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## Role models and migration intentions

Sandrine Mesplé-Somps, Björn Nilsson

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# Research papers

## Authors

Sandrine Mesplé-Somps  
and Björn Nilsson

## Coordination

Rohen d'Aiglepierre  
and Anda David

## Role models and migration intentions



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## **Role models and migration intentions**

### **Sandrine Mesplé-Somps**

IRD, Université Paris-Dauphine,  
PSL Research University, CNRS,  
LEDa, DIAL

### **Björn Nilsson**

Université Paris-Saclay, DIAL

### **Abstract**

Role models—those individuals who resemble us but have achieved more than us—are thought to impact our aspirations. In this paper, we study the impact of role models on intentions to migrate. Specifically, we implement a randomized controlled trial to show documentaries in rural villages of Mali (Kayes region). These documentaries focus on economic opportunities and show either negative or positive portraits of migrants, or portraits of local people who have successfully set up flourishing businesses without ever considering migration. This paper adds to the larger debate about the efficiency of information provision. We find very few significant impacts, none of which hold when attrition is controlled for using non-parametric Lee bounds. We also implement a treatment heterogeneity analysis using a causal forest algorithm, which aside from confirming our average treatment effects suggests the presence of heterogeneity. It appears that individuals with living conditions that could facilitate migration are less likely to be significantly impacted. The high aspirations to improve living conditions, coupled with a strong feeling of lack of control over the future may help explaining the fact that confrontations with real life experiences do not significantly modify average aspirations to migrate.

### **Keywords**

Information provision, role models, migration intentions, aspirations, Mali.

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## Résumé

On pense que les modèles, ces individus qui nous ressemblent mais qui ont accompli plus que nous, ont un impact sur nos aspirations. Dans cet article, nous étudions l'impact des exemples à suivre sur les intentions d'émigration. Plus précisément, nous mettons en œuvre un essai contrôlé et randomisé qui consiste à montrer des documentaires dans des villages ruraux du Mali (région de Kayes). Ces documentaires se concentrent sur les opportunités économiques et montrent soit des portraits négatifs ou positifs de migrants, soit des portraits de populations locales

qui ont réussi à créer des entreprises florissantes sans jamais envisager de migrer. Ce document s'ajoute au débat plus large sur l'efficacité de la fourniture d'informations. Nous trouvons très peu d'impacts significatifs, dont aucun ne tient lorsque l'attrition est contrôlée en utilisant des bornes de Lee non paramétriques. Nous mettons également en œuvre une analyse d'hétérogénéité de traitement à l'aide d'un algorithme de forêt causale, qui, outre la confirmation de nos effets moyens de traitement, suggère la présence d'une hétérogénéité. Il semble que les personnes dont les conditions de vie pourraient

faciliter la migration sont moins susceptibles d'être touchées de manière significative. Les aspirations élevées à améliorer les conditions de vie, associées à un fort sentiment de manque de contrôle sur l'avenir, peuvent contribuer à expliquer le fait que les confrontations avec des expériences de vie réelles ne modifient pas de manière significative les aspirations moyennes à migrer.

## Mots-clés

Fourniture d'informations, modèles à suivre, intentions de migration, aspirations, Mali.

## Introduction

Concern about increased migration from Sub-Saharan African countries has prompted international organizations such as the International Organization for Migration (IOM) and the European Commission to fund information campaigns to influence perceptions of migration in Sub-Saharan Africa. For instance, the IOM project *Aware migrants*<sup>1</sup> produces music videos and short documentaries in association with African artists and media bodies for circulation in African countries. The European Commission's 2014-2020 *Asylum and Migration Fund* finances information campaigns on the dangers of irregular migration for broadcast in Sub-Saharan countries every year. The rationale behind these campaigns is to discourage irregular migration, if not migration per se. Other campaigns are designed to expand the base of information available to potential and current migrants. Examples of this are *InfoMigrants*, a partnership of three European news agencies providing information available to migrants on their journey, and *Telling the real story*, a UNHCR-funded source of personal accounts told by Ethiopian and Somali migrants who have crossed the Mediterranean sea.

The objective of this article is to examine the effects of the transmission of information on the intentions to migrate internationally and internally of Malian

people. Studies examining the causal impact of such campaigns are almost non-existent, two exceptions being Bryan et al. (2014) and Beam et al. (2016), which look at the impact of information in two Asian countries.<sup>2</sup> Bryan et al. (2014) analyze the causes of internal seasonal migration in Bangladesh by randomly assigning incentives to migrate, one of which is information on types of jobs available in pre-selected destinations.<sup>3</sup> Beam et al. (2016) conducted an experiment in a rural province of the Philippines, and analyze the impact of unilateral facilitation, which takes the form of information provision, assistance and a subsidy for a passport application. Both articles conclude that providing information about job opportunities at the destination does not generate any impact on migration behaviors. They also suggest that it is not so much the lack of information on the economic opportunities of migration that prevents people from migrating but the fact that financial constraints and risk aversion, particularly in such a context of extreme poverty like Bangladesh, are too strong to make the decision to migrate, even if this decision is beneficial for the economic well-being of all.

These conclusions are fairly consistent with the evidence from information campaigns conducted in the area of health. Several studies have shown that the usual information campaigns produced by NGOs or public information organizations fail to change opinions and behaviors

<sup>1</sup><http://awaremigrants.org/>, funded by the Italian Ministry of the Interior.

<sup>2</sup>See Tjaden et al. (2018) for a systematic literature review on evaluations of information campaigns that target potential international migrants.

<sup>3</sup>The other treatments are a cash transfer and a zero-interest loan to cover the travel cost of migration.

<sup>4</sup>For instance, Padian et al. (2010) found that only one in seven of interventions aimed at preventing sexual transmission of HIV was effective; There are also field experiments carried out to test the impact of *Educational Entertainment* (E-E) programs on behavior. Some experiments give mixed results (Paluck and Green (2009); Ravallion et al. (2015); Bjorvatn et al. (2019)), and other positive impacts (Banerjee et al. (2019); Green et al. (2020); Heong et al. (2008)). See DellaVigna and Ferrara (2015) for a more comprehensive survey on social and economic

of the targeted people.<sup>4</sup> One possible explanation of this ineffectiveness could be the fact that these campaigns do not take sufficient account of the way in which information is conveyed. As emphasized by Bernard and Taffesse (2014) and Bernard et al. (2015), films featuring *role models* similar to viewers reinforce the reach of information campaigns as they allow people to relate more easily to the situations the characters are living. Bernard and Taffesse (2014) show that showing documentaries of successful individuals from the same region of Ethiopia as their sample affected both viewers' investment in their children's education and other future-oriented behaviors. In Uganda, low-performing secondary students who saw a movie featuring a potential role model had better exam results than those who were invited to see a placebo film (Riley (2018)). The efficiency of role model movies is rooted in social psychology theory. Attitudes and behaviors are strongly shaped by the experience of fellow human beings, and documentaries showing fellow human beings may be able to substitute for actual peers' experiences. The main objective of the article is to test the impact of role models' migration stories on migration intentions of rural Malian male youth. In doing so, we provide evidence on the efficiency of information transmission on migration intentions from a hitherto unexplored region—Sub-Saharan Africa—and through a new means of communication—documentaries featuring role models.<sup>5</sup> Perhaps closest in spirit to our paper is a recent experiment in Dakar, Senegal

impacts of the media.

<sup>5</sup>In addition to a pure geographical factor, the migratory contexts of Bryan et al. (2014) and Beam et al. (2016) are different from ours. The first focuses on seasonal internal migration, solely, whereas we are interested in long-term internal and international migration. The second is carried out in the Philippines, a country with a strong political framework facilitating formal migration.

which finds that peer-to-peer information events about risks reduced intentions to migrate irregularly of potential migrants (Tjaden and Dunsch (2020)). Our work however distinguishes itself from theirs in at least four ways: 1) our sample is representative of the population in the study area, including individuals willing and unwilling to migrate; 2) we focus on both positive and negative information related to migration; 3) we include as a treatment arm information provision related to local economic opportunities; 4) our study is conducted in a rural area.

Related to the above distinctions, a second objective of our work is to test the impact of non-migrant experiences on migration intentions. Information campaigns aimed at influencing migration generally inform about the advantages and disadvantages of migration *per se*, but not about the potential socioeconomic opportunities available at home. In a country such as Mali, where mobility is strongly rooted in habits and where the migration of a household member is potentially perceived as the only way to improve household living conditions, local opportunities for economic success may be poorly known. Consequently, the causal impacts of three videos featuring role models on migration aspirations are estimated: one from a successful migration experience, one from risks on the route of migration, and one from a positive non-migration experience.

To provide answers to our research questions we implement a randomized



controlled trial to analyze how young men's migration intentions in rural Mali react to the exposure to documentaries depicting life stories of migrants and non-migrants. The documentaries portray individuals of the same sex, age group and geographical origin as our study population, and were filmed by a Malian anthropologist specialized in visual communication. We conducted the experimental study in rural areas of Kita district (Kayes region, Mali) where young male viewers were exposed to either a successful non-migrant life story, a successful migrant life story or a an unsuccessful migrant life stories. The main variable of interest is aspiration to migrate, captured by the intention to leave one's locality for a period of at least six months. Whereas migration aspirations are shaped by complex factors, among them economic and professional aspirations and role models, the decision to migrate and the act of migration are conditioned by people's economic, social and policy environment (at the local, national and international levels). Given said environments, some individuals can be thought of as *involuntary non-migrants*, i.e. individuals who wish to migrate but who are not in a position to fulfill this wish (Carling (2002); Carling and Collins (2018)). Conceptualizing migration as a function of people's capabilities and aspirations to move can help to achieve a richer understanding of migration behavior (De Haas (2014b)). For instance, media and education tend to extend people's projects, to change their perceptions of well-being 'here' and 'there' that could in turn shape their migration aspirations, without actually modifying migration behavior in the short run.

Very few research papers investigate migration aspirations. Analyzing data from Egypt, Turkey, and Morocco for households with family members living abroad, Van Dalen et al. (2005) identify a positive effect on the emigration intentions of stayers. Drawing on qualitative data, Jonsson (2008) explains how young Malian men's international migration aspirations relate to the structural and cultural features of the local Soninke community. She shows that the young men who aspire to migrate are constrained to *immobility* and construct their social identities in the context of these constraints. Analyzing qualitative and quantitative data from the EUMAGINE project in Senegal,<sup>6</sup> Schewel (2015) also addresses the question of *immobility* of young men. In-depth interviews reveal the motivations of staying, among them the desire to live with their family, their loyalty to their country, as well as repelling narratives about the difficulties of life of migrants abroad. On the other hand, Becerra (2012) shows that migration intentions of Mexican adolescents are not correlated with their levels of perceived discrimination in the USA. Finally, Docquier et al. (2014) use representative Gallup polls to empirically analyze what country-specific and bilateral factors determine the size of the pool of potential (aspiring) migrants on the one hand, and actual migrants on the other hand. Their results confirm the cost-benefit model used as the basis of economic studies of migration. They find that the average income at destination and the presence of networks of previous migrants are robust and quantitatively significant determinants of potential migration rates. These studies have different focuses and methodologies, and based on them it is difficult to draw

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<sup>6</sup>Imagining Europe from the Outside, <http://eumagine.org/>

general conclusions about the precise role of access to information on migration aspirations.

Our results suggest that the documentary showing a positive migration experience has no significant average impact on aspirations to migrate abroad or within Mali. Viewing a documentary that provides information on bad conditions in migration increases aspirations to move within Mali (precisely to Bamako). Finally, being exposed to a story of non-migrant positive professional success has a positive impact on migration intentions to Sub-Saharan African countries. However, these results are no longer statistically significant when we impose non-parametric bounds on the effects in the manner of Lee (2012). We also investigate treatment response heterogeneity through a causal forest Machine Learning algorithm Athey and Imbens (2016). The results suggest the presence of heterogeneity for several

outcomes and treatments: people with living conditions that could facilitate migration are less likely to be significantly impacted by the treatments. We finally hypothesize that the lack of a significant average impact of migrant and non-migrant stories can be explained by the fact that hopes placed in the beneficial effects of migration are sufficiently high that improved local economic prospects are not enough to change aspirations to migrate. Furthermore, our data also shows that the films did not modify the feeling of control over individuals' future.

In the following section, we present the background and the experimental design. Section 3 is devoted to the presentations of the empirical strategy. Section 4 presents the results. Section 5 goes into more detail in explaining our results by discussing various mechanisms influencing migration aspirations, and section 6 concludes.

# 1. Experimental design and Data

Our experiment consists in showing documentaries at the village level. These documentaries, filmed by a visual anthropologist, are life stories told by the main protagonists, and deal with the subjects of labor market opportunities and migration. The films were randomly allocated to villages and shown to individuals surveyed in the first round. The following subsections describe the setting in which the interventions took place, the interventions (contents of the films, sampling, data collection and randomization of the treatment, the nature of projections and their attendance) and aspirations to migrate at baseline.

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## 1.1. Setting

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Our intervention took place in the administrative *cercle* of Kita, one of seven *cercles* of the region Kayes. The region has a long history of international migrant flows, being sometimes considered as the prime Malian region of international emigration: Kayes indeed stands out among Malian regions, capturing some 38% of emigrants, although its share in the total population stands at a mere 14%.<sup>7</sup> Sikasso, bordering Côte d'Ivoire, represents the second most important region from which Malians emigrate. In terms of the emigration rate, Kayes indeed comes first, with an emigration rate of 4.7%, followed by Sikasso (2.7%), while, at the national level, the emigration rate is 1.8%. Traditionally, migrants from the Kayes region belonged to the *cercles* of Kayes, Yélimané, Nioro, Diéma, but nowadays one quarter of migrants from Kayes are coming from Kita.

The *cercle* of Kita is the region's easternmost *cercle*. Its homonymous capital city Kita is located a two-hour drive from Bamako, the capital. In the last census of the area (2009), the *cercle* was home to some 434,000 individuals distributed across 33 municipalities. The population is overwhelmingly rural, with 87.4% of the census population residing in rural areas. In the east, the *cercle* shares a border with Koulikoro Region. In the south, the *cercle* borders Guinea. In the west, it shares borders with the *cercles* of Kéniéba and Bafoulabé, and in the north with the *cercle* of Diéma. Ethnically, the area is home to the Maninka people, with a majority of residents in 2009 declaring Maninka to be their mother tongue. The Maninka people were at the origin of the formation of the Bambara ethnic group, whose language is Mali's lingua franca, and the two dialects are mutually intelligible. A small minority (around 8%) of individuals declare another language than Bambara or Maninka as their mother tongue, generally Fulfulde or Soninke.

The *cercle* of Kita boasts the largest number of municipalities in the Kayes region and is also home to villages spread over larger areas than those of the other *cercles*. Until fairly recently, however, Kita remained a sparsely populated and economically marginal area due to its location south of the historical borders of the Ashanti Empire and within the areas struck by vector-borne diseases such as river blindness and trypanosomiasis (Brottem (2018)). Things

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<sup>7</sup>Source: the EMOP survey (*Enquête Modulaire et Permanente auprès des Ménages*) 2016, our own calculations.

**Figure 1: Kita and Mali Map**



changed, however, with the roll-out of a successful river blindness eradication program from 1974 to 2002 and the establishment of a cotton ginning factory by the national textile development company (CNDT) in the 1990s. Kita boasted substantial population growth in the second half of the 20<sup>th</sup> century, growing to become the second most populated of Kayes' seven cercles by 2009, behind the *cercle* of Kayes.

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## 1.2. The interventions

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### 1.2.1. The Films

Our intervention sought to evaluate the impact on migration intentions of watching documentaries reporting on migration experiences and success stories from the local community. Three documentary films were conceived and filmed by Sidylamine Bagayoko, a Malian anthropologist specialized in visual communication. The three films all portray young men from rural areas of Kita telling stories about their lives. The films last about 20 minutes, which is about the same length as the *placebo* film we show in control villages. Protagonists speak in Bambara, and the films were subtitled in French.

The first film, "Diakolou and Badri", focuses on a successful migration story featuring two car mechanics. One worked in Ghana and Côte d'Ivoire, and the other in Libya. The skills and experience they acquired abroad helped them set up and grow their own current local businesses with many workers and apprentices on their payroll. Diakolou, for example, is the only person in Kita who can use hydraulic scissors designed for work on trucks, a skill that landed him a contract with the Japanese Development Agency working on the construction of a bridge in the area.

The second film tells the story of Bamadi, who migrated to Libya through Algeria. After a long spell in Libya pending passage to Italy, which never materialized, he ran into an ambush in the capital Tripoli together with two of his countrymen. He escaped, but took a bullet in the leg which put him in the hospital for a month. It was only with the help of his brother who sent money that he managed to return to Mali and, after being examined by the local hospital, was able to undergo surgery in Bamako and return to his home region. He still needs a walking stick to move about and the injuries sustained during migration prevent him from working. The entire family's financial situation has deteriorated since Bamadi's migration episode and he deeply regrets ever having left his home village.

The third film portrays two young men called Bablen and Lassina who have successfully set up and grown businesses in their local communities, without help from government or NGOs. The first is a farmer who makes a good living from his farm, regularly investing to buy more livestock and also a mill--the only one in the village--which he rents to villagers. The second runs a small money transfer service, which has become an important feature in the village. He explains how he has become an important figure in the local community since the start of his venture and how he has been able to plough more and more money back into his business, which is continuously growing. This film thus sends a message of the potential for success in the local area.

By using short documentaries recounting life stories of inhabitants of Kita, our aim is to identify a clear link between exposure to potential role models and subsequent outcomes. Our experiment is close to Bernard and Taffesse (2014) or Chong and La Ferrara (2009) who show that exposure to role models through documentaries or TV programs impacts behavior. In the case of migration behavior, it is typically assumed that potential migrants lack information, that available information prior to the exposure to the documentaries is missing or inaccurate. Moreover, the new information provided by the documentaries has to be trusted and believed by the treated individuals. Our hypothesis is thus that the provision of information through role models may affect perceptions on opportunities and risks.

### **1.2.2. Sampling, data collection and randomization**

We limited our focus to rural areas and set the sampling frame at village level. The National Statistics Office defines 310 of the cercle's 324 villages as rural. Using population data from the 2009 census, we removed villages with a small number of males aged 9-26 years old in order to ensure that a sufficient number of eligible individuals (aged 18 to 35) would be present for the baseline in 2018. This reduced the number of villages to 289, which constituted our sampling frame. The sample can thus be considered representative of rural Kita with the exception of very small settlements. We randomly selected 200 of the 289 villages in the sampling frame.

Within the 200 villages, an enumeration area (based on the census enumeration areas) was randomly selected. This enumeration area could lie in the main village, or in a hamlet

in proximity to the village. Our sampling scheme is thus a clustered one with unequal cluster sizes. The sampling of individuals and the baseline survey took place in October–November 2018. In each village, 10 individuals from 10 different households were selected for interview. Upon arriving in each designated cluster, surveyors first enumerated all  $N$  households in the cluster. In each cluster, 20 households were selected. 10 main households, and 10 replacement households. A sampling step equal to  $S = \frac{N}{20}$  was computed, and a random number comprised in the interval  $[1, S]$  was drawn, designating the starting point. Surveyors then advanced through their enumeration lists in steps equal to  $2S$ , to ensure geographical spread of selected households. Data collection was ensured by 11 surveyors who used motorbikes to move around in the *cercle*, gathering data on tablets using the software <https://www.census.gov/data/software/cspro.html> CSPro 7.1.

Since women’s migration departures are closely linked to men’s, and individual female migration remains a relatively marginal phenomenon in Mali, we only interviewed men. Within each household, a list of eligible members was established—that is, men of ages 18 to 35. The tablets used for data collection then randomly selected an eligible individual for interview. In total, 2004 individuals in 200 villages were surveyed in the first round. In 7 villages, 9 individuals were surveyed; in 9 villages, 11 individuals were surveyed and in one village, 12 individuals were surveyed. In remaining villages, exactly 10 individuals were surveyed.

Our endline survey took place in May–June 2019, and mobilized the same surveyors. Given the high levels of short-term mobility, only 1,469 of the individuals (73.3%) were found in their original village at that date, 22 of whom turned down a follow-up interview. Information was collected on the whereabouts of absent individuals and their potential return date and means of contact. In July and August, investigators hence tracked absentees with a good success rate (408 of the 535 second-round survey absentees were found and interviewed, mainly in their villages). In total, 1,855 out of 2,000 individuals (92.6%) were thus re-interviewed in the second round.

Randomization of the treatments took place at the village level.<sup>8</sup> Four groups of 50 villages were drawn. In order to reduce variance and to increase the probability of having groups equal in dimensions considered important, the randomization was stratified in the following dimensions: the share of interviewed who had lived at least 6 months abroad, the share of unemployed among the interviewed, the share of interviewees with current migrants in their household, and the share of interviewees having never been to school. The extent to which one should stratify has been the subject of debate in the literature. Some authors have claimed that stratification should be pushed to the limit, to achieve so-called pairwise randomization (Imai et al. (2009)). In our case, this would imply creating 50 groups of 4 villages each and to assign each one to a different treatment. Although this method does produce the most precise point estimates, Klar and Donner (1997), and later Imbens (2011);

<sup>8</sup>For several reasons, individual randomization is infeasible in this setting. First, it would be difficult to show different films to different villagers who are neighbors and spend time together in the evenings. Second, and more importantly, there are reasons to fear important spillover effects in such a case. This is less the case at the village level, since villages in Kita are quite distant.

Athey and Imbens (2017) raise concerns about pairwise randomization, since the estimator for the variance in the case of pairwise randomization is upward biased. On the practical side, stratification may also produce so-called *misfits*, when strata are not perfect multiples of our number of treatments. The willingness to reduce the number of misfits pleads for a conservative stratification when randomization takes place at the cluster level, and we thus stratify on four variables, creating 16 different strata.

In each strata, villages were randomly assigned to four groups. Each of the first three groups was shown one of the three documentaries. The fourth group was shown a film (a placebo) that had nothing to do with migration or professional success. This film was a well-known Malian comedy featuring an individual from the region of Segou trying to win back his wife who left him for a wealthier man.

Village averages by group are shown in Table 1.2.2 and suggest no major differences among our four groups. Comparing to the control group (Group 1), only in the dimension “Share with current migrants in household” is the difference significant (for Group 4), at the 10% significance level.

**Table 1: Village averages, by group**

	Group 1	Group 2	Group 3	Group 4
Average age	25.44	25.32 (0.79)	25.01 (0.32)	25.54 (0.82)
Share never been to school	0.37	0.37 (0.97)	0.38 (0.78)	0.33 (0.32)
Share with mother who is alive	0.88	0.88 (0.97)	0.88 (0.94)	0.89 (0.75)
Subjective living conditions (1 - 4 scale)	2.88	2.89 (0.88)	2.83 (0.67)	2.88 (0.97)
Share whose household has a motorbike/car	0.68	0.69 (0.82)	0.70 (0.76)	0.67 (0.71)
Share whose household has a solar panel	0.58	0.60 (0.73)	0.57 (0.91)	0.57 (0.89)
Share with any economic activity last week	0.74	0.72 (0.76)	0.70 (0.53)	0.79 (0.47)
Share that wants to migrate	0.64	0.60 (0.45)	0.57 (0.17)	0.59 (0.32)
Share that wants to migrate abroad	0.31	0.38 (0.13)	0.30 (0.90)	0.29 (0.69)
Share which ever left village	0.61	0.60 (0.97)	0.56 (0.34)	0.59 (0.79)
Share that ever went abroad	0.21	0.24 (0.45)	0.23 (0.72)	0.24 (0.41)
Share with return migrants in household	0.49	0.40 (0.17)	0.45 (0.53)	0.38 (0.11)
Share with current migrants in household	0.65	0.55 (0.12)	0.62 (0.56)	0.53* (0.05)
Share with current int. migrants in household	0.35	0.33 (0.72)	0.34 (0.94)	0.33 (0.76)
N	50	50	50	50

P-values from t-tests with respect to Group 1 averages are in parentheses under each statistic.

### 1.2.3. Screenings and attendance

The documentary screenings took place in February and March 2019, using a projector, a portable speaker and a white sheet as a screen. The time period chosen implies that the

follow-up survey takes place 2 to 4 months after the intervention. The choice of this interval relied on the idea that very short-term effects on intentions are unlikely to translate into actual behavioral changes. The fact that the effects of information campaigns may be short has been shown by Facchini et al. (2016) in Japan, where the impacts of an information campaign destined to improve attitudes towards migration were reduced by a factor comprised between one third and two thirds less than two weeks after the intervention. Similarly, in an online experiment giving professional forecasts on economic growth, Roth and Wohlfart (2020) find that the sample's learning rate drops from 0.318 to 0.129 after two weeks. Just after arriving in the village, investigators invited baseline interviewees to a film screening. The screenings were scheduled at night in order to maximize interviewee availability and escape bad visibility due to daylight. More than one screening was sometimes scheduled, when all interviewees were not available at the same time. For practical reasons, other villagers were not prevented from watching the films, provided they did not interfere with the screenings. We did however collect data on the number of non-interviewees in the audience and on their nature.<sup>9</sup>

Investigators were asked not to start up a discussion about the contents of the films and not to partake in discussions with interviewees on the subjects related to the films. They were, however, instructed not to interfere should such discussions spontaneously arise. Where individuals could not be found, other family members (or occasionally the village head) were asked to provide information about their current whereabouts.

Table 1.2.3 shows the statistics on the presence and absence of interviewees during screenings. These took place in February–March, corresponding to a period of little agricultural activity. Since there is less need for work during this period, many young people go elsewhere to engage in a temporary economic activity pending the start of the next crop season. This is reflected in the rate of presence shown in the table, where only 75.3% of individuals were present and willing to attend the screenings of our films. At least 31% of the absentees were in the *cercle* of Kéniéba (close to the border with Guinea and Senegal), where work is to be found in the area's many gold mines. Indeed, 39% of the missing youth were reportedly mining gold in Kéniéba, elsewhere in Kayes or in Guinea or Senegal. A further 29% were engaged in other economic activities elsewhere and the remaining individuals for whom the occupation is known were mainly on short errands visiting family, receiving healthcare, or attending school in another locality. The occupation of 18% of absentees however remains unknown.

Few individuals refused to attend screenings, and for practical reasons, other villagers were allowed to attend. Table A (Appendix) shows that in a majority of villages, more than 10 non-interviewed individuals assisted, and that the village head was often present. In the vast majority of cases, screenings ran uninterrupted, but occasionally they were interrupted due to phone calls received or technical difficulties. In all such cases, screenings were able to resume quickly. Due to an error by one of the surveyors, the wrong film was projected in one of the villages.

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<sup>9</sup>Whether the imam or the Village head were present, for example.



**Table 2: Presence at screening and location of absentees**

Source: Authors' computations from village sheets filled out by surveyors.

<u>Presence at screening</u>	N	%
Present	1508	75.3
Absent	475	23.7
Sick	1	0.1
Not approached or found	6	0.3
Refused to assist	11	0.6
Missing data	3	0.2
Total	2004	100
<u>Location of absentees</u>		
Kita city	53	10.9
Elsewhere in Kita <i>cercle</i>	32	6.6
Kéniéba <i>cercle</i>	151	30.9
Elsewhere in the Kayes region	39	8.0
Bamako	48	9.9
Elsewhere in Mali	23	4.7
Abroad	37	7.4
Uncertain <sup>1</sup>	40	8.0
Unknown	52	10.9
Total	475	100

<sup>1</sup> Corresponds to cases where a location was filled out, but where we were unable to find that location on a map and categorize it.

### 1.3. Migration aspirations at baseline

The baseline survey shows the importance of migration in the life plans of young rural men in Kita. A full 60% of the 2,000 individuals surveyed said they wanted to leave their place of residence for a period of at least 6 months. Nearly all of them wanted to leave to improve their standard of living, with few expressing a desire to leave to get away from their families or to have more freedom (19 of the 1,200 individuals wanting to leave). They had high hopes that migration will improve their living conditions, which three-quarters of them saw as only fair, if not difficult (Table A in Appendix). Migration was therefore perceived as a significant opportunity to escape their current conditions. Yet it is not just international migration that is considered, but also migration within the country to areas of employment such as the mines of Kéniéba. These areas represent a substantial source of income to supplement agricultural earnings. Young people go to work there either between two crop seasons or live there for short periods of less than five years.<sup>10</sup> A total of 28% of the entire sample (or 47% of those wishing to migrate) said they wanted migrate within Mali – essentially to Kéniéba or Bamako – and only one-third of these planned to migrate for more than one year.

Among those considering migration abroad, more than half were looking to leave the African continent. Just 9% of the total sample of men would have liked to move to another Sub-Saharan African country (most often Gabon or Côte d'Ivoire), 4.5% to North Africa (Algeria

<sup>10</sup>Only the latter will be captured as potential migrants in the survey due to the 6 month criterion for migration.

**Table 3: Sociodemographic characteristics of individuals with and without migration intentions**

Source: Authors' computations from ETAM I (baseline survey).

	Total	Wish to migrate <sup>1</sup>	No wish to migrate	Statistical difference between (2) and (3)
	(1)	(2)	(3)	(4)
Age	25.3	25.2	25.5	ns
%				
Have been to school	63.7	65.3	61.1	*
Have completed primary school	41.6	43.2	39.3	*
Maninka (mother tongue)	59.4	58.5	60.6	ns
Work in agricultural sector	79.4	81.2	76.8	*
Unpaid family worker	71.7	72.6	70.3	ns
Father farmer	81.3	80.5	82.4	ns
Mother inactive	17.8	21.8	11.9	***
Household head's son	65.5	67.7	62.3	**
Household head	14.4	11.1	19.3	***
Married	58.9	57.8	60.4	ns
Have children	46	44.3	48.4	*
Symptoms of depression <sup>2</sup>	21.7	26.9	13.8	***
Suffering from a disease <sup>3</sup>	63.5	66.3	59.3	**
N	2,000	1,200	800	

Notes: <sup>1</sup> The question administered to identify migration aspirations was: "Do you wish to live abroad or in another circle in Mali in the future, for a period of more than 6 months?"

<sup>2</sup> Nine standard questions were asked to define whether people were depressed: a person was defined as suffering from depressive symptoms if s/he answered more than five questions positively.

<sup>3</sup> People were asked if they suffered from one of the following diseases: chronic respiratory infection, cardiovascular disorder, malaria, HIV/AIDS, tuberculosis, cancer, diabetes, psychiatric disorder, liver or stomach disease.

ns: difference not statistically significant; \* difference statistically significant at a confidence level of 10%; \*\* 5%; \*\*\* 1%.

or Libya), while 18.5% wanted to leave Africa and placed France, Spain and Italy at the top of the list of destinations they would like to reach. The vast majority of them intended to stay in these countries for more than a year. When asked why they had not yet left the majority evoked lack of resources to finance the journey. In this regard, internal migration (and also international migration) can sometimes occur as a way of securing the financial capital individuals need to realize their long-term plans. It is interesting to note that the vast majority of respondents (over 60%) stated that their migration project was a personal project, and that they did not want their family to be informed about it. This suggests a desire to free oneself from pressure from elders to support the family once they have migrated.

As has been well documented by previous research, we observe that the young men who would like to migrate are more often than not the son of the household head and have fewer children than those who do not express any willingness to migrate (Table 1.3); they also work more in the agricultural sector and are slightly more educated. Interestingly, they displayed more of a tendency to be depressed and to have more mental or physical health problems. There appears to be almost no differences between those who want to migrate abroad and those who would like to migrate within Mali, with the exception of ethnic group and health status: those who wish to migrate abroad are less likely to be Maninka or have

health problems (Table A in the Appendix). These 'negative' feelings go hand in hand with a stronger sentiment of living in poverty. As can be seen from Table A in the Appendix, the young people aspiring to migrate express less satisfaction with the living conditions in their household, although we do not observe any statistically significant differences in their objective standards of living (as measured by the number of durable goods owned).

## 2. Empirical strategy

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### 2.1. Experimental integrity

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The internal validity of the impact evaluation relies on the comparability of the three treatment groups and the control group. Tables A through A in the Appendix report balance tests for the three treatment experiments on a variety of individual and household level variables. No significant differences are found across treatment groups and control group in individual characteristics like age, education level, ethnicity, economic activity, parent's occupational status, marital status, etc. Yet, there is a small imbalance between the control and Film 1 in the proportion of people suffering from depression.<sup>11</sup> There are also no differences in subjective and objective living conditions. There are no differences in the average number of durable goods owned by household as well as for each type of durable good owned among them motorbike or car, TV, power generator, solar panel, one exception being a lower percentage of individuals that declare owning bikes in the control group compare to the three treatment groups. There is only one significant difference in migration behavior, the percentage of individuals with current migrants in their households is higher in for Film 3 than in the control group. Most of the outcomes related to migration aspirations appear not to be significantly different across groups. However, intentions to migrate in Mali (Film 1) and specifically to Bamako (Films 1 & 2) are significantly higher in the control group.

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### 2.2. Empirical strategy

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#### 2.2.1. Baseline model

Since the projections of the films were randomly assigned, our variable of interest is in expectation uncorrelated with the error term and can therefore be estimated through OLS. For each outcome of migration aspirations, we first show the estimation results of an equation of the form:

$$I_i = \alpha + \beta F_i + \gamma X_i + \epsilon_i \quad (1)$$

Where  $I_i$  denotes an outcome variable related to migration intentions at endline, measured as the willingness to leave their place of residence for 6 months or more,  $F_i$  is a categorical variable denoting the film shown in the village of individual  $i$ , and  $\epsilon_i$  a stochastic error term. Following the results of the balance checks discussed above, and to improve the precision of the estimation of the average treatment effect, a small set of controls  $X_i$  is included in the equation. Controls are dummy variables indicating depression, whether or not there is at least one current migrant in the individual's household, and if the household owns a bicycle.

Knowing that some of our outcomes of interest - aspiration to migrate inside Mali and more particularly to Bamako - are not balanced at baseline, our preferred specification is a fixed

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<sup>11</sup>Nine standard questions were asked to define whether people were depressed: a person was defined as suffering from depressive symptoms if s/he answered more than five questions positively.

effect regression capturing differences in differences. We thus control for unobservable time-invariant characteristics that could shape migration aspirations. We also include time-varying control variables: a dummy for suffering from a physical disease<sup>12</sup> and a dummy for depression. We are therefore confident that differences in outcomes at endline between control and treated groups are not driven by initial conditions or other factors than the viewing of films. The equation is:

$$I_{i,t} = \alpha + \beta F_i \times t + \gamma X_{i,t} + \delta_i + \sigma t + \epsilon_{i,t} \quad (2)$$

Where  $I_{i,t}$  denotes an outcome variable related to migration intentions,  $F_i$  is a categorical variable denoting the film shown in the village of individual  $i$ ,  $X_{i,t}$  refers to a vector of time-varying covariates,  $\delta_i$  is an individual fixed effect,  $t$  a time dummy and  $\epsilon_{i,t}$  a stochastic error term. In both specifications, the coefficient  $\beta$  captures an intention-to-treat (ITT) effect. Although uptake of our treatment—exposure to films—was excellent among individuals present in the village, absent individuals obviously could not watch the films. We follow common practice in the literature and estimate the LATE by instrumenting actually having attended a screening by our village treatment variable. We however also present the ITT effects.

Given our setup with 200 clusters of 10 individuals each, 4 equal-sized arms, a 5% significance level and 0.8 power, and given the standard deviations of our outcome variables and the estimated intraclass correlations of outcomes and clusters, the experiment is able to detect effect sizes from 0.02 to 0.10 depending on the arm and the outcome variable considered, with an average of 0.06.<sup>13</sup> Since treatment is assigned at the village level, we cluster the standard errors at the village level. Furthermore, since we distinguish outcomes by destination, our experiment does imply testing several outcomes, increasing the overall probability of committing at least one type I error. Romano and Wolf (2005) develop an algorithm controlling for the effects of such “data snooping” through stepwise multiple testing, allowing to control for the familywise error rate, the probability of falsely rejecting at least one of the true null hypotheses. We implement their method in Stata using the program written by Clarke (2016), and show significance levels both with and without the correction.

### 2.2.2. Attrition

Even if our attrition rate is fairly low (92.6% of baseline individuals were re-interviewed), attrition bias may still be a cause for concern. If attrition is due to migration, and migration is a result of our intervention, precisely those individuals who were most impacted by the films will not contribute to the estimated effect. In general, failure to relocate individuals can come from long-distance mobility (we did not seek to interview individuals whose

<sup>12</sup>People were asked if they suffered from one of the following diseases: chronic respiratory infection, cardiovascular disorder, malaria, HIV/AIDS, tuberculosis, cancer, diabetes, psychiatric disorder, liver or stomach disease;

<sup>13</sup>The minimum detectable effect is equal to  $MDE = (t_{1-\kappa} + t_{\frac{\alpha}{2}}) \sqrt{\frac{1}{P(1-P)}} \sqrt{\frac{\sigma^2}{N}} \sqrt{1 + (n_s - 1)\rho}$ , where  $n_s$  is the average cluster size (10 in our case), and  $\rho$  the estimated intraclass correlation coefficient.

families declared that they had moved to a foreign country<sup>14</sup>), death and failed tracking.<sup>15</sup> To attenuate the bias associated with attrition, we employed several methods. Wooldridge (2010) suggests a Heckman correction for attrition, using a Probit model in the first stage. In a second stage, the inverse Mill's ratio (IMR) is added to the list of explanatory variables in the model which is estimated in first differences. A suitable and much used instrument for attrition is the identity of the surveyor responsible for tracking down individuals in the second round. However, in our case the efficiency of surveyors has no bearing on those individuals who left the country. Moreover, attrition is clearly linked to some of our observables, primarily the willingness to move as captured at baseline. We thus first run a regression with inverse probability weights (IPW) in the spirit of Moffit et al. (1999) that allows to control for attrition bias linked to observables. The model used to predict the probability is a probit with a set of socio-demographic characteristics as independent variables: willingness to migrate, age, age squared, having Malinke as mother tongue, having been to school, whether or not the father is alive, being an unpaid family worker, having a father working in agriculture, having an inactive mother, matrimonial status, being the household head, having children, subjective poverty, living in a household with return or current migrants, having lived outside the village, surveyor dummies, and possession of two or more cell phone numbers.

As a second, more robust look at attrition, and following Lee (2012), we also estimate sharp bounds on the treatment effect. The assumption is that the treatment selection is monotonous, i.e. that assignment only affects sample attrition in one direction. The method relies on a trimming procedure so that the share of observations with an observed outcome is equal for the treated and control groups. The lower and upper bounds of the treatment effect are computed and correspond to extreme assumptions about missing information that are consistent with the observed data. In practice, the treatment arm with less attrition is being trimmed from below or above (whichever fits the data), removing the highest (or lowest) values and assuming complete bias.

### **2.2.3. Treatment response heterogeneity**

Finally, exploring treatment response heterogeneity can add value to experimental studies through identifying subgroups responding more or less to treatment. Recent advances in machine learning techniques provide tools to secularly explore such heterogeneity. Causal forests in particular have been shown to possess properties enabling for the estimation of a treatment effect with asymptotic confidence intervals [athey2016recursive](#), [athey2017econometrics](#). Based on the random forest algorithm by Breiman (2001), [Athey and Imbens \(2017\)](#) develop a causal forest algorithm that is shown to outperform  $k$ -nearest neighbor matching, in particular when the number of covariates is large, such as in our study. Several authors have successfully applied causal forests in the treatment literature [bertrand2017contemporaneous](#), [davis2017using](#)

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<sup>14</sup>For two reasons: first the great difficulty of conducting telephone interviews due to the length of the questionnaire and, second, the high cost of tracking individuals abroad in a lot of different places.

<sup>15</sup>There are other—rare— reasons for failure to capture interviewees a second time in the data, such as imprisonment.

We run the causal forest algorithm in R using the **grf** package. Similar to Athey and Wager (2019), and motivated by Basu et al. (2018) we first train a pilot random forest used to identify relevant covariates among a vector of variables at the individual, household and village levels. A second forest is then trained using only those covariates with an above-mean number of splits in the pilot forest, allowing the forest to make more splits in low-signal situations, which our baseline estimates suggest are our case. Furthermore, Athey and Wager (2019) adapt their algorithm to the presence of clustered effects on outcomes, such as those arising from being part of a school, or a village. They achieve this through drawing clusters in a first step, and then drawing the subsamples used to grow each tree from each cluster.

### 3. Treatment effects on aspirations to migrate

Table 3.3 presents the LATE treatment effects of the positive documentary on migration (Film 1), the negative documentary on migration (Film 2) and the positive documentary on non-migrant individuals (Film 3), on four variables that describe aspirations to migrate in other countries: the willingness to migrate abroad (column 1), which is decomposed by destination: to non African countries (mainly OECD countries, column 2), to Sub-Saharan African countries (column 3), and to North African countries (column 4), and three outcomes of internal migration aspirations: inside Mali (column 5), inside the Kayes region (column 6) and to Bamako, the capital city (column 7). Estimations from equations (I) (LATE) and (II) (LATE Dif-in-Dif) are presented. To assess the family-wise error rate, significance of all coefficients of interest are provided both before and after the Romano-Wolf correction.

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#### 3.1. Impact of being informed of positive experiences of migration

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Our priors are that Film 1 has a positive impact on aspirations to migrate abroad. Moreover, to the extent that film 1 shows individuals who have benefited from migrating within Africa, a larger impact can be expected on the willingness to migrate to African countries than on the willingness to migrate outside the continent. By testing the impacts of projections on aspirations to migrate inside Mali, we want to check if there are any 'substitution' effects. Specifically, being exposed to positive role model of international migration may reduce internal migration intentions.

The hypothesis of a positive impact of Film 1 on aspiration to migrate abroad, more specifically to Sub-Saharan African countries, is not confirmed. Coefficients are positive but not significantly different from zero in Table 3.3 (columns 1 through 4, first panel, first line). Coefficients for internal migration are indeed negative, but not significantly different from zero. Using a dif-in-dif estimator (Table 3.3, columns 1 through 7, first panel, second line), coefficients remain non significant and present variations in their signs. We thus conclude that Film 1 did not change the intentions to migrate abroad for individuals in our sample, at least not at detectable levels.

Given the nature of the intervention and the outcomes tested, attrition bias may impact the validity of the estimates. Specifically, if attrition is correlated to the intervention, such that attriters are more likely to have migrated and thus not been interviewed in the second round, our coefficients will be underestimated. The first way to see to what extent the treatments induce attrition is to decompose attrition rate in three components: departures due to migration abroad – bearing in mind that the protocol did not allow us to interview individuals who were not in Mali; departures within Mali of people that could not be found during the tracking, and finally incomplete questionnaires.<sup>16</sup> Table A in Appendix presents the decomposition of the attrition rate on the whole sample, on the control, and three

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<sup>16</sup>Death did not appear to be a cause of attrition.



treatment groups. Attrition appears to be mainly due to departures within Mali and abroad rather than incomplete questionnaires. The attrition rate attributed to departure abroad appears to be lower in treatment group 1 (positive film on migration) but the difference with the control group is not statistically significant. To more thoroughly investigate attrition, however, we also implement inverse probability weights to control for the impact of attrition due to observable individual characteristics. Table 3.3 presents the results. As can be seen in the first panel, the inclusion of inverse probability weights in the estimations only marginally modifies the estimated coefficients of the baseline model and has no bearing on significance.

The non-parametric trimming procedure of Lee (2012) confirms this absence of attrition bias (Table 3.3). Even if one upper bound and some lower bounds are significantly different from zero<sup>17</sup> suggesting that Film 1 could have a positive impact on aspiration to migrate abroad and a negative impact on the willingness to move within Mali, all of the confidence intervals that capture both uncertainty about the selection bias and uncertainty about the sampling error for the treatment effect itself contain zero.

To take stock, informing young males by the main protagonists of a positive migration experience does not significantly impact their international or internal migration aspirations. These results do not change when parametric or non-parametric attrition corrections are applied and are in line with what was found in other settings by Bryan et al. (2014) and Beam et al. (2016).

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### **3.2. Impact of being informed of negative experiences of migration**

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Organizations that want to reduce migration think that informing people about the dangers of travel reduces their desire to migrate and, down the line, their departures. We thus hypothesize that Film 2 will have a negative impact on aspirations to migrate abroad. The film portrays an individual who has suffered from deplorable living conditions in North African countries such as Libya and Algeria during his migratory journey. While we expect the film to reduce the willingness to migrate to North Africa and OECD countries, it might potentially increase willingness to migrate to Sub-Saharan African countries and favor willingness to migrate within Mali as alternative destinations.

The second panel of Table 3.3 reports the impacts of Film 2. As can be observed, this treatment has no impact on aspirations to migrate abroad (column 1). The point estimates are close to zero and non significant whatever the specification, OLS (LATE) or fixed effects (LATE Diff-in-Diff). It appears that the "substitution" effect hypothesis in destination countries is not validated. Aspirations to migrate to Sub-Saharan countries do not increase and willingness to migrate either to North African countries or outside Africa do not decrease after the viewing of Film 2 (Table 3.3, columns 2 to 4, second panel). However, a substitution effect can be potentially observed with internal migration. For the Dif-in-Dif estimator, the

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<sup>17</sup>i.e. when the highest (smallest) values are excluded from the analysis, actually when those who want (do not want) to migrate are excluded from the group with less attrition so that the share of observations is equal on control and treated groups.

film increases the willingness to migrate to Bamako (Tables 3.3, column 7, second panel). The point estimate of this last impact is 0.044, and remains significant after a Romano-Wolf correction.

However, as for Film 1, attrition may be a source of concern if treated individuals attrit less than untreated ones. Although the attrition rates are not significantly different between the control group and the treated group, whatever the sources of attrition (Table A in Appendix), the parametric specification of the selection bias confirms the positive effect on the propensity to want to migrate to Bamako (second panel of Table 3.3). However, the non-parametric Lee bound method invalidates this positive effect (Table 3.3). The upper bound is not significant and the confidence interval that captures both uncertainty about the selection bias and uncertainty about the sampling error for treatment effect itself contains zero. Consequently, we thus conclude that there is no robust impact on aspirations of the transmission of information on the possible dangers and failures of migration. This result is inconsistent with the one observed in Dakar by Tjaden and Dunsch (2020). Other than the targeted population (urban potential migrants) and the differences in experimental design, their experiment distinguishes itself from ours (and from similar experiments) by the presence of returnees after screenings. The possibility to ask questions about real individuals' experiences may indeed convey an element of trust to the information provision. At the same time, since their treatment combines a documentary with a discussion, it is difficult to elicit the relative benefits of the documentary and the subsequent exchange with returnees.

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### **3.3. Impact of being informed of positive experiences of non-migrants**

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Our last film has nothing to do with migration, and is intended to investigate the role of knowledge of local economic opportunities. Portraying successful entrepreneurs living in the region, it could be expected to have a negative impact on intentions to migrate abroad and within the country. However, it could also favor migration inside the Kayes region or even outside, at least for those who think that their locality of residence can't afford them proper conditions to realize their economic potential, or for those who do not have enough savings to develop their local activities and think about migrating temporarily to accumulate savings.

It appears that the representation of non-migrant professional success (Film 3) has no significant negative impact on international migration aspirations (last panel of Table 3.3). On the contrary, it has a marginally significant positive impact on aspiration to migrate to Sub-Saharan African countries (column 3, last panel, Table 3.3), the point estimate being equal to 6.2 percentage points, which increases to 9.2 percentage points when attrition is controlled for (last panel of Table 3.3). Nevertheless, the confidence interval obtained from the Lee bounds procedure contains zero. Furthermore, Tables 3.3, 3.3 and 3.3 show that non-migrant positive role models do not have any impact on internal migration: none of the coefficients in columns 5 to 7 are statistically different from zero.

In summary, viewing Film 3 did not robustly impact aspirations to migrate. Watching documentaries about fellow rural inhabitants of Kita who have succeeded in agriculture and small business

without any migration experience does not significantly decrease aspirations to migrate abroad or within Mali.

Since the LATE estimators do not indicate any significant results, once the attrition bias is corrected, logic dictates that ITT coefficients should not be significantly different from zero either. For the sake of space, Table A in the appendix presents only the bounds of the ITT estimators with the non-parametric correction of the selection bias, which confirm this intuition. All our qualitative results remain in this specification (not shown), but the point estimates are slightly lower, suggesting that if communication occurred between absentees and those present, it was not a perfect substitute for the screenings.

To sum up, the randomized controlled trial reveals no robust average impacts on migration intentions from the provision of information in the form of life stories about migration experiences and non migration experiences. When an average impact is found, it does not hold up to an attrition correction using Lee bounds.

**Table 4: Aspirations to migrate, baseline model**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Wish to migrate abroad	to North c.	to SSA c.	to North African c.	Mali	Kayes region	Bamako
<b>Positive Migrant Doc.</b>							
LATE	0.089 (0.072)	0.057 (0.064)	0.028 (0.027)	0.004 (0.022)	-0.035 (0.049)	-0.006 (0.043)	-0.009 (0.016)
Observations	927	927	927	927	927	927	927
LATE Dif-in-Dif	-0.012 (0.054)	0.022 (0.052)	-0.026 (0.034)	-0.008 (0.026)	0.100 (0.063)	0.064 (0.057)	0.026 (0.018)
Observations	1854	1854	1854	1854	1854	1854	1854
<b>Negative Migrant Doc.</b>							
LATE	-0.004 (0.069)	-0.005 (0.062)	-0.008 (0.024)	0.010 (0.021)	0.021 (0.049)	0.023 (0.043)	0.003 (0.020)
Observations	932	932	932	932	932	932	932
LATE Dif-in-Dif	0.001 (0.063)	-0.011 (0.052)	0.011 (0.036)	0.002 (0.025)	0.091 (0.072)	0.044 (0.065)	0.044 <sup>b,*</sup> (0.022)
Observations	1864	1864	1864	1864	1864	1864	1864
<b>Non Migrant Doc.</b>							
LATE	0.010 (0.069)	-0.014 (0.060)	0.023 (0.029)	0.000 (0.019)	-0.021 (0.048)	0.005 (0.043)	-0.016 (0.016)
Observations	909	909	909	909	909	909	909
LATE Dif-in-Dif	0.057 (0.059)	-0.001 (0.052)	0.062 <sup>c,**</sup> (0.034)	-0.003 (0.025)	-0.013 (0.064)	0.017 (0.057)	-0.030 (0.024)
Observations	1818	1818	1818	1818	1818	1818	1818
Mean dep. var. (%)	27.2	18.3	5.4	3.4	18.1	13.5	3.0

Note: Standard errors clustered at the village level; First estimator of each panel: LATE estimator with control variables: to declare suffering from depression, to have at least one current migrant in his household, and to live in a household having at least one bicycle; Second estimator of each panel: Dif-in-dif LATE estimator with fixed effect at the individual level and control variables: To declare suffering from depression or any other disease; *c*:  $p < 0.10$ , *b*:  $p < 0.05$ , *a*:  $p < 0.01$ ; Romano-Wolf p-values:\*

$p < 0.10$ , \*\*:  $p < 0.05$ , \*\*\*:  $p < 0.01$ . )

**Table 5: Aspirations to migrate, IPW correction for attrition bias, Late Dif-in-Dif**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Wish to migrate abroad	to North c.	to SSA c.	to North African c.	Mali	Kayes region	Bamako
Positive Migrant Doc.	-0.017 (0.060)	0.004 (0.056)	0.003 (0.039)	-0.024 (0.028)	0.070 (0.061)	0.027 (0.056)	0.026 (0.019)
Observations	1514	1514	1514	1514	1514	1514	1514
Negative Migrant Doc.	0.048 (0.061)	-0.013 (0.055)	0.041 (0.041)	0.019 (0.025)	0.057 (0.072)	0.006 (0.064)	0.045 <sup>c,**</sup> (0.027)
Observations	1472	1472	1472	1472	1472	1472	1472
Pos. Non-Migrant Doc.	0.072 (0.062)	0.002 (0.055)	0.092 <sup>b,**</sup> (0.038)	-0.022 (0.026)	-0.049 (0.066)	-0.026 (0.058)	-0.029 (0.027)
Observations	1486	1486	1486	1486	1486	1486	1486
Mean dep. var. (%)	27.2	18.3	5.4	3.4	18.1	13.5	3.0

Note: Dif\_in\_dif LATE estimator with fixed effect at the individual level, standard errors clustered at the village level; Control variables: To declare suffering from a disease or depression; Attrition bias is controlled for by the introduction of inverse probability weights of an attrition equation that includes: willingness to migrate, age, age squared, having Malinke as mother tongue, having been to school, whether or not the father is alive, being an unpaid family worker, father farmer, mother inactive, matrimonial status, being household head, having children, subjective poverty, living in a household with return or current migrants, having lived outside the village, surveyor dummies, and possession of two cell phone numbers; *c*:  $p < 0.10$ , *b*:  $p < 0.05$ , *a*:  $p < 0.01$ , Romano-Wolf *p*-values: \* :  $p < 0.10$ , \*\* :  $p < 0.05$ , \*\*\* :  $p < 0.01$ .

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**Table 6: Aspiration to migrate, control for attrition bias, Lee bounds procedure**

	Film 1		Film 2		Film 3	
	(1)	(2)	(1)	(2)	(1)	(2)
Wish to migrate	Lower	Upper	Lower	Upper	Lower	Upper
Abroad	.0373 [-0.0185	0.0658** 0.1196]	-0.0097 [-0.0679	0.0300 0.0846]	-0.0604* [-0.1178	-0.0240 0.0306]
Outside Africa	.0041 [-0.0492	0.0326 0.0807]	-0.0027 [-0.0519	0.0369 0.0812]	-0.0594** [-0.1091	-0.0240 0.0229]
Sub-Saharan African	-0.0066 [-0.0464	0.0219 0.0533]	-0.0523*** [-0.0814	-0.0126 0.0122]	-0.0249 [-0.0641	0.0105 0.0395]
North Africa	-0.0172 [-0.0458	0.0113 0.0339]	-0.0341** [-0.0599	0.0056 0.0288]	-0.0434*** [-0.0641	-0.0114 0.0094]
Inside Mali	-0.0622** [-0.1113	-0.0337 0.0103]	-0.0723** [-0.1210	-0.0326 0.0103]	-0.0610** [-0.1109	-0.0255 0.0171]
Kayes region	-0.0558** [-0.1012	-0.0272 0.0136]	-0.0656** [-0.1168	-0.0259 0.0158]	-0.0448 [-0.0917	-0.0093 0.0322]
Bamako	-0.0237* [-0.0450	0.0048 0.0251]	-0.0316** [-0.0537	0.0058 0.0259]	-0.0289*** [-0.0422	-0.0086 0.0077]
N	998		1010		986	
Number of selected obs.	927		932		909	
Triming proportion	0.0269		0.0373		0.0330	

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### 3.4. Heterogeneity in responsiveness

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Although average effects are not significantly different from zero, it may be that subsets of our sample experience positive effects, which are canceled out in the full sample. A common practice is to interact the treatment variable with subsample dummies to test for this. Such methods however rely on *ad hoc* definitions of candidate variables, and machine learning methods have been suggested as a better way of exploring heterogeneity. They furthermore hold the desirable feature of taking into account variable interactions and being able to search for heterogeneity in settings with a large number of covariates. We thus turn to the machine learning algorithm described in section 4.2.3, running the algorithm with some 132 explanatory variables.

Figures A, A and A in Appendix, show conditional distributions of the average treatment effect as estimated through the *causal forests* algorithm, effectively portraying the extent of heterogeneous responses to the 3 treatments. First of all, coherent with the absence of an impact of the three films, the majority of distributions are centered at or close to 0. An exception to this are the distributions of Individual Treatment Effects (ITE) for international migration and migration to Sub-Saharan Africa in Film 1. The estimated ATEs are indeed positive, but contained within the 95% confidence intervals. Turning to heterogeneity, the breadth (or “peakedness”) of some distributions does indeed suggest that heterogeneity may be present.

To understand to what extent heterogeneity is present in our treatment response, we fit the CATE as a linear function of the causal forest estimates through the use of two synthetic predictors as in Athey and Wager (2019), permitting the estimation of two coefficients capturing model adequacy and treatment heterogeneity respectively (Table 3.4). In all our specifications but two, the predictor associated with heterogeneity is significantly different from zero. This suggests the presence of general heterogeneity in treatment response. However, the fit of the mean forest predictor, which tells us about the ability of the forest to estimate an ATE, is not systematically significant.

Understanding across which dimensions heterogeneity operates is not straightforward, even in a machine learning setting. Although the individual treatment effect distribution can be inferred from the causal forest algorithm, there is no straightforward way of asserting which variables play an important role in shaping heterogeneity. Split frequencies and other measures of variable importance are sometimes used, but their interpretation is difficult due to the fact that causal forests—and other machine learning algorithms—are not constant in terms of model selection mullainathan2017machine. Combined with other information, they can however provide useful insights on where heterogeneity operates.

An informal examination of which variables may be associated with heterogeneity would be to order observations by quintiles of their estimated ITEs, and compute descriptive statistics by quintile. We do this for all films on the three outcomes of International migration, Internal

**Table 7: Estimates of mean and differential forest predictors**

	Mean forest prediction	P-value	Differential forest prediction	P-value
<b>Film 1</b>				
<i>International migration</i>	0.995	0.073	2.242	0.006
<i>Migration to SSA</i>	0.973	0.065	1.947	0.010
<i>Internal migration</i>	0.867	0.398	1.752	0.003
<b>Film 2</b>				
<i>International migration</i>	0.832	0.264	1.683	0.031
<i>Migration to SSA</i>	0.840	0.371	0.676	0.203
<i>Internal migration</i>	1.024	0.152	1.475	0.025
<b>Film 3</b>				
<i>International migration</i>	0.850	0.229	2.185	0.004
<i>Migration to SSA</i>	1.012	0.195	0.542	0.383
<i>Internal migration</i>	0.867	0.331	1.648	0.0033

Mean and differential forest predictions from the causal forests algorithm (Athey et al. (2019).)

migration and migration to Sub-Saharan Africa. We check if any variable means monotonically increase or decrease as ITE increases. This turns out to be the case for a set of variables at the individual level (age, type of activity, aspirations), at the household level (number of children and migrants for instance), and at village level, mainly distance to the capitals of Mali, Senegal and Abidjan and variables that proxy for local economic opportunities. We divide the sample into subgroups per these variables (using 1<sup>st</sup> and 4<sup>th</sup> quartiles for continuous variables) and compute differences in ATE and the associated confidence intervals (results not shown). Table 3.4 lists, by films and outcomes, variables that are significantly associated with heterogeneity. The effects of different treatments on migration aspirations are essentially conditioned by factors that constrain or facilitate the decision to migrate, such as being a household head, being young, being a farmer, the presence of migrants in the household or in the village, and the proximity of potential migration destinations (approximated by distances). In particular, being rooted in the community (as proxied by being a household head, being an farmer and being relatively old) implies a significantly lower treatment response. Similarly, being plausibly informed about migration and its benefits (proxied by the presence of return/current migrants in the village and in the household and income aspirations) also implies a significantly lower treatment response. Furthermore, variables related to local economic dynamism - approximated by the total population, active or employed, the surface area or even the mortality rate in the locality of residence - are also negatively correlated with treatment response. To summarize, we can conclude that information provision has a limited impact on migration intentions in situations where individuals are rooted, well-informed and live in well-connected and economically dynamic areas.

**Table 8: Variables with significantly different CATEs between the 1st and 4<sup>th</sup> quartile.**

	Film 1	Film 2	Film 3
International migration	Household head(-) Agriculture(-) Prob. Finding job in France(-)	Cited "contacts in host country" as important for successful migration(+)	Distance to Kita city (+) % employed in village (2009 census) (-) % in Labor Force in village (2009 census) (-)
Migration to SS Africa	Distance to Dakar(-) Distance to Abidjan(+) Distance to Bamako(+)	Mortality rate in village (2009 census)(+)	
Internal migration	Income aspiration measure(-) No. of internal migrants in HH(-) Distance to Kita city(-) Village surface (-)	Internal migrants in village(-) Distance to Dakar(+) Mortality rate in village (2009 census)(-) % Agriculturers in village (2009 census)(+)	Age (-) Population in the village (-) Distance to Kita city (-) Return migrants in village population (2009 census) (-)

+/- : for continuous variables, this signifies that the top quartile has a significantly larger (smaller) CATE than the bottom quartile;  
for dummy variables, it signifies that the category in question has a larger (smaller) CATE.



## 4. Mechanisms

In this section, we try to understand why providing information about opportunities and risk failures of migration or about non-migrant professional opportunities through role models has little impact on migration aspirations. To do so, we will explore three potential explanations. First, we check if the treatments bring new information on the earnings potential abroad or domestically, *i.e.* if a pure *information* channel exists. Our hypothesis is that if individuals under or overvalue the returns to and/or the risks associated with migration, bringing new information that contrasts with their expectations is likely to modify their behavior. On the contrary, if the films are not informative enough, it is not surprising that they have no effect on the aspirations to migrate. The second is identification with the carriers of the messages. One of the rationales behind the use of role models is the assumption that behavioral change from imitation is more likely to occur when people identify and relate to who and what they see. We can refer to this channel as *identification*.

Our third mechanism is locus of control: it may be that the documentaries aside from providing *information*, and providing *identification*, convey a message of *control* over one's fate. Confronted with portraits of men whose life paths have evolved quite positively (Film 1 and Film 3), some of the individuals may have an accentuated feeling of failure of their life projects, lose personal confidence and think that their destiny is fundamentally shaped by factors totally beyond their control. Or, on the other hand, the successful endeavors of individuals in Films 1 and 2 may convey the opposite; a feeling that life trajectories are within one's control.

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### 4.1. Information on expected earnings

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Although the films did not aim to provide information on average incomes in migration, they content information on the economic situation of each protagonist that may alter the perceptions of individuals' earnings possibilities at various destinations. In both the baseline and the endline questionnaires, we elicit the beliefs of individuals regarding what people like them, and coming from their village of residence, could earn on a monthly basis in different places: the city of Kita, Bamako, Côte d'Ivoire and France. We also ask this question concerning their desired destination of migration. Unfortunately, there is too little reliable data for this last question to be exploited. Even if information on expected earnings in the first four listed places is noisy and the variance is very high (especially for France<sup>18</sup>), they can be used to test to what extent films change their perceptions of individual's earnings possibilities. Film 1, showing returnees from Côte d'Ivoire who have made their mechanical repair businesses flourish in Kita city could potentially impacts positively earnings expectation in Kita city and Côte d'Ivoire. Film 2, showing a person who has failed in his attempt to migrate abroad and who lives quite poorly in the town of Kita may, conversely, lower the estimated income in that town. Finally, Film 3, by showing economic success stories of people who have stayed in their villages of origin may reduce

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<sup>18</sup>Lending credibility to an argument stating that these wages—especially when concerning far away destinations—are little more than mere guesses.

**Table 9: Expected income by destination**

	(1)	(2)	(3)	(4)
	Income Kita	Inc. Bamako	Inc. CIV	Inc. France
Positive Migrant Doc.	3.199 (6.177)	0.783 (9.527)	-1.141 (18.118)	2.814 (52.666)
Observations	1744	1653	1517	814
Negative Migrant Doc.	0.643 (8.561)	8.531 (10.463)	18.429 (21.326)	-16.627 (60.963)
Observations	1762	1660	1527	850
Pos. Non-Migrant Doc.	1.265 (8.838)	-0.218 (13.977)	5.255 (23.485)	-58.469 (64.974)
Observations	1682	1597	1441	777
Mean expected income at baseline	100	152.5	281.7	2,835.4
s.d.	(167.0)	(232.7)	(657.2)	(30,159.5)
Observations	1,834	1,684	1,546	1,513

Note: Dif\_in\_dif LATE estimator with fixed effect at the individual level, standard errors clustered at the village level; Control variable: To declare suffering from a disease.

c:  $p < 0.10$ , b:  $p < 0.05$ ,  $\alpha$ :  $p < 0.01$ .

the perception of income potentially received in the city or abroad, if this perception is elaborated relatively to the perception of earnings received in rural areas without migration experience.

Table 4.1 shows the impacts of projections on expected earnings at the four destinations mentioned above. Amounts are expressed as a ratio of the average baseline Kita income that is normalized to 100. In the last panel of Table 4.1, one can observe that earnings in Bamako are estimated 52.5 % higher than in Kita city, earnings in Côte d'Ivoire almost three times higher and in France almost thirty times higher. It is worth noting that average expected earnings in France at baseline are roughly twice the actual earnings of Malian immigrants in France.<sup>19</sup> As can be seen in Table 4.1, the effects of the three treatments on expected incomes in different destinations are small—never more than a few percent—and are never close to being significant. Furthermore, they do not seem to correlate exactly with the assumed impacts one could expect from positive and negative stories about migration and local labor market opportunities, as detailed above. For instance, the impact of Film 1 on the expected income in Côte d'Ivoire is negative, instead of being positive as expected.<sup>20</sup> The fact that expected earnings in France are very overestimated may explain why we see no effect from our negative film on international migration aspirations. The perceived gains from migration are so high that risky migration prospects are not sufficient to deter migration. A recent lab-in-the-field experiment run by Bah and Batista (2018) on potential irregular migrants to Europe in The Gambia showed an extremely large overestimation of both dying *en route* and of the probability of getting a residence permit upon a successful crossing.<sup>21</sup> These results suggest that none of the films provided information that significantly altered perceptions of potential income in migration.

<sup>19</sup>Based on a survey carried out by the authors in the city of Montreuil, France, home to a large diaspora of Malians (Chauvet et al. (2015)).

<sup>20</sup>This absence of significant results remains when attrition bias is controlled for, one exception being that the expected income in Côte d'Ivoire of the treated group Film 3 increases positively with the Lee bounds procedure.

<sup>21</sup>Those willing to migrate irregularly estimated the risk of dying on the way at 43%, against 53% for those who were not willing to migrate irregularly.

**Table 10: Aspiration, subjective poverty, basic needs and depression**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Aspiration index	Income asp.	Housing asp.	Wealth asp	Social status asp.	Subjective poverty	Basic needs	Depression
Positive Migrant Doc.	-0.025 (0.102)	-0.000 (0.137)	-0.048 (0.131)	-0.047 (0.107)	-0.096 (0.106)	-0.105 (0.093)	-0.559 (0.754)	0.069 (0.069)
Observations	1854	1854	1854	1854	1854	1854	1854	1854
Negative Migrant Doc.	0.140 (0.095)	0.079 (0.133)	0.161 (0.115)	0.158 (0.113)	0.118 (0.102)	0.051 (0.093)	-0.564 (0.728)	0.031 (0.074)
Observations	1864	1864	1864	1864	1864	1864	1864	1864
Pos. Non-Migrant Doc.	-0.056 (0.099)	-0.107 (0.132)	-0.131 (0.126)	-0.027 (0.108)	-0.010 (0.106)	-0.099 (0.092)	-0.481 (0.743)	-0.014 (0.076)
Observations	1818	1818	1818	1818	1818	1818	1818	1818
mean dep. var control group baseline	1.82	1.94	1.79	1.80	1.77	1.97	10.93	26.96

Note: Dif\_in\_dif LATE estimator with fixed effect at the individual level, standard errors clustered at the village level; Control variable: To declare suffering from a disease;  
**c:**  $p < 0.10$ , **b:**  $p < 0.05$ , **a:**  $p < 0.01$ .

We also elicited a set of aspiration-related measures, distinguishing migration prospects applicable to all Kita residents from personal aspirations. Column 1 of Table 4.1 shows an indicator of "aspirations" based on individuals' perception of what their life situation will be in 10 years, in terms of income, housing, wealth and social status. Individuals were asked to weight the four categories, and the overall aspirations index in column 1 represents the weighted measure. Columns 2 to 5 show the four respective dimensions of aspirations, defined as the belief that in 10 years one will reach a higher level of income, housing, wealth or social status than the present one. Answers lie on a Likert scale from 1 to 5, 1 representing a very likely positive change, 3 no change, and 5 a very likely negative change. In all dimensions, average aspirations are high, with all indicators below 2 (last line, Table 4.1). These high aspiration levels go hand in hand with a relatively high level of needs considered as a minimum to enjoy—according to surveyed individuals—satisfactory living conditions (last line, column 7, Table 4.1). Out of 13 items, on average they consider almost 11 to be essential. At the same time, subjective poverty is quite high, 18 % saying that they have difficulties coping and 60% rather unsatisfactory (which is equivalent to an average of 1.96 of the poverty index, column 6, last line, Table 4.1). Furthermore, depressive symptoms are quite high, the instrument used in the survey suggesting that 20% of the sample can be declared as depressed (last line, column 8, Table 4.1).

In no case is there a significant impact from the projections on economic and social aspirations, basic needs, subjective poverty and depressive feelings (three first panels, Table 4.1).<sup>22</sup> To take stock, these results suggest that neither perception of earnings possibilities nor individual aspirations were modified through the intervention.

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## **4.2. Subjective relevance and identification**

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The men portrayed in the three documentaries are all from rural areas in Kita. It may however be that individuals didn't feel that they, or their life stories, were relevant to them. The questions in Table 4.2 help us partially answering these questions, while at the same time assessing whether or not individuals understood and recalled the contents of the films. In general, interviewees properly identified the film they were shown. In all four cases, more than 90% of interviewees identified the correct film, based on a short description of its contents.<sup>23</sup> Interviewees furthermore deemed that the film provided them with interesting information in most cases. Even the Placebo film, a well-known comedy, was deemed interesting by a majority of interviewees. Such a high rate may reflect social desirability bias and the nature of interactions in Mali. Reassuringly, though, the percentage of interviewees who found the three documentaries interesting is much higher than our Placebo figure, between 94% and 97%. In terms of personal relevance, four out of five interviewees deemed the three documentaries relevant, while only 57% found the comedy relevant for their future projects.

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<sup>22</sup>These results are robust to control for attrition bias.

<sup>23</sup>Not shown. The largest error rate was for the Placebo film, where 7.3% of interviewees identified a different film.

When asked whether or not they identified with the characters, between 71% and 78% declared that they identified with the characters in the three documentaries—more than the 67% of the Malian comedy. When asked why the films provided useful information for their personal projects, most interviewees answered that it helped them formulate a personal project, in particular the two positive films (Film 1 and Film 3). Also somewhat reassuring, the two same films (1 and 3) also comforted individuals in their initial projects to a larger extent than the control film and film number 2.

**Table 11: Opinions of the films seen**

Perceptions about the films					P value		
	Control	Film 1	Film 2	Film 3	C-F1	C-F2	C-F3
Do you think that the film provided you with interesting information?	73.743 (4.717)	94.709 (1.640)	96.032 (1.303)	94.226 (1.499)	0.000***	0.000***	0.000***
Do you think this information will be useful for your future projects?	57.821 (6.094)	84.921 (3.350)	82.540 (3.693)	85.827 (2.970)	0.000***	0.001***	0.000***
<i>Why?</i>							
It helped me formulate a personal project	42.029 (5.039)	46.417 (3.931)	42.949 (5.358)	52.294 (4.321)	0.491	0.900	0.123
It comforted me in my initial personal project	18.841 (3.378)	33.022 (3.563)	16.346 (3.165)	31.804 (4.359)	0.005***	0.589	0.020*
It made me reconsider my initial project	20.290 (4.220)	15.576 (2.320)	17.308 (3.012)	10.398 (1.892)	0.327	0.564	0.034**
It forced me to abandon my original project	18.841 (4.749)	4.984 (1.211)	23.397 (4.148)	5.505 (1.500)	0.005***	0.469	0.008***
Identified with the characters	67.598 (5.271)	78.307 (3.788)	70.899 (4.866)	75.591 (4.787)	0.100	0.645	0.262
N	358	378	378	381			

Although the evaluative nature of the questions<sup>24</sup> casts some doubt as to what can be said based on the answers to these questions, it does seem that the films were seen as relevant and easy to relate to in the context of rural Kita. Moreover, an *identification* process seems to occur with the protagonists of the documentaries.

<sup>24</sup>Individuals may consider that they are to some extent evaluating the performance of the surveyor.

**Table 12: Locus of control**

	(1)	(2)	(3)	(4)	(5)	(6)
	Locus of control index	LC1	LC2	LC3	LC4	LC5
Positive Migrant Doc.	0.169 (0.657)	0.093 (0.128)	0.175 (0.140)	0.090 (0.159)	-0.168 (0.130)	0.041 (0.240)
Observations	1854	1854	1854	1854	1854	1854
Negative Migrant Doc.	0.158 (0.617)	-0.056 (0.133)	0.088 (0.123)	-0.036 (0.141)	-0.163 (0.132)	0.260 (0.246)
Observations	1864	1864	1864	1864	1864	1864
Pos. Non-Migrant Doc.	0.802 (0.670)	0.161 (0.133)	0.148 (0.133)	0.201 (0.138)	0.002 (0.127)	0.226 (0.262)
Observations	1818	1818	1818	1818	1818	1818
Mean dep. var control group baseline	0.20	0.02	-0.03	0.04	-0.01	0.09
Agree or strongly agree with LC Q. (%)		70.82	84.71	62.58	62.98	61.97

Note: LC1: I don't have enough control over the direction my life is taking; LC2: In my life, being lucky is more important to succeed than working hard; LC3: Every time I try to move forward in my life, something or someone prevents me from doing so; LC4: Making plans makes me unhappy because my plans rarely work; LC5: Chance and luck are very important for what happens to me in life. Dif\_in\_dif LATE estimator with fixed effect at the individual level, standard errors clustered at the village level; Control variable: To declare suffering from a disease;  $c: p < 0.10, b: p < 0.05, a: p < 0.01$ .

### 4.3. Locus of control

Our last piece of evidence relies on locus of control, a concept from psychology placing individuals on a scale according to whether they believe that internal forces (themselves) or external forces are the most important in determining their course of life. The two positive films show how individual choices paved the way for future economic success, and might generate modified beliefs regarding the share of one's fate that depends on personal choices, and the share due to external factors.

Table 4.3 investigates this. We compute a synthetic index with the normalized answers to 5 questions: ("do you agree, strongly agree disagree or completely disagree with (LC1) I don't have enough control over the direction my life is taking, (LC2) in my life, being lucky is more important for success than working hard, (LC3) every time I try to move forward in my life, something or someone prevents me from doing so, (LC4) making plans makes me unhappy because my plans rarely work, and (LC5) chance and luck are very important for what happens to me in life). The great majority agreed or strongly agreed with these 5 affirmations (last line, Table 4.3). Consequently, at baseline, we observe that respondents have very little confidence in their capacity to take control of their destiny. The coefficients from a regression on locus of control on our treatment arms are mainly positive and reasonably large, especially for Film 3, but not significant. When attrition is corrected by Lee bounds, however, coefficients turn out to be positive and significantly different from zero, indicating that all three films improve locus of control.<sup>25</sup> While this is good news, it did not translate into modified migration intentions, as the previous sections have shown.

In the end, our findings suggest that information—even when provided in the form of documentaries showing role models—has limited use in influencing migration intentions. Individuals are

<sup>25</sup>Results not shown, but available upon request.

either well informed of the risks and benefits of different career choices or do not consider them important enough to influence their choices. Indeed, at baseline, 80 % of the interviewees declared that the most important thing to succeed in migration is not to be well informed about the risks and opportunities of migration but the financing of the trip.

## 5. Conclusion

This article feeds into the broader debate on the efficiency of information provision, by showing that in some contexts, the effects of such interventions are very limited. First, we add to the recent literature on information provision and migration intentions by setting up a randomized controlled trial on migration intentions in a Sub-Saharan African country, Mali. Second, we add to the debate on the nature of information provision, focusing on role models as message vectors. In particular, we analyze how migration aspirations in rural Mali react to the exposure to documentaries depicting life stories of migrants and non-migrants. Using OLS and difference-in-difference estimators to estimate both an ITT and a LATE, we find only few significant impacts, which become non-significant when we account for selective attrition using Lee bounds.

We also estimate average treatment effects using a causal forests Machine Learning algorithm. The absence of a significant average effect is confirmed. Our ML results furthermore suggest that heterogeneity is present in treatment response for several outcomes and treatments. Investigating plausible dimensions of heterogeneity, we find that factors that constrain or facilitate the decision to migrate imply heterogeneous responses to our three documentaries. We therefore hypothesize that people react significantly to role model documentaries only when their social and economic environment allows them to reconsider their (non)mobility aspiration.

We find that respondents find the films relevant to their careers plans. However, our baseline statistics also suggest that individuals believe in large returns to migration, which plausible imply such dramatic changes in their standards of living that nothing short of a huge change in perceived migration risks or perceived returns to local opportunities is likely to alter their plans. The high aspirations to improve living conditions, coupled with a strong feeling of lack of control over the future also may explain the fact that confrontations with real life experiences do not modify aspirations to migrate. Furthermore, our experiment takes the form of a "one-shot" intervention. The efficiency of continuous information provision using role models remains an unexplored area for future research. On a last note, the lack of impact of role models in shaping migration aspirations can potentially be explained by the local context of the region studied, where the propensity to migrate is very high. Future research should also attempt to pinpoint the role of a "migration culture" in the efficiency of information provision.



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## A. Appendix

### Tables

**Table A1: Non-interviewee presence at projections**

	Attendance	Placebo	Film 1	Film 2	Film 3	Total
Only interviewees		4	3	1	2	10
Between 1 and 3 additional persons		7	2	7	5	21
Between 4 and 10 additional persons		7	12	12	12	43
Between 10 and 20 additional persons		11	16	20	11	58
More than 20 additional persons		21	17	11	19	68
Village head present		0.52	0.58	0.24	0.37	0.42
Imam present		0.12	0.18	0.08	0.2	0.14
Projection was interrupted at least once		0.24	0.04	0.08	0.16	0.13
Total		50	50	51	49	200

**Table A2: Sociodemographic characteristics of individuals who wish to migrate abroad and within Mali**

	Wish to migrate <sup>1</sup>	Wish to migrate abroad	Wish to migrate within Mali	Statistical difference between (2) and (3)
	(1)	(2)	(3)	4
Age	25.2	24,9	25,5	*
%				
Have been to school	65.3	64.3	66.5	ns
Have completed primary school	43.2	42	44.5	ns
Maninka (mother tongue)	58.5	51.3	66.7	***
Work in agricultural sector	81.2	81.5	80.8	ns
Unpaid family worker	72.6	73.2	71.9	ns
Father farmer	80.5	81.8	79	ns
Mother inactive	21.8	17.9	26.2	**
Household head's son	67.7	67.9	67.4	ns
Household head	11.1	9.9	12.5	ns
Married	57.8	56.9	58.9	ns
Have children	44.3	42.6	46.3	ns
Symptoms of depression <sup>2</sup>	26.9	26.8	27	ns
Suffering from a disease <sup>3</sup>	66.3	61.3	71.9	***
N	1,200	638	562	

<sup>1</sup> The question administered to identify migration aspirations was: "Do you wish to live abroad or in another cercle in Mali in the future, for a period of more than 6 months?"

<sup>2</sup> Nine standard questions were asked to define whether people were depressed: a person was defined as suffering from depressive symptoms if s/he answered more than five questions positively.

<sup>3</sup> People were asked if they suffered from one of the following diseases: chronic respiratory infection, cardiovascular disorder, malaria, HIV/AIDS, tuberculosis, cancer, diabetes, psychiatric disorder, liver or stomach disease;

ns: difference not statistically significant; \* difference statistically significant at a confidence level of 10

Source: Authors' computations from ETAM I (baseline survey).

**Table A3: Subjective living conditions and durable goods of individuals by migration intention**

	Total	Wish to migrate <sup>1</sup>	No wish to migrate	Statistical difference between (2) and (3)
	(1)	(2)	(3)	(4)
<i>Subjective living conditions<sup>2</sup> (%)</i>				***
Well or quite well	22.0	20.1	24.9	
Fairly well	60.5	60.3	60.9	
With difficulty	17.5	19.7	14.3	
No. of durable goods <sup>3</sup> (max. 8, %)	3.5	3.5	3.5	ns
<i>The household owns one or more:</i>				
Motorbikes or cars	68.7	69.7	67.1	ns
Bikes	64.6	64.3	65.0	ns
TVs	32.4	34.0	29.9	*
Solar panels	58.2	57.6	59.0	ns
N	2,000	1,200	800	

Notes: <sup>1</sup> The question administered to identify migration aspirations was: "Do you wish to live abroad or in another cercle of Mali in the future, for a period of more than 6 months?"

<sup>2</sup> Subjective living conditions: the question was: "Given your household income, do you feel that you are living 1 = Well or quite well 2 = Fairly well 3 = With difficulty."

<sup>3</sup> List of owned durable goods: car or motorbike, bike, cart, TV set, radio, fridge, solar panel, power generator.

ns: difference not statistically significant; \* difference statistically significant at a confidence level of 10

Source: Authors' computations from ETAM I (baseline survey).

**Table A4: Experimental integrity**

Individual characteristics						P-value		
	Total	Control	Film 1	Film 2	Film 3	C-F1	C-F2	C-F3
Age	25.316 (5.397)	25.45473 (5.560)	25.32136 (5.427)	24.94932 (5.392)	25.55419 (5.197)	0.777	0.244	0.820
Have been to school	63.650 (1.443)	62.978 (2.954)	63.273 (3.121)	61.793 (2.703)	66.667 (2.799)	0.945	0.767	0.364
Have achieved the primary level	41.600 (1.424)	38.431 (2.400)	43.513 (3.108)	40.546 (3.002)	43.967 (2.835)	0.196	0.581	0.137
Malinke (Mother tongue)	59.350 (3.037)	58.350 (6.294)	60.878 (5.697)	67.057 (5.781)	50.716 (6.479)	0.765	0.308	0.398
Work in the agricultural sector	79.400 (1.858)	78.873 (3.555)	80.838 (3.853)	78.947 (3.695)	78.937 (3.863)	0.707	0.988	0.990
Unpaid family worker	71.650 (2.138)	69.014 (4.380)	74.251 (4.103)	74.074 (4.157)	69.121 (4.549)	0.383	0.402	0.987
Father farmer	81.250 (1.902)	81.891 (3.691)	79.550 (3.868)	79.532 (3.951)	79.550 (3.868)	0.661	0.662	0.661
Mother inactive	17.800 (1.801)	17.706 (3.638)	15.951 (3.618)	21.053 (3.781)	15.951 (3.618)	0.732	0.523	0.732
Household head's son	65.500 (1.599)	67.203 (3.129)	66.267 (3.128)	61.014 (3.174)	67.689 (3.369)	0.832	0.166	0.916
Household head	14.350 (1.330)	12.877 (2.536)	13.373 (2.592)	15.595 (2.861)	15.542 (2.686)	0.891	0.477	0.470
Married	58.850 (1.436)	60.966 (2.613)	57.685 (3.322)	56.725 (2.597)	60.123 (2.950)	0.437	0.250	0.830
Have children	45.950 (1.427)	48.491 (2.720)	46.707 (3.228)	43.080 (2.393)	45.603 (3.065)	0.672	0.136	0.480
Symptoms of depression <sup>1</sup>	21.650 (2.049)	26.962 (4.182)	16.567 (3.625)	21.637 (4.247)	21.472 (4.291)	0.062*	0.371	0.359
Suffering from a disease <sup>2</sup>	63.450 (2.895)	64.185 (5.883)	57.285 (6.042)	61.209 (5.500)	71.370 (5.727)	0.413	0.711	0.381
N	2000	497	501	513	489			

<sup>1</sup> Nine standard questions were asked to define whether people were depressed: a person was defined as suffering from depressive symptoms if s/he answered more than five questions positively.

<sup>2</sup> People were asked if they suffered from one of the following diseases: chronic respiratory infection, cardiovascular disorder, malaria, HIV/AIDS, tuberculosis, cancer, diabetes, psychiatric disorder, liver or stomach disease.

ns: difference not statistically significant; \* difference statistically significant at a confidence level of 10

Source: Authors' computations from ETAM I (baseline survey).

**Table A5: Subjective living conditions and living standards**

Subjective living conditions and living standards						P value		
	Total	Control	Film 1	Film 2	Film 3	C-F1	C-F2	C-F3
Subjective living conditions <sup>1</sup> (1=G/quite Good 2=Fairly 3= Hardly)	1.955 (0.627)	1.966 (0.632)	1.944 (0.636)	1.930 (0.618)	1.9816 (0.622)	0.796	0.678	0.851
No. of durable goods owned by the household <sup>2</sup> (max. 8)	3.500 (1.781)	3.374 (1.809)	3.589 (1.802)	3.571 (1.758)	3.462 (1.753)	0.291	0.298	0.621
<i>Their household owns one or more:</i>								
Motorbike or car	68.650 (1.463)	68.410 (3.021)	70.459 (2.787)	69.006 (3.092)	66.667 (2.845)	0.617	0.890	0.674
Bike	64.600 (1.861)	56.137 (4.103)	66.467 (3.694)	70.370 (3.317)	65.235 (3.568)	0.063*	0.008***	0.096*
TV	32.350 (1.390)	33.400 (2.312)	31.337 (3.080)	32.749 (2.727)	31.902 (3.018)	0.592	0.855	0.693
Fridge	0.550 (0.162)	0.604 (0.341)	0.399 (0.279)	0.195 (0.195)	1.022 (0.439)	0.642	0.298	0.451
Power generator	0.850 (0.198)	0.402 (0.282)	0.798 (0.386)	0.975 (0.418)	1.227 (0.474)	0.407	0.257	0.136
Solar panels	58.150 (1.819)	57.948 (3.696)	61.277 (3.838)	56.725 (3.635)	56.646 (3.427)	0.531	0.813	0.796
N	2000	497	501	513	489			

<sup>1</sup> Subjective living conditions: the question was: "Given your household income, do you feel that you are living 1 = Well or quite well 2 = Only fairly 3 = With difficulty.

<sup>2</sup> List of owned durable goods: car or motorbike, bike, cart, TV set, radio, fridge, solar panel, power generator.  
ns: difference not statistically significant; \* difference statistically significant at a confidence level of 10

Source: Authors' computations from ETAM I (baseline survey).

tab:sub-liv-cond

**Table A6: Migration behavior (individual and in the household)**

Migration behaviors	P value							
	Total	Control	Film 1	Film 2	Film 3	C-F1	C-F2	C-F3
Current migrant in the household	58.700 (2.075)	64.588 (3.601)	56.487 (4.409)	60.234 (3.860)	53.374 (4.636)	0.156	0.409	0.058*
Return migrant in the household	43.050 (2.417)	49.095 (4.783)	40.918 (4.646)	43.860 (5.088)	38.241 (4.809)	0.221	0.453	0.111
Ever left their village	58.900 (1.687)	60.362 (3.441)	60.479 (3.091)	55.945 (3.374)	58.896 (3.641)	0.980	0.359	0.769
Ever went abroad	23.100 (1.384)	21.127 (2.637)	24.351 (3.047)	22.222 (2.549)	24.744 (2.875)	0.423	0.765	0.354
N	2000	497	501	513	489			

Source: Authors' computations from ETAM I (baseline survey).

**Table A7: Migration aspirations at baseline**

Migration aspirations	Total	Control	Film 1	Film 2	Film 3	C-F1	C-F2	C-F3
Wish to migrate at baseline (%)								
Abroad	31.900 (1.690)	30.584 (3.402)	38.523 (3.447)	29.825 (3.659)	28.630 (2.838)	0.103	0.879	0.659
Outside Africa	18.500 (1.390)	18.109 (2.633)	20.758 (3.258)	17.739 (2.803)	17.382 (2.389)	0.526	0.923	0.838
Sub-Saharan African	8.900 (0.934)	8.652 (1.858)	12.575 (2.386)	7.602 (1.776)	6.748 (1.181)	0.195	0.682	0.387
North Africa	4.500 (0.566)	3.823 (0.906)	5.190 (1.287)	4.483 (1.056)	4.499 (1.272)	0.385	0.634	0.664
Inside Mali	28.100 (1.631)	33.400 (3.610)	21.756 (2.566)	26.901 (3.102)	30.470 (3.556)	0.010***	0.173	0.562
Kayes region	22.800 (1.491)	25.553 (3.475)	19.361 (2.329)	23.002 (2.918)	23.313 (3.128)	0.140	0.573	0.631
Bamako	3.050 (0.461)	4.829 (1.158)	1.397 (0.495)	1.170 (0.453)	4.908 (1.208)	0.007***	0.004***	0.962
N	2000	497	501	513	489			

Source: Authors' computations from ETAM I (baseline survey).

**Table A8: Attrition rates**

	Total	Control	Film 1	Film 2	Film 3	P value		
						C-F1	C-F2	C-F3
Attrition rate (%)	7.200 (0.734)	8.249 (1.516)	5.988 (1.136)	7.212 (1.661)	7.362 (1.528)	0.233	0.644	0.680
due to departure abroad	2.100 (0.344)	2.355 (0.761)	2.484 (0.629)	1.245 (0.571)	2.790 (0.913)	0.896	0.243	0.714
due to departure within Mali	3.600 (0.505)	4.403 (1.227)	2.686 (0.876)	4.418 (1.135)	3.412 (0.936)	0.255	0.993	0.520
due to incomplete questionnaire	1.500 (0.352)	1.935 (1.093)	1.050 (0.451)	1.856 (0.707)	1.522 (0.624)	0.454	0.951	0.742
N	2000	497	501	513	489			



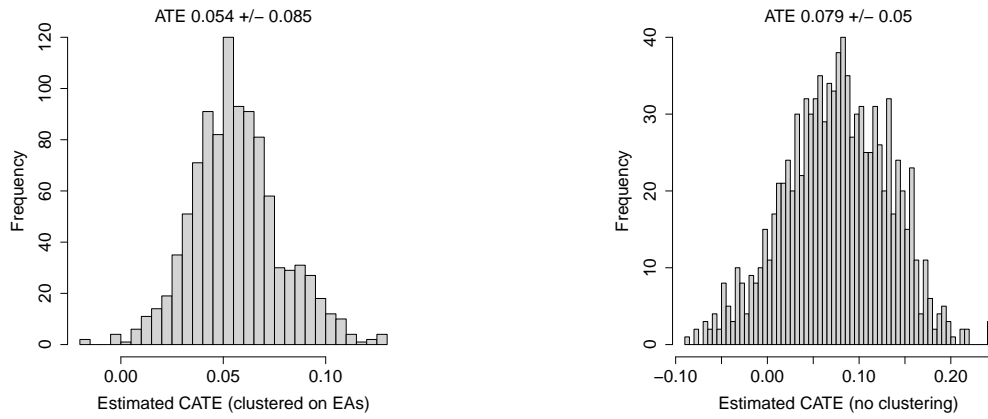
**Table A9: Aspiration to migrate, control for attrition bias, ITT estimator, Lee bounds procedure.**

	Film 1		Film 2		Film 3	
	(1)	(2)	(1)	(2)	(1)	(2)
Wish to migrate	Lower	Upper	Lower	Upper	Lower	Upper
Abroad	0.0491	0.0738	-0.0142	-0.0029	-.0004	0.0093
	[-0.0060	0.1252]	[-0.0682	0.0492]	[-0.0607	0.0664]
Outside Africa	0.0151	0.0397	-0.0175	-0.0062	-0.0220	-0.0123
	[-0.0375	0.0876]	[-0.0660	0.0381]	[-0.0740	0.0345]
Sub-Saharan African	0.0010	0.0256	-0.0174	-0.0061	0.0091	0.0188
	[-0.0354	0.0556]	[-0.0509	0.0209]	[-0.0254	0.0468]
North Africa	-0.0162	0.0084	-0.0018	0.0094	-0.0068	0.0028
	[-0.0446	0.0296]	[-0.0328	0.0326]	[-0.0351	0.0254]
Inside Mali	-0.0523*	-0.0277	0.0038	0.0151	-.0332	-.0235
	[-0.1030	0.0173]	[-0.0473	0.0635]	[-0.0836	0.0234]
Kayes region	-0.0280	-0.0033	0.0054	0.0167	-0.0095	0.0002
	[-0.0736	0.0372]	[-0.0408	0.0598]	[-0.0553	0.0415]
Bamako	-0.0329***	-0.0090	-0.0102	0.0011	-0.0247**	-0.0151
	[-0.0521	0.0098]	[-0.0365	0.0232]	[-0.0426	0.0041]
N	998		1010		986	
Number of selected obs.	927		932		909	
triming proportion	0.0241		0.0112		0.0096	

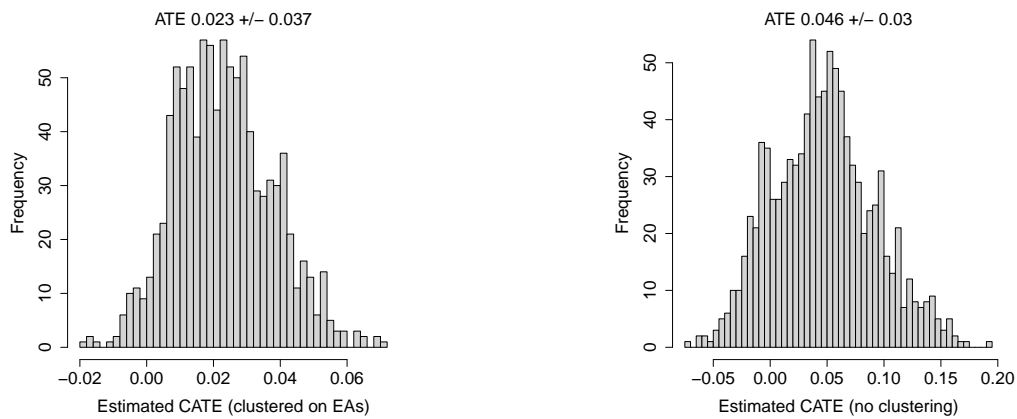
## Figures

**Figure A1: Film 1 conditional average treatment effects (causal forest algorithm)**

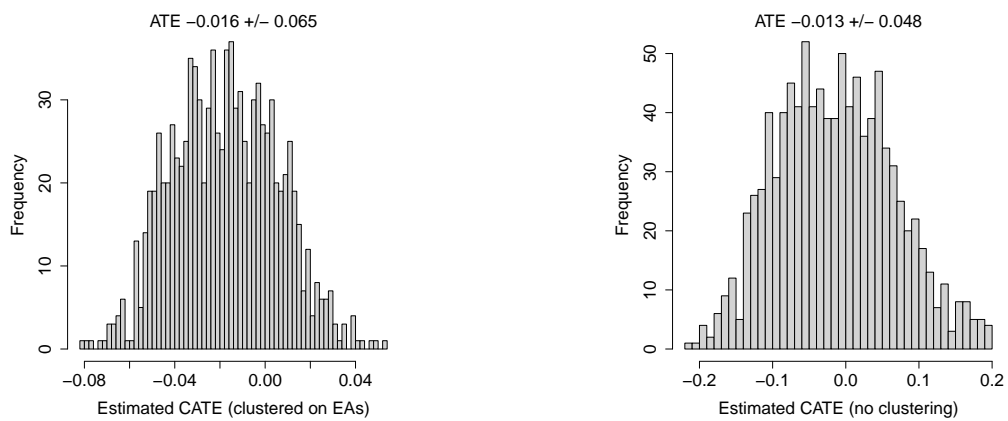
*a) International migration*



*b) Migration to Sub-Saharan Africa*

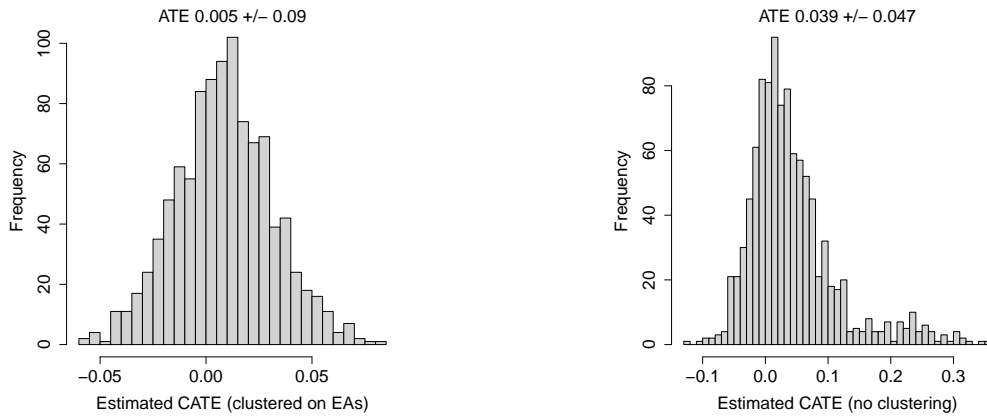


*c) Internal migration*

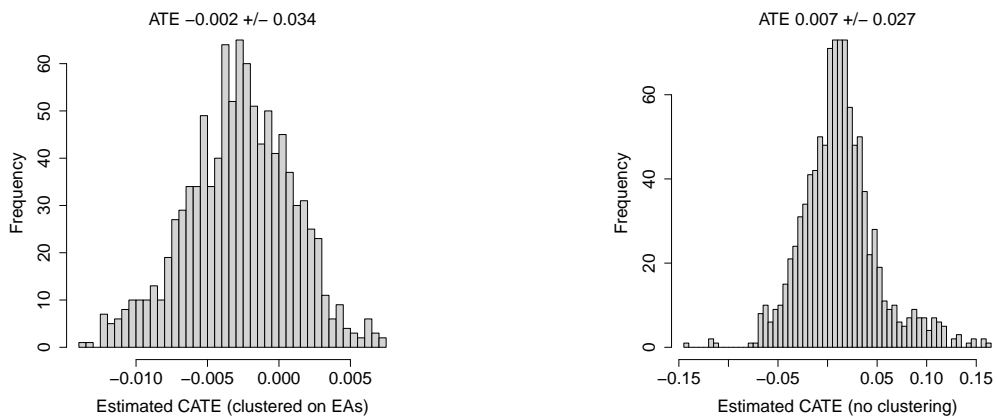


**Figure A2: Film 2 conditional average treatment effects (causal forest algorithm)**

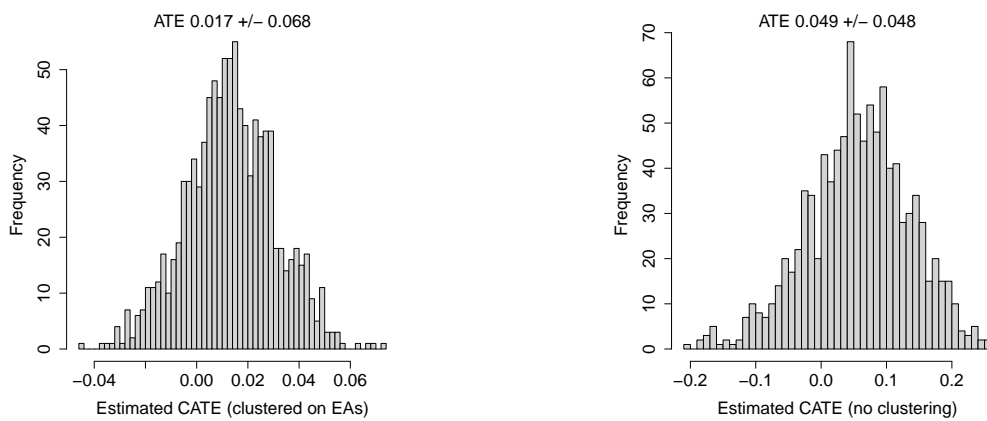
*a) International migration*



*b) Migration to Sub-Saharan Africa*

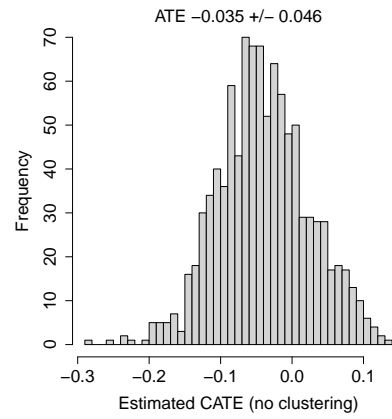
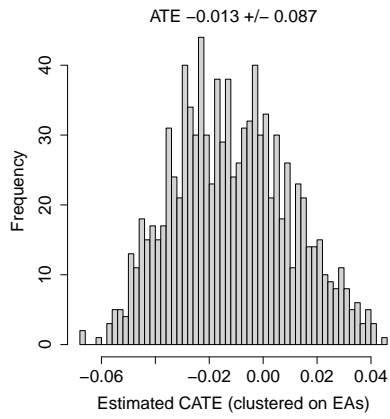


*c) Internal migration*

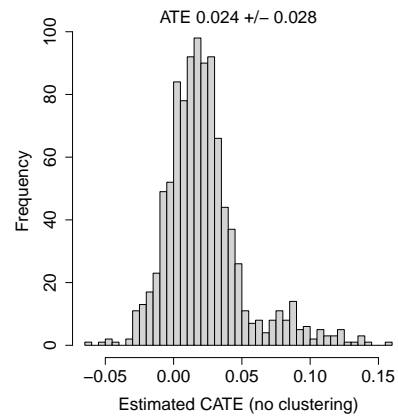
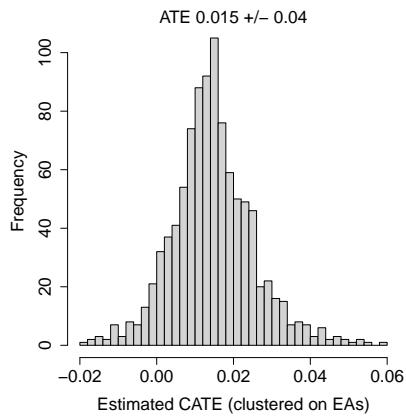


**Figure A3: Film 3 conditional average treatment effects (causal forest algorithm)**

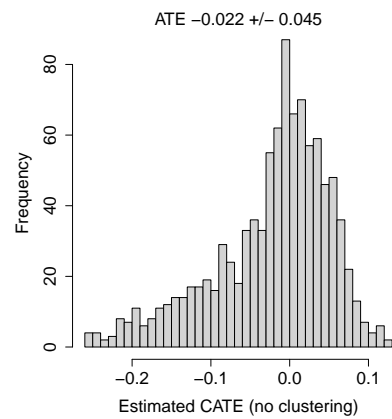
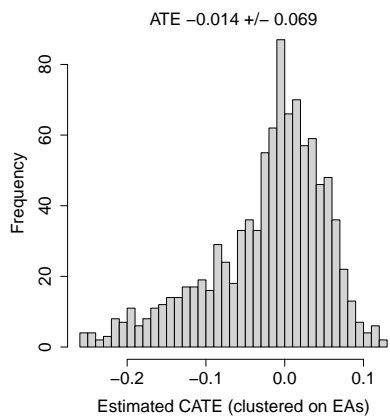
*a) International migration*



*b) Migration to Sub-Saharan Africa*



*c) Internal migration*





#### **What is AFD ?**

Agence Française de Développement (AFD) Group implements France's policy on development and international solidarity. Comprised of AFD, which finances the public sector and NGOs; Proparco, which finances the private sector; and soon, Expertise France for technical cooperation, the Group finances, supports and accelerates transitions towards a more resilient and sustainable world. We are building – with our partners – shared solutions, with and for the people of the Global South. Our teams are active in more than 4,000 projects in the field, in the French overseas departments and some 115 countries, including areas in crisis. We strive to protect the common good – promoting peace, biodiversity and a stable climate, as well as gender equality, health and education. It's our way of contributing to the commitment that France and the French people have made to fulfill the Sustainable Development Goals. Towards a world in common.

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