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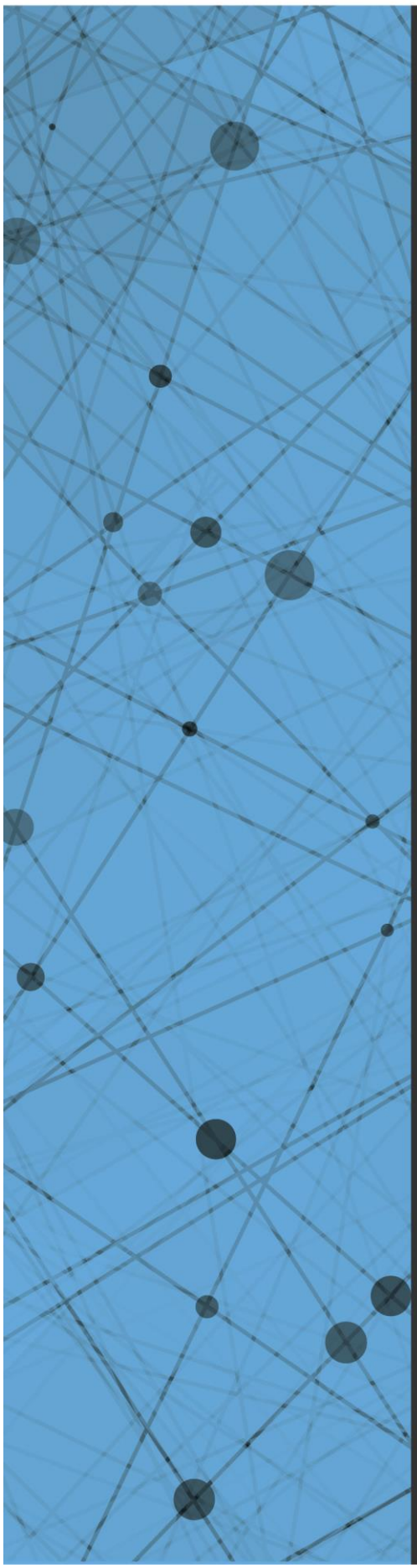

Moving towards happiness?

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Motu Working Paper 18-07

Motu Economic and Public Policy Research

May 2018

Document information

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Abstract
We add to the literature on the driving forces of international migration. While the existing literature establishes that income differences, migration costs, and certain other factors (e.g. climate or human rights) affect the migration decision, we focus on the broader role of nonpecuniary factors. We include well-being measures in a standard model of bilateral migration flows and enrich the analysis further by testing the effects on migration of inequality in happiness within a country. Our findings that both the mean and standard deviation of happiness - in both origin and destination countries - help explain bilateral migration flows over and above any income effect, indicates the need to incorporate both pecuniary and non-pecuniary factors when modelling migration choices.

JEL codes
F22, O15, Q54.

Keywords
Happiness, International Migration, Wellbeing.

Summary haiku
Look at migration.
People move for jobs and fun.
Both are important.

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 ISSN 1176-2667 (Print), ISSN 1177-9047 (Online).

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1 Introduction

Why do people migrate from one country to another? Many prior studies establish that income differences between destination and origin countries of prospective migrants play a part in the migration decision (cf. Mayda, 2010 and Ortega and Peri, 2013). In addition, prior studies establish that higher migration costs play a role in diminishing international migrant flows (cf. Mayda, 2010 and Ortega and Peri, 2013). We hypothesize that it is likely also that people make their migration choice, in part, on the basis of non-pecuniary factors. These factors may include climate, natural and social amenities and factors such as the degree of human rights within countries (cf. Aburn and Wesselbaum, 2017, Beine and Parsons, 2015, and Cai et al., 2016).

To date, however, few studies have examined the role of non-pecuniary factors in determining the flow of migrants between countries. Our major contribution is to do so. We include non-pecuniary well-being measures in a model of bilateral migration flows alongside origin and destination country incomes and migration cost factors. Our non-pecuniary measure of well-being is surveyed life satisfaction from the Gallup Poll (for which we use the short-hand `happiness'). While happiness is an overall summation of one's (material and non-material) circumstances, our inclusion of income variables (GDP per capita) means that the estimated effect of happiness on migration primarily reflects non-pecuniary factors. We enrich the analysis further by testing the effects on migration flows of inequality in happiness within a country in addition to the impact of a country's mean level of happiness.

Consistent with prior literature, we find that higher destination (origin) country incomes increase (reduce) bilateral migration flows, while increased costs lower the flows. With respect to happiness, we find that an increase in the mean happiness level in a destination (origin) country increases (reduces) the bilateral migration flows. This result is akin to the income results. Notably, these effects of mean happiness on migration are found even after controlling for each country's income per head.

The standard deviation of happiness (our measure of happiness inequality) also matters. Higher happiness inequality in the origin country increases emigration while higher happiness inequality in a destination country also increases bilateral migration flows. Differing effects are likely to be at work here. Higher inequality in origin countries leaves a greater pool of people well below the mean level of happiness, while others may suffer from a frustrated achievers effect, especially as they see the achievements of those at the highest echelons. Higher inequality in destination countries may afford greater opportunities to those whose own preferences over non-pecuniary factors match well with those of the destination country, while optimism bias may also play a part in the positive effect of destination country inequality on the migration flow.

Our findings that both the mean and standard deviation of happiness -- in both origin and destination countries -- help explain bilateral migration flows over and above any income effect,

indicates the need to incorporate both pecuniary and non-pecuniary factors when modelling migration choices. At a methodological level, our findings on the significance of the happiness variables adds weight to the view that surveyed subjective wellbeing measures have real content for economic analyses.

2 Theoretical Background

In this section we outline our theoretical framework to explain migration. The model builds on the seminal work by Borjas (1987) and the contributions by Beine et al. (2011) and Grogger and Hanson (2011). Assume the existence of multiple agents (indexed by k) who face a utility maximization problem across multiple destinations. They decide whether to stay or migrate, and where to migrate to. Denote the country of origin by i and the destination country by j. The set of possible destinations out of the set of all destinations, D, is $D_d = D\{i\}$ where $j \in D$. Utility, u, is assumed to be log-linear and depends on income (w) and country-specific characteristics, where the characteristics impact on different agents to differing degrees.

The country characteristics capture other country-specific circumstances that are not related to income, for instance natural and cultural amenities, human rights, and location (following Grimes et al., 2014). In our empirical work, we proxy for these characteristics by the country's mean level of subjective well-being ('happiness').

The utility for agent k of staying in the origin country is given by:

$$u_{kiit} = \ln(w_{it}) + \gamma_k A_{it}(\cdot) + \varepsilon_{kit}, \quad (1)$$

where $A_{it}(\cdot)$ denotes the origin-specific country characteristics at time t, γ_k, is a scalar indicating the degree to which the country's specific characteristics affect the utility of agent k, and ε_{kit} is an error term.

The expected utility for agent k of moving from country i to country j is:

$$u_{kijt} = \ln(w_{jt}) + \delta_k^e A_{jt}(\cdot) - C_{ijt}(\cdot) + \varepsilon_{kjt}, \quad (2)$$

which is a function of the (expected) income and other country-specific characteristics in country j minus the cost of migrating from i to j at time t, $C_{ijt}(\cdot)$. The scalar, δ_k^e, reflects agent k's expectation of how country j's specific characteristics will impact on her utility.

Agent k will migrate from i to some country j if and only if:

$$u_{kijt} > u_{kiit}. \quad (3)$$

Denoting the aggregation migration flow, from country i to country j as M_{ijt}, equations (1) - (3) together imply that the following partial derivatives will hold in any migration function for M_{ijt}:

$$\begin{aligned}\frac{\partial M_{ijt}}{\partial w_{jt}} &> 0, \frac{\partial M_{ijt}}{\partial w_{it}} < 0,\\ \frac{\partial M_{ijt}}{\partial A_{jt}} &> 0, \frac{\partial M_{ijt}}{\partial A_{it}} < 0,\\ \frac{\partial M_{ijt}}{\partial C_{ijt}} &< 0.\end{aligned}$$

The fourth partial derivative $[\partial M_{ijt}/\,\partial A_{it}]$ reflects the utility function in equation (1) and is in accordance with the idea that a less happy migrant has a larger incentive to migrate (Cai et al., 2014). However, other researchers (notably Olgiati et al,. 2013; Graham and Markowitz, 2014) suggest that there may be a frustrated achievers effect whereby people with high levels of objective well-being are nonetheless dissatisfied with their circumstances and choose to migrate to improve them. This could result in a positive coefficient on A_{it} However, given that this effect relates mainly to high achievers (relative to the average), it is more likely to be reflected through the standard deviation of A_{it}. rather than the mean.

In our model, migration will respond to the distributions of γ_k and δ_k^{ϱ}, which in turn reflect the standard deviations of happiness. In our empirical work, A_{it} and A_{jt} are proxied by the mean level of life satisfaction (`happiness') of the country's residents. If the standard deviation of happiness is large across agents in a country then there will be a greater number of people who are well below the mean level of happiness in that country. *Ceteris paribus*, this will increase the likelihood that it is optimal to migrate for those who are below the mean. However a high standard deviation means that there will also be a greater number of people well above the mean. For these people, an increase in the standard deviation of happiness within an origin country should (*ceteris paribus*) decrease the likelihood that it is optimal to migrate unless the frustrated achievers effect dominates, in which case the effect of an increased standard deviation may again increase the likelihood of migration. Denoting the standard deviation of happiness in the origin country as $SD(A_{it})$, we therefore have an ambiguous sign as to the effect of the distribution of origin country characteristics on migration:

$$\frac{\partial M_{ijt}}{\partial SD\,(A_{it})} \lessgtr 0.$$

Similarly, the standard deviation of happiness in the destination country, $SD(A_{jt})$, will impact on migration flows in an ambiguous fashion:

$$\frac{\partial M_{ijt}}{\partial SD\,(A_{jt})} \lessgtr 0.$$

In this latter case, however, if people select a candidate country in part on the basis of the suitability of its characteristics in satisfying their own preferences, or if people suffer from some

degree of optimism bias (Stillman et al. 2015; Thaler, 2016), then we would expect this partial derivative to be positive.

Reflecting these considerations, and utilizing a standard functional form for aggregate bilateral migration flows, we can write our bilateral migration function as an augmented gravity model:

$$\begin{aligned}\ln\left(M_{ijt}\right) &= \alpha_{it} + \beta_1 \ln\left(w_{jt}\right) + \beta_2 \ln\left(w_{it}\right) + \beta_3 A_{jt}\left(\cdot\right) + \beta_4 A_{it}\left(\cdot\right) \\ &\quad + \beta_5 SD\left(A_{jt}\right) + \beta_6 SD\left(A_{it}\right) + \beta_7 C_{ijt}\left(\cdot\right) + \varepsilon_{ijt}.\end{aligned} \tag{4}$$

We hypothesize that $\beta_1, \beta_3, \beta_5 > 0, \beta_2, \beta_4, \beta_7 < 0$, while β_6 is ambiguous. Here, origin-by-year fixed effects α_{it} control for the unobserved heterogeneity between migrants and non-migrants and also for population size.

We proxy migration costs through the inclusion of four variables: distance, border, language, and colony. We expect that a larger distance between two countries should reduce the size of migration flows as this indicates larger migration costs. Similarly, a common language, a common border, and colonial ties should increase migration flows. The intuition is that those variables proxy cultural closeness which should have a positive effect on migration.

The dependent variable - bilateral migration flows - is written in logarithmic terms and, hence, we need to deal with the problem created by zero observations. We address this problem using a common solution by adding one to the flow (cf. Alexeev et al., 2011, Ortega and Peri, 2013, and Cai et al., 2016). Then, we can use OLS to obtain our estimates. Finally, for all estimations we employ clustered standard errors at the country-pair level (cf. Mayda, 2010 and Ortega and Peri, 2013).

Given that the major contribution of our paper is to estimate the effect of the mean and standard deviation of happiness on migration flows, we comment further on our hypotheses with respect to the happiness variables.

Happiness tells us about the life circumstances at origin and the expected life circumstances at destination. It relates to the idea that utility does not only depend on material factors but is also influenced by non-material factors (see Chen and Rosenthal, 2008, Glaeser and Gottlieb, 2009, and Grimes et al., 2017).

In the formulation of Glaeser et al. (2016) for wages to be relevant to the migration decision in addition to happiness, then happiness should be regarded as just one component of the utility function (rather than being equal to utility). In the formulation of Grimes et al. (2017), people make inter-temporal life-cycle decisions in which higher income in some periods may be used to purchase greater happiness in others. Under this formulation, migration may respond to both wages and happiness without necessarily contradicting the hypothesis that happiness and utility are conceptually identical. Both of these interpretations are therefore consistent with a

finding that migration flows respond to the mean (and/or standard deviation) of happiness in origin and destination countries.

3 Data

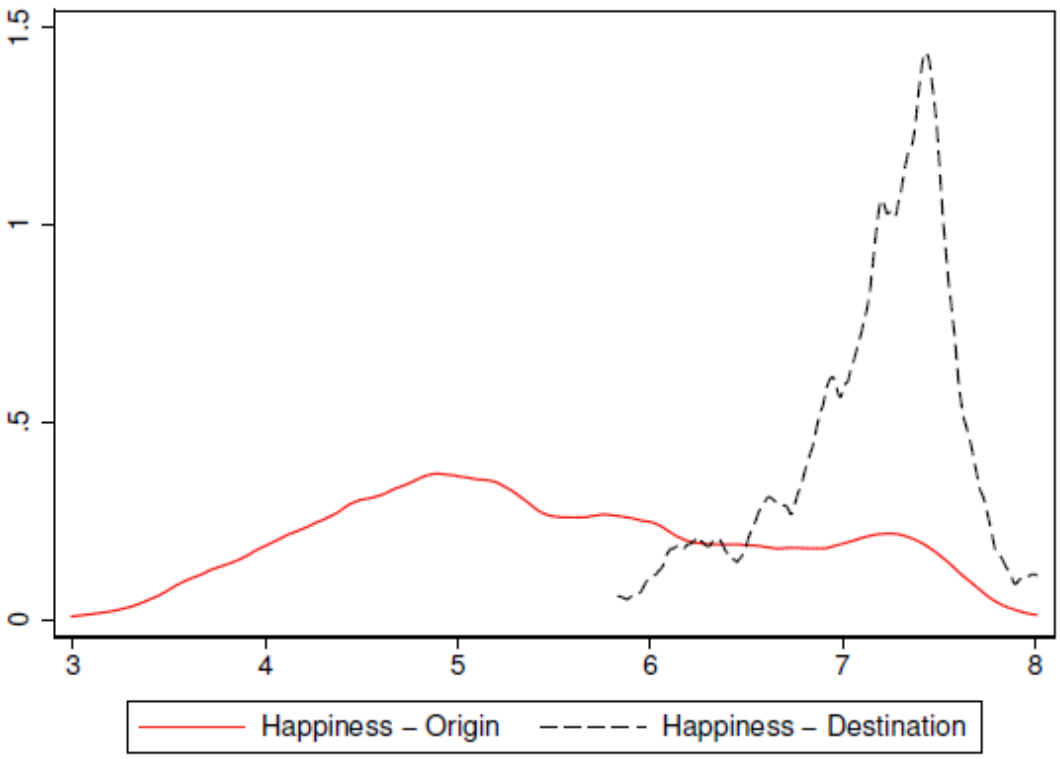
3.1 Variables

We use a bilateral panel data set of international migration flows. The data set contains the flows of migrants between 14 destination countries and 102 origin countries observed over eight years: 2006 to 2013.[1] Period and country choice are dictated by data availability for happiness and migration data. Overall, we have 11424 observations.

3.2 Descriptive Statistics

Table 4 (in the appendix) presents summary statistics for all variables. Figure 1 shows the kernel density estimates for happiness at origin (red line) and happiness at destination (black, dashed line) in our sample. The figure illustrates the tendency for a higher mean and lower standard deviation of happiness in destination relative to origin countries.

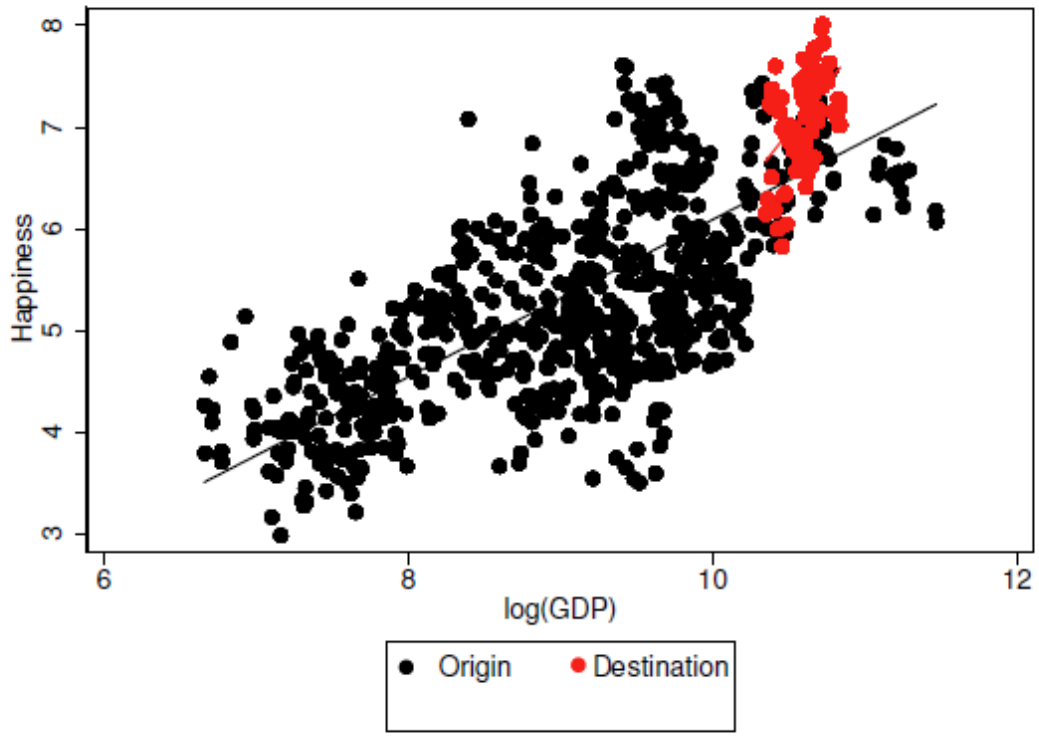
Figure 1: Distribution (kernel estimates) of happiness at origin (red line) and destination (black line) countries.



[1]A list of all countries can be found in the appendix (Table 3).

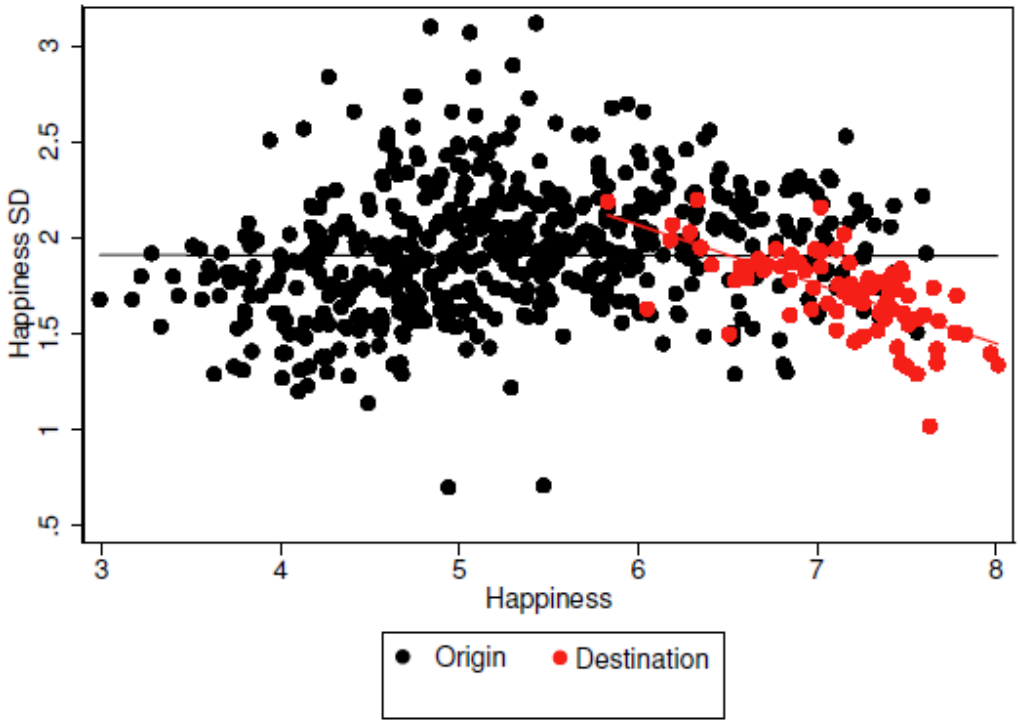
Figure 2 plots the level of happiness at destination (red) and origin (black) against GDP per capita. Consistent with Easterlin (1974) and many subsequent studies, the figure shows that GDP per capita is positively correlated with happiness. This relationship is stronger when we look at all countries rather than focusing on "rich" destination countries only.

Figure 2: Scatter plot of happiness at origin (black) and destination (red) vs. GDP.



Further, we argued that the standard deviation of happiness could be a potential driver of migration as it captures heterogeneity in circumstances and opportunities. Figure 3 presents a scatter plot of the standard deviation of happiness at origin (black) and destination (red) vs. the level of happiness. There is little evidence supporting a relation between the standard deviation of happiness and its level for the set of origin countries while there appears to be a negative relationship for destination countries.

Figure 3: Scatter plot of standard deviation of happiness at origin (black) and destination (red) vs. happiness.



4 Results

4.1 Happiness as a Driver of Migration

This section presents our main results from including measures of happiness in a standard augmented gravity model of migration flows used, for example, by Mayda (2010) and Ortega and Peri (2013). We also include the (log) GDP per capita as a measure of income, (log) distance as a measure of migration costs, and dummies for a common border, language, and colonial ties to proxy for cultural closeness. We present results both with and without the inclusion of the standard deviation of happiness, and without various forms of fixed effects. In addition, we performed a number of (unreported) robustness checks which included adding the following covariates: wars, a measure of political freedom (polity2 from the Polity IV project by the Center for Systemic Peace), trade share in GDP, life expectancy at birth, population, and a gender inequality index. All robustness checks, which are available upon request, left results broadly unchanged. Table 1 presents our main results.

Table 1: Main Results. Dependent variable: log migration flow.

Variable	**1**	**2**	**3**	**4**	**5**
ln GDP *j*	2.07***	2.08***	2.25***	2.25***	1.99***
	(0.40)	(0.39)	(0.43)	(0.43)	(0.37)
ln GDP *i*	0.08		0.01		-0.18
	(01.5)		(0.18)		(0.16)
ln Distance *ij*	-0.91***	-0.91***	-0.92***	-0.92***	
	(0.07)	(0.07)	(0.07)	(0.07)	
Border *ij*	-0.36	-0.34	-0.33	-0.31	
	(0.27)	(0.28)	(0.27)	(0.28)	
Language *ij*	1.10***	1.10***	1.12***	1.13***	
	(0.16)	(0.17)	(0.17)	(0.17)	
Colony *ij*	0.67***	0.67***	0.75***	0.75***	
	(0.21)	(0.21)	(0.21)	(0.22)	
Happy *j*	0.13***	0.13***	0.15***	0.14***	0.12***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Happy *i*	-0.08***		-0.04*		-0.06***
	(0.02)		(0.02)		(0.01)
Happy SD *j*			0.12**	0.12*	0.12***
			(0.06)	(0.06)	(0.05)
Happy SD *i*			0.09*		0.03
			(0.05)		(0.04)
Obs.	8473	8473	7085	7085	7085
R^2_{adj}	0.79	0.78	0.79	0.78	0.98
Fixed Effects					
Year	Yes	Yes	Yes	Yes	Yes
Destination	Yes	Yes	Yes	Yes	No
Origin	Yes	Yes	Yes	Yes	No
Origin-Year	No	Yes	No	Yes	No
Country-Pair	No	No	No	No	Yes

Note: Standard errors are clustered at the country-pair level and shown in parenthesis. Constant not shown. Significance levels: ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.10$.

Models 1 and 2 estimate the basic model with happiness using different sets of fixed effects. We then add the standard deviation of happiness (models 3 to 5) also varying the set of fixed effects.

We begin by discussing model 1 which uses year, destination, and origin country fixed effects, our preferred modelling set-up. This set of fixed effects controls for the origin confounding effects and allows us to look into the effects of happiness at origin country. We find GDP per capita at destination (a pull factor) to be significant while GDP per capita at origin does not significantly affect the migration decision. A ten percent increase in GDP per capita at destination will increase migration by 20 percent. This is about three time as large as the effect found by Ortega and Peri (2013) using a different sample and about twice as large as the findings by Aburn and Wesselbaum (2017) using a larger time dimension. In line with the literature, distance significantly affects the decision to migrate. A ten percent increase in distance reduces migration flows by 9.1 percent. This number is in line with other papers such as Ortega and Peri (2013) and Aburn and Wesselbaum (2017). Of our proxy variables for

cultural closeness all but the common border dummy are significant. A common language increases migration flows by 200 percent. This value is larger compared to other values found in the literature: 103 percent in Aburn and Wesselbaum (2017) or 79 percent in Ortega and Peri (2013). Colonial ties also increase migration flows by 95 percent. This value is smaller than the 132 percent found in Aburn and Wesselbaum (2017) and the 294 percent found in Ortega and Peri (2013). A common language and existing colonial ties should make the migration process easier and, therefore, we expect more migration with lower migration costs and increased cultural closeness.

Finally, and most interestingly, happiness at destination and origin are significant. Happiness at destination increases migration flows and is an additional pull factor, while happiness at origin is a push factor. We find that a ten percent increase in happiness at destination increases migration by 13.9 percent. The effect at origin is slightly smaller: a ten percent increase in happiness reduces migration by 6.8 percent. This finding shows that happiness does generate additional incentives to migrate that are not captured by income or migration costs. Our results contradict the "frustrated achievers" effect discussed by Olgiati et al. (2013) and Graham and Markowitz (2014) as we find that higher mean happiness at origin reduces migration. For destination countries, we find results that are in line with our prior expectation that higher happiness at destination act as a pull factor.

Model 2 performs a robustness check by including origin-year fixed effects. This prevents us from analyzing the effects at origin country as any variation at origin is absorbed by the fixed effects. Nevertheless, this robustness check confirms our findings for the variables at destination and for the bilateral variables. The differences across the estimated parameters are negligible.

The next step is to introduce the standard deviation of happiness. As discussed in section 2, people's decisions might be affected not only by the mean level of happiness in destination and origin countries, but also by the distribution of happiness. Model 3 adds the standard deviation of happiness at destination and origin. Our findings about income and migration costs still hold. There is a slightly larger effect of income at destination and of colonial ties. The effect of mean happiness at destination and origin are similar to our previous findings, but we also find that the standard deviation of happiness at both destination and origin are significant - and both increase migration. The magnitude of their effect is similar to the level of happiness. This finding shows the importance of heterogeneity in circumstances for origin countries and opportunities for destination countries.

Model 4 performs a robustness exercise using origin-year fixed effects confirming our findings from model 3. Another important robustness check is performed in model 5, using country-pair fixed effects. This specification controls for the potential bias created by multilateral-resistance terms: the migration flows in a country-pair depend not only on the relative attractiveness of the two countries in the pair but also on the attractiveness of other

potential destinations. Here, we find that our results are robust and, hence, that this potential bias is negligible.

Our results show that measures of happiness do significantly affect the decision to migrate, even when controlling for factors such as income and migration costs. To be precise, we show that the partial effect of both the mean of happiness and its standard deviation affect migration flows even after controlling for the indirect effect on happiness of income. This direct, or partial, effect is significant and quantitatively important. We can also estimate the total effect of happiness on migration. In regressions not shown here, but available upon request, we find that happiness has a strong positive effect at destination and a strong negative effect at origin.[2] The total effect is about 50 percent larger than the partial effect at destination and origin.

Our findings are consistent both with the model by Glaeser et al. (2016) in which wellbeing is a component of the utility function and with the model by Grimes et al. (2017) in which current income can be used to boost future utility, so that both current utility and current income affect location decisions. The finding for mean happiness contradict the "frustrated achievers" effect by Olgiati et al. (2013) and Graham and Markowitz (2014) by showing that a lower mean level of happiness at origin increases migration. The positive effect on migration of the standard deviation of happiness at the origin country may, however, be in part a reflection of "frustrated achievers" searching for even better alternative locations within more unequal societies consistent with the posited effect.

4.2 The Effect of the Global Financial Crisis

One of the key features of our data set is that it covers the Global Financial Crisis. To some extent, the GFC is a natural experiment for us, as we observe our variables before, during, after this crisis. This time period offers a unique opportunity to study the effect of happiness on migration.

Therefore, in this section, we analyse whether the relationship between happiness and migration has changed over the GFC or remained stable. To do so, we estimate the model with the standard deviation of happiness including a dummy variable capturing the pre- and post-GFC period (model 6) in Table 2. We adopt the same format as model 3, and use 2009 as the post-GFC time.

[2]The OLS regression uses country-pair fixed effects, ignores GDP terms, and only includes: (i) happiness and (ii) happiness and its standard deviation.

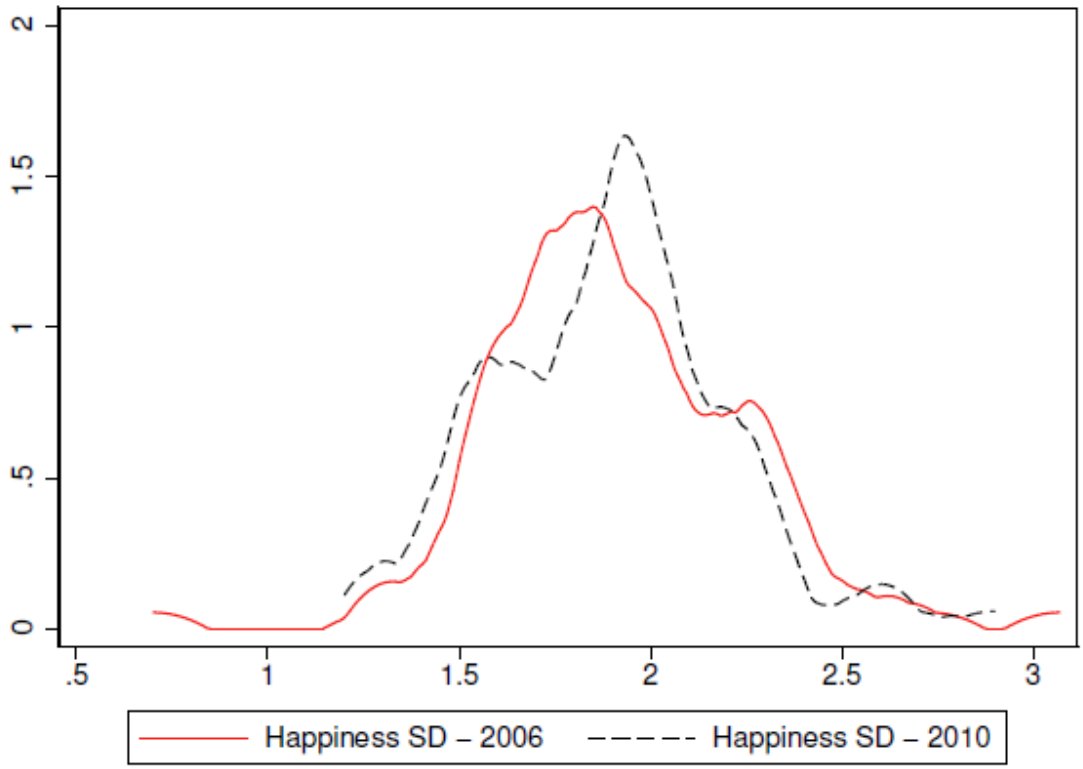
Table 2: Stability over the GFC.

	6	
Variable	**Pre**	**Post**
ln GDP $_j$	2.37***	1.61***
	(0.46)	(0.42)
ln GDP $_i$	−0.57***	−0.64***
	(0.19)	(0.19)
ln Distance $_{ij}$	−0.93***	−0.92***
	(0.07)	(0.07)
Border $_{ij}$	−0.41	−0.26
	(0.32)	(0.25)
Language $_{ij}$	1.18***	1.08***
	(0.18)	(0.16)
Colony $_{ij}$	0.70***	0.80***
	(0.22)	(0.23)
Happy $_j$	0.45***	0.26***
	(0.06)	(0.06)
Happy $_i$	0.003	−0.08***
	(0.03)	(0.02)
Happy SD $_j$	0.58***	0.14**
	(0.10)	(0.06)
Happy SD $_i$	0.05	
	(0.06)	
Obs.	7085	
R^2_{adj}	0.79	

Note: Dependent variable: log migration flow. Standard errors are clustered at the country-pair level and shown in parenthesis. The regression uses year, destination, and origin country fixed effects. Constant not shown. Significance levels: ***: p < 0. 01, **: p < 0. 05, *: p < 0. 10.

Estimates for the effects of migration costs are all fairly stable over the GFC. However, we find that the GFC did have an effect on the relationship between happiness and migration. Figure 4 shows the shift in the distribution of the standard deviation of happiness at origin before (red line) and after (black, dashed line) the GFC. We observe a drop in mean (from 1.91 to 1.89) and standard deviation (from 0.33 to 0.31), but a large increase in skewness (from 0.18 to 0.37). This supports the claim that heterogeneity in circumstances at origin countries increased over the GFC.

Figure 4: Kernel density estimates for the standard deviation of happiness at origin before (2006) and after (2010) the GFC.



Our regression results indicate that this shift in the distribution of happiness had an effect on the migration decision. We find that while the mean and standard deviation of happiness at origin were insignificant before the GFC, both had a positive, significant effect after the GFC. Post-GFC, a ten percent increase in happiness at origin reduces migration flows by 9.5 percent. The pull effect of happiness at destination is significant in both periods but is reduced after the GFC. While pre-GFC the coefficient is 0.45, post-GFC we find a value of 0.26. For a ten percent increase in happiness at destination, this implies a drop from 57 percent to 30 percent.

It appears that the GFC increased the heterogeneity in circumstances at origin countries and that this had a positive effect on the migration decision. A ten percent increase in the standard deviation of happiness at origin increases migration flows by 18.5 percent. In contrast, the standard deviation of happiness at destination, which is a measure of the heterogeneity in opportunities, becomes less important in the migration decision (0.58 to 0.14).

A similar pattern emerges for income with income at destination becoming less important for the migration decision post-GFC. Potential migrants seem to shift weight from income at destination to income at origin in their decision process. The results may be seen as evidence that, following the financial crisis, potential migrants increase their focus on the disparity of

experiences in their own country of residence. Again, therefore, even when we divide our sample into pre- and post-GFC, we find that the mean and standard deviation of happiness have additional explanatory power for the migration decision that is over and above the effects on migration of incomes and of migration costs.

5 Conclusion

Many prior studies of international migration such as Borjas (1987) have emphasized the role of relative incomes in destination and origin countries as one determinant of bilateral migration flows. In addition, a range of migration costs has been shown previously to have an important impact on migration. However, in the language of Chen and Rosenthal (2008) people may move not just for `jobs' but also for `fun'. It is this latter element that we incorporate in our panel model of bilateral migration flows between 102 origin countries and 14 destination countries for the period 2006 to 2013.

Our findings substantiate prior findings that both origin and destination incomes (i.e. `jobs'), as well as moving costs, have an important effect on migration flows. However we show that `fun' matters too. Migrants from a relatively unhappy country are more likely to emigrate and to choose to locate in a happy country, where happiness here reflects the mean level of life satisfaction in a country.

Furthermore, we show that it is not just the mean level of happiness that matters; the standard deviations of happiness in both origin and destination countries are also important determinants of the degree of migration between countries. The positive migration effect of the higher standard deviation of happiness in the origin country may reflect either the greater incentive for relatively unhappy people there to emigrate or it may reflect a frustrated achievers effect of the relatively happy people in that country. For instance, those at the upper quartile of the happiness distribution may be envious of those right at the top of the distribution, with this degree of envy increasing as the distribution of happiness widens. The positive migration effect of the higher standard deviation of happiness in the destination country may reflect a self-selection into a country that is a `better fit' for the preferences of the migrant or it may reflect an optimism bias in which migrants expect to reach the upper echelons of happiness in the chosen country.

Migration is a revealed preference choice, so our results indicate that migrants (and prospective migrants) value both `jobs' and `fun'. Our findings therefore have significance for the types of public policies that governments may wish to promote. Consistent with the report by Stiglitz et al. (2009), governments should emphasize more than just material economic success since people -- through their location decisions -- are shown to value non-material factors in addition to material goods and services. We cannot answer what is the optimal trade-off

between boosting GDP per capita and boosting the mean level of residents' happiness; however we can conclude that the weight on each factor should not be zero.

By contrast, our results for the migration impacts of inequality in happiness are more nuanced. Higher happiness inequality in a country appears to boost both emigration and immigration. However, we caveat this interpretation by noting that our origin countries are much poorer, on average, than our destination countries, so the estimated effects may reflect this differing balance of the two country groups.

Our results are broadly stable across the global financial crisis both in terms of the signs and significance of our income and happiness variables. The only exceptions (amongst the twelve relevant coefficients) are that the mean and standard deviation of origin country happiness are not significantly different from zero prior to the crisis, but are significant following the crisis.

At a methodological level, the significance of the happiness variables in our modelling indicates that surveyed measures of life satisfaction possess real content that is of use for economic analysis. Overall, our results show the importance of including non-material factors as determinants of international migration flows when identifying the major forces that lead individuals to take the costly decision to relocate to another country.

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Appendix

Table 3: List of all countries in our sample, destination countries in italics.

Afghanistan	Cambodia	*Finland*	Japan	Morocco	Senegal	*USA*
Albania	Cameroon	France	Jordan	Nepal	Serbia	Uruguay
Angola	*Canada*	Georgia	Kazakhstan	*Netherlands*	Sierra Leone	Uzbekistan
Argentina	Chad	*Germany*	Kenya	*New Zealand*	Singapore	Venezuela
Armenia	Chile	Ghana	Kuwait	Niger	Slovakia	Zambia
Australia	China	Greece	Kyrgyzstan	Nigeria	South Africa	Zimbabwe
Austria	Colombia	Guatemala	Latvia	Pakistan	*Spain*	
Azerbaijan	Costa Rica	Honduras	Lebanon	Panama	Sri Lanka	
Belarus	Croatia	Hungary	Lithuania	Paraguay	*Sweden*	
Belgium	Czech Republic	India	Macedonia	Peru	Tajikistan	
Bolivia	*Denmark*	Indonesia	Malawi	Philippines	Tanzania	
Bosnia and Herz.	Dominican Rep.	Iran	Malaysia	Poland	Thailand	
Botswana	Ecuador	Iraq	Mali	Portugal	Turkey	
Brazil	Egypt	Ireland	Mauritania	Romania	Uganda	
Bulgaria	El Salvador	Israel	Mexico	Rwanda	Ukraine	
Burkina Faso	Estonia	*Italy*	Moldova	Saudi Arabia	*United Kingdom*	

Table 4: Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ln Migration	9650	5.57	2.33	0	12.51
ln Distance	11312	8.52	0.99	4.09	9.88
Border	11424	0.02	0.14	0	1
Language	11424	0.12	0.33	0	1
Colony	11424	0.07	0.26	0	1
ln GDP $_j$	11424	10.60	0.12	10.35	10.84
ln GDP $_i$	11424	9.25	1.11	6.66	11.47
Happy $_j$	10710	7.15	0.44	5.83	8.01
Happy $_i$	10724	5.51	1.12	2.99	8.01
Happy SD $_j$	9078	1.71	0.21	1.02	2.20
Happy SD $_i$	9114	1.92	0.40	0.70	3.12

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