

International Labor Migration, Asymmetric Information and Occupational Choice

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We study the effect of asymmetric information in the labor market of a country on the occupational choice pattern of immigrants vis-à-vis natives. The choice is limited to self-employment and paid employment. The study is motivated by empirical observations that regular and irregular immigrants in many countries are often over-represented in entrepreneurship/small business despite substantial initial disadvantages. There are also evidences that the immigrants catch up with the native income level within one and half decades of their presence in the foreign land. We try to identify the reasons and provide a formal explanation of how the initial disadvantage turns out to be a prospect in disguise. In particular, we show that a larger number of skilled workers from a mixed cohort of immigrants tend to take up riskier self-employment compared to skilled natives. This explains a higher average income with high temporal income variability for the immigrant group, with consequent implications for income convergence.

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1. Introduction

Self-employment among immigrants in richer countries appears to be a dominant trait over some years now. Particularly for the United States and Canada, as well as for a large number of West European countries there exists a vibrant source of empirical estimates which shows that the self-employment rate among immigrants of first and successive generations exceed that of native born (Bates, 1997; Clark and Drinkwater, 2000; Li, 1997; Yuengert, 1995; Fairlie and Meyer, 1996; and also Razin, 1992, a case study on Israel with respect to Asian, African, East European and N. American immigrants; Kidd, 1993 for Australia etc).² Albeit,

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² Fairlie (1996), for example, shows that the Korean American men and women have self-employment rates of 27.9 and 18.9 %, respectively, followed by Lebanese immigrants and so on. Kidd (1993) shows that among skilled Australian immigrants (collegiate), self-employment rate exceeds that of natives.

availability of appropriate data precludes similar studies on developing countries, yet there is some belief that the occupational behavior of immigrants to such countries, where the group largely comprises of refugees and asylum seekers would not be significantly different from that observed in richer countries. In fact, we show that the crucial conditions that may lead to such an outcome in the richer countries are rather universal and might also be tenable for the developing world. However, given the voluminous literature we need to offer a brief overview of the existing evidence before we delve on the uniqueness of arguments generating such conditions.

The question of occupational choice was preceded by concerns about income assimilation of immigrants with that of natives (see Chiswick, 1978; Carliner, 1980 etc.). Yuengert (1991) however notes that most previous studies of immigrant assimilation either excluded self-employed workers or have included them without concern for the economic process generating sector choice and earnings. Interestingly in a recent study Lofstrom (2002) shows that self-employed immigrants are found to do substantially better than wage-salary immigrants. Earnings of self-employed immigrants are predicted to converge with natives' wage at the age of 30 and to natives' self-employment earnings at the age of 40. Generally speaking, studies in this area mostly estimate the cross-section earnings functions and have so far reached two main conclusions: (i) the age-earnings profile of immigrants is steeper than that of native population with the same measured skills; (ii) the age-earnings profile of immigrants crosses that of natives about 10-15 years after migration. In particular, Chiswick's (1978) analysis showed that at the time of arrival the immigrants earned about 17% less than the natives. Because immigrants experience faster wage growth, their earnings overtake native earnings within 15 years after arrival, so much so that, after 30 years in the US the typical immigrant earns 11% more than a comparable native worker.³

Among existing explanations of occupational choice of immigrants, the first type deals mainly with racial and ethnic backgrounds of immigrants (Bates, 1997; Borjas, 1987; Duleep and Regets, 1997; Funkhouser and Trejo, 1995; LaLonde and Topel, 1992; Light, 1984; Yuengert, 1995). The notion of cultural traits observed at the source of immigration is used as crucial information in understanding the choice of occupation and often the entrepreneurial behavior of immigrants seems to be molded in the country of origin or rooted in their cultural background. Alternatively, Waldinger et al. (1990) note that, minority self-employment patterns can be better explained by considering constraints and opportunities facing immigrants in the host country, when racial characteristics like "thrift and cooperation" (Bonacich and Modell, 1981, p. 45-47) play a significant role. This modifies earlier findings (for example, by Lucas, 1978) that entrepreneurial ability is an innate trait: some have personal abilities to be an entrepreneur independently of their socio economic and political history, while others do not.

³ Duleep and Regets (1999) provide yet another convincing picture on immigrant-native (and also between immigrants) income assimilation mainly driven by investment in human capital.

The second type of explanation, and more akin to our analysis here is based on the notion that immigrants' choice of occupation is mainly governed by their *attitude* towards risk and uncertainty present in the labor and capital markets (for example, Boadway et al., 1998; Chau and Stark, 1999; Coate and Tennyson, 1992). Other than these, social and economic discrimination in labor markets and in capital markets are also relevant factors in shaping immigrants' choice of occupation (Borjas and Bronars, 1989; Coate and Tennyson, 1992; Moore, 1983). Interestingly, the existence of such constraints may change immigrants' occupational preferences substantially. This group of studies therefore suggests that the existence of asymmetric information in factor markets and direct discrimination can both mold the final choice of occupation by immigrants, although the first of these arguments have not been explored directly.

In contrast, the income assimilation debate seems inconclusive and far from over. According to Borjas (1985), the positive cross-section correlations between the relative wage of immigrants and years since migration "need not indicate that the wage of immigrants converges to that of natives" (p. 465) and that this assimilationist hypothesis draws inferences about earnings based on a "single snapshot" (Borjas, 1987, p. 532) of the entire immigrant population. There is possibility of error in doing that, since immigrant quality over time might have changed and could be responsible for convergence.⁴

In this paper we argue that one core element in the entire mechanism that can significantly explain both has thus far not received the adequate attention it deserves. We establish that the existence of asymmetric information in cross-border labor markets is such an element that strongly influences the choice of occupation among immigrants in favor of self-employment / entrepreneurship and subsequently acts as a strong catalyst in favor of catching-up. The choice of a riskier occupation with more volatile and higher returns provides them with a head start towards faster income assimilation with the natives. In other words, this paper seeks to understand the occupational distribution and income assimilation for the immigrants in the foreign labor market characterized by imperfect information regarding the quality of the immigrant workforce. A key assumption is that screening devices are non-existent for such markets or at best inefficient. Our results should be equally tenable in any labor market where the employer has insufficient information about the productivity of a potential job seeker – a situation that is often compelling in many developing countries as well where the urban employer cannot instantaneously ascertain the skill of a worker arriving from a remote village.

It is well known that informational asymmetry in the labor market is an application to a

⁴ Also see Duleep and Regets (1997) supporting the entry of lower ability immigrants in the US, and with less transferable skills. Berger and Gabriel (1991) for USA show that earnings profile for immigrants before 1970 exceeds that of natives. Those who arrived after 1970 have a lower mean income. This supports Borjas (1985, 1987).

situation where (at least initially) employers do not know the productivity levels of individual employees. It can arise if the markets are isolated such that “information does not ordinarily flow across them (or does not flow costlessly and freely)” (Katz and Stark, 1987, p. 718). Undoubtedly, informational asymmetries become much more obvious when labor mobility between different countries is considered, with the source country languages,⁵ systems, institutions and cultures differing widely from that of the destination country. Moreover, over the last few decades, migration of labor from poor to rich countries have completely overshadowed the earlier white European migration to the ‘New World’, as also intra-Europe migration. The cultural and ethnic distances and consequently the informational gap on an immigrant’s true type have thus increased to such an extent, that available screening devices may not be adequate for assessing the true types of this heterogeneous pool.⁶ Besides, immigration to developed countries is highly skewed in favor of the relatively unskilled (Kar and Guha-Khasnobis, 2006) and education as a signaling device is often incomprehensible especially when educational systems are largely different between countries of the North and the South.⁷ Recently, Kar and Saha (2009) characterize several menu contracts offered by rich country employers to influence self-selection among immigrants, when screening devices are inefficient.

However, the informational asymmetry that we consider in our model does not go beyond the labor market. Furthermore, inclusion of direct discrimination in both labor and capital markets (or inter market spillover effects of discrimination as in Coate and Tennyson, 1992) and imperfections in other factor markets should extend the basic model we develop here.

Clearly, the most important question at this point is whether the existence of asymmetric information in the labor market of the migrant-recipient country is sufficient to drive the results discussed above. We establish, as we present the model, that asymmetric information across labor markets which leads to ‘statistical discrimination’ against the immigrants, should be treated as a crucial factor responsible for both high self-employment participation among immigrants and for their eventually higher income levels.

Finally, it is useful to define self-employment in a way that shall be used through out the study. In a statistical sense, individuals are “self-employed if they earn no wages or salary, but derive their incomes by exercising their profession or business on their own account

⁵ Among many studies along this line, Dustmann and Fabbri (2003) recently measure the importance of host country (UK) language in the income assimilation profile of an immigrant, such that, lack of fluency in English leads to income losses. Also see Borjas (2000).

⁶ Borjas (2000), for example, shows that foreign-born TAs (and their communication skills) are often less preferred to native TAs by US undergraduates. It is well known that the US universities do make substantial use of a well-developed screening mechanism while offering admission and financial aid to such foreigners, including test of English language speaking abilities.

⁷ Chau and Stark (1999) note that “whatever workers may take with them when they migrate, they cannot possibly transfer their home countries’ information structure.” (p.455).

and/or for their own risk” (De Wit, 1993, p. 2).

Section 2 offers a simple model on the interaction between asymmetric information and choice of occupation with generalized and implicit solutions in favor of the degree of risk aversion for immigrants and natives with further implications for income convergence between the two groups. Section 2.1 uses a specific functional form to offer explicit solutions for the levels of risk aversion between the two groups. Section 3 concludes.

2. Asymmetric Information in the Labor Market

Let the mass of immigrants moving from a poor country to a rich country be unity. Assume that there are two groups of immigrants, skilled and unskilled. The number of skilled immigrants is α , and accordingly, the number of unskilled immigrants is $1-\alpha$.⁸ The proportions of skilled and unskilled individuals in the native born population are the same. The product of a skilled individual in the rich country is x ; and the product of an unskilled individual is y , such that, $x > y$. Each individual must decide whether to be employed or self-employed. Employed individuals earn their product with certainty.⁹ Thus, an employed skilled immigrant should ideally earn x and an employed unskilled immigrant, y . We assume that the skills possessed by a high-skill individual enable such individuals to be self-employed if they choose to. In contrast, we assume that unskilled workers cannot be self-employed: all unskilled workers are employed.

The income of a self-employed individual is uncertain: each such individual earns his product plus a random component plus a deterministic compensation for being exposed to risk.¹⁰ Thus, the income of a self-employed individual is

$$z = x + \varepsilon + \delta \tag{1}$$

where ε is a random variable supported by $(-a, a)$ with a density function $f(\varepsilon)$, such that $E(\varepsilon) = 0$; and $E(\varepsilon^2) = \sigma^2$ with mean zero, and δ is a positive constant. In other words, $f(\varepsilon)$ follows uniform distribution.

All individuals, immigrants and non-immigrants, have utility function with a constant absolute risk. The utility function is therefore of the form

$$U = - e^{-rw} \tag{2}$$

⁸ We assume that α is exogenously determined.

⁹ Of course, the employed workers may also face wage uncertainty, but more often than not it is less than what the self-employed individuals are subject to.

¹⁰ Given a population of risk-averse individuals, such compensation will always be a feature of the equilibrium.

where w is the individual's total income, and r is the individual's absolute risk aversion, such that, $1 > r \geq 0$. Absolute risk aversion, r , varies among individuals according to a density function $g(r)$ supported by $[0, 1)$. We assume that all individuals are expected utility maximizers.

Employers in the rich country can discern the skill levels of local individuals. However, they cannot discern skill levels of individual immigrants, and immigrants do not engage in any 'signaling' about their skill level.¹¹ We finally assume that neither do the employers have an efficient screening device to ascertain immediately the true skill levels of the migrants originating from such diverse backgrounds. Hence, the wage offered to any employed immigrant equals the average product of the entire employed immigrant cohort.¹²

Denote the proportion of skilled immigrants who are employed (as opposed to being self-employed), by π^* . Since α is the total number of skilled immigrants, this implies that the number of skilled immigrants who are employed is $\alpha\pi^*$ and the number of skilled immigrants who are self employed is $(1 - \pi^*)\alpha$. Hence, the wage paid to the employed immigrants is

$$\bar{w} = \frac{\alpha\pi^* x + (1 - \alpha)y}{\alpha\pi^* + 1 - \alpha} \quad (3)$$

The higher the proportion of skilled immigrants employed in equilibrium, the higher is the average wage for all employed immigrants.

Let r^* be the level of risk aversion at which skilled individuals are indifferent between employment and self-employment. Individuals with $r \geq r^*$ choose employment, while those with $r < r^*$ choose self-employment. Hence, the proportion of skilled immigrants who are employed is $\pi^* = 1 - h(r^*)$, where $h(r^*) \equiv G^{-1}(r^*)$. Hence, substituting for π in (3) the average wage paid to immigrants is

$$\bar{w} = \frac{\alpha(1 - h(r^*)) x + (1 - \alpha)y}{\alpha(1 - h(r^*)) + 1 - \alpha} \quad (4)$$

If $r^* = 0$, all skilled immigrants are employed, and the wage earned by immigrants is the maximum attainable given x , y and α . And if $r^* = 1$, all skilled immigrants are self-employed, and unskilled workers receive their true product, y . The higher the degree of risk

¹¹See Katz and Stark (1987) for international migration patterns under asymmetric information with signaling. However, signaling may be quite expensive for many immigrants originating in poor countries or for several other factors beyond the scope of discussion in this paper (for example, permanent refugee movements). Besides, cross-border refugees, asylum-seekers and illegal migrants cannot signal their skill levels before physically migrating to a different country.

¹²This is a linearity assumption, and fairly common in the related literature. See for example, Chau and Stark (1999).

aversion of the marginal skilled employed immigrant, r^* , the lower is the mean wage of employed immigrants. In other words, a high value of r^* implies that more skilled immigrants choose self-employment over employment, thereby depressing the equilibrium wage.

The expected indirect utility of an employed immigrant (EI) with risk aversion r_i is therefore given by (using 2)

$$V_{EI} = -e^{-\left(\frac{\alpha(1-h(r_i^*))x+(1-\alpha)y}{\alpha(1-h(r_i^*)) + 1 - \alpha}\right)h(r_i^*)} \quad (5)$$

and the expected indirect utility of a self-employed, skilled immigrant (SEI) is given by,

$$V_{SEI} = -\int_{-a}^a e^{-h(r_i^*)(x+\varepsilon+\delta)} f(\varepsilon) d\varepsilon \quad (6)$$

The ‘critical risk’ aversion is obtained by equating the indirect utilities from these two sources and applies to all individuals at the margin who are indifferent between the two choices. All those who are distributed with a risk aversion higher than the critical level would be employed and those distributed below the critical level would be self-employed. Hence, the critical degree of risk aversion is determined by equating V_{EI} and V_{SEI} . The value of r^* for immigrants, r_i^* is implicit in

$$\int_{-a}^a e^{-h(r_i^*)(x+\varepsilon+\delta)} f(\varepsilon) d\varepsilon = \exp\left(-h(r_i^*)\left(\frac{\alpha(1-h(r_i^*))x+(1-\alpha)y}{\alpha(1-h(r_i^*)) + 1 - \alpha}\right)\right) \quad (7)$$

For the skilled natives, the problem is somewhat different in the sense that their skill levels are *known with certainty*. In other words, under symmetric information the employer does not face a problem with interpreting the true skill levels of the natives and offer them wages as per their true productivities. However, the natives who would be self-employed in equilibrium must also face the same random return as in the case of immigrants. Once again, unskilled natives are excluded from the choice of self-employment.¹³ Thus, the critical r for non-immigrants is found by equating the expected utility of a self-employed skilled native worker (SEN)

$$V_{SEN} = -\int_{-a}^a e^{-h(r_N^*)(x+\varepsilon+\delta)} f(\varepsilon) d\varepsilon \quad (8)$$

¹³ Choice of self-employment among unskilled may be introduced without any change in the direction of the results and is offered elsewhere in a related context.

and the utility of an employed, skilled, non-immigrant, (EN)

$$V_{EN} = -e^{-xh(r_N^*)} \tag{9}$$

Thus, r_N^* is implicit in

$$\int_{-a}^a e^{-h(r_N^*)(x+\varepsilon+\delta)} f(\varepsilon) d\varepsilon = e^{-xh(r_N^*)} \tag{10}$$

Proposition 1: *The presence of asymmetric information in the labor market of the rich country results in a higher ‘critical’ risk aversion among the immigrants compared to the natives, i.e., $r_I^* > r_N^*$.*

Proof: Unless $r^* = 0$;

$$\frac{\alpha(1-h(r^*))x + (1-\alpha)y}{\alpha(1-h(r^*)) + 1-\alpha} < x$$

Now, in order to achieve certainty, a skilled immigrant must allow for a risk premium

$$P_I = \delta + x - \frac{\alpha(1-h(r_I^*))x + (1-\alpha)y}{\alpha(1-h(r_I^*)) + 1-\alpha}$$

whereas, a skilled native worker bears a risk premium

$$P_N = \delta$$

Hence,

$$P_I > P_N$$

But, from the work of Arrow-Pratt it is well known that, everything else being equal, willingness to bear a higher risk premium implies greater risk aversion. Hence, the critical value of r_I exceeds the critical value of r_N , i.e., $r_I^* > r_N^*$. ■

Subsequently, let us compare the *average incomes* of the two groups – the immigrants and the natives, based on the results derived above. Since, $r_I^* > r_N^*$, the proportion of self-employed immigrants $h(r_I^*)$ exceeds the proportion of self-employed native-born, $h(r_N^*)$. The mean income of an immigrant is, therefore,

$$\mu_I = \alpha h(r_I^*)(x + \delta) + (1 - \alpha + (1 - h(r_I^*))\alpha) \frac{\alpha(1 - h(r_I^*))x + (1 - \alpha)y}{\alpha(1 - h(r_I^*)) + 1 - \alpha}$$

$$\begin{aligned}
 &= \alpha h(r_I^*)(x + \delta) + \alpha(1 - h(r_I^*))x + (1 - \alpha)y \\
 &= \alpha h(r_I^*)\delta + \alpha x + (1 - \alpha)y
 \end{aligned}$$

whereas, the mean income of a native born is

$$\begin{aligned}
 \mu_N &= \alpha h(r_N^*)(x + \delta) + \alpha(1 - h(r_N^*))x + (1 - \alpha)y \\
 &= \alpha h(r_N^*)\delta + \alpha x + (1 - \alpha)y
 \end{aligned}$$

so that,

$$\mu_I - \mu_N = \alpha \delta (h(r_I^*) - h(r_N^*)) > 0$$

Clearly, mean income of the immigrants exceeds the mean income of the native-born individuals.

Now, the income variance for both immigrants and natives has two components. One of the components, *cross-sectional* variance is calculated from the income variance of those who are employed in equilibrium as compared to the mean income of the entire population. The other component, *temporal* variance is the income variance due to self-employment earnings of immigrants and natives.

Hence, the temporal variance of the income of an immigrant is

$$\sigma_I^2 = \alpha^2 h^2(r_I^*) \sigma^2$$

and the temporal variance of the income of a native born is

$$\sigma_N^2 = \alpha^2 h^2(r_N^*) \sigma^2$$

so that, $\sigma_I^2 > \sigma_N^2$.

In contrast, the relative size of cross sectional variance of the income of an immigrant and a native born is less unambiguous. However, as we define it here, cross-sectional variance for immigrants is

$$\sigma_{CI}^2 = [1 - \alpha + \alpha(1 - h(r_I^*))][\bar{w} - \mu_I]^2$$

whereas, for natives it is

$$\sigma_{CN}^2 = \alpha[x - \mu_N]^2 + (1 - \alpha)[y - \mu_N]^2$$

such that,

$$\sigma_{C1}^2 < \sigma_{CN}^2, \text{ iff, } \bar{w} < \frac{1}{2 - \alpha h(r_I^*)} \left[\alpha h(r_I^*)(x + \delta) + \sqrt{\alpha \frac{(1 - \alpha)(x - y)^2 + \alpha h^2(r_N^*)\delta^2}{1 - \alpha h(r_I^*)}} \right] \quad (11)$$

Proposition 2: *The average income of the immigrants exceeds that of the natives, as long as, $r_I^* > r_N^*$, but with a higher temporal variance of income vis-à-vis a lower cross-sectional variance of income, iff,*

$$\bar{w} < \frac{1}{2 - \alpha h(r_I^*)} \left[\alpha h(r_I^*)(x + \delta) + \sqrt{\alpha \frac{(1 - \alpha)(x - y)^2 + \alpha h^2(r_N^*)\delta^2}{1 - \alpha h(r_I^*)}} \right].$$

The implications one may draw from these results are straightforward and likely to be valid for a wide range of cases involving immigrants and natives in a migrant-receiving country. If the initial disadvantage pushes more skilled migrants into riskier self-employment relative to their native counterparts, there arises a strong possibility of income convergence between the immigrants and natives. However, this may not be possible without exposing the immigrants to a higher income volatility compared to natives. These theoretical results, therefore, can be quite useful in generalizing the large number of empirical studies with regard to the income patterns and associated volatilities facing the immigrants. The value addition of the paper is specifically in providing a much-needed broad-based theoretical interpretation of the empirical peculiarities mentioned above.

2.1. An Example

Let us provide a specific example in this sub-section to establish that the results obtained above is tenable for a wide range of specifications under the standard *von N-M* type utility functions characterized by degrees of risk aversion. In other words, this sub-section begins by assuming that

$$h(r_j^*) = \begin{cases} r_j^* & j = I, N \quad \forall w \neq x \\ 1 & \text{otherwise} \end{cases}$$

where, w is the total income earned by the workers of each type. The implications are simple. In the absence of asymmetric information, the workers are not exposed to any direct risk with their choice of employment and would therefore receive their true product in the labor market. Conversely, if there exists some kind of uncertainty in the total income earned then

the workers are exposed to certain degrees of critical risk aversion, $r_j^* \in [-\bar{r}^*, \bar{r}^*]$. This would require that we relax the previous limits on the values of (r_I^*, r_N^*) .¹⁴ The scaling up of the limit implies that $(r_I^*, r_N^*) \leq \bar{r}^*$ set as the upper limit. With these pre-requisites we can proceed to the explicit solutions of the two critical risk aversion levels.

Retaining equations (1)-(3) we rewrite equation (4) as

$$\bar{w} = \frac{\alpha(1-r^*)x + (1-\alpha)y}{\alpha(1-r^*) + 1 - \alpha} \quad (12)$$

where, $\pi^* = 1 - r^*$, is the equilibrium employment of skilled workers. Then substituting (12) in (5) and reformulating both (5) and (6) in terms of $h(r_j^*)$, one can find r_I^* explicitly from equating the expected utility of self-employment to that from employment as in equation:

$$\int_{-a}^a e^{-r_I^*(x+\varepsilon+\delta)} f(\varepsilon) d\varepsilon = e^{-r_I^* \left(\frac{\alpha(1-r_I^*)x + (1-\alpha)y}{\alpha(1-r_I^*) + 1 - \alpha} \right)}$$

or,

$$\frac{1}{2a} \int_{-a}^a e^{-r_I^*(x+\varepsilon+\delta)} d\varepsilon = e^{-r_I^* \left(\frac{\alpha(1-r_I^*)x + (1-\alpha)y}{\alpha(1-r_I^*) + 1 - \alpha} \right)} \quad (13)$$

It is easily seen from (13) that r_I^* can have two proximate solutions:

$$(a) r_I^* = 1; \text{ and } (b) r_I^* = \frac{(1-\alpha)(x-y) - \delta}{\alpha\delta}, \text{ such that, } r_I^* > 1. \quad (14)$$

Now, while comparing the levels of risk aversions across natives and immigrants, the previous results would equally go through even if $r_I^* = 1$. But for sake of greater generality,

we would establish that $\forall r_I^* = \frac{(1-\alpha)(x-y) - \delta}{\alpha\delta} \exists (r_I^* - r_N^*) > 0$. Thus, we need to obtain a

solution for r_N^* . Equating (8) and (9) from above with the characterization of $h(r_j^*)$, natives employed in equilibrium face $h(r_j^*) = 1$. Substituting this in (10), we get,

¹⁴ It has been shown in several empirical and experimental exercises that the observed degrees of risk aversion usually varies between -1.5 to +1.6.

$$\frac{1}{2a} \int_{-a}^a e^{-r_N^*(x+\varepsilon+\delta)} d\varepsilon = e^{-x} \quad (15)$$

such that, $r_N^* = \frac{x}{x+\delta} < 1$, since, $\delta > 0$.

However, $r_I^* = \frac{(1-\alpha)(x-y)-\delta}{\alpha\delta} > 1 \Rightarrow (x-y+\delta) > 0$, which is always true given the

initial assumptions. It follows directly that, $r_I^* = \frac{(1-\alpha)(x-y)-\delta}{\alpha\delta} > 1 > r_N^* = \frac{x}{x+\delta}$.

The rest of the results in section (2) automatically carry forward:

$$\mu_I - \mu_N = \alpha\delta(r_I^* - r_N^*) > 0,$$

and it is straightforward to argue that a higher critical risk aversion among immigrants leads to higher mean income vis-à-vis natives for similar skill composition across the labor force. Thus, despite no *a priori* characterization of risk preference among natives and immigrants, it turns out that the presence of asymmetric information in the labor market of the migrant receiving country influences higher critical risk aversion among immigrants. Higher critical risk aversion in turn is instrumental in raising the average income of immigrants above that earned by the natives, although with a higher temporal variance of income. Indeed, for most *v* *N-M* type utility functions of similar characteristics these results should hold, but intractability with algebraic solutions may require occasional numerical support.

3. Concluding Remarks

This short paper is an attempt to establish that asymmetric information in the labor market of a migrant-receiving country can significantly shape the occupational choice of migrants. A number of explanations of why the immigrants tend to be over-represented in the self-employment/entrepreneurship have emerged from several empirical studies on the occupational and income patterns of migrants. These explanations broadly discuss factors such as, discrimination, ethnicity and cultural lineage of the immigrants when they arrive in the host country. What we offered in this paper is a hitherto undocumented discussion of the role of asymmetric information in the host country labor market that is no less crucial in shaping the occupational and income patterns of immigrants and may even be a precursor to some of the other factors.

The idea of asymmetric information that leads to pooling of workers across the entire cohort of mixed skill types helps to show that the immigrant labor of the skilled variety owing to its

initial disadvantage in the labor market may actually be excluded from the labor market. In this matter, we have been careful not to use varying degrees of risk aversion across skill types, which some of the earlier papers do thereby pre-ordaining the skill types according to their preferences for risk aversion. We used the uniform distribution of risk aversion across all skill types and no *a priori* distinction of the same regarding risk preference as an effective instrument of control. We show that the incapability of employers to identify the skilled from the unskilled operates as the main factor in this analysis. It pushes the more skilled workers to that part on the distribution of risk aversion across the cohort where return from self-employment exceeds that from employment. It also implies that a larger number of skilled immigrants are distributed in the region where individual risk aversion level exceeds the critical level, compared to natives. The occupational distribution thus obtained in turn establishes that the same condition that ensures higher critical risk aversion among immigrants vis-à-vis natives is also responsible for higher average income for the former. Clearly, this is not an end in itself. Although we do not derive the conditions for income convergence explicitly, the above result implies that *ceteris paribus*, if the average income of immigrants exceeds that of the natives in a particular year, the two income levels would converge over time with the possibility that the immigrants overtake the income level of the natives after some years of residence in the foreign country. This validates our initial claim that the role of asymmetric information is quite crucial in shaping occupational choice among the immigrants and that it may culminate into income convergence with the group (natives) that surely has a more advantageous position, information-wise, at the time when the immigrant first arrives.

The analysis leaves out in favor of future attention, a number of factors that may have potential side roles in driving these results, such as, access to credit, the role of asymmetric information across other factor markets, training undertaken by migrants in the foreign country, language ability, etc. These ideas have earlier come up for discussion in the empirical papers, although without drawing any explicit relationship with the issue of asymmetric information in the labor market.

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