E C O N O M I C S B U L L E T I N

Migration, credit constraints and self−employment: A simple model of occupational choice, inequality and growth

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Abstract

In this note we offer a simplification of Mesnard (2001) who extended Banerjee and Newman (1993) for migration. In doing so, we obtain a simple model of occupational choice, inequality and growth, where liquidity constraints determine not only access to entrepreneurship but also access to migration. Starting from an initial underdevelopment trap, we explore the conditions under which migration prospects allow for a shift towards the efficient long−run equilibrium of the economy. This complements the empirical literature on return migration and self−employment in highlighting the mechanisms whereby, in alleviating liquidity constraints for some households, migration and remittances may have significant aggregated effects.

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1. Introduction

While the relative importance of self-employment is a distinctive feature of the labor force in developing countries,[1] evidence has accumulated that the credit market only plays a minor role in financing investments in small businesses.[2] In such a context, many prospective entrepreneurs opt for temporary migration as a means of accessing to entrepreneurship and self-employment. This is confirmed by case studies on countries such as Egypt (McCormick and Wahba, 2001), Mexico (Massey and Parado, 1998, Woodruff and Zenteno, 2001), Pakistan (Ilahi, 1999), Tunisia (Mesnard, 2001b, Mesnard and Ravaillon, 2002), or Turkey (Dustman and Kirchkamp, 2002). For example, Woodruff and Zenteno (2001) found that remittances are responsible for 20% of the capital invested in micro-enterprises throughout urban Mexico, a figure that jumps to nearly one-third of the invested capital in the 10 high-migration Mexican States. In the case of Tunisia, Mesnard and Ravaillon (2002) analyzed survey data on return migrants, using non-parametric methods to allow for non-linear wealth effects on investment; they confirmed that liquidity constraints indeed matter (the wealth effect was shown to determine the quantity of capital invested) and, more surprisingly, found no indication of increasing returns, even at low levels of invested capital. This suggests that start-up costs of small businesses are extremely low in developing countries, and, consequently, that a relatively small change in the initial distribution of wealth – e.g., through temporary migration - may have a strong impact on the proportion of self-employed.

Our objective in this note is to clarify the conditions under which, in alleviating liquidity constraints that impede investment for some households, migration (and induced remittances) may have significant aggregated effects. Despite the considerable evidence briefly cited above, the long-run effects of migration and remittances have not yet been fully analyzed in an endogenous growth framework.[3] Following Mesnard (2001a), we extend Banerjee and Newman (1993) for migration, using the simplifying presentation of Ray (1998, Chapter 7). More precisely, we extend their model of occupational choice, inequality and growth to the case where, in addition to existing domestic occupations, individuals may also choose to migrate to a high-wage destination. This migration possibility is subject to a liquidity-constraint, as is the case for accessing to entrepreneurship. In addition to the introduction of a migration possibility, the main departure from Ray (1998) is that we assume the collateral required for accessing to credit markets to be exogenously given (instead of depending on domestic wages). The model is basically a simplification of Mesnard (2001a): as distinct from her model, we assume only one type of domestic firms (instead of the individual and corporate types), and the entrepreneurial activity is assumed to involve no risk; with these understandings, we obtain the same qualitative results, but in a much simpler model.

In Section 2 we present the benchmark model based on Ray (1988), of which most notations are borrowed. The model is extended to allow for possible migrations in Section 3; we then explore the conditions under which, starting from an initial underdevelopment trap,

[1] For example, the United Nations (2000) estimated that self-employment represents about one third of the nonagricultural labor force in Northern Africa in 1990. In a recent report from the National Development Bank of Mexico firms with less than 15 workers were shown to provide 45% of Mexico's jobs in the manufacturing, commercial and service sectors in 1994.

[2] Dustmann and Kirchkamp (2002) indicate that only 1.2% of Turkish return migrants who were self-employed in 1988 did resort to bank credits as a source of financing their start-up costs. Similarly, Mesnard (2001b) indicates that during the 1980s, 87% of the entrepreneurial projects started by Tunisian return migrants were totally financed through savings accumulated abroad, with 13% receiving complementary financing from governmental programs, and none relying on private bank credits. For Mexico, Woodruff and Zenteno (2001) indicate that only 2.5% of the micro-enterprises registered nationally received bank credit at startup.

[3] Recent theoretical contributions include Cinar and Docquier (2000), Mesnard (2001a), and Mesnard and Ravaillon (2002).

migration and subsequent remittances allow for a shift towards the efficient long-run equilibrium.

2. The model

Consider an economy consisting of a continuum of one-period lived individuals distributed over a continuum of wealth, Ω. The distribution of wealth is denoted by $G(\Omega)$, and the size of the population is normalized to unity. Agents may either work in the subsistence sector (and receive a fixed minimal wage, $\underline{w}$), or work as salaried workers in the industrial sector (and receive a wage, w, endogenously determined on the domestic labor market), or become entrepreneur. Becoming an entrepreneur implies incurring a startup cost I to be repaid with interest r at the end of the period; production requires hiring a given number of workers, m, whose total output value is given by q. Profits, therefore, depend only on domestic wages, w, and on the parameters I, q, m, and r:

$$\pi = q - mw - I(1+r) \qquad (1).$$

A central assumption is that for most individuals, the initial wealth inherited from the previous generation is lower than the start-up cost required for becoming an entrepreneur. Consequently, most individuals (without loss of generality, we assume this is the case for all individuals) must rely on the credit market to finance their entrepreneurial projects. To prevent default in repayment, however, loan contracts include the deposit of a collateral before the loan is transferred. This means that individuals with insufficient wealth to be put as collateral cannot access to credit markets and, thus, to entrepreneurship. To determine the critical collateral, one has to compare the amount to be repaid (and gained in case of default), $I(1+r)$, to the cost of defaulting, which includes the value of the lost collateral, $\Omega(1+r)$, and the expected value of a legal or social sanction, $E(S)$. Therefore, credit suppliers know that borrowers would honor the loan repayment if:

$$\Omega > I - \frac{E(S)}{1+r} \equiv \Omega^{*} \qquad (2).$$

This condition determines the critical wealth threshold below which individuals have no access to entrepreneurship.

The dynamics of this model is extremely simple. Suppose that, at the end of his or her life, each agent gives birth to one child, bequeaths a fraction b and consumes a fraction $1-b$ of his life-time income, $\Omega(1+r)+y$, where y denotes the income earned over the period. The dynamics of wealth within a given dynasty if then governed by:

$$\Omega_{+1} = b\,[\Omega(1+r)+y] \qquad (3),$$

where $b<(1+r)^{-1}$ may be interpreted as the prevailing degree of intergenerational altruism.

This latter assumption ensures that individual wealth converges toward a long-run steady-state:

$$\Omega^{ss} = \frac{by}{1-b(1+r)} \qquad (4).$$

The endogenous determination of wages is therefore a central element in this model. When the economy is closed to migration, the labor demand is given by:

$$LD = \begin{cases} \left[1 - G(\Omega^{*})\right]m & if \;\; w < \overline{w} \\ 0 & if \;\; w \geq \overline{w} \end{cases} \qquad (5),$$

with $\overline{w} \equiv \frac{q-I}{1+m}$, the wage rate such that individuals are indifferent between being an entrepreneur or a salaried worker. For any higher rate indeed, the number of entrepreneurs and, therefore, the demand for labor, would fall to zero, while for any lower rate, the demand for labor is proportional to the number of entrepreneurs, which depends on the distribution of wealth.

As to the labor supply, it is positive only when the equilibrium wage rate is higher than, or equal to, the subsistence wage, $\underline{w}$, and is determined by the proportion of agents having no access to credit markets when w lies between $\underline{w}$ and $\overline{w}$. Finally, when w is higher than $\overline{w}$, everybody wants to be a salaried worker. This gives:

$$LS = \begin{cases} 0 \; if \; w < \underline{w} \\ G(\Omega^*) \; if \; \underline{w} \le w < \overline{w} \\ 1 \; if \; w \ge \overline{w} \end{cases} \qquad (6).$$

As apparent from Figure 1, there are two possible labor-market equilibria. An efficient equilibrium obtains if the degree of prevailing inequality is relatively limited. In this case, the proportion of agents without access to entrepreneurship is sufficiently low so that $G(\Omega^*) < \left[1 - G(\Omega^*)\right]m$, implying that the equilibrium wage rate is $\overline{w}$ and the economy is in an efficient state (Figure 1.a.). A second possible equilibrium emerges when the initial distribution of wealth is characterized by a high degree of inequality. In this case, the proportion of constrained agents is high, so that $G(\Omega^*) > \left[1 - G(\Omega^*)\right]m$. The equilibrium wage rate is then equal to the subsistence wage, $\underline{w}$, and the economy is in an inefficient state (Figure 1.b).

Figure 1: The labor market equilibrium[4]

Fig. 1.a: The efficient equilibrium

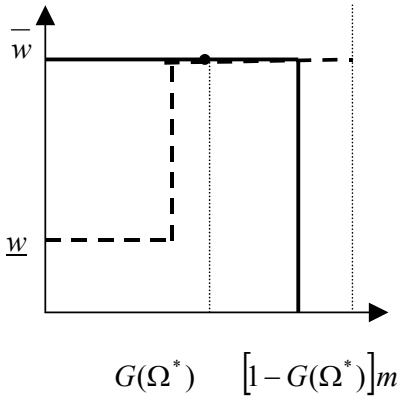
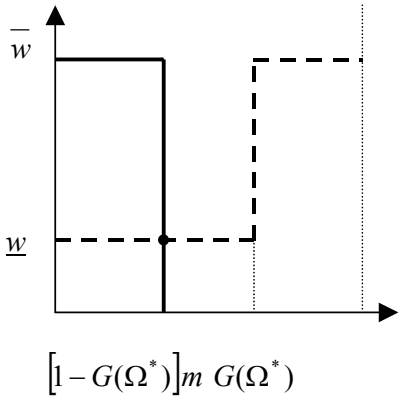


Fig. 1.b: The inefficient equilibrium



The initial distribution of wealth, therefore, fully determines the type of equilibrium observed in the short-run. In the long run, the initial distribution of wealth matters only if

[4] For diagrammatic convenience, we assume in Figure 1 that *m=1*.

social mobility is limited: notably, a poor (inefficient) economy will be stuck in a poverty trap if the following condition holds:

$$b\left[\Omega^*(1+r)+\underline{w}\right]<\Omega^*<b\left[\Omega^*(1+r)+q-\underline{w}l-I(1+r)\right] \qquad (7).$$

3. The effects of migration and remittances

Consider now a poor economy for which condition (7) holds, but where individuals face a possibility of emigration to a high-wage destination at a fixed cost c. Assuming that wages at destination are unaffected by immigration, without loss of generality, the foreign wage is set at $\overline{w}$, with $\overline{w}-c>\underline{w}$.[5] Since the migration cost has to be incurred at the beginning of the period, candidates to emigration are subject to a liquidity constraint, $\Omega>c$.

If c is higher than Ω^*, emigration is not a relevant option since an individual of wealth Ω^* would choose to become an entrepreneur in the home country rather than emigrate. If c is lower than Ω^*, however, some workers would opt for emigration and subsequently transfer a given fraction, b, of their foreign income (net of migration cost). A first and immediate (although not interesting) effect of emigration, therefore, consists in a reduction of the labor supply, which becomes $G(c)$; we neglect this first effect, which is likely to be minute, and concentrate on the more realistic (and more interesting) case where emigration has no direct impact on labor-market outcomes but, rather, an indirect impact through migrants' intergenerational transfers. To evaluate their dynamic effects, three cases have to be distinguished, depending on the extent of social mobility generated by remittances:

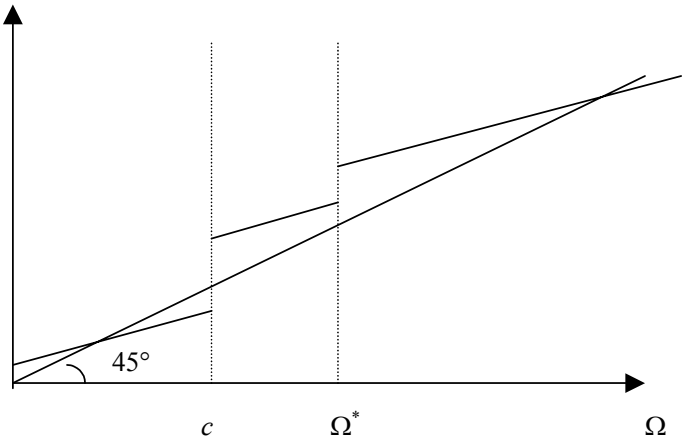
- If $b\left[\Omega^*(1+r)+\overline{w}-c\right]<\Omega^*$, there is no mobility since intergenerational transfers have no dynamic effects since the steady-state wealth of a migrant's offspring remains below the critical threshold required for accessing to entrepreneurship;

- If $b\left[\Omega^*(1+r)+\overline{w}-c\right]>\Omega^*$ and $b\left[c(1+r)+\underline{w}\right]>c$, there is full social mobility in that migrants' descendents gain access to entrepreneurship and domestic workers' descendents gain access to migration and, ultimately, to entrepreneurship. The economy then converges to the efficient solution. However, the same efficient outcome may be obtained with less intergenerational mobility; more precisely:

- If $b\left[\Omega^*(1+r)+\overline{w}-c\right]>\Omega^*$ and $b\left[c(1+r)+\underline{w}\right]<c$, there is partial mobility since migrants' descendents progressively become entrepreneurs while domestic workers' descendents remain in their origin condition. This is the case apparent on Figure 2, which depicts the dynamics of wealth within dynasties under the case of partial mobility:

[5] That is, the foreign wage net of migration costs is higher than the subsistence wage in the home country.

Fig. 2. The dynamics of wealth within dynasties



In this configuration, remittances induce a change in the long-run equilibrium of the economy providing that an excess demand of labor appears at the wage rate $\underline{w}$. Formally, this is realized if $G(c) < \left[1 - G(c)\right]m$. In this case, the economy converges to its long-run efficient equilibrium, and emigration eventually comes to an end.

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