On a Variation in the Economic Performance of Migrants by their Home Country's Wage

By Oded Stark

ON A VARIATION IN THE ECONOMIC PERFORMANCE OF MIGRANTS BY THEIR HOME COUNTRY'S WAGE

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Abstract. Although the economic performance of migrants in the receiving country undoubtedly depends on qualifications, it is also affected by inclinations. Given the probability of return migration, a behavioural link is established between the incentive of migrants to save in their country of destination and the prevailing wage rate in their *home* country. It is shown that migrants coming from a low-wage country optimally save more than migrants from a high-wage country. Policy and research implications suggested by this savings behaviour are alluded to.

1. INTRODUCTION

There is a strong and lively interest in comparing the economic performance of migrants with that of native-born individuals. A widely used measure of the economic performance of a group of individuals is mean income. There is evidence that some time after their arrival in the host country, migrants outperform the native-born; other evidence suggests that the pace at which the economic performance of migrants improves in the host country is such that their economic performance increasingly approaches that of the native-born. (For a systematic and comprehensive review see Lalonde and Topel, 1997.)

Seeking to explain the economic performance of migrants as well as the variance over time in this performance, researchers have concentrated on measuring and estimating migrants' characteristics. Human capital attributes, the rate of appreciation of human capital, and changes in the composition of human capital (substituting the human capital specific to the country of destination for the human capital specific to the country of origin) have long been considered to hold the key to migrants' performance. The empirical work suggests, however, that the pattern characterising the comparative economic performance of migrants holds even after allowance is made for a large number of human capital controls such as educational qualifications.

A decade ago, Galor and Stark (1990) drew attention to the possibility that migrants' performance could be attributed to the *incentives* they face, thereby advocating a shift in the focus of analysis from the vector of characteristics that migrants have to the structure of the incentives that they confront. Specifically, Galor and Stark studied the probability of return migration as an attribute that distinguishes migrants from the native born. The main contribution of the

study was the establishment of a link between the likelihood of return migration and savings behaviour. Given the possibility of return migration, (optimising) migrants were shown to save more than did comparable (optimising) native-born workers.[1]

Galor and Stark's model was extended in several directions (Galor and Stark, 1991b; Schaeffer, 1995) and tested (Merkle and Zimmermann, 1992; Paulson, 1999). The model was also used to obtain fresh insights into other aspects of the economics of labour migration (Mountford, 1997; Vidal, 1998). However, none of the helpful extensions and uses of the model have addressed the interesting issue of the difference in the economic performance of migrants from different countries. Virtually all the receiving countries host migrants from several countries, and not all migrants, grouped by country of origin, perform equally. The world's leading migrant destinations attract migrants from a diverse portfolio of countries. For example, by 1990 France had received more than 500 000 migrants from Algeria, and the same number from Morocco, while the US had received more than 300 000 migrants from each of the following countries: China, India, Jamaica, and the Dominican Republic, as well as close to 1 million from the Philippines, and more than 4 million from Mexico. By 1996 Australia had taken in more than 100 000 migrants each from China, Vietnam, and the Philippines; and Canada had received more than 100 000 each from China, India, Vietnam, and the Philippines (OECD, 1998). There is strong evidence that 'economic performance differs significantly according to the immigrant group's country of origin' (Borjas, 1999). Our interest is in finding out whether the variance in the economic performance of migrants – rendered by differences in migrants' savings – can be attributed to incentives rather than to human capital characteristics.[2] That the savings patterns of migrants to the US 'are significantly different across country of origin' has been carefully documented by Carroll *et al.* (1999). Their study sought to explain the variation by attributing it to 'cultural effects': migrants 'carry along' the savings culture of their country of origin, that is, migrants from countries characterised by high savings rates save more at destination than those from countries where the savings rates are low. However, Carroll *et al.* could not marshal empirical support for this hypothesis, concluding that their findings 'do not provide supporting evidence for the importance of cultural effects in explaining international saving rate differentials, since the savings patterns of immigrants do not resemble the national saving patterns for their countries of origin'.

In section 2, the higher savings rate of migrants is attributed to the probability of return migration. In section 3, given the probability of return

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[1] Income consists of wages and the returns to savings. When the wages of migrants are held equal to the wages of native-born individuals, and the returns to savings are also held equal, a difference in mean incomes arises from a difference in the *level* of savings.

[2] If the consequences of migrants' performance are of concern to the host country, as when, for example, these savings contribute to capital formation, the host country will obviously want to find out which migrants tend to save more and why. Our analysis below provides an answer.

migration, the higher savings rate of migrants from country h_1, compared to the savings rate of migrants from country h_2, is attributed to the wage rate in h_1 being lower than the wage rate in h_2. Section 2 replicates Galor and Stark's model: migrants differ from the native-born in the probability of return migration. In section 3, migrants differ from each other in the wage rates that prevail in their countries of origin. Section 4 concludes.

2. A MODEL

2.1. *The macroeconomic environment*

Consider a perfectly competitive world in which economic activity is extended over infinite discrete time. The world is characterised by an overlapping-generations model. In every period a single consumption good is produced using perfectly durable capital, and labour in the production process.[3] The endowment of labour is exogenously given whereas the endowment of capital is the resources that were not consumed in the preceding period. Capital is perfectly mobile across countries and the rate of return to capital is at a stationary positive level, $\bar{r}$, in terms of the consumption good.

Consider an economy that operates in the described world. In every time period the labour force in the economy is composed of natives as well as migrants (whose migration is caused by international wage differentials). The economy's stock of capital equals the resources that were not consumed in the preceding period, in addition to net international borrowing.

A. *Production*

Production occurs within a period according to a constant returns to scale production function which is invariant across time. The output produced at time t, Y_t, is

$$Y_t = F(K_t, L_t) \equiv L_t f(k_t); \quad k_t = K_t/L_t, \tag{1}$$

where K_t and L_t are the capital and labour employed at time t, respectively. The production function $f(k)$ is strictly concave and strictly monotonic increasing. Producers operate in a perfectly competitive environment. The inverse demand for factors of production is therefore given by the first order conditions for profit maximisation

$$r_t = f'(k_t); \tag{2}$$

$$w_t = f(k) - f'(k_t)k_t, \tag{3}$$

where r_t and w_t are the interest rate and wage at time t, respectively, and output is the numeraire.

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[3] Positive rates of capital depreciation could be introduced without altering the analysis.

B. *Equilibrium prices*

Given the unrestricted nature of the international capital markets, the economy's interest rate is exogenously given at the world level, $\bar{r}$. Consequently, the capital–labour ratio employed in production is stationary at a level $\bar{k}$,

$$\bar{k} = f'^{-1}(\bar{r}), \tag{4}$$

and the wage rate is stationary at a level $\bar{w}$,

$$\bar{w} = f(\bar{k}) - f'(\bar{k})\bar{k}. \tag{5}$$

2.2. *The individuals*

In every time period a new generation joins the labour force. A generation consists of two types of homogeneous groups of individuals: migrants, m, and natives, n. Migrants as well as natives are identical within and across generations. Individuals live for two periods. They are characterised by their intertemporal utility function and by their labour endowment. The intertemporal utility function is defined over first and second period consumption:

$$U(c_1, c_2) = u(c_1) + \delta u(c_2), \tag{6}$$

where δ is the future discount factor. The utility function is strictly concave and satisfies the expected utility properties. Furthermore, $\lim_{c_i \to 0} u'(c_i) = \infty, i = 1, 2$.

Migrants differ from the native-born in a single respect. They face a positive exogenous probability, α, of returning to their home country in the second period of their lives and thus of earning a lower wage rate, $0 < w_h < \bar{w}$.[4,5]

In the first period of their life individuals supply their unit-endowments of labour inelastically and divide the resulting income between first period consumption and savings so as to maximise their intertemporal utility function. First-period consumption of individual i, c_1^i, is therefore

$$c_1^i = \bar{w} - s^i, \tag{7}$$

where s^i is the savings of individual i, $i = m, n$. In the second period of their life individuals supply their unit-endowments of labour inelastically utilising their labour income, in addition to the returns to their savings, for consumption. Second-period consumption of individual i, c_2^i, $i = m, n$ is therefore

$$c_2^i = \begin{cases} \bar{w} + (1 + \bar{r})s^i & \text{with probability } (1 - \alpha^i) \\ w_h + (1 + \bar{r})s^i & \text{with probability } \alpha^i \end{cases} \tag{8}$$

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[4] For simplicity, α is taken as exogenously given, regardless of the individuals' actions or preferences. A more detailed model that incorporates social and psychological pressures for return migration into the individuals' preferences will not alter the qualitative nature of the results.

[5] Despite the absence of international differences in interest rates, wage rates may differ if production technologies differ across countries thereby giving rise to incentives for international labour migration (e.g. Galor and Stark, 1991a).

where $\alpha^m = \alpha$ and $\alpha^n = 0$.

The optimal level of savings for individual i, s^{i*}, is therefore

$$s^{i*} = \arg\max\{u(\bar{w} - s^i) + \delta\{\alpha^i u[w_h + (1+\bar{r})s^i] + (1 - \alpha^i)u[\bar{w} + (1+\bar{r})s^i]\}\}. \tag{9}$$

Given the properties of the utility function, s^{i*} is uniquely determined by the first order condition:

$$(1+\bar{r})\delta\{\alpha^i u'[w_h + (1+\bar{r})s^{i*}] + (1 - \alpha^i)u'[\bar{w} + (1+\bar{r})s^{i*}]\} = u'(\bar{w} - s^{i*}). \tag{10}$$

3. SAVING PATTERNS ACROSS MIGRANT GROUPS

Suppose that migrants originate from countries that differ in their w_h.

PROPOSITION. *The lower the home country wage, the higher the level of savings.*

Proof
Using the implicit function theorem it follows from (10) that

$$\frac{ds^{m*}}{dw_h} =$$

$$-\frac{(1+\bar{r})\delta\alpha u''[w_h + (1+\bar{r})s^{m*}]}{(1+\bar{r})^2\delta\alpha u''[w_h + (1+\bar{r})s^{m*}] + (1+\bar{r})^2\delta(1-\alpha)u''[\bar{w} + (1+\bar{r})s^{m*}] + u''(\bar{w} - s^{m*})} < 0. \tag{11}$$

COROLLARY 1. *As a consequence of the possibility of return migration, migrants from countries with low-wage rates save more than migrants from countries with high-wage rates.*
COROLLARY 2. *If return migration does not take place, the wealth of migrants from low-wage countries outweighs the wealth of migrants from high-wage countries.*

4. CONCLUSIONS

There is a reasonable and long adhered to presumption that high-skill migrants constitute a superior 'acquisition' because skills proxy productivity. To the extent that a migrant's skill is positively correlated with the level of development of the migrant's country of origin, and to the extent that the level of development of the country of origin is positively correlated with the wage rate at the country of origin, receiving countries will naturally prefer migrants from countries whose wage rates are high. Yet economic performance in the receiving country depends not only on qualifications but also on inclinations; we have identified an incentive-based reason why *low* wage at origin impinges *positively* on performance (measured by mean income) at destination. Related work in progress suggests that *given* the probability of return migration, a lower wage at origin is also behaviourally related to the optimal exertion of

greater effort at destination. Thus, in formulating their migration policy, receiving countries may want to assign weight not only to the human capital attributes of migrant candidates but also to the inducements and incentives that, in a well defined manner, will impinge on their economic performance.

The relationship between the home country's wage and the optimal level of savings at destination can also shed fresh light on the intertemporal variation in the economic performance of successive cohorts of migrants from a given country of origin. Much of the interesting literature, eloquently reviewed by Lalonde and Topel (1997), on the convergence of the earnings of migrants to those of the native-born views the observed pattern as an artefact; the pattern arises not from an upgrading of the skills of a given cohort of migrants but from a change in the unobserved skills of successive cohorts of migrants. Suppose that cohort $t+1$ is drawn from a section of the home country distribution of unobserved skills that is to the left of the section from which cohort t is drawn. If skills, productivity, and earnings correlate positively, the cohort t migrants will outperform the cohort $t+1$ migrants, giving rise to the false impression that the performance of migrants improves in time spent at destination. We can now offer a new explanation of the observed pattern. Presumably, in time, the home country's wage rises. Our model implies that the incentive facing the cohort $t+1$ migrants differs from the incentive that the cohort t migrants had faced, such that the optimal savings and thereby the mean income of the cohort $t+1$ migrants will be *lower* than those of the cohort t migrants. The explanation of the variation in the economic performance of migrants may thus rest neither with skills nor with assimilation but rather with incentives.

Interestingly, migration has an equalising effect on the earnings of workers from countries whose wage rates differ. Because when the wage rate in h_1 is lower than the wage rate in h_2 the earnings at destination of a migrant from h_1 are higher than the earnings at destination of a migrant from h_2, migration entails a wage convergence between h_1 and h_2 that, other things remaining the same, would not have arisen in its absence.

We have implicitly assumed that both the destination country and the home country produce an identical good and that the price of the good is the same across the two countries. If the home country's price is substantially lower than the destination country's price, the savings of the migrants will presumably be affected, but not necessarily adversely. Such a price differential will also impact other decisions, particularly the optimal duration of stay in the destination country. When the purchasing power of savings (generated from work at the destination country) is higher at home than at destination, the optimal duration of migration may well be less than the maximal feasible duration of migration. Migrants may *choose* to return home even though no reversal of the inter-country wage differential occurred. Because savings disposed of in the home country confer higher utility than savings for consumption at the destination country, the incentive to save while at destination may be boosted rather than muted. A detailed inquiry of the interaction between savings, purchasing power parity, and the optimal duration of migration is provided in Stark *et al.* (1997).

Conceivably, migrants who face a positive probability of return migration may transfer some of their savings as remittances to family and household members who stay behind in the sending country. Although our model does not invite such a behaviour – the returns to savings, $\bar{r}$, are held the same at destination and at origin – the model is not orthogonal to remittance behaviour either. Furthermore, remittances need not negate key results such as Corollary 2. Suppose, for example, that all migrants remit and that across migrant groups remittances constitute the same share of savings. Then, the savings of migrants originating from low wage countries that are retained at destination will still be higher than the savings of migrants originating from high wage countries.

REFERENCES

Borjas, G. J. (1999) 'Immigration,' *National Bureau of Economic Research Reporter* Fall, 14–16.

Carroll, C. D., B.-K. Rhee and C. Rhee (1999) 'Does Cultural Origin Affect Saving Behavior? Evidence from Immigrants,' *Economic Development and Cultural Change* 48, 33–50.

Galor, O. and O. Stark (1990) 'Migrants' Savings, the Probability of Return Migration and Migrants' Performance,' *International Economic Review* 31, 463–7.

Galor, O. and O. Stark (1991a) 'The Impact of Differences in the Levels of Technology on International Labor Migration,' *Journal of Population Economics* 4, 1–12.

Galor, O. and O. Stark (1991b) 'The Probability of Return Migration, Migrants' Work Effort, and Migrants' Performance,' *Journal of Development Economics* 35, 399–405.

Lalonde, R. J. and R. H. Topel (1997) 'Economic Impact of International Migration and the Economic Performance of Migrants,' in M. R. Rosenzweig and O. Stark (eds), *Handbook of Population and Family Economics*, Amsterdam: North-Holland.

Merkle, L. and K. Zimmermann (1992) 'Savings, Remittances, and Return Migration,' *Economics Letters* 38, 77–81.

Mountford, A. (1997) 'Can a Brain Drain be Good for Growth in the Source Economy?' *Journal of Development Economics* 53, 287–303.

Organization for Economic Cooperation and Development (OECD) (1998) *Continuous Reporting System on Migration* (*SOPEMI*), Paris: OECD.

Paulson, A. L. (1999) 'Savings and Settlement: Evidence from Mexican Migrants,' mimeo, J. L. Kellogg Graduate School of Management. Northwestern University.

Schaeffer, P. V. (1995) 'The Work Effort and the Consumption of Immigrants as a Function of their Assimilation,' *International Economic Review* 36, 625–42.

Stark, O., C. Helmenstein and Y. Yegorov (1997) 'Migrants' Savings, Purchasing Power Parity, and the Optimal Duration of Migration,' *International Tax and Public Finance* 4, 307–24.

Vidal, J.-P. (1998) 'The Effect of Emigration on Human Capital Formation,' *Journal of Population Economics* 11, 589–600.