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Founded in 1963 by two prominent Austrians living in exile – the sociologist Paul F. Lazarsfeld and the economist Oskar Morgenstern – with the financial support from the Ford Foundation, the Austrian Federal Ministry of Education and the City of Vienna, the Institute for Advanced Studies (IHS) is the first institution for postgraduate education and research in economics and the social sciences in Austria. The **Economics Series** presents research done at the Department of Economics and Finance and aims to share "work in progress" in a timely way before formal publication. As usual, authors bear full responsibility for the content of their contributions.

Das Institut für Höhere Studien (IHS) wurde im Jahr 1963 von zwei prominenten Exilösterreichern – dem Soziologen Paul F. Lazarsfeld und dem Ökonomen Oskar Morgenstern – mit Hilfe der Ford-Stiftung, des Österreichischen Bundesministeriums für Unterricht und der Stadt Wien gegründet und ist somit die erste nachuniversitäre Lehr- und Forschungsstätte für die Sozial- und Wirtschafts-wissenschaften in Österreich. Die **Reihe Ökonomie** bietet Einblick in die Forschungsarbeit der Abteilung für Ökonomie und Finanzwirtschaft und verfolgt das Ziel, abteilungsinterne Diskussionsbeiträge einer breiteren fachinternen Öffentlichkeit zugänglich zu machen. Die inhaltliche Verantwortung für die veröffentlichten Beiträge liegt bei den Autoren und Autorinnen.

Abstract

Although the phenomenon of refugee flows is not devoid of economic connotations, it has so far been investigated primarily by political scientists and sociologists. The analytical tools of economic inquiry have not yet been applied to this subject, although it stands to reason that such a study will contribute to our understanding of why refugee flows occur and will guide the policy response. This note illustrates how economic analysis can be brought to bear on three key aspects of refugee flows: fear, poverty, and group movement.

Keywords

Refugee flows; Group movement; Impoverishment and fear

JEL Classifications

A11; F02; J24

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Contents

1. Introduction

The phenomenon of refugee flows has eluded economic analysis for a long time. Yet both the causes and the consequences of refugee flows lend themselves to economic analysis. This note takes a step in this direction.

The United Nations High Commissioner for Refugees (UNHCR) estimates that by the end of 2000 there were 11.7 million refugees in the world. Since its founding in 1951 (to assist about one million Europeans who were still homeless five years after the end of World War II) the agency reports that "the number of uprooted people climbed ... to eight million by the start of the 1980s and then to a peak of more than 27 million in 1995." In many particular settings the numbers involved are very large. For example, from 1979 onwards, Afghanistan produced more than six million refugees, and in 1994 more than one million refugees crossed into Zaire in a mere few days (Wilkinson, 2000). It is inconceivable that a phenomenon that is neither trivial nor random is devoid of economic underpinnings or is not deserving of economic analysis.

Refugee flows differ from standard migration (henceforth migration) in two important respects: the flow of refugees is typically a group movement – a large number of people move simultaneously – as opposed to a sequenced movement of individuals; and refugee flows are overwhelmingly from distinctly poor economies.

Refugee flows typically arise from the capriciousness of nature and the ferocious hostility of fellow human beings. A deleterious event that impacts harshly

on a few (say casualties in a civil strife) triggers a movement by many refugees. The key terms used to account for refugee flows are impoverishment and fear. In a way, this note sketches heuristic economic equivalents of these terms.

A breakdown of newly arrived refugees by country of origin in 2000 (UNHCR 2001, Table 7) reveals that five countries produced more than 50,000 refugees each, and nine countries produced more than 10,000 refugees each. All nine countries are very poor (eight are in Africa, one – Afghanistan – is in Asia). What is even more tantalizing is that the list of countries producing more than 10,000 refugees each in 2000 is not all that different from the corresponding list four years earlier: Burundi, Rwanda, The Democratic Republic of the Congo, Afghanistan, Sudan, and Somalia feature in both the 1996 list and in the 2000 list. (The calculations for 1996 are based on UNHCR 1997, Table 3). It is as if a substantial refugees flow at one point in time gives rise to a substantial subsequent flow.

2. Analysis

Typically, in poor economies where markets are not well developed production takes place in smaller units (villages) than in well-to-do economies. Production is also subject to strong interdependencies or externalities *within* the production units.[1] The intersection of a *small* size of the economic unit within which output is generated and *spillovers* implies that a decline in the productive attribute of one individual affects adversely the productivity of all other individuals. This correlation raises the likelihood of refugee flows. To see how, for a *given* degree of externalities, an adverse shock affecting the human capital of one individual will have a small effect

on other individuals' productivity in a large economy but a profound effect on other individuals' productivity in a small economy, consider an economy in which there are *n* workers and the single production input is labor. Worker *i*'s human capital (the sum total of his efficiency units of labor) is θ_i, and the per-worker concave production function is

$$f(\theta_i) = \alpha ln(\theta_i + 1) + \eta ln(\bar{\theta} + 1) \qquad \text{for } \theta_i > 0$$

where $\alpha > 0$ and $\eta > 0$ are constants, and η represents the externalities accruing from the average level of human capital $\bar{\theta} = \frac{\sum_{i=1}^{n} \theta_i}{n}$. Assuming (for now) that all the θ_i's have already been determined, the effect of a decline of the human capital of worker *i* (whose human capital is θ_i) on the output of worker *j* is

$$\frac{\partial f(\theta_j)}{\partial \theta_i} = \eta \frac{\frac{1}{n}}{\frac{\Sigma \theta_i}{n} + 1} = \frac{\eta}{n(\bar{\theta} + 1)} > 0;$$

the effect of an adverse shock to *i*'s human capital on *j*'s productivity is negative and is larger the smaller is *n*. Thus, in a large economy, the outcome of $\Delta\theta_i < 0$ is more likely to be an individualistic migration as it will possibly prompt only *i* to leave, whereas in a small economy the outcome is more likely to be a refugee flow as other workers, along with *i*, will be prompted to leave.

An economy whose workers are vulnerable to the *prospect* of becoming refugees will be poorer than an economy not facing such a prospect. To see how this happens relax the assumption that the θ_i are given. Let $\theta_i = \theta \ \forall i$. Workers choose how much human capital to form taking into consideration the (gross) returns to human capital, $f(\theta)$, and the costs of forming human capital. Let these costs be $c(\theta) = k\theta$, where $0 < k < \alpha$ is a constant. To find out first how much human capital is formed by a worker if there is no prospect that the worker will end up as a refugee, we write

$$W(\theta) = \alpha ln(\theta + 1) + \eta ln(\bar{\theta} + 1) - k\theta \qquad \text{for } \theta > 0.$$

Since

$$\frac{\partial W(\theta)}{\partial \theta} = \frac{\alpha}{\theta + 1} - k,$$

the worker's chosen level of human capital is

$$\theta^* = \frac{\alpha}{k} - 1 > 0.$$

Suppose, alternatively, that workers face the prospect, *p*, of becoming refugees – for example because such an event pervaded a neighboring economy in the past and the workers consider their own economy vulnerable to the same exogenous forces. As a refugee, the private returns to a worker's human capital – the reward to a worker's skill and knowhow – are lowered, say from α to β, where $k < \beta < \alpha$ is a

constant. Assuming that workers depart as a group, the production externalities will be retained. (This argument views externalities as a community asset rather than as a geographical attribute; the externalities are specific to a group, not to a locale.) A worker's expected net earnings will therefore be

$$\widetilde{W}(\theta) = p[\beta ln(\theta+1) + \eta ln(\overline{\theta}+1)] + (1-p)[\alpha ln(\theta+1) + \eta ln(\overline{\theta}+1)] - k\theta.$$

Since

$$\frac{\partial \widetilde{W}(\theta)}{\partial \theta} = \frac{p(\beta-\alpha)+\alpha}{\theta+1} - k,$$

the worker's chosen level of human capital is

$$\widetilde{\theta}^* = \frac{p(\beta-\alpha)+\alpha}{k} - 1 > 0,$$

assuming that $0 < \frac{k-\alpha}{\beta-\alpha} < p < 1$. Since $p > 0$ and $\beta < \alpha$, $\widetilde{\theta}^* < \theta^*$; the discouraging effect of the refugee eventuality lowers the level of human capital that workers choose to form.

It is further possible to show that not only does poverty raise the likelihood of a refugee flow, as argued in the beginning of this section, but also the prospect of a refugee status brings about poverty. Let the level of poverty (social welfare) be measured by net earnings per worker, that is, the output per worker less the cost of

acquiring the human capital used to generate the output. If workers do not expect to end up as refugees, their net earnings are given by

$$W(\theta^*) = \alpha ln\frac{\alpha}{k} + \eta ln\frac{\alpha}{k} - \alpha + k.$$

By substituting $x = \frac{\alpha}{k} > 1$ into the first and third terms of the right-hand side of $W(\theta^*)$ we get

$$W(\theta^*) = \eta ln\frac{\alpha}{k} + kxlnx - (kx - k)$$

$$= \eta ln\frac{\alpha}{k} + k[xlnx - (x-1)] > 0$$

since for any $x > 1$, $xlnx > x - 1$.[2]

When the refugee probability looms, workers' net earnings are

$$W(\tilde{\theta}^*) = p(\beta + \eta)ln\frac{p(\beta - \alpha) + \alpha}{k} + (1-p)(\alpha + \eta)ln\frac{p(\beta - \alpha) + \alpha}{k} - [p(\beta - \alpha) + \alpha] + k.$$

These net earnings are highest when p is at its lower bound. Therefore, if welfare evaluated at this bound is lower than $W(\theta^*)$ then welfare evaluated at any other p will afortiorily be lower than $W(\theta^*)$. Since

$$\lim_{p \to \frac{k-\alpha}{\beta-\alpha}} W(\tilde{\theta}^*) = 0,$$

it follows that $W(\tilde{\theta}^*) < W(\theta^*)$; welfare is affected adversely by the prospect of ending up as a refugee even if no worker actually does become a refugee.

3. Complementary reflections

There can, of course, be other reasons why a refugee flow in a given period invites, rather than dampens, a refugee flow in a subsequent period. Once a relief response consisting of support structures, facilities, and amenities (such as camps, schools, clinics, wells, and other infrastructure – sometimes referred to by UNHCR as QIPs – quick impact projects) that caters for the needs and welfare of refugees is in place, the refugee route becomes more inviting. It is a moral hazard of sorts. For example, the construction of camps and associated facilities in Iran and Pakistan for refugees who fled Afghanistan in the wake of the 1979 Soviet invasion may have contributed to the considerable follow-up refugee flows taking place in the wake of the dramatic rise of the Taliban in 1994-96. A response of this type is not without a historical precedent. There is interesting evidence that in Europe, from the Middle Ages until the seventeenth century, changes in the manner in which prisoners of war were treated (including the ease with which they were ransomed) affected the incidence - and apparently the incentive - of being taken prisoner (Frey and Buhofer, 1988). For example, two religious orders founded at the turn of the twelfth century were prominent until the French Revolution in the ransom and release of prisoners of war. These orders were reported to have arranged for the ransom and release of about one million prisoners. Such activities appear to have contributed positively to the likelihood of falling prisoner, just as the increased brutality of the Revolutionary and Napoleonic Wars and the lower likelihood of exchanges of prisoners led to a decline

in the likelihood of falling prisoner. To some extent, a soldier may *choose* to seek refuge in a prison camp and a civilian may *choose* to seek relief in a refugee camp.

A complete analysis of the dynamics of refugee flows is beyond the scope of this note. But it is tempting to speculate on the nature of this dynamics, especially as it may involve interactions between refugee flows and migration. A significant explanatory variable of the destination choice of migrants is the presence and size of a stock of past migrants. The stock may well consist of refugees who were integrated economically in the receiving country. Thus, if B had been the destination of refugees from A at time *t*, this event could account for the migration from A to B of workers at points in time subsequent to *t*. To the extent that labor migration alleviates conditions that otherwise could evolve to induce a flow of refugees, labor migration could preempt a subsequent refugee movement. For example, considerable evidence suggests that labor migration is shadowed by remittance flows in a reverse direction, and that these remittances mitigate the impact of droughts, alleviate poverty, and facilitate technological change in agricultural production.[3] Events may so unfold that return may become an appealing option for refugees. It will be helpful to analyze return flows, to explain why some refugees return while others do not, and to characterize the returnees.

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Notes

1. Vivid accounts of the strong production interdependencies in villages in developing countries are provided by Myrdall (1968, especially chapter 26).

2. Showing that for any $x > 1$, $xlnx > x - 1$ is equivalent to showing that for any $x > 1$, $ln\left[e\left(\frac{x}{e}\right)^x\right] > 0.$ Since when $x = 1,$ $ln\left[e\left(\frac{x}{e}\right)^x\right] = 0,$ and since $\frac{\partial ln\left[e\left(\frac{x}{e}\right)^x\right]}{\partial x} = 1 > 0,$ it follows that for any $x > 1$, $ln\left[e\left(\frac{x}{e}\right)^x\right]$ must be strictly positive.

3. The econometric implication of this argument is that in estimating the incidence of refugee flows for a sample of economies, previous migration (the economy's prevailing "migration stock") should appear as a right-hand side explanatory variable with the associated coefficient having a negative sign.

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