies are proposed to ensure the optimal migration pattern; the NGO can increase the total amount of goods and improve the environmental carrying capacity.

Secondly, the exogenous events will decrease the quota of refugees and increase this index in neighboring countries.

Finally, the scalability of the model is analyzed. When the crisis expands to a large scale, the origins and the routes need to be reconsidered.

Introduction

We have developed a model to solve the optimal migration of refugees before. But, there still have some question to be analyzed. Firstly, the model is based on the ideal condition, so supporting policies are proposed to ensure the optimal migration pattern. Then, based on exogenous events, we make the sensitivity analysis .Finally ,we expand this model.

Assumption

The statistical data is valid. We suppose that true value of every index locates right nearby the statistical data. Consequently, we assume that the data is believable.

Secondary factors of Evaluation model can be quantified reasonably. We use the Coefficient of Variation method to distribute the weight which requires factors can be quantified reasonably. We eliminated the effect of the subjective factors in this way.

Supporting policies to make our model more ideal

In our model, first, all of the routes can be passed. This would require a consensus among countries on policies to provide favorable conditions for the migration of refugees.

Secondly, the received refugees are those who meet the requirements and have legitimate grounds for refugee asylum. It's due to the capacity of each refugee receiving countries are limited. Excluding persons who do not meet the requirements, receiving countries can make more in line with the conditions of the refugees get help. For example, in accordance with the new law, in the future, applicants from Albania, Kosovo and Montenegro, who don't have sufficient grounds for refugee asylum, will quickly be sent back to their country of origin. The new law about benefits enjoyed by refugees in Germany has made the adjustment. If the applicants who have no reasonable ground stay in Germany asylum, their access to welfare will be cut. In addition, the German government also introduced refugee resettlement cost-sharing programs, and planned to provide more financial support in the construction of welfare housing, refugee children's education. This will allow the refugees to get more resources.

In addition, refugees may be received at any time. For refugees who are not received, make reasonable arrangements for different reception entrance in different countries; for refugees who have been received, resettle or transfer them as soon as possible, dispersing them into different states to make the service point continue to receive refugees and not be overcrowding. This requires countries to make allocation plan in terms of policy to make equitable distribution of entry and refugee resettlement.

For example, refugees' settlement in Germany is shown below:

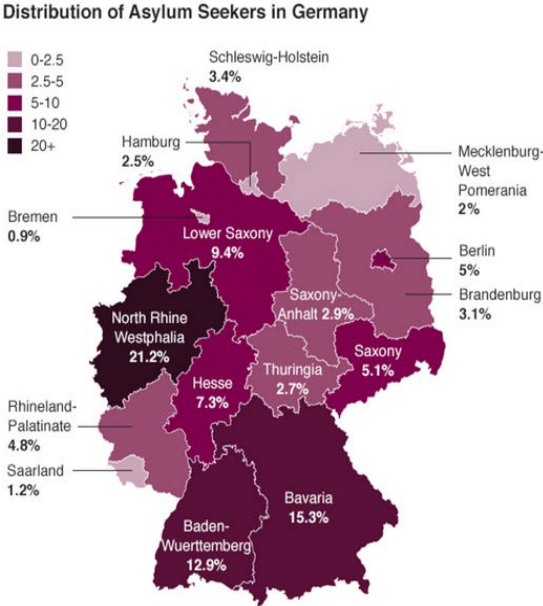**Distribution of Asylum Seekers in Germany**

Figure 1.   Distribution of asylum seekers in Germany

In order to deal with sudden breakout affairs more effectively, all countries should obey the distribution and increase the number of accepting refugees' flexibility to prevent crashes caused by a surge in the number refugees.

In addition to the above points, the health and safety of the refugees and local residents should be given priority. First, in terms of health, just immigration refugees should receive a health examination to ensure that they do not carry the highly contagious virus, while the sick refugees ought to be treated as soon as possible. Second, in terms of security, conflict between local residents and refugees should be avoid, and to strengthen security at the service point. The most important is, refugees need to integrate into local life as soon as possible.

As for the NGOs, they can not only increase resources of accepting countries, but also increase manpower for different jobs in different periods to ensure the smooth process of the whole migration.

Exogenous events

In terms of the entire migration process, the emergencies may occur in the refugees' countries, migration lines and receiving countries.

When an emergency occurs in the refugees country, the factors of refugees themselves changed dramatically, which are mainly reflected in the number of refugees. For example, in 2015, the Syrian war resulted in a sharp increase in the number of refugees , as shown below：
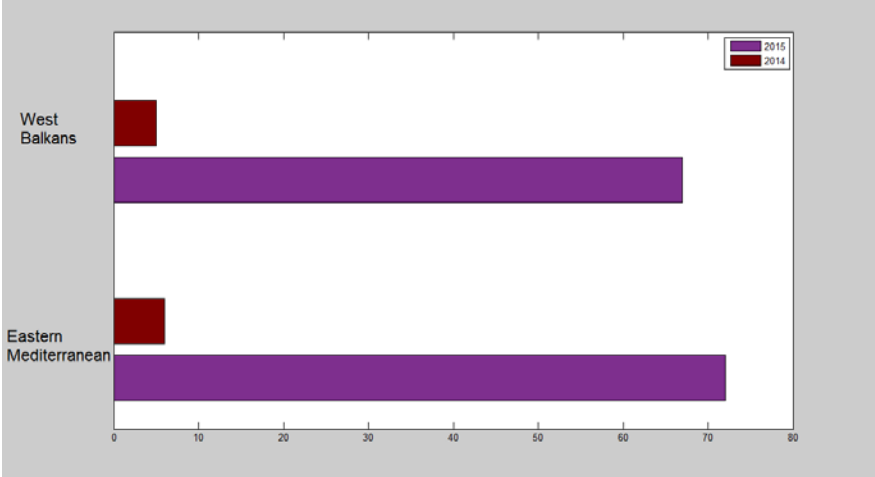

Figure 2: The influence of the number refugees in Syria war

If the emergency occurs in the migration line, the feasibility and safety of this route drastically reduced, greatly increasing the weight distribution, then the refugees will likely need to re-select the route or even the receiving country.

When an emergency occurs in the receiving country, the emergency is divided into two cases.

The first case is that refugees have not yet reached the receiving country. In this case, the receiving country's sharp decline in the ability to receive refugees happens, including the situation at entrances, resources and capacities, so refugees need to change the destination.

The second case is that the emergency occurs after the refugees' arriving in the receiving country. In this case, manpower and resources that are available for allocation dropped significantly, so that the receiving country cannot receive refugees and may increase transfer ratio.

When a country happens event of an emergency, we believe that this country instantly generate large numbers of refugees. Due to the sudden incident. Refugees nearby outward migration to seek immediate security zone. Forming a diffusion pattern of water droplets effect, causing the chain reaction of proliferation in the number of refugees in neighboring countries migratory population.
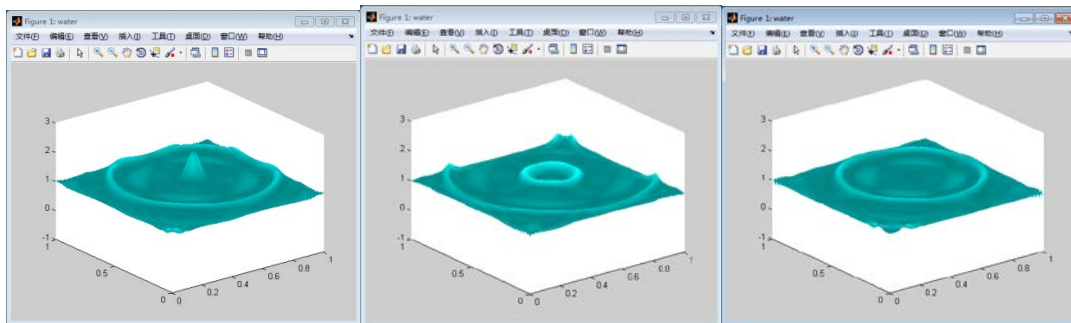

Figure 3: the schematic diagram of dripping effect

In order to make our immigration policy for this state of emergency has adjustability. We complement immigrate policy:

In refugee migration pathway, Advance alternative different routes for refugees, to correspond to the route or the receiving State accidental incidents. On the other hand, in order to refugee host countries accident Governments can sign into a number of policies with number of the receiving State. When a country has an accident, the refugee resettlement problem will be solved together by several other contracts countries.

The expansion of the model

When a crisis level expanded to more serious level, the rapid expansion of the number of refugees, a country and a receiving point's features Graph theory models considering will no longer apply. The services critical point will not apply in the queuing theory model, in need of appropriate increase the value. When the sudden expansion of the scope of the crisis, the migration starting point will be completely changed, the starting point of the six cluster areas may have nothing to do with the new situation. Need to re-evaluate the data and assign different stages of the path, a fresh weighting and length of the path allocation. When expanding the scope and degree of the crisis, it will cause a sharp rise in the number of refugees, The number cannot be reasonable and effective distribution of the receiving country over different points of entry, and the resources provided by the receiving country can't guarantee that all resettlement and transfer services immigration of refugees, resettlement of refugees will extend the established time. When the refugees gathered for a long time can't be resolved, first of all health conditions of the refugees can't be guaranteed and may carry infectious diseases will spread in the gathering and threatening the health of local residents .In addition, did not receive refugee resettlement may leave the sanctuary and enter local residents gathered, be prone to conflicts between both and cause safety problems. Time limit health problems are that government agencies in order to reach the refugees undergo a medical examination and cure

patients. To make this problem go away as soon as possible, the Government should first solve the health problems of refugees arrive. Time limit security problems is to strengthen government control of the area moved the refugees, arrange temporary residence and facilities of refugees, preventing the refugees too much contact with local residents bring security risks.

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