The role of health(care) as a driver for migration aspirations and realizations in Africa: An empirical analysis[*]

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Abstract

This study empirically examines how African migration aspirations can be explained on the basis of poor health and dissatisfaction with local healthcare. Deploying unique individual-level data, I track the drivers to internal and international migration aspirations, and their materialisation across 47 African countries between 2008-2015 (210,551 respondents). Dissatisfaction with local healthcare forms a strong and highly robust determinant of migration aspirations in Africa; however, there is no systematic additional impact on subsequent migration behaviour. Migration aspirations and their materialisation vary with individuals' health status. Health problems drive people's aspirations to move in the short run, but reduce aspirations to migrate permanently abroad. Yet, among those aspiring to go abroad, respondents with poor health are more likely to start preparing for their move (i.e. purchased a ticket, applied for a visa). No consistent relationship between poor health and migration aspirations, however, is uncovered across Africa, and varies with individual (gender, education, living area) and country characteristics.

Keywords: Africa, Self-reported Health, Healthcare, Migration Aspirations, Migration Decisions, Internal Migration, International Migration
JEL: F22, O15, R23, I14, I15

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1   Introduction

Human health is an imminent driver of development and economic progress, and has frequently been pointed out to play a role in driving migration. For instance, in the Global Compact for Migration and its preparation phases, a lack of access to health, as a fundamental human right, is believed to be an adverse driver that compel some people to migrate (see Issue Brief Themathic Session 2, 2017; UN Resolution, 2018). Yet, empirical evidence on the possible impact of health and healthcare influencing the decision to migrate is limited, in contrast to numerous other drivers of migration (aspirations). This study analyses the role of health status and local healthcare in shaping and realising migration aspirations in Africa.

It is reasonable to presume that health and healthcare may be important in spurring migration behaviour in many countries. However, it remains an open question how health and access to healthcare can act as an additional driver of both internal and international migration as there is insufficient empirical justification, and the expected direction of the impact of health on migration is ambiguous. On the one hand, experiencing health problems may act as the push factor encouraging sick' individuals to leave their home country or area where they live, either to access improved healthcare (Abubakar et al., 2018b; Crush and Chikanda, 2015; Beladi et al., 2015; Crush and Chikanda, 2015) or in search of a better life in general (Awumbila, 2017). On the other hand, health problems may prevent the individual from migrating or even aspiring to migrate.

To address this gap, this study aims to improve understanding on how health and healthcare influence migration aspirations in Africa using unique cross-country comparable data. More specifically, this study empirically investigates the importance of self-reported poor health and dissatisfaction with local healthcare on the formation and materialisation of migration aspirations across 47 African countries between 2008-2015. To this end, I rely on a unique micro-level database, namely the Gallup World Polls (GWP), which provide internationally comparable information on respondents' aspirations and arrangements to migrate, and a whole range of individual and household characteristics and opinions, including pre-migration health status and satisfaction with healthcare. Information available on both migration aspirations and subsequent materialisation reveals the role of self-selection and out-selection health(care)-related factors. There is value in adopting a two-step approach' when studying migration, that is, giving value to both migration aspirations and actual migration or abilities (see among others Docquier et al., 2014a; Ruyssen and Salomone, 2018; Carling and Schewel, 2018). The use of migration aspirations allows to neutralise the role of out-selection factors and to better identify the effect of self-selection factors (see Beine et al., 2020).

Africa is particularly an interesting case to examine the role of health(care) for migration (aspirations) because the continent continues to carry the highest burden of disease worldwide, as health systems are weak and resources are constrained (WHO-AFRO, 2014). A widely cited statistic adequately reflects the African situation: "The African continent has 25 percent of the global disease burden, but only 3 percent of the world's health workers and less than 1 percent of the world's health expenditure" (see e.g. Mash et al., 2018). Given the richness of the dataset on which this study rests, it contributes significantly to African migration research, which is typically weighed down by a lack of reliable official data (Flahaux and De Haas, 2016). Furthermore, its focus on both internal and international migration aspirations is quite unique and interesting, given that the bulk of African migration takes place within the African continent (Awumbila, 2017).

Dissatisfaction with local healthcare in Africa forms a strong and highly robust determinant of migration aspirations, but there is no systematic additional impact on subsequent migration behaviour. Migration aspirations and their realisation, however, vary with the individual's health status: poor health drives people to migrate from their current place of residence in the short run, but it also reduces the aspiration to migrate permanently abroad. Among those aspiring to migrate abroad, however, people with poor health are more likely to achieve these aspirations by preparing for their move (i.e. purchasing a ticket or applying for a visa). Results, however, vary at both the extensive (significance) and intensive (sign and magnitude) margins, depending on individual and country characteristics.

The rest of the paper is structured as follows: Section 2 describes an overview of the related literature. Section 3 describes the different data sources used in the empirical analysis and provides the relevant descriptive statistics. Section 4 describes the econometric model. Section 5 presents the main results of the benchmark model of this study and additional results from robustness checks. Finally, Section 6 concludes the study.

2 Related literature

A growing body of literature has examined the driving forces underlying actual migration (see e.g. Beine et al., 2016; Beine and Parsons, 2015; Ruyssen and Rayp, 2014; Bertoli and Moraga, 2013; Ortega and Peri, 2013; Beine et al., 2011; Grogger and Hanson, 2011; Mayda, 2010), and recently greater attention is given to the drivers of migration aspirations (see e.g. Carling and Collins, 2018; Carling and Schewel, 2018; Docquier et al., 2015, 2014a). Investigating migration aspirations yields merit in itself, as it provides better understanding on global migration patterns (Beine et al., 2020; Docquier et al., 2014a). Moreover, a growing number of studies, in particular,

have used the Gallup World Polls data to investigate such migration aspirations worldwide, emphasising the importance of factors such as wealth (Dustmann and Okatenko, 2014), networks (Bertoli and Ruyssen, 2018; Manchin and Orazbayev, 2018), gender discrimination (Ruyssen and Salomone, 2018), cultural traits (Docquier et al., 2020), weather shocks (Bertoli et al., 2021) and environmental stress (Bekaert et al., 2021). Nonetheless, not much is known about the role of health and local healthcare in explaining the development and materialisation of migration aspirations[1].

This study is also related to the literature on immigrant selection, with studies typically showing that migrants are positively selected on health relative to those who stay behind in the origin country i.e. the widely-cited 'healthy immigrant effect' (see e.g. Constant and Milewski, 2021; Bansak et al., 2020; Ichou and Wallace, 2019; Kennedy et al., 2015; Chiswick et al., 2008). A potential explanation proposed, among others[2], is the role of migrant self-selection. Migrants tend to be not randomly selected from the origin country population but rather positively self-selected in terms of their health status, alongside education or income levels [3], closely following the rationale of the human capital model (Van Dalen and Henkens, 2013). This implies that only the healthiest and most motivated individuals have the financial and physical means to bear the high investment costs involved in migration (Kennedy et al., 2015; Constant et al., 2018; Ichou and Wallace, 2019; Van Dalen and Henkens, 2013).

Some studies do, however, contrast the widely cited healthy immigrant phenomenon, such as Kaestner and Malamud (2014) and Rubalcava et al. (2008), finding little or weak evidence of self-selection on the health of Mexican migrants to the United States (US). As indicated above, the role of health in forming aspirations to migrate abroad is not clear a priori. On the one hand, poor health may create the aspiration to migrate, however, on the other hand, it can also be an obstacle in realising this aspiration.

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[1]While the literature on health and healthcare as a driver of migration is limited, there is far more extensive literature on the impact of migration on health (see e.g. Atella et al., 2019; Abubakar et al., 2018a; Wickramage et al., 2018; Schwerdtle et al., 2018; Gibson et al., 2013; Gushulak and MacPherson, 2011; Stillman et al., 2009; Ibáñez et al., 2021; Docquier et al., 2014b; Chikanda, 2006; Uprety, 2019).

[2]Other reasons are cited in the literature explaining the 'healthy immigrant effect' (Constant et al., 2018; Kennedy et al., 2015).

[3]Other studies focussing on immigrant selection mostly focus on other immigrants' socioeconomic characteristics such as level of education and income or wealth (Bansak et al., 2020; Nakosteen and Zimmer, 1980). Typically, such studies find migrants to be positively selected based on their education level compared to non-migrants, and migrants tend to be wealthier to endure the higher costs of migration. Health is generally positively correlated with both education and income, which in turn makes it reasonable to presume that immigrants are healthier than non-migrants in the origin country (Bansak et al., 2020; Kennedy et al., 2015; Ichou and Wallace, 2019; Logan, 2009).

A limitation of most studies analysing this healthy immigrant effect is that they do not directly measure migrant self-selection on health. More specifically, those studies often rely on measures of migrants' health collected in the host country. Hence, such studies rely on realised or observed migration behaviour. Therefore, any analysis of migrant self-selection on the basis of observed migration may be clouded by out-selection factors, namely external factors such as immigration policy restrictions that may deter the movement of prospective migrants (Beine et al., 2020; Constant et al., 2018). While an individual with poor health may aspire to move, poor health may prevent aspiring migrants from realising their aspiration (Van Dalen and Henkens, 2013). For example, they may not be able to migrate due to policy restrictions, as some policies may require a good health status to obtain a visa, constraining individuals with poor health from migrating abroad (Kennedy et al., 2015; Wickramage and Mosca, 2014)[4]. A study by De Castro et al. (2015), examining pre-migration health among Filipino nurses intending to migrate, reports even worse mental health status and no physical health advantage. Also Manchin and Orazbayev (2018) finds poor health leading to a higher probability of internal and international migration plans, while assessing the effect of networks.

Current research on the healthy migrant effect is dominated by studies in Australia, Europe, and the US (Constant and Milewski, 2021; Morey et al., 2020; Ichou and Wallace, 2019; Constant et al., 2018; Kennedy et al., 2015; Van Dalen and Henkens, 2013; Chiswick et al., 2008). Even if those studies greatly improved understanding of the healthy migrant phenomenon, they are typically country-specific and difficult to generalise to the African situation. By relying on cross-country comparable data on pre-migration health, the impact of self-selection factors (shaping migration aspirations) can be disentangled from that of out-selection factors (shaping the materialisation of those aspirations) in the African context.

One strand of migration literature in which health status and access to healthcare receive greater attention concerns return migration (aspirations). Focussing on Denmark, Handlos et al. (2018) zooms into the role of health as a determinant of return migration. They find younger migrants (<55 years of age) are less inclined to return-migrate when ill compared with healthy migrants, whereas older migrants (>55 years of age) are more inclined to return when ill. This is consistent with the frequently cited (but challenged) so-called 'salmon bias' hypothesis that describes the desire of less healthy immigrants to return home. In contrast, high-quality access to good healthcare in the host country may be a reason to stay in the host destination during old age (Kristiansen et al., 2015). However, failure to receive treatment in the host country is

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[4]Moreover, both Morey et al. (2020) and Chiswick et al. (2008) detect even a heterogeneity in migrant health selection across immigrant visa types in the US and Australia, respectively, highlighting a difference in health status between refugees, economic migration, and family reunification.

one among the other motives for Armenian and Georgian migrants in Belgium to return home (Lietaert, 2016). Buchenrieder et al. (2017) finds displaced households in Cameroon with a better overall health situation to be more likely to return as compared to those with greater health risks.

Studies specifically analysing the role of satisfaction with local healthcare on migration are limited. An exception closely related to this study is Dustmann and Okatenko (2014) analysing the influence of satisfaction with local amenities in determining migration aspirations. The authors do not separate out the role of health care but find a strong negative impact of satisfaction with local public services on migration aspirations. Moreover, the effect is particularly strong for migration aspirations in sub-Saharan Africa. Manchin and Orazbayev (2018) confirm this finding but notes a larger impact on internal migration aspirations. The specific influence of healthcare on migration aspirations, however, cannot be assessed due to the nature of their measure of public services or amenities[5].

The literature does provide specific evidence of the impact of (publicly provided) healthcare on population mobility. Mahé (2020), for example, provide causal evidence that publicly provided free healthcare raises internal migration in Mexico, but only for men. Shi (2020) find reversed evidence in China, with the results suggesting that the 2003 new health insurance scheme for the rural population hampers internal rural-urban job mobility in China. Moreover, Dorfman and Mandich (2016) find different measures of access to healthcare such as hospital expenditures, hospital beds, and number of physicians positively associated with later-life migration decisions of seniors. Barham and Kuhn (2014) examine a quasi-random placement of a health and family planning program in rural Bangladesh between 1979-91 and find migration to be approximately 15 percent lower, with a larger impact (19-21 percent) on domestic migration and statistically no significant effect on international migration. This literature, however, is case-specific and difficult to generalise to the African situation.

This study explicitly examines the role of health and healthcare as potential drivers of migration aspirations and their realisation in actual migration. Several attempts have been made to understand to what extent migration aspirations relate to data on actual migration. Docquier et al. (2014a) show that potential emigration rates affect actual ones, with a stronger impact on educated individuals. Also Ruyssen and Salomone (2018) find a positive although fairly small

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[5]Van Dalen and Henkens (2013) considers individual assessment of the public sphere while analysing migration aspirations of native-born citizens in the Netherlands. They include an evaluation of the welfare state institutions, including the evaluation of the Dutch healthcare system. The same limitation arises here, as the authors use a combined measure of welfare state institutions making it difficult to assess the specific influence of the healthcare system.

correlation between potential and actual migration. The authors remark that this small correlation is not surprising given that the translation of aspirations into actual migration may be impeded by several individual circumstances such as finances, obligations towards family, health, and migration regulations. Furthermore, actual migration figures do not keep track of undocumented migration, which may contribute to the underestimation of the size of actual migration figures (Mbaye, 2014; Ruyssen and Salomone, 2018). Thus, analysing migration aspirations yields interesting insights into future migration dynamics.

3 Data and Descriptives

The individual-level data of interest are obtained from the Gallup World Poll (henceforth GWP) surveys. Since 2005, the GWP's have been registering individual and household characteristics of respondents worldwide together with their opinion on a wide variety of topics. Although the GWP covers over 150 countries worldwide, this study focuses on 47 African countries where at least one wave of the GWP survey was conducted between 2008 and 2015[6]. On average, a typical GWP survey interviews 1000 randomly selected individuals within each country. The data in Africa are collected through face-to-face interviews of approximately one hour. The sampling frame represents the entire civilian, non-institutionalized population aged 15 years and older covering the entire country including rural areas. This excludes areas where the safety of the interviewing staff is threatened, scarcely populated islands, and areas that interviewers can reach only by foot, animals, or a small boat (Gallup, 2016). For a full description of the methodology and codebook, see Gallup (2016). The final sample contains 210,551 individuals with valid information on all the variables of interest used in the model, interviewed in 47 African countries between 2008-2015[7]. By 2015, the 47 African countries represented about 99.5 percent of the African population. In the next sections, I explain in detail how the variables of interest have been constructed.

3.1 Migration aspirations and their materialisation

The GWP include two relevant questions capturing migration aspirations and one capturing more concrete materialisation: (Q1) 'In the next 12 months, are you likely or unlikely to move away from the city or area where you live?'; (Q2) 'Ideally, if you had the opportunity, would you like to move permanently to another country, or would you prefer to continue living in this

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[6]The sample of African countries excludes Cabo Verde, Equatorial Guinea, Eritrea, Gambia, Guinea-Bissau, Sao Tome and Principe and Seychelles.

[7]Appendix Table A.1 provides detailed information on the number of surveys for each country and year.

country?', and (Q3b) 'Have you done any preparation for this move (for example, applied for residency or visa, purchased a ticket, etc.)?'. The latter question is asked only to individuals replying positively to question (Q2) and an intermediate question (Q3a) 'Are you planning to move permanently to another country in the next 12 months, or not?'. Question (Q3a) is, however, not directly considered in the empirical analysis as a positive reply cannot separate vague ambitions from actual plans (Ruyssen and Salomone, 2018)[8]. The use of (Q3) reduces the sample to covering only the years 2010-2015.

The two questions capturing aspirations differ with respect to three dimensions; namely aspired destination, time horizon, and length of the stay. First, question (Q1) does not restrict the aspiration to move to a certain destination, capturing both internal and international migration aspirations; while question (Q2) only focuses on international migration aspirations. Second, question (Q1) incorporates both temporary and permanent moves, while question (Q2) limits the answer to only permanent moves. Third, question (Q1) further posits a short time frame for the aspiration (i.e. during the next 12 months), while question (Q2) does not specify such a time horizon. Moreover, question (Q2) captures aspirations to migrate permanently abroad which are somewhat stricter than mere migration considerations typically documented in other surveys (e.g. Creighton, 2013; Dustmann and Okatenko, 2014) since they use a stronger formulation that directly asks for the likely response under ideal conditions (see Manchin and Orazbayev, 2018). Question (Q3), put to aspiring international migrants only, also adds a short time horizon, that is, within the next 12 months, which allows to define any short-term realisation of those aspirations to migrate internationally.

On average, 25.6 percent is likely to migrate from their current place of residence in the short run. Moreover, on average 29 percent aspires to migrate permanently abroad. Of them, around 6.0 percent has already made short-term preparations to do so (see Table A.4). Figure 1 provides a visual representation of the aggregate shares. Panel A shows the shares of those aspiring to migrate during the next 12 months; with the highest shares in Western African countries. Percentages reach as high as 43 percent in Liberia and 40.3 percent in Sierra Leone, declining to as low as 11 percent in Madagascar and Mauritius. Aspirations to migrate internationally vary from 12.8 percent in Madagascar to 59 percent in Sierra Leone. The aggregate shares for those preparing for their international move within the year appear exceptionally large in Northern Africa. Somalia, Libya and Sudan record the highest shares (above 12 percent) for concrete materialisation of one's migration aspiration.

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[8]I construct (Q3), which is a combination of question (Q3a) and (Q3b); taking the value one with a positive reply on question (Q3b), while taking the value zero with a negative reply either on (Q3a) or (Q3b).

Figure 1: Aggregate migration aspirations and their materialisation, by country

Notes: The figure reports, for each African country in the sample, the aggregate share of respondents aspiring to migrate in the short run (panel A), aspiring to migrate internationally (panel B) and the share of subsequent materialisations in the short run (panel C). Dark colours are associated with a higher share of individuals in a country, while light colours denote lower shares. Source: Author's elaboration on Gallup World Polls.

3.2 Poor health and dissatisfaction with local healthcare

The most comprehensive question on the assessment of an individual's personal health reads (Q4) 'Do you have any health problems that prevent you from doing any of the things people your age normally can do?'. The health variable is coded as a binary variable taking the value one if the individual has any health problems and zero otherwise. On average, 24 percent of the respondents state having health problems (see Table A.4), which decreases slightly to 20 percent when the sample is reduced to those aspiring to migrate internationally. As for healthcare, the GWP contains the following question (Q5) 'In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare?', coded as a binary variable taking the value one being dissatisfied and zero otherwise. On average, 60 percent of the respondents are dissatisfied with the local healthcare. This increases to 65 percent when the sample is reduced to those aspiring to migrate internationally.

Figure 2 illustrates the geographical distribution of the share of respondents with poor health and/or being dissatisfied with local healthcare (both averaged over the sample period). The degree of self-reported poor health varies between 14.6 percent and 43.5 percent (panel A). Africa's worst performing countries are South Sudan (43.5 percent) and Lesotho (38.3 percent). Individuals indicate having the least health problems in Nigeria (14.6 percent). The aggregated share of dissatisfaction with local healthcare varies between 22.1 percent and 79.6 percent (panel B). Many of Africa's worst performing countries are located in Western and Central Africa. For instance, individuals indicate to have the highest shares of dissatisfaction with local healthcare in Comoros (79.6 percent), Central African Republic (79.5 percent), and South Sudan (78.1 percent). The best performing countries with the lowest share of dissatisfaction are respectively Mauritius (22.1 percent), and Rwanda (28.6 percent), and countries located in Southern Africa (all between 40-50 percent).

3.3 Other individual and household characteristics

I also consider other individual and household characteristics from the GWP that could have an impact on migration behaviour. The analysis monitors the respondent's age group (i.e. aged 15-

Figure 2: Aggregate health problems and dissatisfaction with healthcare by country

Notes: The figure reports, for each African country in the sample, the aggregate share of respondents with health problems (panel A) and dissatisfied with local healthcare (panel B). Dark colours are associated with a higher share of individuals in a country, while light colours denote lower shares. Source: Author's elaboration on Gallup World Polls.

19 years, aged 20-29 years, aged 30-39 years, aged 40-49 years, aged 50-64 years and aged 65+), level of education (completed secondary education and/or obtained a college degree or not), number of children (under 15 years of age), and adults currently living in the household, whether the respondent lives in a large city or a suburb of a large city, and an indicator of having a network of relatives or friends abroad who can provide help when needed[9]. I also incorporate a measure of basic wealth following Dustmann and Okatenko (2014), as it has been shown that the impact of such a measure affects migration aspirations in sub-Saharan African countries[10]. For reasons of model identification (see the empirical framework section), a daily experience index is controlled for when assessing aspirations to migrate. This index is a composite measure of a respondent's experienced well-being on the day before the survey (both positive and negative experiences). For further details on these variables, see Appendix A and the Gallup Methodological Codebook (Gallup, 2016).

3.4 Descriptive statistics

Appendix Table A.4 presents descriptive statistics of the main variables of interest and other controls for respondents, respectively, replying to the questions on migration aspirations and preparations. Note that both questions on aspirations, that is, within 12 months and aspirations to permanently move abroad, deliver very similar descriptive statistics. About 49 percent of individuals in the sample are female, only 27 percent lives in an urban area, 48 percent has higher education (completed secondary education and/or obtained a college degree), and on average respondents have 2.4 children living in the household. Aspiring migrants are remarkably younger, male, live in urban areas, and have higher education beyond secondary education. When

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[9]I also controlled for the log of household income per capita, but this measure does not influence the aspiration to move, whereas it significantly reduces the number of observations. Furthermore, a self-reported measure of income can be affected by a substantial measurement error, making the case why I choose not to include this measure in the analysis.

[10]See Appendix A for the construction of this indicator based on a principal component analysis. The final selection of indicators included in the basic wealth index was dependent on the availability and number of observations in the estimation sample. The basic wealth indicator is rescaled to lie between 0 and 1.

reducing the sample to only individuals preparing to migrate, a greater percentage have a family member or friend abroad (respectively rising from 36 percent to 47 percent).

Table A.3 in Appendix reports the pairwise correlations between health problems and dissatisfaction healthcare with other individual and household characteristics. As expected, we see ill-health positively correlated with age with the correlation standing at 0.27. Health problems appear negatively correlated with basic wealth (-0.13), higher education (-0.15), and with the daily experience index (-0.20), all at the 1 percent significance level. None of the pairwise correlations appear particular worrisome, as all correlations remain below 0.3. Running the ViF after a simple regression, with the variables of interest and controls, the shows values close to 1 indicating there is no correlation between a given explanatory variable and any other explanatory variables in the model.

4   Empirical framework

This section describes the empirical framework used to analyse the impact of health and healthcare alongside traditional controls on migration behaviour. Following the theory, the decision to migrate originates from the comparison between expected utility levels across different alternative locations. Specifically, for individual i living in location j at year t, the variable $Aspiration_{ijt}$ takes the value one if the corresponding utility for migrating out of location j is greater than zero, while it takes the value zero otherwise.

$$Aspiration_{ijt} = 1(\alpha_1 + \beta_1 health_{ijt} + \gamma_1 healthcare_{ijt} + \delta_1 z_{ijt} + \eta_{1,j} + \eta_{1,t} + \varepsilon_{1,ijt} > 0) \quad (1)$$

More specifically, $health_{ijt} + healthcare_{ijt} + z_{ijt}$ in equation 1 represent the deterministic component of utility, with $health_{ijt}$ and $healthcare_{ijt}$, respectively, depicting dummies capturing whether or not an individual i in location j at time t reports health problems and/or is dissatisfied with local healthcare β_1 and γ_1 are the parameters of interest to be estimated. In addition, δ_1 is the vector of incidence parameters related to the individual's controls, with z_{ijt} denoting the set of individual and household controls that may influence utility and migration costs, which routinely have been shown to impact the individual's decision to migrate. Specifically, the term includes dummies for different age groups (with 15 to 19 being the omitted category), a dummy for being female, whether or not the individual completed secondary or higher education, lives in an urban environment, and has any friends or relatives living abroad whom they can depend on. I also control for the household size and a basic wealth index. For later issues with model

identification (explained below), z_{ijt} is a superset of x_{ijt} to which an index of daily experience dex_{ijt} is added, that is, $z_{ijt} = \{x_{ijt}, dex_{ijt}\}$. Finally, η_j and η_t are the country and year fixed effects, respectively, and ϵ_{ijt} represents the stochastic component; capturing unobserved random individual heterogeneity. In this model, aspirations to migrate are either captured by Q1 or Q2, as described in Section 3.1. The model is estimated using a probit model for each measure of migration aspirations, with both country and time fixed effects, whereas the error terms are clustered at the level of the country of origin.

Subsequently, focussing on the materialisation of those migration aspirations, the dependent variable is defined as $Materialisation_{ijt}$, which identifies whether individual i has started taking concrete steps for moving abroad, corresponding to the value one and zero otherwise. Interestingly, when assuming $\varepsilon_{ijt} \sim N(0, 1)$, the empirical specification can be written as a binary choice model with sample selection (see Ruyssen and Salomone, 2018). Hereby, individuals first establish an aspiration to migrate permanently abroad if they have the opportunity (answering affirmative to Q2); next, if they developed such an aspiration to move abroad, whether they are actually materialising this aspiration to migrate abroad during the next 12 months (e.g. applied for residency or visa, purchased a ticket, etc.). In this regard, equation 1 denotes the selection equation, whereas the outcome equation takes the form of:

$$Materialisation_{ijt} = 1(\alpha_2 + \beta_2 health_{ijt} + \gamma_2 healthcare_{ijt} + \delta_2 x_{ijt} + \eta_{2,j} + \eta_{2,t} + \varepsilon_{2,ijt} > 0) \quad (2)$$

The probability to materialise a migration aspiration is thus conditional to having expressed an aspiration to migrate permanently abroad, that is, $Materialisation_{ijt}$ is only identified if $Aspiration_{ijt} = 1$. This implies that the sample in equation 2 is not selected at random, such that $\rho = Corr(\varepsilon_{1,ijt}; \varepsilon_{2,ijt}) \neq 0$, and the standard probit estimates of equation 2 will be biased. To address this, the sample selection model is estimated using a Heckman probit approach with country and year fixed effects. This approach allows for consistent, asymptotically efficient estimates for all the parameters in binary choice models with sample selection (Van de Ven and Van Praag, 1981; Wooldridge, 2010)[11].

However, to allow for a well identified model, an exclusion restriction is required in one of the two equations. Specifically, if migration aspirations and materialisations are determined by

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[11]As correctly remarked by Ruyssen and Salomone (2018), the coefficients and standard errors may, however, be biased due to the incidental parameter issue typically experienced with fixed effects probit models. In response to this concern, I estimate my model with country of origin dummies based on a sufficiently large number of observations per country of origin. Specifically, the average number of observations per origin country is 3,795 for migration aspirations and 1,089 for materialisations, circumventing this incidental parameter problem.

the same set of explanatory variables, the model would only be identified by functional form and the coefficients would have no structural interpretation (see Ruyssen and Salomone, 2018; Maddala, 1986). Consistent with Ruyssen and Salomone (2018), I, therefore, add an index of daily experienced well-being (dex_{ij}), measuring the way people feel about their daily experience in real-time, to the set of explanatory variables in the selection equation (1), whereas I do not control for this in the outcome equation. In contrast to evaluative well-being where people remember their experiences with hindsight, experienced well-being seeks to bypass the impact of judgement and memory, and captures feelings and emotions as close as possible to the individuals' immediate experience (Gallup, 2016; Kahneman et al., 1999). This experienced well-being the day before the survey may affect the individual's aspiration to migrate. However, given the short time frame, it is less likely that yesterday's experiences have made one to start preparing concretely for the move. To test the validity of the exclusion restriction, both the selection and outcome equations are separately estimated (adding the daily experience index) using a simple probit estimator with origin dummies. Reassuringly, the results reported in Appendix Table A.5 confirm that the daily experience index has a significant impact only on migration aspirations, but not on the materialisation of those aspirations.

5 Results

This section describes the results of the probit model focussing on migration aspirations first, followed by those of a Heckman probit model to jointly estimate aspirations and their materialisation. Each specification includes country of origin fixed effects to control for common unobserved shocks affecting all the inhabitants in the same way, and year fixed effects[12]. Standard errors are robust to heteroskedasticity and are clustered across origins. Throughout the study, I report average marginal effects.

5.1 Benchmark

Table 1 presents the probit estimates for the impact of poor health and dissatisfaction with local healthcare and traditional controls on (i) aspirations to migrate away from the current place of residence in the short run (columns 1 and 2), (ii) aspirations to migrate permanently abroad if

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[12]Results remain robust when augmenting the set of control variables with country-year fixed effects and when adding regional fixed effects (see Appendix Table A.6). Adding this more demanding fixed effect structure, however, reduces the number of observations.

one had the opportunity (columns 3-4)[13], (iii) the Heckmann probit estimates of aspirations to migrate permanently abroad (selection equation, columns 5-6) and (iv) the materialisation of the latter, that is, having made any preparations to move abroad conditional on having aspirations to migrate abroad, capturing a more concrete materialisation of migration aspirations (outcome equation, columns 7-8). Note that the selection equation of the Heckman probit model (column 5 and 6) is estimated on a smaller sample compared with the probit estimations using the same dependent variable (columns 3 and 4). This loss of observations is due to including only observations (country-wave pairs) where the follow-up migration questions (Q3a) and (Q3b) were asked, dropping the years 2008 and 2009. Not controlling for this would lead to measurement errors in my estimations. Columns 1, 3, 5, and 7 report the estimated coefficients for the model including only personal characteristics usually included as controls in the literature.

Regarding these controls, migration aspirations (both internal and international) in Africa are always much higher for the younger generations, high-skilled men, living in an urban area, and having a network abroad. These findings are consistent with previous studies on migration aspirations using the GWP data (see e.g. Bertoli and Ruyssen, 2018; Ruyssen and Salomone, 2018; Manchin and Orazbayev, 2018). Aspirations to migrate in the short run are lower in households with more children, while international migration aspirations are greater when there are more adults living in the household. In Africa, migration aspirations are also lower among individuals who enjoy a higher level of basic wealth (i.e. having a television, internet, food, and an adequate shelter). A higher sense of experienced well-being the day before the interview makes the individual less likely to aspire to migrate (internally and internationally). Materialisations of international migration aspirations are also greater for high-skilled men in urban areas with a network abroad. However, among those aspiring to migrate abroad, somewhat older individuals (20-40 years) are more likely to materialise their aspiration. The number of children and adults living in the household do not particularly influence the likelihood of the international migration aspiration materialising. Apart from the number of children, the impact of the traditional controls are robust across different specifications. All of the controls are included in the following tables, however, for brevity, I will no no longer report their estimated coefficients.

Columns 2, 4, 6, and 8 in Table 1 present the benchmark results, introducing self-reported health problems and dissatisfaction with healthcare. Poor health is positively associated with aspirations to migrate in the short run (irrespective of the destination), while it is negatively associated with aspirations to migrate internationally. Yet, poor health positively affects the materialisation of aspirations to migrate internationally. More specifically, the average marginal

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[13]The results remain robust when restricting the sample to include only information available for both dependent variables capturing aspirations.

effect of health problems on migration aspirations in the short-run (abroad) is estimated at 1.2 (-1.3) percentage points: with health problems changing from 0 to 1, the predictive margin (i.e. the conditional probability of migration aspiration) increases from 25.3 to 26.6 percent (decreases from 29.2 to 28.0 percent). The evidence hence suggests that the proportion of individuals aspiring to migrate (abroad) is 1.2 percentage points higher (1.3 percent lower) for those who have health problems compared to those who indicate not to have any. Among those aspiring to migrate abroad, the proportion of individuals materialising this aspiration is 0.97 percentage points higher for those with health problems compared to those without. Dissatisfaction with local healthcare also clearly acts as an important incentive to aspire to migrate (i.e. both the aspiration to migrate in the short run and the aspiration to migrate abroad), but it does not additionally affect the subsequent materialisation of aspirations to migrate internationally. The average marginal effect of dissatisfaction with local healthcare on aspirations to migrate in the short run (aspire to migrate abroad) is estimated at 2.71 percentage points (3.65 percentage points), with the predictive margin increasing from 23.9 to 26.7 percent (26.7 to 30.4 percent). In what follows, I will no longer report the first step Heckman results due to the loss of observations and will show only the standard probit results obtained on the larger sample.

It is interesting to disentangle if this positive association of health problems with aspiration to move in the short-run a bit more and specifically look into domestic and international moves within 12 months. One is expected to be a domestic or internal migrant when the individual aspires to move away from the area in the next 12 months (Q1), while having no aspirations and/or plans to migrate abroad in the next 12 months (Q3a). The phrasing of question (Q1) is close to that of question (Q3a), as both questions consider similar time periods during which the move should take place ("in the next 12 months") and ask for a relatively firm intention to migrate (there is no reference to ideal conditions or opportunities). Yet, in order to be able to compare these two questions, some further assumptions need to be made (see also ??). Question (Q3a), just like question (Q3), asks for permanent migration plans only. This implies that for further comparisons, we need to assume that question (Q1) can be interpreted as asking about permanent moves too, which however does not seem implausible given the phrasing "likely to move away". It appears that question (Q1) mostly captures domestic migration in our final sample, with an average 62 percent aspiring to move away in the next year, but do not aspire to migrate abroad and/or have any plans to move abroad in the next year. Table A.7 in Appendix shows that health problems and dissatisfaction with local healthcare have a positive association with aspirations to move internally in the next 12 months. Likewise, I can perform the same analysis on aspirations to move away internationally. Appendix table A.7 shows no effect of ill-health on international moves in the next 12 months. The result of ill-health in the benchmark

Table 1 appears to be mostly driven by its association with domestic migration.

Furthermore, for those respondents replying positively to the question whether one has made any preparations for the move abroad (Q3b) there is a follow-up question on the destination an individual is preparing to move to within the next 12 months. This destination dimension allows me to run a multinomial logistic model capturing whether one hasn't made any preparations for their move (baseline; N=6,740), (i) made preparations to migrate within Africa (N=917), (ii) migrate outside the African region towards an OECD destination (N=1,656) and (iii) towards an non-OECD destination (N= 412). For sake of computation time, Table A.8 in Appendix report relative risk ratios of the multinomial logit estimates. Values greater than one indicate an increase in the likelihood of mobility, while coefficients smaller than one indicate that migration is less likely. Relative risk ratios have the advantage to control for this imbalance in migration preparations across the various destination categories. The results report a loss of the weakly but positive significant effect on ill-health on preparations, whereas dissatisfaction with healthcare has a negative association with preparations to migrate within Africa and non-OECD countries.

Table 1: Impact of health, healthcare and traditional controls on migration aspirations in Africa

	Aspirations to move away within 12 months		Aspirations to migrate internationally		Heckman Step 1: Aspirations		Heckman Step 2: Materialisation	
	(1) Controls	(2) Benchmark	(3) Controls	(4) Benchmark	(5) Controls	(6) Benchmark	(7) Controls	(8) Benchmark
Health problems		0.0116***		-0.0130***		-0.0143***		0.00975**
		(2.62)		(-2.59)		(-3.10)		(2.35)
Dissatisfaction Healthcare		0.0271***		0.0365***		0.0363***		-0.00490
		(7.80)		(9.77)		(9.34)		(-0.97)
Aged 20 to 29	0.00521	0.00462	-0.0504***	-0.0508***	-0.0518***	-0.0522***	0.0289**	0.0283**
	(1.11)	(0.98)	(-12.14)	(-12.04)	(-11.99)	(-11.93)	(2.39)	(2.34)
Aged 30 to 39	-0.0517***	-0.0528***	-0.117***	-0.117***	-0.120***	-0.120***	0.0342**	0.0332**
	(-7.57)	(-7.71)	(-21.02)	(-20.88)	(-20.72)	(-20.53)	(2.02)	(1.96)
Aged 40 to 49	-0.108***	-0.110***	-0.188***	-0.187***	-0.192***	-0.191***	0.0305	0.0285
	(-12.15)	(-12.29)	(-20.63)	(-20.49)	(-20.83)	(-20.47)	(1.52)	(1.43)
Aged 50 to 64	-0.173***	-0.176***	-0.276***	-0.273***	-0.279***	-0.276***	0.0324	0.0294
	(-14.71)	(-15.11)	(-20.75)	(-20.70)	(-22.14)	(-21.65)	(1.32)	(1.18)
Aged 65+	-0.247***	-0.252***	-0.372***	-0.366***	-0.376***	-0.370***	0.0406	0.0359
	(-16.42)	(-16.64)	(-19.19)	(-19.03)	(-19.43)	(-18.86)	(1.31)	(1.19)
Female	-0.0288***	-0.0285***	-0.0513***	-0.0500***	-0.0522***	-0.0508***	-0.00789***	-0.00836***
	(-4.09)	(-4.08)	(-7.05)	(-6.94)	(-7.63)	(-7.46)	(-3.09)	(-3.27)
Higher education	0.0670***	0.0673***	0.0669***	0.0660***	0.0658***	0.0648***	0.0164***	0.0169***
	(12.26)	(12.39)	(12.14)	(11.90)	(11.51)	(11.21)	(4.46)	(4.62)
Nr of children	-0.00263***	-0.00267***	-0.00148*	-0.00152*	-0.00120	-0.00123	-0.00111	-0.00110
	(-3.66)	(-3.74)	(-1.79)	(-1.84)	(-1.35)	(-1.39)	(-1.34)	(-1.36)
Nr of adults	0.0000531	-0.000167	0.00528***	0.00511***	0.00508***	0.00492***	0.000864	0.000849
	(0.05)	(-0.16)	(5.41)	(5.24)	(4.80)	(4.66)	(1.39)	(1.37)
Urban	0.0299***	0.0316***	0.0474***	0.0499***	0.0488***	0.0515***	0.00989***	0.00929***
	(3.84)	(4.09)	(6.88)	(7.41)	(7.21)	(7.72)	(3.22)	(3.08)
Network abroad	0.0602***	0.0608***	0.0916***	0.0926***	0.0896***	0.0906***	0.0695***	0.0685***
	(16.27)	(16.53)	(15.92)	(16.08)	(15.29)	(15.49)	(3.74)	(3.60)
Basic wealth	-0.0556***	-0.0500***	-0.0587***	-0.0540***	-0.0559***	-0.0514***	0.0188	0.0188
	(-6.68)	(-6.16)	(-7.56)	(-7.11)	(-6.83)	(-6.36)	(1.26)	(1.30)
Daily Experience Index	-0.00142***	-0.00134***	-0.00141***	-0.00138***	-0.00147***	-0.00143***		
	(-14.32)	(-13.72)	(-13.06)	(-13.20)	(-12.83)	(-12.89)		
Observations	204,284	204,284	210,316	210,316	174,595	174,595	50,105	50,105
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2010-2015	2010-2015	2010-2015	2010-2015

Notes: The table reports average marginal effects. The model includes country of origin dummies and year dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Columns 1 and 2 use the dependent variable of migration aspirations based on the question (Q1) "In the next 12 months, are you likely or unlikely to move away from the city or area where you live?". Columns 3, 4, 5 and 6 use the dependent variable based on the question (Q2) "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?". Columns 7 and 8 use the outcome of the question (Q3) "Have you done any preparation for this move (for example, applied for residency or visa, purchased a ticket, etc.)", conditional on answering affirmative on question (Q2).

5.2 Heterogeneity

The estimated impact of poor health on migration aspirations and materialisation of these aspirations may depend on people's satisfaction with local healthcare, and vice versa. To account for this, I rerun the benchmark regression adding an interaction term between health problems and dissatisfaction with local healthcare (see Appendix Table A.9)[14]. The effect of ill-health (dissatisfaction local healthcare) on aspirations to move in the short run is stronger when an individual is satisfied with local healthcare (in good health), whereas poor health only decreases international aspirations when one is dissatisfied with local healthcare.

Furthermore, I explore heterogeneity in migration behaviour to self-reported health and healthcare by individual characteristics (see Table 2 and Table 3). Health problems increase the aspiration to migrate in the short run only among women (columns 1 and 2), higher educated respondents (columns 3 and 4), and among respondents in urban areas (columns 5 and 6). Moreover, poor health has a greater negative effect on aspirations to migrate abroad for men and respondents living in rural areas. It does not seem to drive aspirations to migrate abroad among those living in urban areas, but once such an aspiration is observed, these individuals are more likely to act on it as compared to those in rural areas. More concrete materialisation appears highly responsive to health problems among highly educated men living in urban areas. In addition, migration aspirations (both internal and international) also seem more responsive to dissatisfaction with local healthcare among men, high-skilled respondents, and those living in an urban area.

Moreover, the sample does not include only respondents born in the country of residence at the time of survey. I do not know whether these foreign respondents are permanent residents of the country or temporary migrants (i.e. who may be planning to return to their origin country or to move onwards). Former migrants may display different migration behaviours compared to natives as they have already experienced a migration episode. Reassuringly, considering only respondents born within the country of residence at the time of the survey does not alter the main findings (see column 7 Table 2). As for former migrants, poor health does not affect their migration aspirations, whereas dissatisfaction with local healthcare positively associates with aspirations to migrate in the short run (internal and international) and migrate to another country. This latter may encompass any moves back home or to a third country, while the former also encompasses temporary moves within the country they are residing in.

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[14]Similar results are obtained using subsamples and running a linear probability model, and results are available upon request.

Table 2: Impact of health and healthcare, by individual characteristics

	(1) Female	(2) Male	(3) Low education	(4) High education	(5) Urban	(6) Rural	(7) Native	(8) Migrant
Aspirations within 12 months								
Health problems	0.0171***	0.00648	0.00417	0.0244***	0.0232***	0.00790	0.0113**	0.0144
	(4.07)	(1.01)	(0.87)	(4.61)	(4.66)	(1.57)	(2.50)	(0.69)
Dissatisfaction Healthcare	0.0178***	0.0362***	0.0123***	0.0423***	0.0397***	0.0218***	0.0268***	0.0232**
	(4.26)	(8.05)	(2.94)	(10.01)	(7.95)	(6.09)	(7.56)	(1.97)
Observations	100,043	104,241	106,783	97,501	55,240	149,044	196,768	5,277
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Aspirations permanently abroad								
Health problems	-0.00756*	-0.0186***	-0.0122**	-0.0121**	-0.00796	-0.0142**	-0.0127**	-0.0204
	(-1.65)	(-2.69)	(-2.25)	(-2.13)	(-1.27)	(-2.47)	(-2.48)	(-1.33)
Dissatisfaction Healthcare	0.0284***	0.0445***	0.0213***	0.0526***	0.0457***	0.0326***	0.0365***	0.0425***
	(6.85)	(9.71)	(5.05)	(10.75)	(9.85)	(7.59)	(9.58)	(3.75)
Observations	103,053	107,263	109,677	100,639	57,572	152,744	202,595	5,462
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Preparations permanently abroad								
Health problems	0.00438	0.0169**	0.00340	0.0160**	0.0128**	0.00837*	0.00892**	0.0153
	(1.41)	(2.17)	(1.33)	(2.02)	(2.20)	(1.73)	(2.15)	(1.08)
Dissatisfaction Healthcare	-0.00123	-0.0120	-0.00108	-0.00913	-0.00903	-0.00260	-0.00410	-0.00633
	(-0.44)	(-1.13)	(-0.31)	(-1.06)	(-1.18)	(-0.49)	(-0.83)	(-0.51)
Observations	22,440	27,665	20,494	29,611	16,403	33,702	47,783	1,676
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015

Notes: The table reports average marginal effects of the two variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies and year dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Health problems increase the likelihood to migrate in the short run among younger individuals (20-49 years of age, see Table 3), whereas it diminishes such aspirations for respondents above 50 years of age. Health problems also reduce migration aspirations abroad and its materialisation among this elderly group. For the youngest cohort (-30 years old), health problems reduce the aspiration to move abroad, but once such an aspiration is developed, these individuals are more likely to act on it. Health problems in the middle age category (30 to 39 years), however, increase aspirations to migrate internationally, but it does not additionally affect the subsequent decision to do so. Migration aspirations also seem very responsive to dissatisfaction with local healthcare among all age categories.

Table 3: Impact of health, healthcare, by age

	15-19	20-29	30-39	40-49	50-64	65+
Aspirations within 12 months						
Health problems	0.00576	0.0279***	0.0283***	0.0228***	-0.0157***	-0.0284***
	(0.62)	(4.45)	(4.36)	(3.96)	(-2.67)	(-5.55)
Dissatisfaction Healthcare	0.0290***	0.0374***	0.0277***	0.0198***	0.0113**	0.00780
	(3.89)	(7.44)	(5.26)	(3.14)	(1.99)	(1.45)
Observations	29,320	64,570	47,250	29,217	23,842	10,085
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Aspirations permanently abroad						
Health problems	-0.0428***	-0.0150**	0.0115**	0.00513	-0.0241***	-0.0307***
	(-3.96)	(-2.01)	(2.08)	(0.87)	(-4.35)	(-4.11)
Dissatisfaction Healthcare	0.0487***	0.0451***	0.0383***	0.0248***	0.0213***	0.0131*
	(7.14)	(7.26)	(6.55)	(5.40)	(5.39)	(1.81)
Observations	30,228	66,644	48,710	30,035	24,438	10,261
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Preparations permanently abroad						
Health problems	0.0484	0.0138**	0.00734	0.00348	-0.0206	-0.00168
	(1.56)	(2.43)	(0.82)	(1.19)	(-1.36)	(-1.03)
Dissatisfaction Healthcare	-0.0284	0.000553	-0.00869	0.00136	-0.0177	0.00184
	(-1.20)	(0.13)	(-0.92)	(0.45)	(-0.93)	(1.18)
Observations	10,229	19,848	11,405	5,184	2,746	693
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015

Note: The table reports average marginal effects of the two variables of interest, i.e. health and healthcare. All other controls are included in the specification but are not reported for considerations of brevity. The results for preparations need to be interpret with caution as the sample size is much lower and results may be biased. The model includes country of origin dummies and year dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Subsequently, I explore heterogeneity across geographic regions and country-income groups[15]

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[15]The World Bank distinguishes countries based on four income groups, that is, low-, lower-middle, upper-middle, and high-income countries. The classifications are updated each year on July 1 and are based on Gross

(see Table 4). Dissatisfaction with local healthcare increases migration aspirations across entire Africa, with the greatest effect on aspirations to migrate in the short run in North Africa and in lower middle-income countries. Individuals dissatisfied with local healthcare are more likely to act on their aspirations in Southern Africa, whereas they appear less likely to act on it in the lowest income countries, as compared to other African regions. In Central and Eastern Africa, health problems seem to drive aspirations to migrate in the short run, whereas they diminish aspirations to migrate internationally in North and West Africa. Examining the country-income level, health issues increase movements in the short run among lower middle-income countries. Moreover, health problems temper aspirations to migrate internationally in the poorest and richest African countries, but when such an aspiration is developed, individuals with poor health are more likely to materialise this aspiration in the poorest African countries.

National Income (GNI) per capita in current US dollars (USD) (using the Atlas method exchange rates) of the previous year. For the sake of this analysis, the situation in 2015 is used to fit the period of analysis. No high-income countries are included in the analysis. As an alternative, I also used the United Nations classification of Least Developed Countries (LDC), which accounts for more than mere income level. It also accounts for human assets, economic, and ecological vulnerability of the countries, see results in Appendix Table A.12.

Table 4: Impact of health, healthcare and traditional controls on migration aspirations in Africa, by geographic region and development level

	Geographic region					*Development level*		
	Central Africa	East Africa	North Africa	South Africa	West Africa	LIC	LMIC	UMIC
Aspirations within 12 months								
Health problems	0.0184**	0.0254***	0.00767	0.00976	-0.00111	0.00736	0.0176***	0.0137
	(2.24)	(4.48)	(1.10)	(1.34)	(-0.10)	(1.09)	(3.99)	(1.52)
Dissatisfaction Healthcare	0.0245***	0.0214***	0.0387***	0.0296***	0.0282***	0.0220***	0.0351***	0.0287***
	(2.59)	(4.70)	(4.05)	(4.92)	(3.30)	(4.43)	(7.67)	(3.03)
Observations	34,203	48,272	17,328	37,167	67,314	118,309	61,452	24,523
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	20011-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	7	13	5	10	12	25	15	7
Aspirations permanently abroad								
Health problems	-0.000385	-0.000691	-0.0214**	-0.00750	-0.0224**	-0.0152*	-0.00773	-0.0136**
	(-0.08)	(-0.06)	(-2.55)	(-0.82)	(-2.15)	(-1.91)	(-1.33)	(-2.30)
Dissatisfaction Healthcare	0.0448***	0.0337***	0.0416***	0.0394***	0.0328***	0.0375***	0.0351***	0.0356***
	(6.84)	(4.67)	(6.82)	(4.08)	(4.17)	(6.59)	(9.53)	(2.92)
Observations	35,189	49,342	18,785	37,777	69,223	121,073	63,284	25,959
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2011-2015	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	7	13	5	10	12	25	15	7
Preparations permanently abroad								
Health problems	0.00638	0.0205	-0.00288	0.00217	0.0124	0.00953**	0.00834	0.0163
	(0.53)	(1.39)	(-0.96)	(1.31)	(1.62)	(2.15)	(1.37)	(0.58)
Dissatisfaction Healthcare	-0.00530	-0.0213	0.00381	0.00175*	-0.00978	-0.0139*	0.00376	0.00532
	(-0.42)	(-1.07)	(0.62)	(1.69)	(-0.96)	(-1.94)	(1.17)	(0.71)
Observations	9,216	10,351	4,127	7,305	19,106	28,233	16,877	4,995
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2011-2015	2010-2015	2010-2015	2010-2015	2010-2015	2011-2015
Countries	7	13	5	10	12	25	15	7

Notes: The geographic classification is based on subregion following the African Union classification, whereas development level follows Worldbank classification. The table reports average marginal effects of the variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies and year dummies(not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.3 Robustness

The estimation approach is exposed to various identification threats, stemming from potential measurement error concerning the variables of interest or by omitted variables (i.e. unobserved factors that influence both self-reported health problems and/or satisfaction with healthcare and migration behaviour). I already included country of origin fixed effects and year fixed effects in the regression, accounting for both time-invariant unobserved characteristics which are country-specific and time-specific effects which are country-invariant. As an alternative, I reran the benchmark regressions using either country-year fixed effects or regional fixed effects (Appendix Table A.6). Reassuringly, the results are robust to these alternative fixed effects structures.

Appendix B already present initial statistical support for the measures of health and healthcare. To mitigate any further concerns, I also rerun the benchmark replacing the variables of interest with other proxies from the GWP measuring personal health and healthcare. Note that caution is necessary for interpreting the results as the sample size is drastically reduced when relying on these variables. First, dissatisfaction with personal health (Q6) not only increases the likelihood to migrate in the short run, but, unlike in the benchmark, it also increases the likelihood to aspire to migrate internationally (Appendix Table A.17). Reassuringly, having no near-perfect physical health (Q7), in contrast, decreases aspirations to migrate internationally, consistent with the main findings (Appendix Table A.18). Second, consistent with expectations, having no confidence in local healthcare (Q8) and deprived of medicines or medical treatment during the last year (Q10) raise aspirations to migrate both internally and internationally (see Appendix Table A.18). Aspirations to migrate do not seem to vary with the duration to the closest doctor (Q9). Due to insufficient observations, no results are obtained for the more concrete materialisation of aspirations to migrate internationally.

I also control for dissatisfaction with other amenities to mitigate concerns with respect to omitted variables (see Table 5). The GWP provides several relevant questions for measuring dissatisfaction with other local amenities such as (Q11) dissatisfaction with the educational system or the schools; (Q12) beauty or physical setting of the city or area where the respondent lives; (Q13) availability of good affordable housing; and (Q14) air quality in the city or area where the respondent lives. I include all the variables separately and perform a principal component analysis, in line with Dustmann and Okatenko (2014). Reassuringly, controlling for contentment with other amenities preserves the main results.

Furthermore, health may be correlated with other observed variables, which may also impact migration aspirations and for which I did not control in the benchmark specification. For example, health problems may be correlated with employment status. I did not control for this initially,

Table 5: Probit estimation on migration aspirations: adding other amenities

	Educational system	Physical setting	Affordable housing	Quality air	PCA amenities
Aspirations within 12 months					
Health problems	0.0130***	0.0161***	0.0127***	0.0108**	0.0161***
	(3.07)	(3.68)	(3.08)	(2.41)	(3.56)
Dissatisfaction Healthcare	0.0166***	0.0200***	0.0182***	0.0215***	0.00717**
	(4.45)	(6.00)	(5.55)	(6.33)	(2.00)
Dissatisfaction with	0.0302***	0.0479***	0.0315***	0.0448***	0.0298***
	(6.98)	(11.05)	(7.83)	(10.88)	(11.47)
Observations	200,996	141,511	199,564	201,969	138,202
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2012/2015	2008-2015	2008-2015	2008-2012/2015
Countries	47	46	47	47	46
Aspirations permanently abroad					
Health problems	-0.0116**	-0.00997*	-0.0117**	-0.0135***	-0.0100*
	(-2.40)	(-1.68)	(-2.53)	(-2.73)	(-1.69)
Dissatisfaction Healthcare	0.0231***	0.0288***	0.0292***	0.0342***	0.0174***
	(6.41)	(6.49)	(8.26)	(9.31)	(3.83)
Dissatisfaction with	0.0384***	0.0327***	0.0258***	0.0202***	0.0232***
	(13.06)	(7.11)	(7.96)	(4.50)	(9.59)
Observations	206,779	144,717	205,254	207,827	141,145
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2012/2015	2008-2015	2008-2015	2008-2012/2015
Countries	47	46	47	47	46
Preparations permanently abroad					
Health problems	0.00946**	0.00994**	0.00951**	0.00867**	0.00953**
	(2.44)	(2.09)	(2.38)	(2.13)	(2.24)
Dissatisfaction Healthcare	-0.00562	-0.00375	-0.00486	-0.00526	-0.00539
	(-1.34)	(-0.83)	(-1.13)	(-1.07)	(-1.25)
Dissatisfaction with	0.00436	0.00283	0.00396*	0.00983**	0.00422**
	(1.61)	(0.67)	(1.67)	(2.40)	(2.10)
Observations	48,972	33,218	48,656	49,501	32,382
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2012/2015	2008-2015	2008-2015	2010-2012/2015
Countries	47	46	47	47	46

Notes: The table reports average marginal effects of the variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

as my sample also includes a share of the population which does not belong to the standard working-age population. More specifically, 4.9 percentage of individuals in my sample do not belong to the standard working age category reported by the World Bank (15-64 years). The results, however, remain robust when running the benchmark specification which controls for employment status (see Appendix Table A.13). Moreover, being employed reduces aspirations to migrate in the short run, while it additionally elevating materialisation of aspirations.

Next, income might be an unobserved factor that influence health problems/ dissatisfaction with healthcare and migration behaviour at the same time. I did not control for this in the benchmark as this self-reported measure of household income might be affected by substantial measurement error. Yet, as a robustness check, I add the log of self-reported household income into the specification. The pairwise correlation between this measure of income and health problems stands at -0.084 (significant at the 1 percent level), and with the correlation between income and dissatisfaction with healthcare standing at -0.066 (1 percent significance level). Appendix Table A.14 shows that adding the self-reported measure of income does not significantly alter the main findings. The log of household income per capita appears positively associated with aspirations to move within 12 months and preparations to move permanently abroad. No association could be detected for aspirations to move permanently abroad if they would have the opportunity[16]. As another robustness check, I also include satisfaction with the household income and satisfaction with personal standard of living, yet these measures do not alter the main findings.

Controlling for whether the individual received remittances in the past 12 months and whether or not the individual is religious also does not alter the main findings.

Lastly, I run the benchmark specification adding the time-varying country of origin characteristics. Notably, time-invariant unobserved country of origin characteristics influencing both migration aspirations and health(care) are captured by the country of origin fixed effects. Specifically, I control for both the average health situation and the quality of healthcare in the country of origin using external measures reported in section 3.2. Reassuringly, the results are predominantly robust to the inclusion of these additional country-specific time-varying controls (see Table 6 and 7). Interestingly, both high HIV prevalence and number of hospital beds per 1000 people reduce aspirations to migrate in the short run. Although aspirations to move internationally do not

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[16]In Appendix Table A.15, I also look into where respondents are in the income distribution of their respective origin country to examine heterogenous effects in terms of household income per capita. In the bottom quintile (the 20% poorest respondents per country), health problems do not seem to matter significantly for aspirations to move in the short run; yet it significantly increase aspirations to move in the short run for respondents in the top quintile. Health problems significantly decrease aspirations to permanently move abroad amongst the poorest respondents in their respective countries, especially for poor respondents living in rural areas, yet it has no effect on aspirations in the top quintile.

seem to vary with health status when controlling for the number of hospital beds, poor health does not seem to affect the materialisations of these aspirations when controlling for the number of physicians, nurses and midwives, and hospital beds.

6 Conclusion

Despite significant progress in recent decades to advance human health, major deficiencies persist across Africa. Moreover, poor health and healthcare have often been postulated as a driver of migration, yet empirical evidence is lacking. This study elucidates the question by deploying cross-country comparable micro data from the GWP to evaluate the impact of poor health and healthcare on African migration aspirations (internal and international) and more concrete materialisation.

Beyond the importance of age, education, wealth and networks, the results indicate that personal health and satisfaction with local healthcare also shape migration aspirations and behaviour. More specifically, dissatisfaction with local healthcare seems to form a strong and highly robust incentive to aspire to migrate; however, it does not seem to additionally affect subsequent materialisation. Moreover, Africans' aspirations to migrate vary with individuals' health status. Poor health incentivises people to move away from the area where they currently live in the short run; while it reduces aspirations to migrate abroad even if they would be given the opportunity. Poor health subsequently increases the likelihood of aspirations to migrate abroad are turned into more concrete actions (i.e. purchased a ticket, applied for a visa), in combination with other more traditional drivers such as networks, basic wealth, educational attainment, and the urban living environment.

The observed heterogeneities in health problems on aspirations and materialisations to migrate across individuals and countries suggest no uniform direction of personal health status on migration in Africa; depending on one's satisfaction with local healthcare, gender, level of education, living environment, age, geographical region, and development level of the respective country. For example, poor health drives aspirations to migrate in the short run only for women or highly educated individuals. In contrast, dissatisfaction with local healthcare shows a very homogeneous effect across individuals and countries, indicating the importance of access to quality local healthcare in the migration decision. I also performed extensive robustness checks, thus mitigating any potential concerns about threats to identification posed by unobservables and/or measurement error.

It is important to consider the geographical focus of this study on Africa, from which it is difficult

Table 6: Impact of health(care) and traditional controls: country characteristics

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	Undernourished (share of population)	Under-5 mortality rate	Life expectancy	HIV prevalence	Malaria incidence
Aspirations within 12 months					
Health problems	0.0132***	0.0117***	0.0115**	0.0116***	0.0117**
	(2.67)	(2.64)	(2.57)	(2.63)	(2.47)
Dissatisfaction Healthcare	0.0299***	0.0271***	0.0275***	0.0271***	0.0271***
	(8.31)	(7.81)	(7.71)	(7.85)	(7.48)
Country characteristic (log)	-0.0330	0.0753	0.357	-0.0131	-0.00304
	(-1.07)	(0.73)	(1.63)	(-0.20)	(-0.21)
Observations	167,423	204,284	204,284	204,284	191,580
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	39	47	47	47	44
Aspirations permanently abroad					
Health problems	-0.0135**	-0.0129***	-0.0129**	-0.0130***	-0.0128**
	(-2.27)	(-2.59)	(-2.56)	(-2.59)	(-2.42)
Dissatisfaction Healthcare	0.0356***	0.0365***	0.0362***	0.0365***	0.0361***
	(9.02)	(9.81)	(9.86)	(9.85)	(9.10)
Country characteristic (log)	0.0257	0.0546	-0.233	-0.0299	0.0115
	(0.82)	(0.59)	(-1.07)	(-0.46)	(0.83)
Observations	172,860	210,316	210,316	210,316	197,362
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	39	47	47	47	44
Preparations permanently abroad					
Health problems	0.00963**	0.00975**	0.00981**	0.00979**	0.0109**
	(2.17)	(2.35)	(2.37)	(2.37)	(2.37)
Dissatisfaction Healthcare	-0.00353	-0.00488	-0.00496	-0.00488	-0.00575
	(-0.69)	(-0.97)	(-0.97)	(-0.96)	(-1.05)
Country characteristic (log)	-0.00471	0.0293	-0.0366	0.0295	0.00129
	(-0.25)	(0.44)	(-0.27)	(0.76)	(0.12)
Observations	41,407	50,105	50,105	50,105	47,332
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015
Countries	39	47	47	47	44

Notes: The table reports average marginal effects of the variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Impact of health(care) and traditional controls: country characteristics

	Domestic health expenditure % of GDP	Out of pocket expenditure	Physicians (per 1 000 people)	Nurses and midwives (per 1000 people)	Hospital beds (per 1000 people
Aspirations within 12 months					
Health problems	0.0117**	0.0117**	0.00920**	0.00752	0.0158*
	(2.51)	(2.52)	(2.00)	(1.45)	(1.76)
Dissatisfaction Healthcare	0.0278***	0.0277***	0.0270***	0.0244***	0.0366***
	(7.58)	(7.59)	(6.01)	(4.53)	(6.20)
Country characteristic	-0.000391	-0.0181	0.00982	0.0225	-0.0325*
	(-0.03)	(-0.54)	(0.53)	(1.07)	(-1.94)
Observations	194,986	194,986	95,099	91,334	42,403
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	44	44	40	40	27
Aspirations permanently abroad					
Health problems	-0.0131**	-0.0131**	-0.0121**	-0.0132**	-0.00221
	(-2.52)	(-2.51)	(-2.37)	(-2.31)	(-0.21)
Dissatisfaction Healthcare	0.0360***	0.0359***	0.0320***	0.0355***	0.0447***
	(9.60)	(9.67)	(6.77)	(7.25)	(6.24)
Country characteristic	0.00894	-0.0357	-0.0128	0.0328	-0.0117
	(0.33)	(-0.88)	(-0.35)	(1.06)	(-0.41)
Observations	200,731	200,731	96,978	93,424	43,180
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015	2008-2015
Countries	44	44	39	40	27
Preparations permanently abroad					
Health problems	0.00899**	0.00904**	0.00840*	0.00511	0.00734
	(2.22)	(2.21)	(1.76)	(1.20)	(1.07)
Dissatisfaction Healthcare	-0.00466	-0.00467	-0.000770	-0.00663	0.00846
	(-0.91)	(-0.91)	(-0.19)	(-1.29)	(1.57)
Country characteristic	0.00863	0.0173	-0.0144	-0.00475	-0.0154
	(0.90)	(1.28)	(-1.12)	(-0.75)	(-1.53)
Observations	48,442	48,442	19,708	20,117	9,993
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2010-2015	2010-2015	2010-2015
Countries	44	44	40	40	25

Notes: The table reports average marginal effects of the variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

to make generalisations towards other regions. Future research avenues may expand the set-up to other regions worldwide.

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Appendix

A   Construction data

A.1   Explanatory variables (Source: Gallup World Polls)

- **Health problems**: "Do you have any health problems that prevent you from doing any of the things people your age normally can do?".

- **Dissatisfaction Healthcare**: "In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare?".

- **Age**: "Please tell me your age".

- **Gender**: "Male* Female*".

- **Secondary and/or Tertiary education**: "What is your highest completed level of education?" (answer options: *Completed elementary education or less (up to 8 years of basic education); *Secondary - 3 year TertiarySecondary education and some education beyond secondary education (9-15 years of education); and *Completed four years of education beyond 'high school' and/or received a 4-year college degree.

- **Nr of children**: 'How many children under 15 years of age are now living in your household?".

- **Nr of adults**: "Including yourself, how many people who are residents of this country, age 15 or over, currently live in this household?".

- **Urban**: "Do you live in a rural area or on a farm, a small town or village, a large city or a suburb of a large city?".

- **Network abroad**: "Have any members of your household gone to live in a foreign country permanently or temporarily in the past five years?", combined with "Do you have relatives or friends who are living in another country whom you can count on to help you when you need them, or not?"

- **Basic Wealth**: In line with the method performed by Dustmann and Okatenko (2014) and based on the work of Kolenikov et al. (2004) I perform a principal component analysis (PCA) and use the first principal component as a proxy for basic wealth. Based on a Principal Component Analysis with 4 questions: (i) "Does your home have a television?";

(ii) "Does your home have access to the Internet?"; (iii) "Have there been times in the past 12 months when you did not have enough money to buy food you and your family needed?" and (iv) "Have there been times in the past 12 months when you did not have enough money to provide adequate shelter or housing for you and your family?". The first principal component for the four variables explains 62% of their total variance. The first component is rescaled to lie between 0 and 1, with a higher value of the index of basic wealth responding to a higher level of basic wealth. Sample weights are applied in the estimation.

- **Daily Experience Index**: The Daily Experience Index is a measure of respondents' experienced well-being on the day before the survey. The index provides a real-time, composite measure of respondents' positive and negative experiences. More specifically it combines questions measuring whether or not the respondent felt well-rested, felt respected, smiled and laughed a lot, learned or did something interesting, experienced enjoyment as well as whether he/she experienced physical pain, worry, sadness, stress or anger. Index questions: "Did you feel well-rested yesterday?", "Were you treated with respect all day yesterday?", "Did you smile or laugh a lot yesterday?", "Did you learn or do something interesting yesterday?", "Did you experience the following feelings during a lot of the day yesterday? How about enjoyment", "...physical pain", "...worry", "...sadness?","...stress" and "... anger". More specifically, index scores are calculated at the individual record level. For each individual the following procedure applies: The 10 items are recoded so that answers reflecting positive emotion are scored as a "1" and all other answers (including don't know or refused) are a "0". If a record has no answer for an item, then that item is not eligible for inclusion in the calculations. An individual record has an index calculated if it has at least 8 out of 10 valid scores (0 or 1). The record's final score is the mean of valid items multiplied by 100. The final country-level index score is the mean of all individual records for which an index score was calculated. Country-level weights are applied to this calculation.

A.2 Number of surveys for each country and year

B Pairwise correlations variables of interest

It is worthwhile exploring in detail what exactly these individual measures of health and health-care capture. To this end, Table A.2 shows statistical correlations both with other individual indicators taken from the GWP and aggregate measures from the World Bank and the World

Table A.1: Number of surveys for each country and year

Country	2008	2009	2010	2011	2012	2013	2014	2015	Total
Algeria	0	0	0	1,956	0	0	993	0	2,949
Angola	0	0	0	881	784	0	855	0	2,520
Benin	0	0	0	975	987	982	951	957	4,852
Botswana	941	0	0	994	965	988	0	977	4,865
Burkina Faso	974	0	991	989	994	999	956	961	6,864
Burundi	981	995	0	997	0	0	986	0	3,959
Cameroon	959	986	1,194	991	987	982	977	947	8,023
Central African Rep.	0	0	989	990	0	0	0	0	1,979
Chad	0	0	994	983	0	988	980	946	4,891
Comoros	0	0	0	1,978	995	0	0	0	2,973
Congo Brazzaville	965	0	0	980	991	924	936	964	5,760
Congo Kinshasa	0	975	0	941	965	954	927	940	5,702
Djibouti	941	0	0	963	0	0	0	0	1,904
Egypt	0	0	0	1,014	0	1,134	983	0	3,131
Ethiopia	0	0	0	0	0	933	958	812	2,703
Gabon	0	0	0	988	956	1	983	948	4,875
Ghana	0	923	0	993	983	998	0	979	4,876
Guinea	0	0	0	330	1	1,003	960	964	4,257
Ivory Coast	0	985	0	0	0	987	967	949	3,888
Kenya	0	0	977	997	979	992	985	986	5,916
Lesotho	0	0	0	994	0	0	0	0	994
Liberia	997	0	983	0	0	917	0	968	3,865
Madagascar	0	0	0	988	986	987	973	975	4,909
Malawi	0	996	0	995	1	996	995	977	5,959
Mali	976	986	995	999	989	991	989	973	7,898
Mauritania	0	0	0	1,986	957	986	938	960	5,827
Mauritius	0	0	0	978	0	0	973	0	1,951
Morocco	0	0	0	0	0	926	0	1,024	1,950
Mozambique	977	0	0	998	0	0	0	918	2,893
Namibia	0	0	0	0	0	0	938	0	938
Niger	967	983	999	1,000	989	996	976	946	7,856
Nigeria	889	873	970	981	1,817	0	950	977	7,457
Rwanda	0	990	0	0	992	992	989	992	4,955
Senegal	984	973	998	990	992	990	998	979	7,904
Sierra Leone	980	0	992	1,000	0	982	987	818	5,759
Somalia	0	0	0	1,995	992	0	868	984	4,839
South Africa	0	974	990	992	1,962	996	971	976	7,861
South Sudan	0	0	0	0	0	0	875	899	1,774
Sudan	0	0	0	1,954	978	0	778	0	3,710
Swaziland	0	0	0	980	0	0	0	0	980
Tanzania	922	981	999	984	991	1,002	990	969	7,838
Togo	857	0	0	979	0	0	983	928	3,747
Tunisia	0	0	0	1,936	0	1,013	1,024	955	4,928
Uganda	979	0	998	995	982	0	961	955	5,870
Zambia	0	0	0	991	0	994	988	967	3,940
Zimbabwe	998	979	995	0	986	936	957	976	6,827
Total	16,287	13,599	15,064	42,655	27,199	28,568	34,498	32,446	210,316

Health Organization (WHO). The two most relevant individual-level indicators measuring personal health read (Q6) 'Are you satisfied or dissatisfied with your personal health?' and (Q7) 'Thinking about your life in general, please rate your level of agreement with each of the following using a 5-point scale, where 5 means you strongly agree and 1 means you strongly disagree. Your physical health is near-perfect'. The former question is coded as dissatisfaction with personal health, whereas the latter question is transformed into both a categorical variable indicating the scale of disagreement and a dummy variable capturing poor health. Both questions are available for all countries in the sample, although, available for only a subset of years. (Q6) is only available for the years 2005-2012, while (Q7) has been asked only in the years 2013 to 2016. Nonetheless, and consistent with expectations, reporting personal health problems appears to positively correlate with dissatisfaction with one's personal health and disagreement with the statement of having near-perfect physical health.

Moreover, the most relevant individual-level indicators capturing the assessment of local healthcare read (Q8) 'In this country, do you have confidence in each of the following, or not? How about healthcare or medical systems?', (Q9) 'How long does it take you to reach the closest doctor/health clinic or hospital?', and (Q10) 'Over the past year, how often, if ever, have you or your family gone without medicines or medical treatment?' Again, these questions are only available for a subset. (Q8) is only available for the years 2005-2009 for all countries and is coded as a binary variable measuring no confidence' in health systems. Meanwhile, (Q9) is only asked in sub-Saharan African countries for the period from 2006 to 2008 and measures both increasing time to reach the nearest doctor and above that is also transformed to a dummy measuring if it takes longer than an hour to reach the nearest doctor or health clinic. Last, (Q10) is only available for 2007-2010 and is coded as a binary variable measuring if one has gone without medicines once or more during the last year. Notwithstanding the significant reduction in sample size, but consistent with expectations, dissatisfaction with local healthcare appears to positively correlate with having no confidence in healthcare and medical systems, attributable to the increasing duration to reach the closest doctor/health clinic or hospital and deprived of medicines or medical treatment during the past year.

In addition, the aggregated variables of interest (as the share of positive answers by country) are compared with other relevant macro indicators capturing the health and healthcare situation from the World Bank's HealthStats database of Health, Nutrition and Population (HNP)[17]. Specifically, the aggregated measure of self-reported poor health is compared with the share

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[17]The World Bank HealthStats database relies on data from the World Health Organization, amongst others the World Health Organization Global Health Observatory Data Repository, World Health Organization Global Health Expenditure database, World Health Organization's Global Health Workforce Statistics; Food and Agriculture Organization, UNAIDS and is additionally supplemented by country and OECD data. Specific sources

of the population that is undernourished, infant mortality rate per 1,000 live births, total life expectancy at birth in years, prevalence of HIV as a % of population ages 15-49 years, and incidence of malaria (per 1,000 population at risk). Correlation coefficients are reported in the lower panel of Appendix Table A.2. Pairwise correlations between these macro indicators and my aggregate measure of self-reported poor health illustrate that individuals in Africa are more likely to report less health problems when life expectancy at birth is higher, which is quite intuitive. None of the other indicators display a correlation with my variable of interest[18]

Next, the aggregated measure of dissatisfaction with local healthcare is correlated with the domestic general government health expenditure (% of GDP), out-of-pocket expenditure (% of current health expenditure), number of hospital beds, physicians (including both generalist and specialist medical practitioners), community health workers, nurses and midwives (respectively all per 1,000 people), and universal healthcare coverage (UHC) index for essential health services (based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access), presented on a scale of 0 to 100. Pairwise correlations between these macro indicators and my aggregated variable of interest indicate that Africans are more likely to feel dissatisfied with local healthcare when their government invests less in domestic health, they have to pay a greater share out-of-pocket, have less hospital beds available in public, private, general, and specialised hospitals and rehabilitation centres, have less access to physicians, nurses and midwives[19], and less access to universal coverage for essential health services.

Overall, it is concluded that the GWP measure of healthcare dissatisfaction refers to African countries' chronic underinvestment in the healthcare sector, which makes individuals vulnerable to the adverse effects of health problems. However, the GWP measure of self-reported health problems is less straight forward to interpret.

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vary by parameter.

[18]Additionally, I also correlate the measure of health problems with the causes of death (% of total deaths) by communicable diseases and maternal, prenatal and nutrition conditions (% of total), cause of death by injury (% of total), and cause of death by non-communicable diseases (% of total); however all correlation coefficients remain insignificant.

[19]Note that the number of community health workers does not seem to be correlated with dissatisfaction of local healthcare, which has to be interpreted with caution as data are not available at the world and/or African level. The World Bank only provides estimates of community health workers for thirteen African countries. Moreover, community health workers include various types of community health aides, many with country-specific occupational titles such as community health officers, community health-education workers, family health workers, lady health visitors, and health extension package workers.

Table A.2: Pairwise correlations with other indicators of health(care)

Measure of Health(care)	Pairwise correlations	Observations
Alternative GWP indicators		
Health problems		
Dissatisfaction personal health (Q6)	0.442***	167,524
Disagreement health near-perfect (cat.) (Q7)	0.414***	105,443
Disagreement health near-perfect (dummy) (Q7)	0.389***	105,443
Dissatisfaction healthcare		
No confidence healthcare or medical systems (Q8)	0.470***	41,686
Duration to reach closest doctor/health clinic or hospital (cat.) (Q9a)	0.161***	39,528
More than 1 hour to reach closest doctor/health clinic/hospital (dummy) (Q9b)	0.123***	39,528
Gone without medicines or medical treatment over the past year (Q10)	0.239***	72,182
Environmental indicators and WASH		
Experienced severe environmental problems in the city or area over the last year	0.0371***	23,104
Times in the past 30 days when have gone hungry	0.1183***	30,852
Over the past year, ever gone without enough clean water	0.0666***	23,589
Thinking about yesterday, did not have enough clean drinking water	0.0604***	23,125
External indicators		
Health problems		
Prevalence of undernourishment (share of population)	0.009	38
Mortality rate, infant (per 1,000 live births)	0.145	47
Life expectancy at birth, total (years)	-0.312**	47
Prevalence of HIV, total (% of population ages 15-49)	0.244*	47
Incidence of malaria (per 1,000 population at risk)	0.2366	43
Dissatisfaction healthcare		
Domestic general government health expenditure (% of GDP)	-0.461***	45
Out-of-pocket expenditure (% of current health expenditure)	0.578***	45
Community health workers (per 1,000 people)	-0.279	13
Hospital beds (per 1,000 people)	-0.458***	42
Physicians (per 1,000 people)	-0.271*	46
Nurses and midwives (per 1,000 people)	-0.311**	45
UHC service coverage index (from 0 to 100)	-0.504***	47

Source: Author's elaboration on the Gallup World Polls

C   Appendix tables

Table A.3: Correlations

	Benchmark variables										Index daily
	Health problems	Dissatisfaction Healthcare	Age	Female	Education	Children	Adults	Urban	Network	Wealth	Experience
Health problems	1										
Dissatisfaction HC	0.0331***	1									
Age	0.268***	0.0131***	1								
Female	0.0418***	-0.0403***	-0.0513***	1							
Higher education	-0.150***	-0.0619***	-0.232***	-0.102***	1						
Nr of children	0.0354***	0.0806***	0.00567**	0.0246***	-0.165***	1					
Nr of adults	-0.00442*	0.0687***	-0.0642***	-0.0289***	-0.0308***	0.323***	1				
Urban	-0.0354***	-0.0677***	-0.0108***	0.0145***	0.195***	-0.137***	0.0156***	1			
Network abroad	-0.0282***	-0.0331***	-0.0221***	-0.0178***	0.132***	-0.000246	0.0397***	0.119***	1		
Basic wealth	-0.133***	-0.153***	-0.0385***	-0.0110***	0.293***	-0.175***	0.0375***	0.310***	0.171***	1	
Daily Experience Index	-0.202***	-0.136***	-0.124***	-0.0121***	0.121***	-0.0249***	0.0215***	-0.00410*	0.0805***	0.189***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.4: Descriptive statistics

	Observations	mean	sd	min	max
Overall sample					
Aspirations within 12 months	204,284	0.256	0.437	0	1
Health problems	204,284	0.246	0.431	0	1
Dissatisfaction Healthcare	204,284	0.607	0.488	0	1
Age	204,284	34.320	14.823	15	98
Female	204,284	0.490	0.500	0	1
Secondary and/or Tertiary education	204,284	0.477	0.499	0	1
Nr of children	204,284	2.397	2.425	0	59
Nr of adults	204,284	3.698	2.195	0	41
Urban	204,284	0.270	0.444	0	1
Network abroad	204,284	0.361	0.480	0	1
Basic wealth	204,284	0.436	0.295	0	1
Aspirations permanently abroad	210,316	0.290	0.454	0	1
Health problems	210,316	0.245	0.430	0	1
Dissatisfaction Healthcare	210,316	0.609	0.488	0	1
Age	210,316	34.274	14.790	15	98
Female	210,316	0.490	0.500	0	1
Secondary and/or Tertiary education	210,316	0.479	0.500	0	1
Nr of children	210,316	2.385	2.419	0	59
Nr of adults	210,316	3.695	2.190	0	41
Urban	210,316	0.274	0.446	0	1
Network abroad	210,316	0.361	0.480	0	1
Basic wealth	210,316	0.437	0.296	0	1
Aspiring international migrants					
Preparations permanently abroad	50,105	0.060	0.237	0	1
Health problems	50,105	0.203	0.402	0	1
Dissatisfaction Healthcare	50,105	0.648	0.478	0	1
Age	50,105	29.278	11.569	15	98
Female	50,105	0.448	0.497	0	1
Secondary and/or Tertiary education	50,105	0.591	0.492	0	1
Nr of children	50,105	2.357	2.379	0	37
Nr of adults	50,105	3.785	2.276	1	41
Urban	50,105	0.327	0.469	0	1
Network abroad	50,105	0.467	0.499	0	1
Basic wealth	50,105	0.438	0.302	0	1

Source: Author's calculations based on the Gallup World Polls. The two upper panels display descriptive statistics for all individuals in our sample while the lower panel corresponds to those who have expressed an aspiration to permanently move abroad.

Table A.5: Validity of exclusion restriction

	Aspirations	Preparations
Daily Experience Index	-0.001***	-0.000
	(-12.89)	(-0.15)
Health problems	-0.014***	0.010**
	(-3.10)	(1.99)
Dissatisfaction Healthcare	0.036***	-0.004
	(9.34)	(-1.30)
Observations	174,595	50,105

Notes: The table reports average marginal effects. The model includes country of origin dummies and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.6: Impact of health, healthcare and traditional controls on migration aspirations in Africa

	Aspirations to move within 12 months			Aspirations to move permanently abroad			Preparations to move permanently abroad		
	i.o	i.oy	Regional FE's	i.o	i.oy	Regional FE's	i.o	i.oy	Regional FE's
Health problems	0.0126***	0.0103**	0.0115**	-0.0115**	-0.0126**	-0.0135**	0.00812**	0.00815**	0.0109**
	(2.80)	(2.44)	(2.40)	(-2.37)	(-2.56)	(-2.47)	(2.06)	(2.20)	(2.40)
Dissatisfaction Healthcare	0.0271***	0.0276***	0.0259***	0.0373***	0.0369***	0.0360***	-0.00324	-0.00323	-0.00525
	(7.81)	(7.65)	(7.07)	(9.31)	(10.55)	(9.34)	(-1.03)	(-0.80)	(-0.93)
Observations	204,284	204,284	185,926	210,316	209,986	191,695	50,105	50,105	47,719
Origin Fixed effects	Yes	No	No	Yes	No	No	Yes	No	No
Origin-Year Fixed effects	No	Yes	No	No	Yes	No	No	Yes	No
Regional Fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Notes: The table reports average marginal effects. The model includes country of origin dummies and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7: Impact of health, healthcare and traditional controls on migration aspirations in Africa

	Domestic move within 12 months	International move within 12 months
Health problems	0.0107***	0.00288
	(3.29)	(1.04)
Dissatisfaction Healthcare	0.0162***	0.0132***
	(5.29)	(6.77)
Observations	199,245	179,995
Origin FE and Year FE	Yes	Yes
Years	2008-2015	2008-2015
Countries	47	47

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.8: Multinomial logit: impact of health, healthcare and traditional controls on migration preparations in Africa, following destination preparing for

	within Africa	towards OECD	towards non-OECD
Health problems	0.875	1.166	1.193
	(-1.33)	(1.37)	(1.13)
Dissatisfaction Healthcare	0.850**	0.867	0.739**
	(-2.04)	(-1.61)	(-2.33)
Aged 20 to 29	1.406***	1.337**	1.638***
	(2.59)	(2.51)	(2.71)
Aged 30 to 39	1.544***	1.597***	1.728***
	(3.94)	(3.85)	(2.89)
Aged 40 to 49	1.624***	1.315	1.538**
	(3.61)	(1.49)	(2.13)
Aged 50 to 64	1.513*	1.329*	1.513
	(1.81)	(1.67)	(1.44)
Aged 65+	1.916**	1.529	0.930
	(2.47)	(1.54)	(-0.12)
Female	0.818***	0.933	0.771***
	(-3.16)	(-0.94)	(-2.63)
Secondary and/or Tertiary education	0.963	1.833***	1.308***
	(-0.35)	(6.30)	(3.08)
Nr of children	1.012	0.984	1.015
	(0.63)	(-1.25)	(0.50)
Nr of adults	0.981	1.012	0.970
	(-0.83)	(0.85)	(-1.26)
Urban	0.666***	1.224*	0.737**
	(-3.77)	(1.85)	(-2.50)
Network abroad	2.838***	2.690***	2.922***
	(9.19)	(9.23)	(6.19)
Basic wealth	1.124	2.398***	1.728**
	(0.66)	(5.23)	(2.25)
Constant	0.057***	0.384***	0.043***
	(-10.28)	(-2.80)	(-8.01)
Log likelihood	-7543.142		
Observations	9,725		
Origin FE and Year FE	Yes		
Years	2010-2015		
Countries	47		

Notes: The table reports exponentiated coefficients. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.9: Impact of health, healthcare and traditional controls on migration aspirations in Africa, interaction term added

	Aspirations to move within 12 months	Aspirations to move permanently abroad	Preparations to move permanently abroad
HprobxHCdissatis	-0.0201***	-0.0121*	-0.00544
	(-3.08)	(-1.76)	(-1.02)
Health problems	0.0245***	-0.00521	0.0133**
	(4.80)	(-0.91)	(2.30)
Dissatisfaction Healthcare	0.0317***	0.0391***	-0.00384
	(8.09)	(8.93)	(-0.75)
Observations	204,284	210,316	50,105
Origin FE and Year FE	Yes	Yes	Yes
Years	2008-2015	2008-2015	2010-2015
Countries	47	47	47

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: LPM estimation on aspirations

	Aspirations to move within 12 months		Aspirations to move permanently abroad	
	Benchmark	Interaction	Benchmark	Interaction
HprobxHCdissatis		-0.022***		-0.019***
		(-3.46)		(-2.89)
Health problems	0.011**	0.025***	-0.012**	-0.000
	(2.50)	(5.15)	(-2.61)	(-0.05)
Dissatisfaction Healthcare	0.027***	0.032***	0.037***	0.041***
	(7.87)	(8.19)	(9.99)	(9.08)
Observations	204,284	204,284	210,316	210,316
Log likelihood	-112694.287	-112681.790	-117404.384	-117394.778
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015
Countries	47	47	47	47

Notes: The model includes country of origin dummies and year dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Impact of health(care) - Average Marginal effects

	Dissatisfaction healthcare	Satisfaction healthcare	Poor health	Good health
Aspirations within 12 months				
Health problems	0.00882	0.0172***		
	(1.57)	(3.64)		
Dissatisfaction Healthcare			0.0160***	0.0302***
			(3.03)	(7.83)
Observations	124,020	80,264	50,273	154,011
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015
Countries	47	47	47	47
Aspirations permanently abroad				
Health problems	-0.0157**	-0.00731		
	(-2.56)	(-1.33)		
Dissatisfaction Healthcare			0.0239***	0.0402***
			(5.15)	(9.17)
Observations	128,066	82,250	51,542	158,774
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008-2015	2008-2015	2008-2015	2008-2015
Countries	47	47	47	47
Preparations permanently abroad				
Health problems	0.00711	0.0110*		
	(1.59)	(1.77)		
Dissatisfaction Healthcare				
Observations	32,461	17,644		
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2010-2015	2010-2015	2010-2015	2010-2015
Countries	47	47	47	47

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12: Impact of health, healthcare and traditional controls on migration aspirations in Africa, by development level following UN classification of Least Developed Countries

	LDC	non-LDC
Aspirations to move within 12 months		
Health problems	0.00825	0.0169***
	(1.30)	(4.02)
Dissatisfaction Healthcare	0.0259***	0.0296***
	(5.39)	(6.85)
Observations	129,896	74,388
Origin FE and Year FE	Yes	Yes
Years	2008-2015	2008-2015
Countries	30	17
Aspirations permanently abroad		
Health problems	-0.0126*	-0.0143***
	(-1.68)	(-3.68)
Dissatisfaction Healthcare	0.0377***	0.0347***
	(7.14)	(7.91)
Observations	133,141	77,175
Origin FE and Year FE	Yes	Yes
Years	2008-2015	2008-2015
Countries	30	17
Preparations permanently abroad		
Health problems	0.01000**	0.00544
	(2.20)	(1.24)
Dissatisfaction Healthcare	-0.0152**	0.00343***
	(-2.02)	(2.74)
Observations	31,836	18,269
Origin FE and Year FE	Yes	Yes
Years	2010-2015	2010-2015
Countries	30	17

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.13: Impact of health, healthcare and traditional controls on migration aspirations in Africa, controling for other controls

	Aspirations to move within 12 months	Aspirations to move permanently abroad	Preparations to move permanently abroad
Employed	-0.008*	-0.006	0.012**
	(-1.65)	(-1.45)	(2.57)
Health problems	0.012***	-0.016***	0.009**
	(2.80)	(-3.19)	(2.42)
Dissatisfaction Healthcare	0.026***	0.035***	-0.005
	(7.40)	(8.72)	(-0.94)
Observations	176,871	181,773	44,392
Years	2009-2015	2009-2015	2010-2015
Countries	44	44	43
Receive remittances	0.012***	0.014***	0.015***
	(4.15)	(2.85)	(2.97)
Health problems	0.013***	-0.014***	0.009**
	(3.27)	(-2.84)	(2.11)
Dissatisfaction Healthcare	0.025***	0.035***	-0.005
	(6.92)	(8.98)	(-1.03)
Observations	182,741	187,851	48,386
Years	2009-2015	2009-2015	2010-2015
Countries	46	46	46
Religion is important	-0.012**	-0.004	-0.016**
	(-1.98)	(-0.54)	(-2.27)
Health problems	0.012***	-0.013***	0.009**
	(2.67)	(-2.58)	(2.35)
Dissatisfaction Healthcare	0.027***	0.036***	-0.004
	(7.77)	(9.71)	(-0.91)
Observations	202,456	207,369	49,487
Years	2008-2015	2008-2015	2010-2015
Countries	47	47	47

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.14: Impact of health, healthcare and traditional controls on migration aspirations in Africa, controling for other controls

	Aspirations to move within 12 months	Aspirations to move permanently abroad	Preparations to move permanently abroad
HH income pc(ln)	0.002**	0.002	0.006***
	(2.00)	(1.56)	(3.37)
Health problems	0.013***	-0.013***	0.011**
	(3.54)	(-2.86)	(2.16)
Dissatisfaction Healthcare	0.023***	0.033***	-0.006
	(6.60)	(8.83)	(-1.05)
Observations	176,871	181,773	44,392
Years	2009-2015	2009-2015	2010-2015
Countries	44	44	43
Satisfaction standard of living	-0.034***	-0.068***	0.012
	(-6.75)	(-12.14)	(1.26)
Health problems	0.012***	-0.013***	0.011**
	(2.90)	(-2.73)	(2.15)
Dissatisfaction Healthcare	0.022***	0.028***	-0.004
	(6.96)	(8.22)	(-0.82)
Observations	202,609	208,496	172,952
Years	2008-2015	2008-2015	2010-2015
Countries	47	47	47
feelingsHHInc	-0.005**	-0.019***	0.011**
	(-2.08)	(-6.32)	(2.23)
Health problems	0.012***	-0.014***	0.013**
	(2.76)	(-2.68)	(2.34)
Dissatisfaction Healthcare	0.026***	0.034***	-0.005
	(7.74)	(9.33)	(-0.89)
Observations	201,330	207,125	171,872
Years	2008-2015	2008-2015	2010-2015
Countries	47	47	47

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.15: Impact of health and healthcare - Marginal effects

	(1) Lowest quintile ("Poor")	(2) Highest quintile ("Rich")	(3) Poor-rural	(4) Rich-rural	(5) Poor-urban	(6) Rich-urban
Aspirations within 12 months						
Health problems	0.00536	0.0280***	0.00159	0.0253***	0.0268*	0.0338***
	(0.87)	(4.08)	(0.23)	(2.64)	(1.71)	(3.61)
Dissatisfaction Healthcare	0.0185***	0.0334***	0.0126*	0.0300***	0.0455***	0.0385***
	(2.69)	(5.35)	(1.68)	(4.41)	(2.99)	(4.14)
Observations	35107	35167	29647	20387	5460	14772
Aspirations permanently abroad						
Health problems	-0.0190***	-0.0116	-0.0189**	-0.0143	-0.0195	-0.00636
	(-2.77)	(-1.56)	(-2.52)	(-1.61)	(-1.40)	(-0.56)
Dissatisfaction Healthcare	0.0259***	0.0384***	0.0215***	0.0380***	0.0488***	0.0374***
	(3.71)	(6.70)	(2.85)	(4.75)	(3.63)	(4.82)
Observations	36216	36136	30381	20869	5835	15259
Preparations permanently abroad						
Health problems	0.00677	0.0220*	0.0136	0.00431	-0.00176	0.0246
	(0.66)	(1.73)	(0.88)	(0.17)	(-0.23)	(1.28)
Dissatisfaction Healthcare	-0.00120	-0.0168	-0.00620	-0.0127	0.00314	-0.0143
	(-0.15)	(-1.05)	(-0.47)	(-0.60)	(0.50)	(-0.67)
Observations	31911	33002	26537	19039	5374	13963

Notes: The table reports average marginal effects of the two variables of interest. All other controls are included in the specification but are not reported for considerations of brevity. The model includes country of origin dummies and year dummies (not reported). Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.16: Correlations other variables

	Health problems	Dissatisfaction Healthcare	Employed	Educational system	City beauty	Affordable housing	Quality air
				Other variables			
Health problems	1						
Dissatisfaction Healthcare	0.0331***	1					
Employed	-0.0523***	0.00783***	1				
Dissatisfaction Educational system	0.0134***	0.387***	0.00924***	1			
Dissatisfaction City beauty	0.00975***	0.236***	-0.0300***	0.224***	1		
Dissatisfaction Affordable housing	0.0207***	0.308***	-0.0221***	0.252***	0.332***	1	
Dissatisfaction Quality air	0.0179***	0.170***	-0.0396***	0.235***	0.308***	0.200***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.17: Impact of health, healthcare and traditional controls on migration aspirations in Africa

	Aspirations to move within 12 months		Aspirations to move permanently abroad		Preparations to move permanently abroad	
	Benchmark	Proxy	Benchmark	Proxy	Benchmark	Proxy
Health problems	0.019***		-0.008		0.010	
	(3.65)		(-1.17)		(1.43)	
Dissatisfaction health (Q6)		0.011*		0.016***		-0.004
		(1.94)		(2.61)		(-0.63)
Dissatisfaction Healthcare	0.032***	0.031***	0.038***	0.037***	-0.003	-0.004
	(7.96)	(7.82)	(7.56)	(7.35)	(-0.44)	(-0.51)
Observations	112,493	112,493	114,662	114,662	24,259	24,259
Origin FE and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Years	2008-2012	2008-2012	2008-2012	2008-2012	2010-2012	2010-2012
Countries	42	42	42	42	40	40

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.18: Impact of health, healthcare and traditional controls on migration aspirations in Africa

	Aspirations to move within 12 months		Aspirations to move permanently abroad	
	Benchmark	Proxy	Benchmark	Proxy
Health problems	0.001		-0.018***	
	(0.15)		(-3.27)	
Not near-perfect health (Q7)		-0.010		-0.023***
		(-1.43)		(-3.83)
Dissatisfaction Healthcare	0.023***	0.024***	0.035***	0.036***
	(5.01)	(5.03)	(8.12)	(8.19)
Observations	91,354	91,354	95,183	95,183
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2013-2015	2013-2015	2013-2015	2013-2015
Countries	40	40	41	41
Health problems	-0.003	-0.003	0.001	0.001
	(-0.18)	(-0.17)	(0.07)	(0.09)
Dissatisfaction Healthcare	0.049***		0.052***	
	(4.78)		(3.96)	
No confidence healthcare (Q8)		0.048***		0.062***
		(4.72)		(5.35)
Observations	15,457	15,457	15,456	15,456
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008	2008	2008	2008
Countries	17	17	17	17
Health problems	-0.003	-0.004	0.001	0.001
	(-0.21)	(-0.23)	(0.07)	(0.05)
Dissatisfaction Healthcare	0.050***		0.051***	
	(5.40)		(3.95)	
Closest doctor more than 1 hour (Q9)		-0.006		-0.020
		(-0.35)		(-1.48)
Observations	15,467	15,467	15,466	15,466
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008	2008	2008	2008
Countries	17	17	17	17
Health problems	0.006	0.006	-0.009	-0.010
	(0.65)	(0.60)	(-0.81)	(-0.86)
Dissatisfaction Healthcare	0.034***		0.040***	
	(4.45)		(5.48)	
No medicines or medical treatment (Q10)		0.019**		0.022**
		(2.19)		(2.45)
Observations	43,733	43,733	43,732	43,732
Origin FE and Year FE	Yes	Yes	Yes	Yes
Years	2008-2010	2008-2010	2008-2010	2008-2010
Countries	26	26	26	26

Notes: The table reports average marginal effects. The model includes country of origin and year dummies (not reported). All other controls are included in the specification but are not reported for considerations of brevity. Standard errors are robust to heteroskedasticity and clustered across origins. t statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.19: Impact of health and healthcare on migration aspirations in Africa, other macro variables - Average Marginal effects

	GDPpc	GDP growth	Disaster occ	Disaster freq	Conflict occ
Health problems	0.0108**	0.00993**	0.0117***	0.0121***	0.0116***
	(2.38)	(2.05)	(2.64)	(2.72)	(2.62)
Dissatisfaction Healthcare	0.0268***	0.0270***	0.0271***	0.0261***	0.0271***
	(7.32)	(7.34)	(7.78)	(5.82)	(7.81)
GDP per capita, PPP (log)	0.143**				
	(2.13)				
GDP growth (log)		0.00468			
		(0.98)			
Disaster occurrence			-0.0141		
			(-1.59)		
Disaster frequency (log)				0.00641	
				(1.29)	
Conflict occurrence					0.0103
					(1.12)
Observations	196,050	185,798	204,284	130,366	204,284
Health problems	-0.0139***	-0.0142***	-0.0130***	-0.0115*	-0.0130***
	(-2.73)	(-2.71)	(-2.59)	(-1.88)	(-2.59)
Dissatisfaction Healthcare	0.0374***	0.0361***	0.0365***	0.0356***	0.0365***
	(9.35)	(9.70)	(9.79)	(7.99)	(9.80)
GDP per capita, PPP (log)	0.294***				
	(3.08)				
GDP growth (log)		0.00250			
		(0.48)			
Disaster occurrence			-0.00734		
			(-0.73)		
Disaster frequency (log)				0.00662	
				(1.08)	
Conflict occurrence					-0.000621
					(-0.07)
Observations	201,799	191,475	210,316	134,157	210,316
Health problems	0.00858**	0.00905**	0.00975**	0.0137**	0.00970**
	(2.16)	(2.39)	(2.36)	(2.05)	(2.34)
Dissatisfaction Healthcare	-0.00479	-0.00393	-0.00491	-0.00650	-0.00485
	(-0.93)	(-0.81)	(-0.97)	(-0.72)	(-0.96)
GDP per capita, PPP (log)	-0.0297				
	(-0.79)				
GDP growth (log)		0.00591*			
		(1.89)			
Disaster occurrence			0.00158		
			(0.32)		
Disaster frequency (log)				0.00146	
				(0.48)	
Conflict occurrence					0.00651
					(0.44)
Observations	167,019	158,672	174,595	111,007	174,595

t statistics in parentheses

Standard errors are robust to heteroskedasticity and clustered across origins.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$