

On the welfare implications of temporary and permanent immigration

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Abstract

This paper uses a two-sector model of a fully-employed open economy, producing traded and non-traded goods, to examine how temporary and permanent immigration affect the host country. The focus is on the implications for welfare, factor rewards, and relative prices of traded goods in terms of non-traded goods. What distinguishes temporary from permanent migrants in the present setting is their pattern of consumption, the bundle of productive factors they bring to the host country, and the magnitude of remittances they send back to the source country. Due to these differences, admitting a temporary rather than a permanent migrant is shown to reduce the scarcity of labour relative to capital, raise the relative price of traded goods in terms of non-traded goods, and improve the level of welfare of the native population in the host country.

Keywords: international migration, guest workers, remittances

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1. Introduction

As a result of population ageing, expansion of the dependency ratio and growing shortages in various segments of the labour market, the advanced countries are becoming increasingly reliant on immigrant labour. At the same time, immigration has become a very sensitive political issue as the capacity to absorb immigrants in many of the advanced countries seems to be approaching the limits implicitly set by the voters. This raises the important policy question of how to meet the economy's shortages in the labour market while keeping the stock and inflow of immigrants at relatively modest levels.

In addressing this question, the present study examines the choice between temporary and permanent migration in the context of a general-equilibrium model of a host country. The focus is on several key distinctions between temporary and permanent immigrants and how these differences affect factor and commodity markets and ultimately the level of welfare enjoyed by the native population.

When we refer to migrant workers, we normally think of their activities in the labour market, where they help to increase the supply. What is often neglected is that immigrants also consume goods and services, bring capital to the host country, send remittances back to their relatives, bring family members, and engage in various other activities that have direct and indirect influence on the excess demand for labour. In this respect, there are major differences between temporary and permanent immigrants. For example, in comparison with permanent migrants, temporary foreign workers are less likely to bring their families along to the host country. For this and other reasons, they are also likely to send a larger fraction of their earnings back to the source country in the form of remittances.¹ Large remittance flows are sometimes seen as having a negative effect on the welfare of the host country. Those who express this view, base their argument on the notion that the natives would be better off if the earnings of immigrants were spent locally rather than being sent abroad.²

For any given level of earnings in the host country, the consumption patterns of temporary and permanent immigrants are also likely to differ. Temporary migrants can be expected to save a larger fraction of their income than permanent immigrants do (see Djajić, 1989). In optimizing their consumption over time, they take into account the expected drop in their income after the return to the source country, where the wages are lower. Permanent immigrants expect no such drop. This implies that temporary foreign workers will spend a smaller proportion of their host-country income when compared with their permanent counterparts, even if both happen to be accompanied by family members in the host country.

In choosing their optimal consumption bundle, temporary immigrants will also take into account international differences in the price levels. Having the possibility of intertemporally substituting inexpensive source-country consumption for the more costly host-country consumption, they will again choose to consume in the host country a smaller proportion of their current income when compared with permanent immigrants.³ Moreover, the chosen bundle will have a different

¹ For empirical evidence, see Glytsos (1997); Lucas (2005); Bauer, Sinning (2005); Unheim (2007); Sinning (2007); Pinger (2007); Dustmann, Mestres (2009).

² Money leaving the economy is suggested to be harmful on the grounds that it does not contribute to demand for goods and creation of wealth in the host country. See, for example, NILC (2007), Rubenstein (2004). Ghosh (2006, pp. 31–33) examines this issue from the perspective of the host country's current account.

³ See Djajić (1989) for a theoretical analysis of this issue and Kirdar (2009) for an empirical analysis.

composition. If relative prices of goods and services differ between the host and source countries, temporary migrants will have an incentive to purchase in each economy a larger proportion of the commodity which is relatively cheaper. On the basis of empirical evidence, it can be argued that non-traded goods and services are relatively cheaper in the developing countries which are the principal source of temporary immigration. One should therefore expect temporary migrants to allocate a relatively smaller fraction of their expenditure in the host country on non-traded goods when compared with the spending pattern of permanent immigrants.

Finally, temporary immigrants usually do not own a significant amounts of capital and, if they do, they are not likely to bring it with them to the host country. On the other hand, permanent immigrants typically bring their capital along. A number of host countries, including USA and Canada, even have special permanent-resident visas reserved for foreigners who bring into the economy an amount of capital beyond a certain threshold. Immigrants who bring with them large amounts of capital are believed to make a significant positive contribution to the welfare of the host country.

All these differences between temporary and permanent migrants have implications for the effects of immigration on the relative commodity prices, production pattern, factor rewards, and ultimately the level of welfare enjoyed by the natives. The present study examines this issue in the context of a general-equilibrium model of an economy producing traded and non-traded goods with the aid of capital and labour. The model is therefore very similar to that originally employed by Rivera-Batiz (1982), and subsequently by Djajić (1986, 1998), and Quibria (1996) in their study of the impact of migration and remittances on the welfare of the source country. In the present version of this model, developed in Section 2 below, the focus is on the host country. There are three types of agents: native households, permanent immigrant households, and temporary immigrants. Each type of household is functionally distinct and its welfare depends on the activities of other households as well as the number of each type of household. Within this structure, the key question, addressed in Section 3, is the following: How does the arrival of additional temporary and permanent immigrants affect relative factor and commodity prices and the level of welfare of various households? In Section 4, we also examine the welfare implications of remittance flows from the host country to the source country. Finally, Section 5 discusses the main results and possible extensions.

2. The host-country model

Consider a host country populated by natives and immigrants. There are ν native households, π permanent immigrant households and τ temporary immigrants. They all interact with each other in the economy's factor and commodity markets. Two types of goods are produced: Traded goods (T), which we take to be the numeraire, and an internationally non-traded good (N), whose price is denoted by P . Both goods are produced with the aid of capital and labour under perfect competition and constant returns to scale. We shall follow the convention of assuming that T is capital intensive in relation to N . The model is static in the sense that it ignores population growth and capital accumulation, apart from that associated with the exogenously-given change in the stock of immigrants.

For simplicity, let us assume that each agent is endowed with one unit of labour. All labour is homogeneous in terms of its productivity and fully employed in a perfectly competitive labour market of the host country. The three types of agents differ, however, in terms of their ownership of capital and consumption behavior. At the same time we simplify the analysis by assuming that all agents have homothetic preferences and that, within each group, all households or individuals are identical.

With respect to ownership of capital, let us suppose that each of the native households owns k^v units, permanent immigrant households own k^π units, while temporary migrants are assumed to have no capital in the host country. They bring only labour.

Income of native households is spent entirely in the host country. With the expenditure function of each native household denoted by $E^v(P, U^v)$, the budget constraint, setting expenditure of all natives equal to their income may be written as

$$vE^v(P, U^v) = v(w + rk^v) \quad (1)$$

where U^v is the level of welfare enjoyed by a native household and w and r represent the market wage and the rental rate on capital.

While natives spend all their income in the host country, immigrants may send some of it to relatives in their country of origin. For each of the π permanent immigrant households, consumption expenditure in the host country, $E^\pi(P, U^\pi)$, is then equal to their income minus the flow of remittances, R^π , to relatives back in the source country. The budget constraint for this group is therefore given by

$$\pi E^\pi(P, U^\pi) = \pi(w + rk^\pi - R^\pi) \quad (2)$$

where U^π is the level of utility derived from consumption in the host country by the typical permanent immigrant household. Finally, for each of the τ temporary migrants, consumption expenditure in the host country, $E^\tau(P, U^\tau)$, must be equal to his/her income minus the flow of remittances, R^τ , back to the dependents in the source country.

$$\tau E^\tau(P, U^\tau) = \tau(w - R^\tau) \quad (3)$$

where U^τ measures the level of utility enjoyed by a temporary migrant from consumption in the host country. Since temporary immigrants usually maintain closer ties to the source country than do permanent immigrants (the latter being more likely to bring their family along to the host country), we shall assume that $R^\tau > R^\pi$.⁴

With the assumptions on the production side of the model outlined above, the maximized value of the economy's product can be simply represented by a standard revenue function $Q(P, K, L)$, where $K = vk^v + \pi k^\pi$ and $L = v + \pi + \tau$ represent the economy's capital and labour endowments, respectively. The partial derivative of $Q(\cdot)$ with respect to P , $Q_p(P, vk^v + \pi k^\pi, v + \pi + \tau)$, is the economy's supply of good N .⁵

⁴ On the motives for remitting and the factors that influence the magnitude of remittances, see Stark (1991); Stark, Lucas (1988). Docquier and Papoport (2006) provide an excellent survey of the literature.

⁵ For properties of revenue and expenditure functions, see the classic work of Dixit and Norman (1984).

The market for non-traded goods is in equilibrium when total demand for N is equal to the supply:

$$vE_p^v(P, U^v) + \pi E_p^\pi(P, U^\pi) + \tau E_p^\tau(P, U^\tau) = Q_p(P, vk^v + \pi k^\pi, v + \pi + \tau) \quad (4)$$

where $E_p^i(P, U^i)$ is the compensated per-household demand function for good N of members of group i ($i = v, \pi, \tau$). By Walras' Law, when the market for N clears, so does that for T .

By differentiating eqs. (1) – (3), and noting that the reciprocity relationship implies

$$\partial w/\partial P = Q_{pL} \quad \text{and} \quad \partial r/\partial P = Q_{pK} \quad (5)$$

we obtain

$$(E_p^v - Q_{pK}k^v - Q_{pL})dP = -E_U^v dU^v \quad (6)$$

$$(E_p^\pi - Q_{pK}k^\pi - Q_{pL})dP = -E_U^\pi dU^\pi - dR^\pi \quad (7)$$

$$(E_p^\tau - Q_{pL})dP = -E_U^\tau dU^\tau - dR^\tau \quad (8)$$

where Q_{pK} and Q_{pL} represent the Rybczynski effects of a unit increase in capital and labour, respectively, on the economy's output of N . As good N is assumed to be labour intensive, $Q_{pK} < 0$ and $Q_{pL} > 0$.⁶ In eqs. (6) – (8), E_p^i is what each household of type i contributes to the demand for good N and $Q_{pK}k^i + Q_{pL}$ is what it contributes to the supply, except for temporary migrants who do not have any capital in the host country and hence contribute only Q_{pL} units of output to the supply of N . We can then express the net purchases (or implicit trade) of each household in the market for good N by X^i , ($i = v, \pi, \tau$).

$$X^v \equiv E_p^v - Q_{pK}k^v - Q_{pL} > 0 \quad (9)$$

$$X^\pi \equiv E_p^\pi - Q_{pK}k^\pi - Q_{pL} \gtrless 0 \quad (10)$$

$$X^\tau \equiv E_p^\tau - Q_{pL} < 0 \quad (11)$$

What can be said about the values of X^i ($i = v, \pi, \tau$)? Since N is relatively labour-intensive good, the Stolper-Samuelson Theorem implies that $(\partial w/\partial P)(P/w) > 1$. By the reciprocity relationship, $\partial w/\partial P = Q_{pL}$ so that $Q_{pL} > w/P$ (i.e., the contribution of temporary migrants to the output of N , Q_{pL} , is greater than their income expressed in terms of good N). Since they consume both goods and remit part of their income to the source country, they necessarily spend less than their entire income on good N . In other words, $Q_{pL} > w/P > E_p^\tau$. Accordingly, $X^\tau < 0$ in eq. (11), meaning that temporary migrants are implicitly net sellers of N in the host country.

For the non-traded goods market to clear when temporary immigrants are net sellers of N , at least one of the remaining two groups is a net buyer. If there is in fact only one, it must be the natives. They have identical preferences over the two goods, but a higher income than permanent immigrants do (because $k^\pi < k^v$). They also spend all of their income in the host country, while permanent immigrants send part of their income in the form of remittances to the source country. It immediately follows that $E_p^v > E_p^\pi$. Recalling that $Q_{pK} < 0$, and $k^v > k^\pi$ it immediately follows from a comparison of (9) and (10) that $X^v > X^\pi$. This allows us to conclude that the sign of X^v is positive, as stated in eq. (9).

⁶ For those not familiar with the Rybczynski theorem, the reciprocity relationship or the Stolper-Samuelson theorem (referred to before), a standard trade-theory textbook, such as Dixit and Norman (1984) provides the details.

Whether X^π in eq. (10) is positive or negative depends on the values of the model's parameters. X^π is likely to be positive when R^π and the difference between k^π and k^v are both small, while the ratio of τ to π and the value of R^τ are relatively large. Permanent migrants are then functionally "similar" to the natives in the sense that they are net buyers of N in their implicit trade with other agents in the economy. By contrast, when R^π and R^τ have similar values, while τ/π and k^π are relatively small, we have $X^\pi < 0$. In that case we refer to permanent immigrants as being functionally "similar" to temporary immigrants. Note, however, that even if $X^\pi < 0$, it must be the case that $X^\tau < X^\pi$. This is because $Q_{PK} < 0$ in eq. (10) and $E_P^\tau < E_P^\pi$, as has been argued in the Introduction.⁷

Summing up, $0 > X^\tau < X^\pi < X^v > 0$.

Using (9) – (11), eqs. (6) – (8) can be written in a more compact form as

$$E_U^v dU^v = -X^v dP \quad (12)$$

$$E_U^\pi dU^\pi = -dR^\pi - X^\pi dP \quad (13)$$

$$E_U^\tau dU^\tau = -dR^\tau - X^\tau dP \quad (14)$$

showing that utility from consumption in the host country depends for each household on its volume of implicit trade and the terms of trade, while that of the immigrants also depends on the flow of remittances sent to the source country.

We differentiate next eq. (4), the equilibrium condition for the non-traded good, to obtain $vE_{PP}^v dP + vE_{PU}^v dU^v + \pi E_{PP}^\pi dP + \pi E_{PU}^\pi dU^\pi + E_P^\pi d\pi + \tau E_{PP}^\tau dP + \tau E_{PU}^\tau dU^\tau + E_P^\tau d\tau = Q_{PP} dP + Q_{PK} k^\pi d\pi + Q_{PL} d\pi + Q_{PL} d\tau$. This can simply be written as

$$\Sigma dP + vE_{PU}^v dU^v + \pi E_{PU}^\pi dU^\pi + \tau E_{PU}^\tau dU^\tau = -X^\pi d\pi - X^\tau d\tau \quad (15)$$

where $\Sigma \equiv vE_{PP}^v + \pi E_{PP}^\pi + \tau E_{PP}^\tau - Q_{PP} < 0$ measures the responsiveness of the compensated excess demand for N to an increase in P . Eqs. (12) – (15) are four equations that enable us to solve for the changes in P and the welfare levels of the three types of households as functions of the exogenous variables of the model. These include the numbers of temporary and permanent immigrants and the amounts of remittances they each send to the source country.

3. Effects of temporary and permanent immigration

We first solve the system of eqs. (12) – (15) for the effects of an increase in the number of temporary immigrants ($d\tau > 0$) on the relative price of non-traded goods and the levels of welfare of the three different types of households.⁸ We have

⁷ Under our assumptions, when compared with permanent immigrants, temporary foreign workers earn less income (because they have no capital), spend a smaller fraction of their earnings in the host country (because they send more remittances to the source country) and allocate a smaller fraction of their expenditure on N (because the relative price of N is lower in the source country).

⁸ Set $dR^\pi = 0$ and $dR^\tau = 0$ in (13) – (14) and then substitute the solutions for changes in utilities of the three types of households from (12) – (14) into (15). This gives the solution for $dP/d\tau$ in (16). Use this solution back in (12) – (14) to obtain (17) – (19).

$$dP/d\tau = -X^\tau/S < 0 \quad (16)$$

$$E_U^v dU^v/d\tau = X^v X^\tau/S > 0 \quad (17)$$

$$E_U^\pi dU^\pi/d\tau = X^\pi X^\tau/S \geq 0 \quad (18)$$

$$E_U^\tau dU^\tau/d\tau = X^\tau X^\tau/S < 0 \quad (19)$$

where $S = \Sigma - X^v v c^v - X^\pi \pi c^\pi - X^\tau \tau c^\tau$ is the slope of the uncompensated excess demand schedule for good N , and $c^i = E_{pU}^i/E_U^i > 0$ is the marginal propensity of type i households ($i = v, \pi, \tau$) to spend income on non-traded goods. Assuming Walrasian stability, $S < 0$.

Thus the arrival of an additional temporary immigrant has a negative impact on the relative price of non-traded goods. This is because, through their participation in the factor and commodity markets, temporary immigrants are implicitly net sellers of non-traded goods (i.e., $X^\tau < 0$). One more temporary migrant therefore creates an excess supply of such goods, causing P to decline. By the Stolper-Samuelson theorem, this implies that temporary immigration lowers the wage and increases the rental on capital in the host country.

The decrease in P represents an improvement in the terms of trade of native households who are, as explained earlier, net buyers of N (i.e., $X^v > 0$). What equation (17) shows, in addition, is that the net gain for the natives, measured in terms of the numeraire, is the product of their net purchases of N , X^v , and the improvement in their terms of trade. The latter depends, as shown in (16), on the amount, $-X^\tau$, that each temporary immigrant contributes to the excess supply of N and the responsiveness of P to a change in the excess supply of N , as represented by $1/S$.

The effect on the level of welfare enjoyed by the permanent immigrants is shown in (18). They experience an improvement in welfare, provided they are functionally “similar” to the natives (i.e., $X^\pi > 0$). That improvement, however, is necessarily smaller than that enjoyed by the natives. This is because under the assumptions outlined above, the volume of net purchases of N by the natives is necessarily larger than that of the permanent immigrants (i.e., $X^\pi < X^v$). It follows that the income gain of natives associated with the positive terms of trade effect is correspondingly greater. Alternatively, if permanent immigrants are functionally “similar” to temporary immigrants, $X^\pi < 0$ and they experience a deterioration in their terms of trade and welfare.

Finally, we observe in (19) that temporary immigrants suffer a loss of welfare with the arrival of an additional temporary immigrant. This is because a newly arrived temporary immigrant is functionally competing with the existing stock of temporary immigrants. By entering the host country as an implicit net seller of N , he/she causes the terms of trade of other members of group τ to deteriorate. This terms-of-trade deterioration and the drop in welfare is the larger the greater the volume of implicit trade conducted by a typical member of group τ . As may be seen in (11), that volume, in turn, is inversely related to the temporary immigrant’s consumption of good N .⁹

The implications of an increase in the number of permanent immigrants can also be obtained from the system of eqs. (12) – (15) by letting $d\pi > 0$ and setting $d^\tau = dR^\tau = dR^\pi = 0$.

⁹ In a more explicit analysis of a temporary immigrant’s consumption behavior, it can be shown that the absolute value of X^τ is an increasing function of remittances R^τ and a decreasing function of the degree of concavity of the migrant’s utility function. See Djajić (1989).

$$dP/d\pi = -X^\pi/S \gtrless 0 \quad (20)$$

$$E_U^v dU^v/d\pi = X^v X^\pi/S \gtrless 0 \quad (21)$$

$$E_U^\pi dU^\pi/d\pi = X^\pi X^\pi/S < 0 \quad (22)$$

$$E_U^\tau dU^\tau/d\pi = X^\tau X^\pi/S \gtrless 0 \quad (23)$$

The effect on P and therefore on factor rewards is found to be ambiguous. The key question here is whether permanent immigrants are functionally similar to the natives ($X^\pi > 0$) or to the temporary immigrants ($X^\tau > 0$). In the former case, the arrival of an additional permanent immigrant creates an excess demand for N and causes P to increase, while in the latter case it contributes to an excess supply of N , driving P to a lower level. The implications for the level of welfare of the natives in eq. (21) hinges on the direction of the change in P . Thus if permanent immigrants are functionally similar to the natives, the latter suffer a terms-of-trade decline and a welfare loss, while temporary immigrants residing in the host country enjoy an improvement in welfare in eq. (23). Alternatively, if permanent immigrants are functionally similar to the temporary immigrants, the natives enjoy an improvement in welfare and temporary immigrants a deterioration. In both cases, however, arrival of a permanent immigrant lowers the welfare of other permanent immigrants, as shown in (22). The logic is the same as in our discussion of equation (19). A new permanent immigrant competes for implicit trading opportunities with other agents who are functionally similar, making the latter worse off.

It is also interesting to compare equations (17) and (21) and see the impact on the welfare of natives associated with hosting a temporary instead of a permanent immigrant.¹⁰ We subtract the change in welfare of natives due to an increase in the number of permanent immigrants from that associated with an increase in the number of temporary immigrants.

$$E_U^v dU^v/d\tau - E_U^v dU^v/d\pi = X^v(X^\tau - X^\pi)/S = X^v(E_p^\tau - E_p^\pi + Q_{PK}k^\pi)/S \quad (24)$$

where we recall that E_p^τ represents the demand for N by a temporary immigrant while E_p^π is the demand for N by a permanent immigrant. As we noted earlier, $E_p^\tau < E_p^\pi$. If, in addition, we take into account the fact that the capital brought by permanent immigrants into the host country has a negative Rybczynski effect, $Q_{PK}k^\pi$, on the output of N , it is unambiguous that hosting a temporary instead of a permanent immigrant creates an excess supply of N , lowers P , and improves the welfare of the native population. The lower P reflects a decline in the wage rate and an increase in the rental rate on capital. The drop in the wage and the increase in the welfare of natives implies that temporary immigration is a more efficient way of meeting shortages in the labour market of the host country if the objective is to limit the number of immigrants and maximize the welfare of the native population.

¹⁰ Similar type of analysis would apply if one is interested in the consequences of a temporary immigrant becoming a permanent immigrant, assuming that such transition also implies bringing capital from the source country and altering consumption and remitting behavior. Only the sign of eq. (24), below, would change.

4. Remittances and welfare

We consider next the welfare implications of remittance transfers. In the context of the present model, contrary to popular belief, an increase in remittances sent to the source country, by either temporary or permanent immigrants, has a positive effect on the welfare of natives. The reason is that the more the migrants cut their spending in the host country in order to send money abroad, the lower is their demand for N and hence the lower the value of P . As a decline in P represents an improvement in the terms of trade for net buyers of N , an increase in remittance flows from the host to the source country generates an improvement in the welfare of natives. Solving the system (12) – (15), we have

$$E_U^v dU^v/dR^\tau = -X^v \tau c^\tau/S > 0 \quad (25)$$

$$E_U^v dU^v/dR^\pi = -X^v \pi c^\pi/S > 0 \quad (26)$$

In (25) a one unit increase in remittances of temporary immigrants reduces their group's consumption of N by τc^τ units. This causes the price of N to fall by $\tau c^\tau/S$ and the welfare of natives to increase by the product of their net purchases of N , X^v , and the improvement in their terms of trade. For a one unit increase in the remittances of permanent immigrants, the improvement in the welfare of natives is similarly shown in (26). A comparison of the two expressions demonstrates two key elements: First, the improvement in the welfare of natives is larger, the greater the remittance sender's marginal propensity to consume N . As argued in the Introduction, there is strong presumption that the $c^\tau < c^\pi$. On that count alone, the natives are better off when permanent rather than temporary immigrants increase their remittance transfers by one unit. Second, the impact on the welfare of natives depends also on the number of immigrants of each type present in the economy. The larger the number, the greater the improvement in the terms of trade of the natives when each of them sends an extra dollar back home.

5. Discussion of the results and extensions

In the context of our model, the above analysis unambiguously shows that the natives are better off by hosting temporary rather than permanent immigrants. Welfare of the natives hinges on being able to interact (i.e., implicitly trade) within the economy with agents who are functionally different. That is, have different factor endowments and expenditure patterns when compared with the natives. In this respect, it is temporary rather than permanent immigrants who are functionally more different. The arrival of a temporary immigrant therefore contributes more to the welfare of natives than does the arrival of a permanent immigrant. In fact new arrivals of permanent immigrants can even reduce the welfare of the native population. This is the case when the two groups are functionally similar to each other. Functional similarity of natives and permanent immigrants is more likely: a) the larger the number of temporary relative to permanent immigrants in the host country, b) the smaller the flow of remittances sent by a typical permanent immigrant, c) the larger the flow of remittances sent by a typical temporary immigrant, and d) the smaller the difference between the natives and permanent immigrants in terms of their ownership of capital in the host country.

Remittance flows sent by immigrants from the host country back to the source country are found to increase the welfare of natives. Interestingly, this positive impact on welfare is greater if the remittance sender has a larger marginal propensity to consume non-traded goods. In comparing temporary and permanent immigrants, it is the latter who presumably have a larger propensity to consume non-traded goods so that a dollar remitted by a permanent immigrant has a greater positive effect on the welfare of natives than a dollar remitted by a temporary immigrant.

One of the shortcomings of the present model is that it captures only some of the key elements that need to be examined when comparing temporary and permanent migration options from the perspective of the host country. In the real world there are business cycles, unemployment, the welfare state, congestion effects and other externalities that need to be taken into consideration. When there is unemployment, migrants that bring capital may in fact generate a stronger positive effect on the welfare of natives than those who come with just labour. The outflow of remittances can then also have an effect on welfare of natives that is quite different from the one described in Section 4. In such a world, however, a shortage in the market for labour is not the most pressing problem. The full-employment structure employed in the analysis above is, in my view, more appropriate when addressing the question of how to meet a shortage in the labour market while maximizing the welfare of natives.

One possible extension of the model would be to allow for saving and capital accumulation, as well as population growth. A distinction between temporary and permanent immigrants that should not be neglected in that setting is that the latter are more likely to invest in physical (and human) capital located in (and specific to) the host country, while temporary migrants tend to make their investments back home. A richer framework of analysis, distinguishing different types of natives, would also be an interesting extension of the present model. It would then be possible to show that some natives are better off if the country admits permanent migrants than they are if it relies, instead, on temporary immigrants. In fact when natives differ among themselves, either of the two types of immigration can possibly be harmful to a specific subset of native households. In general, a group of natives suffers a decline in welfare whenever the host country experiences an inflow of immigrants who are functionally “similar” to them. Another possible extension of the model would consist of distinguishing between different skill categories of labour. In this case, as well, the functional similarity of natives and immigrants holds the key to determining whether a particular group benefits or is harmed by immigration. An empirical test of the model developed in this paper or some of its extensions constitutes another important item on the agenda for future research.

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