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Age, Intentions and the Implicit Role of Out-Selection Factors of International Migration

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Age, Intentions and the Implicit Role of Out-Selection Factors of International Migration.*

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Abstract

In this paper, I propose to isolate the role of age as a self-selection factor of international migration. The role of age is estimated on intended emigration rather than on observed outcomes of migration, using individual measures of intended emigration drawn from a large-scale survey conducted by Gallup. I find evidence that age has a monotonic negative effect on desired emigration for the working-age population. The estimations point to a very robust effect, suggesting that an additional year of age decreases the probability of intended emigration by about 0.5%. This effect is steady over different periods of time and for most types of countries of origin. The results contrast with previous evidence obtained on observed outcomes of migration, suggesting that out-selection factors interact with age and shape the demographic profile of migrants.

Keywords: Age, International migration, Intended emigration, Logit, Large-scale survey

JEL-Classification: F22, C25, J61, 015,

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1 Introduction

The exact relationship between age and international migration of workers is an important economic question that deserves a thorough understanding. For governments of source countries, the emigration of relatively young workers is worrisome as these individuals belong to one of the most productive segments of the labor force. The emigration of young skilled workers often results in a net brain drain to the detriment of the economic development of the origin country (Docquier and Rapoport, 2012). Authorities of receiving countries ideally favor young immigrants active in the labor market as their lifetime contribution is likely to be positive for the public purse. Analysis of the age-emigration nexus is not new in the literature and scholars have long documented a complex relationship between age and observed migration movements. Rogers and Castro (1981) for instance report age patterns of internal mobility for five different countries and document a clear hump-shape type of relationship with a concluding probability observed around 25 years of age for working-age individuals. These results have been broadly confirmed by more recent studies on international mobility.[1] Nevertheless, the results obtained on observed migration outcomes are the product of the role of self- and out-selection factors and their respective contributions have not been determined.

The age of international migrants obviously acts as a self-selection and an out-selection factor.[2] Self-selection factors of migration pertain to the determinants that lead a given individual to intend to leave his or her country of origin. Along the human capital channel of migration identified among others by Sjaastadt (1962), Borjas (1987) and

[1] McKenzie (2008) documents the age distribution of migrants from developing countries using census data in 11 destinations. While there is a significant heterogeneity in the observed profiles, the proportion of recent immigrants seems to peak at about 24 years old. Based on a large survey of irregular African migrants in several countries, UnitedNations (2019) finds that the average age of respondents at the time of their arrival is 24 years old.

[2] While the distinction between out and self-selection is obviously semantic, I consider self-selection factors as elements that are intrinsic to the individual and that influence the decision to participate in a counterfactual context free of restrictions. For a useful distinction on this, see Cattaneo (2007). In contrast, I consider as out-selection factors those related to the restrictions that cannot be lifted in the short run by the individual, such as immigration policies or liquidity constraints.

Grogger and Hanson (2011), emigration can be seen as a risky investment involving costs and potential benefits, especially in terms of higher revenues. The longer the period over which these benefits can be extracted, the higher the expected net return of this investment, suggesting that the intensity of the intention to emigrate should decrease with the aging of the individual.[3] Yet age might also interact with out-selection factors, i.e. the determinants of the probability of a successful emigration for the intended emigrants. Age influences the extent to which a given individual is constrained by financial resources to cover the migration costs. The role of liquidity constraints has been analyzed in the literature, for both legal and illegal migrants (Djajic and Vinogradova (2014), Djajic et al. (2016), Borger (2009)). These factors lead to a potential divergence between the pattern of intentions and the pattern of realizations of mobility.[4] [5] This potential divergence also relates to immigration policies that very often act as powerful engines of restrictions on international mobility. In some particular types of immigration policies such as the points-based system, age is an explicit criterion for obtaining an immigration visa.[6]

In this paper, I isolate the role of age as a self-selection factor. With this aim, I estimate the role of age in intended emigration rather than in observed outcome of migration. I use measures of individual emigration desires drawn from a large-scale survey conducted by Gallup that covers more than forteen years of data and all countries of origin. The surveys include many individual characteristics that allow controlling for

[3] Age does not only influence benefits but also interacts with individual-specific costs of migration. Younger individuals might face lower perceived costs such as those associated to rebuilding social capital at destination or related to home attachment. These costs are intrinsic to the individual and cannot, in contrast with those associated to out-selection factors, be alleviated by an external action.

[4] For instance, Borger (2009) shows theoretically how the existence of liquidity constraints generates a discrepancy between those who do emigrate and those for whom the cost-benefit condition would imply a beneficial emigration but who are unable to emigrate due to liquidity constraints. These theoretical results are confirmed by an empirical study of the US-Mexico case exploiting an increase in the smuggling fees paid for illegal cross-border passages.

[5] UnitedNations (2019) finds that the ratio between the cost of journey to Europe and monthly income at origin for African illegal migrants oscillates between 6 and 20 depending on the country of departure. 70 % of the respondents wishing to emigrate reported that they were not earning enough to cover these costs by their own and about half of them were not receiving any support from family or friends.

[6] Points-based systems belong to the so-called immigrant-driven systems (as opposed to employer-driven systems) and are the prevailing systems of immigration policy in several English-speaking developed countries such as the UK, Canada, Australia and New-Zealand.

a large set of self-selection factors. The Gallup World Poll survey uses a harmonized methodology, letting researchers to pool the data and to control for unobserved factors at the country level. My estimations result in a very precise and robust effect of age on the probability of desired emigration: an additional year of age results in a decrease between 0.4% and 0.5% of the probability of the emigration intention. These results contrast with the previous findings on observed movements that document a hump-shape type of relationship (Rogers and Castro (1981) and McKenzie (2008)).

2 Data

To measure desired emigration, I rely on the last version of the Gallup World Poll Survey (WPS) (Gallup, 2018). Gallup conducts surveys in more than 160 countries, hence covering 99 % of the world's population aged 15 and over. These data have been used increasingly in the literature to estimate, for instance, potential emigrants (World Bank (2018) and Docquier et al. (2014)). In each country, at least 1,000 randomly selected persons are interviewed either through face-to-face interviews or through phone calls in countries where at least 80 % of the population has a telephone land-line (Gallup, 2018). The sample of individuals interviewed is representative of the resident population older than 14 years, covering the entire country including rural areas. Gallup WPS data is probably the most comprehensive source of data on migration desires. I use the following question: "Ideally, if you had the opportunity, would you like to move permanently to another country, or would you prefer to continue living in this country?". [7] Table 1 gives some information on the basic structure of the data by type of country using the income classification of the World Bank. The proportion of intended emigrants (movers) is higher in developing countries. The average age of intended movers is lower compared

[7] Recent studies have used of a follow-up question pertaining to the desired destination (see among others Bertoli and Ruyssen (2018), Manchin et al. (2014) and Beine et al. (2020)) . Since the purpose of this paper is to focus on emigration, I disregard this second question and ignore the choice of the optimal destination for intended movers.

Table 1: Descriptive statistics from Gallup World Poll Surveys

	Low-mid. Inc.	High inc.	All
NBER Respondents	1,464,727	740,331	2,205,058
NBER Countries	116	57	173
Avg. intended emig. probab	0.242	0.172	0.221
Avg. age of intended stayers	40.65	48.94	43.36
Avg. age of intended movers	32.41	38.91	33.97

Note: Author's calculations based on GWP Survey data (2006-2019).

with intended stayers, in all types of countries.

Figure 2 reports the evolution of the proportion of intended emigrants across age computed from the raw data, i.e. by pooling all countries and years. The curve produced for the desire to emigrate suggests that its evolution is monotonic with a decreasing effect of age starting very early in lifetime. The highest desired rate, 36.8%, is observed at age 17. Nevertheless, drawing sound conclusions from this simple co-movement might be misleading for several reasons. Countries exhibit very different baseline levels of desire for emigration but also very different demographic structures. While the Gallup survey covers many countries, the sample is strongly unbalanced against low-income countries since some countries are not surveyed in all waves. It is therefore important to account for such imbalances by controlling for observed factors using regressions.

3 Estimation and results

To estimate the age-emigration relationship, I rely on the following Logit model:

$$Pr(emig_{ijt} = 1|X_{ijt} = \frac{exp(\alpha + \alpha_j + \alpha_t + X'_{ijt}\beta)}{1 + exp(\alpha + \alpha_j + \alpha_t + X'_{ijt}\beta)} \quad (1)$$

where $emig_{ijt}$ is a dummy variable capturing whether individual i from country j interviewed in year t expresses a desire to emigrate. I control for country fixed effects α_j and time fixed effects α_t. I control for a large set of individual factors in addition

to age that are supposed to influence emigration intentions, factors such as gender, individual reported income, education, type of location in the country, household size at the time of the interview and marital status.[8] I also control for the fact whether the respondent has a network abroad, in line with the findings of a substantial literature on the network effect in international migration (see, in particular Bertoli and Ruyssen (2018)).[9] These factors are all measured directly in the GWP surveys. I consider three alternative specifications in the relationship between age and emigration. The first one involves a linear relationship. In a first variant of this specification, I allow for a nonlinear effect of age by fitting a quadratic specification in the underlying utilities of the logit. In a second variant, in an attempt to capture a possible turndown point, I also use a piecewise linear specification with different slopes up to and after the age of 25.

3.1 Benchmark results

The results shown in Table 2 suggest that the impact of age on intended emigration is globally negative within the broad age range corresponding to the individuals included (aged 15 to 80). The coefficients of age in the logit are extremely stable across specifications. The point estimates vary hardly at all when accounting for income (column 2) and for the existence of a network abroad (column 3), even with substantial implied changes in the sample size. Results in columns 4 and 5 do not support the relevance of a piecewise linear specification: the coefficients of age before and after 25 years of age appear similar and, in any case, give rise to identical marginal effects (-0.5%). Results in columns 6 support the existence of a quadratic effect of age with an accelerating decrease of the probability of emigration. Nevertheless, as suggested by Figure 1, the implied trajectories of the probability of emigration are very similar between the linear and the nonlinear

[8] Benchmark cases regarding education, location and marital status are, respectively, primary education, living in a rural area, and being single.

[9] While including the network is very important, doing so leads to a significant decrease in the sample size since this information is available for only a subset of observations. Therefore, we use the specification in which the role of the network is omitted, as a benchmark.

Table 2: Impact of age on intended emigration: logit estimation

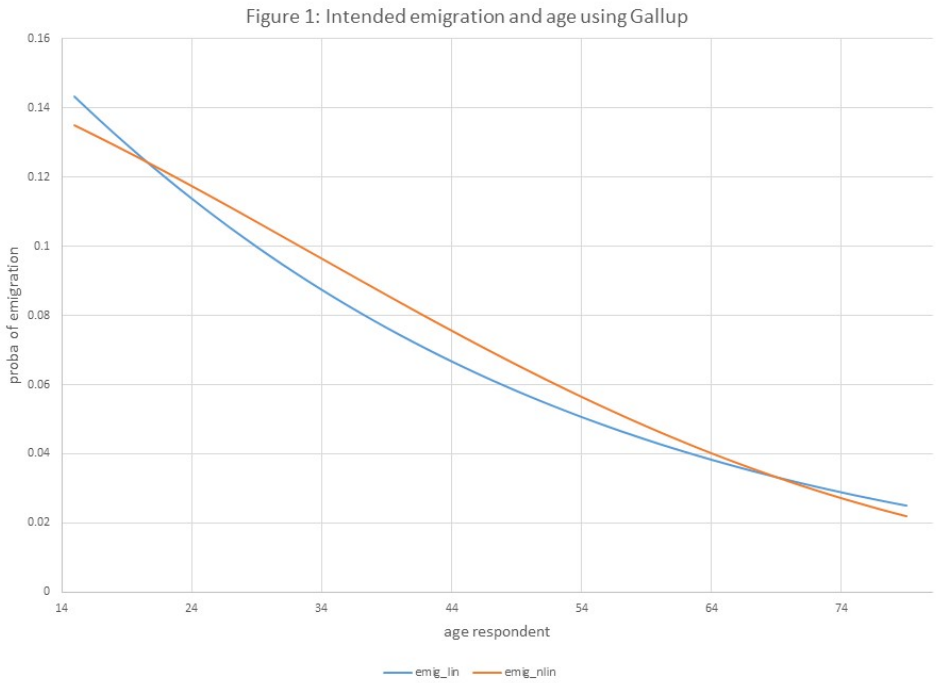
	Linear			Alternative specification		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.0293***	-0.0293***	-0.0292***	-	-	-0.0085***
	(.00018)	(.00018)	(.00024)			(.0008)
Age^2	-	-	-	-	-	-0.0002***
					(.000008)	(.00000)
Age if less than 26	-	-	-	-0.0370***	-0.0370***	-
				(.00045)	(.00067)	
Age if more than 25	-	-	-	-0.0312***	-0.0312***	-
				(.00021)	(.00021)	(.00090)
Male	0.2095***	0.2084***	0.2198***	0.2079***	0.2068***	0.2067***
	(.0044)	(.0044)	(.0058)	(.0044)	(.0044)	(.0044)
Secondary Educ	0.2613***	0.2606***	0.2161***	0.2621***	0.2614***	0.2512***
	(.0056)	(.0056)	(.0072)	(.0056)	(.0056)	(.0056)
Tertiary Educ	0.3736***	0.3750***	0.2949***	0.3634***	0.3648***	0.3471***
	(0.0075)	(0.0076)	(0.0100)	(0.0075)	(0.0076)	(.0076)
Household size	0.0024**	0.0024**	0.0083***	0.0026***	0.0026***	0.0027***
	(.0009)	(.0009)	(.0012)	(.0009)	(.0010)	(.0009)
Loc. Small Town	0.1368***	0.1383***	0.1347***	0.1367***	0.1381***	0.1384***
	(.0062)	(.0063)	(.0081)	(.0062)	(.0063)	(.0063)
Loc. City	0.3265***	0.3285***	0.3085***	0.3257***	0.3277***	0.3283***
	(.0064)	(.0065)	(.0084)	(.0064)	(.0065)	(.0065)
Loc. Suburb	0.3024***	0.3037***	0.2908***	0.3018***	0.3030***	0.3036***
	(.0088)	(.0088)	(.0122)	(.0088)	(.0088)	(.0088)
Income	-	-0.0176**	-	-	-0.0176**	-0.0186**
		(0.0086)			(0.0087)	(0.0080)
Network Abroad	-	-	0.6123***	-	-	-
			(.0060)			(.0060)
Cons	-1.349***	-1.346***	-1.447***	-1.221***	-1.217***	-1.674***
	(.0357)	(.0360)	(.0594)	(.0364)	(0.0366)	(.0379)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Marital Status	Yes	Yes	Yes	Yes	Yes	Yes
N obs	1,477,100	1,463,636	885,550	1,477,100	1,463,636	1,477,100
Pseudo R^2	0.1254	0.1258	0.1340	0.1256	0.1260	0.1263
Marg. Eff Age	-0.004***	-0.004***	-0.004***	-		-0.004***
Marg. Eff Age>25	-	-	-	-0.005***	-0.005***	-
Marg. Eff Age≤25	-	-	-	-0.005***	-0.005***	-

Notes: Estimation period: 2006-2020. Number of origin countries: 163. Marital status refers to whether marital status (8 alternatives) is controlled for or not. Marginal effect of age gives the effect of one additional year of age evaluated at the mean. P-values between parentheses.

***, **, * indicate significance levels of coefficients at 1%, 5% and 10% respectively.

specifications.[10] In general, I find a very stable marginal effect of age on the probability of desired emigration: an additional year of age leads to a decrease of 0.4% of this probability for a typical individual who is average for all characteristics.[11] All in all, these results point to a monotonic decreasing emigration intention with age and a very stable effect of age across alternative specifications.

Figure 1: Predicted probability of desired emigration and age



Notes: the two curves give the probabilities of emigration predicted by the logit model of equation (1). Emigration Linear (Emig lin) and Emigration nonlinear (Emig nlin) are computed from estimates of column 1 and column 4, respectively, of Table 2.

[10]The non linear nature of the predicted trajectory of the probability in the linear specification is of course due to the non-linearity of the logit model.

[11]The marginal effects are evaluated at the mean and are measured for one additional year of age. In the nonlinear specification, the computation of the marginal effect accounts for the link between age and its squared.

My results contrast with those obtained from observed movements of individuals and especially with the hump-shape type of relationship documented by previous studies. The combination of the previous evidence and these results suggests that over the 15-25 age segment, out-selection factors of emigration play a crucial role. Lack of resources or liquidity constraints definitely prevent young adults from realizing their emigration wishes. My results suggest that, for young adults, the positive impact of aging on their observed mobility is in not due to an increasing *desire* to emigrate with aging but rather to an increased *ability* to do so.

3.2 Heterogeneity

There are many dimensions potentially linked to some heterogeneity regarding the effect of age on emigration. First, heterogeneity at the aggregate level is considered by looking at the decomposition by type of origin and evolution of time. Developing countries are well known to exhibit high levels of intended emigration rates.[12] Nevertheless, the evolution of these intentions with regard to aging is rather unknown. The same also applies to the heterogeneity over time. With the ongoing globalization process, it could be that young people exhibit stronger desires to emigrate and that this intention dies out less (or more) quickly with age over the recent period.

Second, heterogeneity is examined at the individual level. One important dimension is gender. Females have been reported to follow men in their emigration projects, which raises the question of whether such female emigration is due to out-selection factors (i.e., higher propensity to use familial reunification policy schemes) or different intentions of mobility. A second dimension is whether our results are different between natives and former immigrants. To that purpose, I isolate the effect for individuals born in the country of the interview. Finally, differentiating by age cohorts themselves is useful.

[12] Quite recently, there has been a resurgence in the debate on the connection between income at origin and emigration rates. A recent paper of Clemens and Mendola (2020) focuses on the impact of income on intended emigration: it uses the Gallup data, in particular the questions regarding the preparation plans undertaken by potential emigrants.

Table 3: Heterogeneity in marginal effect of age

Panel A: Aggregate level					
Time periods		Income groups			
2006-2012	2013-2019	Low inc.	LLM inc.	LM inc	High Income
-0.004***	-0.004***	-0.004***	-0.004***	-0.005***	-0.005***
Panel B: Individual level					
Males	Females	Excl. retirees	Working age	Natives	Working natives
-0.005***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***

Notes: The marginal effect of one additional year of age evaluated at mean. LLM includes low and lower-middle income groups. LM includes Low and all middle-income groups (non-high income). Working-age correspond to individuals aged between 21 and 70. Excluding retirees corresponds to excluding individuals aged more than 69. ***, **, * indicate significance levels at 1, 5 and 10% respectively.

Excluding retirees allows us to see the extent to which the previous estimated impact is driven by this specific group. I also restrict the sample to working-age individuals, which excludes a large part of the student population.

Table 3 presents the estimated marginal effects of age for sub-groups of observations.[13] Results from Panel A of Table 3 point to a limited heterogeneity in the role of age, either over time or across countries. The only noticeable result concerns the lower effect of age in low-income countries.[14] Combined with the fact that in general, low income countries in general exhibit much higher levels of desired emigration, especially among young people, this result might suggest that the gap in intended emigration rates between these countries and the other ones will be larger for older cohorts. Results from Panel B also show that the effect of age is rather similar across different types of individuals. The typical values of the marginal effect of age between -0.4% and -0.5% obtained from previous results do not seem to be driven by a specific group of individuals.

[13]For investigations at the aggregate level (Panel A), the marginal effects are estimated from logit models with interaction terms between age and dummies capturing the participation in each sub-group. In other terms, the estimation is done on the full sample and the effects of controls are assumed to be the same across sub-groups. Nevertheless these results are confirmed with sample-specific regressions. For investigations at the individual level (Panel B), I conduct sample-specific estimations.

[14]In turn, this result is at odds with the fact that our results are due to a negative selection in the survey of intended movers by age. Indeed, such a selection would imply that individuals with relatively higher desires to emigrate would be under-represented at older ages and imply a more negative effect of age in low-income countries in which baseline intended emigration rates are relatively higher.

3.3 Using plans

Migration intentions capture the role of a large part of the observed and unobserved self-selection factors and allow us to uncover the implicit role of out-selection factors. In particular, our conclusion is that these out-selection factors have stronger effects on young potential emigrants. It is nevertheless interesting to back up this conclusion with some auxiliary information about plans preparing for emigration. The Gallup WPS includes two daughter questions for intended emigrants, albeit on a much more limited sample.[15] This question has been recently used by Clemens and Mendola (2020) who show than preparation plans are driven by self-selection factors such as income. Nevertheless, the fact that a given individual has begun preparing for a migration project also reflects out-selection factors. For instance, individuals with a zero or low probability of obtaining an immigration visa will not initiate such plans to the extent that they involve costs. In the same vein, potential illegal migrants who are liquidity constrained will not investigate the possibility of leaving since they cannot cover the smuggling costs. The discrepancy between plans and intentions can therefore be informative about the role of out-selection factors. We estimate the logit model in equation (1) on preparation plans. Results are reported in Table 5 in Appendix A. We find that low-income countries are characterized by a smaller proportion of intended emigrants starting preparation plans, confirming that this discrepancy is greater in countries with higher levels of liquidity constraints and subject to more restrictive immigration policies.[16]. Another interesting aspect concerns the effect of household income in addition to the effect of personal income. Household income can capture the capacity of families to pool resources and to finance emigration

[15] While the emigration desires are collected for more than about 1.7 millions respondents, with 375874 intended movers, the preparation question is put to only 25520 of the 375000 individuals who plan to move in the next 12 months, i.e. to less than 7% of the intended movers. Also, this proportion is particularly low for older individuals.

[16] The estimated decrease in the probability evaluated at the mean compared with an individual from a high-income country lies between 3% and 4%. This effect is much more significant if the comparison is with lower-middle income (-6.7%) or upper-middle countries (-7.4%).

costs for intended movers.[17] Interestingly, household income does not have any effect on intentions, but a strong and positive impact on preparation plans (see estimates from column (2) in Table 5).[18] This brings additional evidence that plans contain the influence of self-selection but also out-selection factors of international migration.

Figure 2 reports the proportion of intended movers, by age profile, who report having initiated some preparation plans to emigrate by age profile. This proportion increases with age for young respondents and, with all the caveats related to the small sample sizes, tend to be constant after the age of 25. We also compute the unconditional proportion of individuals developing preparation plans (scale on right axis) by computing the product of the two probabilities. This proportion is an admittedly noisy proxy for the proportion of observed migrants that has been reported in the previous literature on observed movements. Interestingly, we get a hump-shape type of relationship between this proportion and age. Such a profile, obtained from auxiliary data, is in line with our conclusion that out-selection factors are stronger for young potential migrants and counteract their high level of intentions, resulting in a very different pattern on realizations of migration by age.

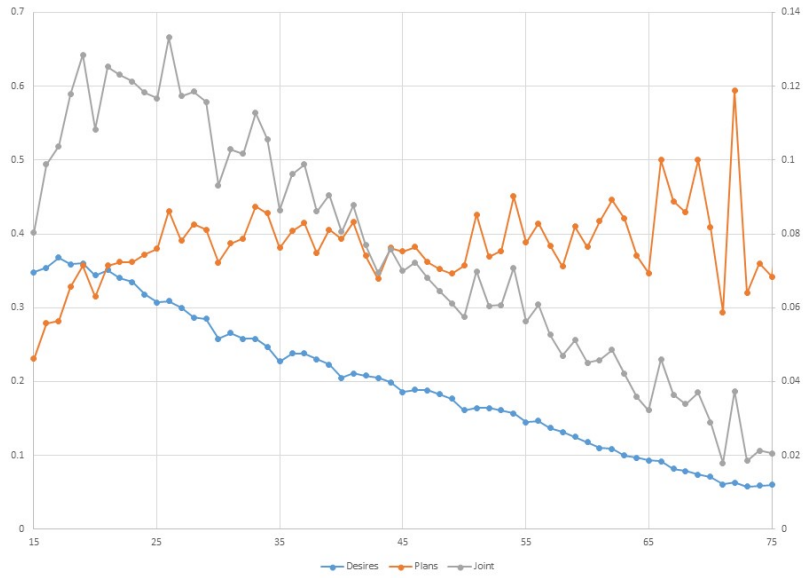
4 Conclusion

The age of individuals has been found to be a strong predictor of observed international migration movements. Previous research reports that this relationship takes a hump-shape form with a culminating probability of emigration around 25 years of age. Nevertheless, age interacts with both self- and out-selection factors of international migration. While the observed relationship is likely to be the result of both type of factors, little is known

[17] UnitedNations (2019) finds that about half of the potential illegal emigrants from eight African countries report they would seek support from families and friends, should they embark on a journey to Europe.

[18] A one standard deviation increase of household income evaluated at the mean decreases the probability of preparation plans by 2%.

Figure 2: Intentions, plans and proportion of movers by age



Notes: Desires and Plans lines give, respectively, the proportion of respondents intending to move and the proportion of intended movers reporting to have initiated preparation plans to emigrate (left axis). The Joint line computes the proportion of respondents that has started preparation plans (right axis).

about their respective roles. One obvious hurdle is that these out-selection factors are very difficult to measure, not to mention the difficulty of measuring their possible effects. In this note, using intended emigration measured in large-scale surveys conducted by Gallup, I show that age exerts a monotonic negative impact on the desire to leave one's country of birth. Pooling more than 160 countries of origin over 14 years, I find that an additional year of age decreases the probability of this desire by about 0.5%. This result seems quite robust over time and across countries, as well as across different type of individuals. All in all, these findings suggest that out-selection factors interact with age and contribute to the observed complex relationship between age and actual emigration. In particular, factors such as liquidity constraints or restrictive immigration policies tend to restrict younger potential emigrants. Further research should identify these factors and their interaction with age in shaping the discrepancy between intended and actual international mobility of individuals.

References

Beine, M., Machado, J., and Ruyssen, I. (2020). Do Potential Migrants Internalise Migrant Rights in OECD Host Societies? *Forthcoming in the Canadian Journal of Economics*.

Bertoli, S. and Ruyssen, I. (2018). Networks and Migrants' Intended Destination. *Journal of Economic Geography*, 18(4):705–728.

Borger, S. C. (2009). Self-selection and Liquidity Constraints in Different Migration Cost Regimes. Technical report, UCLA Institute for Research on Labor and Employment.

Borjas, G. J. (1987). Self-selection and the Earnings of Immigrants. *American Economic Review*, 77(4):531–553.

Cattaneo, C. (2007). The Self-selection in the Migration Process: What can we learn? Working Papers 199, LIUC.

Clemens, M. and Mendola, M. (2020). Migration from Developing Countries: Selection, Income Elasticity, and Simpson's Paradox. IZA Discussion Papers No 13612, IZA,Bonn.

Djajic, S., Kirdar, M., and Vinogradova, A. (2016). Source-country Earnings and Emigration. *Journal of International Economics*, 99(C):46–67.

Djajic, S. and Vinogradova, A. (2014). Liquidity-constrained Migrants. *Journal of International Economics*, 93(1):210–224.

Docquier, F., Peri, G., and Ruyssen, I. (2014). The Cross-country Determinants of Potential and Actual Migration. *International Migration Review*, 48:S37–S99.

Docquier, F. and Rapoport, H. (2012). Globalization, Brain Drain, and Development. *Journal of Economic Literature*, 50(3):681–730.

Gallup (2018). Gallup Country Data Set Details 2008–2013, available online at www.gallup.com/services/177797/country-data-set-details.aspx. Technical report.

Grogger, J. and Hanson, G. H. (2011). Income Maximization and the Selection and Sorting of International Migrants. *Journal of Development Economics*, 95(1):42–57.

Manchin, M., Manchin, R., and Orazbayev, S. (2014). Desire to migrate internationally and locally and the importance of satisfaction with amenities. In *Paper presented at the FIW-wiiw Seminars in International Economics 10 April 2014. Vienna, Austria.*

McKenzie, D. (2008). A Profile of the World's Young Developing Country International Migrants. *Population and Development Review*, 34(1):115–135.

Rogers, A. and Castro, L. (1981). Model Migration Schedules. Technical report, IIASA Research report,Laxembourg, Austria.

Sjaastadt, L. (1962). The Costs and Returns of Human Migration. *Journal of political Economy*, 70:80–93.

UnitedNations (2019). Scaling Fences. Voices of Irregular African Migrants to Europe. Policy report october, United Nations.

World Bank (2018). Moving for Prosperity: Global Migration and Labor Markets. Policy Research Report. Washington, DC: World Bank.

Appendix A Statistical sources and details

Table 4: Sources and details of data

Variable	Details	Gallup code or source
Emigration Intentions	Desire to leave country permanently	WP1325
Age	Age at time of interview	age
Country	Country of interview	WP5
Year	Year of interview	`Year_Calendar`
Income	Income per capita	`Income_4`
Household income	Total income of household	`Income_1`
Education	Education level	WP3117
Household size	Number of household members	HHSIZE
Male	Male=1 if respondent is male	male
Location	Type of living area	WP14
Network	Respondent has network abroad	WP3333
Marital	Marital status	WP1223
Native	Respondent born in country of interview	WP4657
Plans	Respondent had preparation plans of migration	WP9455
Income groups	Classification of country by income group	World Bank (v2020)

Appendix B Determinants of preparation plans

Table 5: Determinants of preparations plans for emigration: logit estimation

	(1)	(2)
Age	0.0037***	0.0038***
	(.00013)	(.00013)
Male	0.072***	0.075***
	(.0029)	(.0028)
Secondary education	0.378***	0.377***
	(.0035)	(.0035)
Tertiary education	0.789***	0.777***
	(0.0046)	(0.0046)
Household size	-0.0225**	-0.0243**
	(.0049)	(.0049)
Loc. Small Town	-0.0432***	-0.0471***
	(.0407)	(.0408)
Loc. City	0.0555***	0.0660***
	(.0391)	(.0392)
Loc. Suburb	0.0151	-0.0048
	(.0551)	(.0553)
Personal income	0.0530***	0.0449***
	(0.0126)	(0.0123)
Household income	-	0.0632***
		(.0119)
Low-income group.	-0.1475***	-0.1761***
	(.0477)	(.0479)
Lower-mid. inc. group	0.1634***	0.1494***
	(.0433)	(.0433)
Upper-mid. inc. group	0.1980***	0.1585***
	(.0421)	(.0427)
Cons	-1.138***	-1.111***
	(.1039)	(.1040)
Year fixed effects	Yes	Yes
Marital status	Yes	Yes
No. observations	23024	23024
Pseudo R^2	0.0270	0.0281
Marg. eff. low-inc. group	-0.033***	-0.039***
Marg. eff. household inc.	-	0.021***

Notes : Estimation period: 2006-2020. Marital status refers to whether marital status (8 alternatives) is controlled for or not. Marginal effect of low-income group gives relative effect at the mean compared with high-income group. Marginal effect of household income gives effect of one increase of 1 standard error computed at the mean. P-values between parentheses. ***, **, * indicate significance levels of coefficients at 1, 5 and 10% respectively.