

Stark, Oded

Book Part — Digitized Version

Market Environment, Trade Technology, and Migrants' Performance

Suggested Citation: Stark, Oded (1994) : Market Environment, Trade Technology, and Migrants' Performance, In: Siebert, Horst (Ed.): Migration: A Challenge for Europe. Symposium 1993, ISBN 3-16-146198-3, J.C.B. Mohr (Paul Siebeck), Tübingen, pp. 45-52

This Version is available at:

<https://hdl.handle.net/10419/231410>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Oded Stark

Market Environment, Trade Technology, and Migrants' Performance

1. Introduction

This paper is motivated by an attempt to account for the empirical finding that quite often migrants outperform the native-born. The underlying idea is that how migrants fare, absolutely and relative to the indigenous population, depends on group attributes rather than on individual abilities and skills. It is postulated that characteristics of the market environment and trade technology, rather than returns to traditional characteristics of human capital, play a role in explaining this outcome.

Typically, research work on migration specifies an equation of the following type:

$$[1] \quad p_i^a = p(W^a, U^a, C^a, A^a, \varepsilon^a),$$

where p_i^a is the probability of person a (observed at random) choosing location i , W^a is a vector of discounted wage streams available to person a in various locations, U^a is a vector of unemployment rates applicable to person a , C^a is a vector of discounted costs incurred in relocating, A^a is a vector of a 's characteristics, and ε^a is a stochastic term reflecting a 's idiosyncratic tastes. When micro data are used, the dependent variable in an equation similar to [1] is usually a dummy variable for the mover-stayer distinction (or is polytomous if more than one destination is distinguished). When macro data are used, the typical approach is to estimate

$$[2] \quad m_{ji} = m(W_i, W_j, U_i, U_j, d_{ji}, A_j, \xi),$$

where m_{ji} is the fraction of population j migrating to i , W_i and W_j are the mean wages in i and j , respectively, U_i and U_j are the mean unemployment rates in i and j , respectively, d_{ji} is the distance from j to i , A_j is a vector of average personal attributes among the j population, and ξ is a stochastic disturbance. Using [2] as an approximation to [1] involves proxies such as current earnings for discounted future earnings, distance for migration costs, and so on. Note that [2]

includes only mean values for earnings and personal characteristics; if [1] and [2] are strictly linear, [2] is simply the mean value of [1]. Typically, estimates of [2] find a positive effect for destination wage, negative effects for origin wage and distance, and so on. The estimates of [1] usually find positive effects for level of schooling and family size, negative effects for age and costs of move, and so on.

Equation [2] includes the explanatory variable A_j — a vector of average personal attributes among the j population, which in turn originates from the A^a vector of personal attributes in equation [1]. In accounting for migrants' market performance, the close attention paid to the characteristics of the persons who migrate has stifled consideration of the characteristics of persons present at the destination site; A_j is rarely found on the right side of an equation such as equation [2]. To illustrate how powerful such an inclusion could be, let me sketch an example. Suppose that in urban destination i the political system is based on proportional representation with elected representatives. Those members of the population originating in some rural area have $1/3 - \varepsilon$ share of the legislative council, while the indigenous population has the larger $2/3 + \varepsilon$ share, where $\varepsilon > 0$ is a sufficiently small fraction. Major political decisions deemed unfavorable to any population group can be enacted if carried through by a $2/3$ majority. Clearly, the migrants' share is just shy of blocking such pieces of legislation. But if the resident migrant community could induce additional migration from the home areas the situation would change dramatically. We should then expect the old-timers to support and subsidize additional migration until the balance of power shifts to $1/3 + \varepsilon$, $2/3 - \varepsilon$.¹ The idea is that circumstances that affect earlier migrants (relative to the indigenous population) account for the current flow of migrants beyond any reference to the attributes of the migrants. Although the literature observes that the success or failure of migrants is contingent on assistance from friends and relatives, there is little discussion of what determines such assistance, under what conditions it will be offered, what motivates the assistance, and so on.

Indeed, the performance of migrants and how they fare relative to the indigenous population may depend on attributes of the migrants *as a group* versus attributes of the indigenous population *as a group*. In the terminology of [2], (average) attributes of both the migrant population in i and the nonmigrant population in i , that is, A_i^M and A_i^{NM} , play an explanatory role.

¹ Possible attempts by the indigenous population to curtail such migration will presumably be less effective than efforts by past migrants to foster it.

2. Trade as a Game with Recognition Costs

Assume a population that consists of two groups: migrants and indigenous people. Each group, in turn, consists of agents who trade cooperatively, *C*, and agents who trade noncooperatively, *NC*. In the model, members of each group trade only with other members of their own group (but see the Appendix for a relaxation of this assumption). Agents do not know the type of the agents with whom they trade, but they can obtain such information at a cost. The idea is that the cost at which migrants can obtain the requisite information about fellow migrants is lower than the cost incurred by nonmigrants in assessing whether a fellow nonmigrant is of type *C* or of type *NC*. The results derived are that in this situation the equilibrium proportion of *C*-type agents in the migrant population is higher than the equilibrium proportion of *C*-type agents in the nonmigrant population. And since, by construction, the payoff matrices of each of the subpopulations are the same,² the per capita payoff of migrants is higher than that of nonmigrants — the migrants outperform the nonmigrants. If the cost-of-information advantage is not present, however, migrants will not fare better than nonmigrants.

We proceed as follows. Let a prisoner's dilemma type of table represent the payoffs from cooperation and noncooperation for two agents, *E* and *F*, matched at random:

		Agent <i>F</i>	
		<i>C</i>	<i>NC</i>
Agent <i>E</i>	<i>C</i>	(<i>T</i> , <i>T</i>)	(<i>R</i> , <i>U</i>)
	<i>NC</i>	(<i>U</i> , <i>R</i>)	(<i>S</i> , <i>S</i>)

In this payoff matrix, $U > T > S > R > 0$ (and $2T > U + R$; total payoffs are maximized when both agents cooperate). Let the share of *C*-type agents in a given group be P_C and let the cost of finding out the type of another agent be $K \geq 0$. In the environment we have in mind there is no memory — every trade is conducted as if it were the first trade — and the *C*-type agents “move” first. If a *C*-type agent engages in trade without determining the type of the trading partner, and the other *C*-type agents behave similarly, the payoff to a *C*-type agent is $\Pi_C = P_C T + (1 - P_C)R$. If a type-determining cost, K , is incurred, the

² Migration enables agents to utilize a country-of-destination-specific production technology that is superior to the country-of-origin-specific production technology (see Galor and Stark, 1991). Hence the benefits to agents from migration are not conditional on migrants trading with nonmigrants.

payoff will be $\tilde{\Pi}_C = T - K$.³ The cost will be incurred if $\tilde{\Pi}_C > \Pi_C$, that is, if $K < (T - R)(1 - P_C) = K^*$. Thus, for values of $K < K^*$, a C agent will have a payoff of $T - K$, while an NC agent will have a payoff of S . Assuming for the rest of this paper that

$$[3] \quad T - K > S$$

(that is, the cost is never so large as to swamp the difference between the payoff from joint cooperation and the payoff from joint noncooperation), the C agents will have an edge and their share of the population will rise.⁴ If, however, $\tilde{\Pi}_C < \Pi_C$, that is, if $K > K^*$, the C agents will trade randomly. In this case, though, the payoff to an NC agent will be $\Pi_{NC} = P_C U + (1 - P_C)S$. The NC agent will have an edge if $\Pi_{NC} > \Pi_C$, that is, if $P_C U + (1 - P_C)S > P_C T + (1 - P_C)R$, which indeed holds since $U > T$ and $S > R$.⁵ Then, the share of the NC -type agents in the population will rise. We see that equilibrium obtains when $K = K^*$, that is, when

$$[4] \quad P_C = 1 - \frac{K}{T - R}.$$

Two comments are in order. First, the equilibrium is stable, since, if the proportion of agents of a given type happens to be larger than the equilibrium proportion, their payoff will be lower than the payoff of agents of the other type (and their population share will decline), and vice versa. For example, if P_C happens to be lower than the equilibrium P_C , K^* must maintain $K^* > K$ since $(\partial K^* / \partial P_C) < 0$. Hence, the inequality $\tilde{\Pi}_C > \Pi_C$ will hold, that is, the payoff of

³ By incurring cost K , the C -type agent attains a trade with a C -type agent with probability 1. To see why, suppose the C -type agent announces his intention to undertake the type-determining action. Since this action determines a type perfectly, no NC -type agent will approach a C -type agent, knowing that such a meeting will not result in a trade. The C -type knows that the NC -type knows this, which could tempt the C -type not to incur the cost after all. However, what works against such a temptation is the realization that any failure to pursue type-determining could result in the NC -type approaching the C -type, which in turn will result in a trade that was considered undesirable when the decision to incur K , rather than trade randomly, was taken.

⁴ For an explicit evolutionary exposition, see Bergstrom and Stark (1993).

⁵ Suppose that by incurring some cost \tilde{K} the NC -type agents can identify the C -type agents in an attempt to trade with them rather than to trade randomly. But then the C -type agents will be reluctant to trade randomly as this confers a payoff of R that is worse than Π_C ; the C -type agents will fare better by incurring K (and will receive a payoff of $\tilde{\Pi}_C$). Thus, invoking the assumption that the C -type agents "move" first, the possibility of NC -type agents incurring \tilde{K} is negated.

the *C*-type agents will be larger than the payoff of the *NC*-type agents, and the population share of the *C*-type agents will increase.

Second, since $K \geq 0$, $T > R$, and $K < T - S < T - R$ (the first inequality is due to [3], the second is due to the payoff matrix), $K/(T - R)$ is a fraction between 0 and 1. Therefore, P_C must maintain $0 \leq P_C \leq 1$. This means that except for the two boundary cases, in equilibrium the population is a mixture of *C*-type agents and *NC*-type agents (such an equilibrium is called polymorphic). The two polar cases are as follows: If K happens to be as large as $T - R$ (that is, as large as the difference for a cooperating agent between the payoff from trading with a cooperator and the payoff from trading with a noncooperator) there will be no cooperators; P_C will be zero. (If they incur the recognition cost, the *C*-type agents will have a payoff of R ; as R is less than Π_{NC} for all values of P_C , however, the *C*-type agents will be driven out.) On the other end, if K is as low as zero, $P_C = 1$; the noncooperators who will always have a payoff of only $S (< T)$ will be driven out.

Equation [4] entails the following first result: the equilibrium share of the *C*-type agents in a population is inversely related to the cost of establishing the type of a party to trade with. The proof is $\partial P_C / \partial K = -1/(T - R) < 0$.

What are the payoffs to *C*-type and *NC*-type agents at the equilibrium point? For a *C*-type agent the payoff is $T - K$, and for an *NC*-type, it is S . Therefore, the per capita payoff is $y = P_C(T - K) + (1 - P_C)S$. This entails the following second result: the larger the share of the *C*-type agents in the population, the higher the per capita income. The proof is $\partial y / \partial P_C = T - K - S > 0$, where the inequality sign is due to [3].⁶

3. Conclusions

The cost of establishing the type of a partner to trade with plays a role in accounting for the performance of migrants compared with that of the indigenous population. Typically, migrants constitute a more homogeneous and cohesive group than nonmigrants, live in closer proximity to each other, originate in a closely linked group, and constitute a minority share of the population they join. These attributes render it cheaper for a migrant to trace the type of a fellow migrant. This cost advantage results in a larger equilibrium share of coop-

⁶ The assumption that the payoff matrices of each of the subpopulations are the same can be relaxed without affecting this result. Even if the payoffs to migrants from trade with fellow migrants are systematically lower than the payoffs to nonmigrants from trade with fellow nonmigrants, the recognition cost edge could result in the per capita income of migrants dominating the per capita income of nonmigrants.

erating agents, which in turn leads to higher per capita payoff.⁷ The empirical findings of Chiswick (1986a, 1986b), and Bloom and Gunderson (1991), to mention just two examples, who note that migrants who have been in the receiving country for some time⁸ often have a higher mean income than that of the indigenous population can thus be reasoned not by an appeal to superior skills and human capital or to unobserved abilities and innately higher productivity but to a trade and exchange environment that induces more cooperation, which in turn leads to a higher average payoff.

An interesting policy implication is that spreading migrants thinly throughout the indigenous population and various "anticlustering" steps or processes aimed at inducing the assimilation of migrants may, by raising the cost of establishing the type of a partner to trade, lower rather than enhance the well-being of migrants. Conversely, processes that reinforce the cohesion of groups of migrants tend to be conducive to, rather than hinder, their economic performance.

Appendix

Suppose that trade between migrants and nonmigrants can take place, that an agent can identify costlessly the type of group a trading partner belongs to but not the partner's *C*- or *NC*-type, and that a *C*-type agent can find out a partner's trait, but at a cost. This cost, however, is larger than the cost pertaining to within-group detection. It is easy to show that a *C*-type migrant will not trade with a nonmigrant. If he were to do so, incurring a cost $K' > K$, where K' and K are the across-groups and within-group detection costs, respectively, his payoff would have been $T - K'$, which is lower than $T - K$. If, however, he were to trade randomly, his payoff would have been

$$\Pi'_C = [\alpha P_C^M + (1 - \alpha)P_C^{NM}]T + [\alpha(1 - P_C^M) + (1 - \alpha)(1 - P_C^{NM})]R,$$

where $\alpha(1 - \alpha)$ is the share of the migrant (nonmigrant) group in the combined population and P_C^M (P_C^{NM}) is the proportion of *C*-type agents in the migrant (nonmigrant) group. This payoff is lower than the payoff arising from a random within-group trade. The proof is

⁷ Perhaps ethnic minorities that concentrate in ethnic enclaves and fare well succeed not in spite of their concentration but because of it.

⁸ Interestingly, the studies reporting that migrants outperform the indigenous population point out that this arises only some time after arrival. Perhaps a time-consuming process of convergence to an equilibrium P_C accounts for this result.

$$\begin{aligned}\Pi_C &= P_C^M T + (1 - P_C^M) R \equiv [\alpha P_C^M + (1 - \alpha) P_C^M] T \\ &+ [\alpha(1 - P_C^M) + (1 - \alpha)(1 - P_C^M)] R > [\alpha P_C^M + (1 - \alpha) P_C^{NM}] T \\ &+ [\alpha(1 - P_C^M) + (1 - \alpha)(1 - P_C^{NM})] R = \Pi'_C,\end{aligned}$$

since (because of the detection cost advantage) $P_C^M > P_C^{NM}$. Thus, a random trade with nonmigrants will not take place. Since migrants reject trade with nonmigrants, nonmigrants who may have attempted to engage a migrant in trade will be turned away — and right away: language, accent, color of skin, and other similar traits are recognized virtually costlessly, flawlessly, and immediately.

We conclude then that the possibility of intergroup trade need not result in such a trade and hence that the migrants' edge is immune to this possibility.

This last case assumes that agents are "hard-wired" as C or NC . But what if agents who are C ("nice") within their own group turn out to be NC ("ruthless") when trading with outsiders? The answer is that the foregoing conclusion that trade will not take place holds a fortiori. The reason is that now the possible appeal that migrants may have to pursue trade with nonmigrants is even weaker, since the actual P_C^{NM} migrants would have encountered upon trade would be lower.

What if a reverse switch is allowed? In particular, consider the possibility that in order to facilitate trade with migrants, the NC -type nonmigrants will, upon trading with migrants, behave as if they were C -type. This switch cannot erode the migrants' edge either. To see why, note that the migrants will now face a group of nonmigrants all of whom are of C -type. By assuming an NC -type, the C migrants will derive U from a trade with a nonmigrant whose payoff will therefore be R . This is clearly worse than what the nonmigrants can obtain by trading with members of their own group. Hence, such a scheme will not work.

Bibliography

- Bergstrom, T.C., and O. Stark (1993). "How Altruism Can Prevail in an Evolutionary Environment." *American Economic Review*, Vol. 83, pp. 149–155.
- Bloom, D.E., and M.K. Gunderson (1991). "An Analysis of the Earnings of Canadian Immigrants." In: J.M. Abowd and R.B. Freeman (Eds.), *Immigration, Trade and the Labor Market*. Chicago, pp. 321–342.

Chiswick, B.R. (1986a). "Human Capital and the Labor Market Adjustment of Immigrants: Testing Alternative Hypotheses." In: O. Stark (Ed.), *Human Capital, Migration and Development*. Greenwich, Conn., pp. 1-26.

— (1986b). "Is the New Immigration Less Skilled than the Old?" *Journal of Labor Economics*, Vol. 4, pp. 168-192.

Galor, O., and O. Stark (1991). "The Impact of Differences in the Level of Technology on International Labor Migration." *Journal of Population Economics*, Vol. 4, pp. 1-12.