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Role Models and Migration Intentions

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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 signifi-

cative les aspirations moyennes à migrer.

Mots-clés

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

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 nonparametric 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 ex-

periences do not significantly modify average aspirations to migrate.

Keywords

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

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Introduction

Research in the economics of migration analyses the decision to migrate and the act of migration as rational behaviour conditioned by people's economic, social and policy environment, at the local, national and international levels. However, migratory behaviour can only take place if individuals aspire to migrate. As emphasised by Carling (2002); Carling and Collins (2018), migration intentions are shaped by complex factors, among them economic and professional aspirations and role models. In this paper, we investigate if migration intentions respond to the observation of positive or negative role models, defined as individuals with whom the study subjects can identify (Ray, 2006). In particular, we ask three questions: does information transmitted by role models on local economic opportunities decrease migration intentions? Does informing people about failed attempts to migrate decrease intentions to migrate? And finally, do economically successful return migrants increase migration intentions?

To provide answers to these questions, we analyse how young men's migration intentions in rural Mali react to the exposure to documentaries depicting life stories of migrants and non-migrants, set up as a randomised controlled trial. The documentaries portray individuals of the same sex, age group and geographical origin as our study population, and were filmed by a Malian anthropologist specialised in visual communication.

Our intervention took place in the Kayes region in Mali. This region has a long-standing history of migration, in particular to North countries. In such a context 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 or underestimated. We first seek to understand if showing economic and social success of non migrants impacts migration intentions: do non-migrant role models impact professional aspirations and consequently migration intentions of young Malian men? This treatment is similar to Bernard et al. (2015), who find a significant impact of watching documentaries featuring role models on a set of aspirations indicators and economic behaviours in rural Ethiopia. Secondly, even in a setting with high migration, individuals may not be properly informed about potential pitfalls of migration. As shown by Shrestha (2020), potential migrants don't have accurate information about the risks of migrating abroad, even in a context where a large share of households has a member abroad.¹ Why potential migrants are misinformed about risk in migration is not yet well understood. Research in anthropology and sociology (Bolzman et al., 2017; Gakuba and Amalaman, 2019) and novels like Diome (2003) have shown that people who have failed to migrate do not disclose their attempts to leave or the problems they encountered. Those who have succeeded to migrate abroad are also most often silent on the difficulties encountered, or may underestimate the risks involved with the journey. They and their relatives have invested so much in migration that migrants cannot give a negative image of the migration experience. By definition, the migration experience must be a success; the opposite would be shameful, both for the individuals themselves and for their relatives. This results in a greater

¹Shrestha (2020)'s study took place in Nepal where 15% of households have a member who has migrated abroad.

emphasis on the emigration option. Thirdly, our aim is to investigate if confronting potential migrants to successful migrant's stories from *within the African continent* impacts migration intentions.

Our findings show that all three interventions fail to produce robust average impacts on migration intentions. These results stand when we control for attrition bias. We show that the lack of a significant average impact of non-migrant and migrant stories on migration intentions can't be explained neither by a lack of identification of the treated individuals with the protagonists of the films, nor by a lack of relevant information providing by the films for helping them in formulating a personal project. We find that films showing positive role models, with or without migration experiences, significantly increase aspirations in terms of future welfare, and that positive non-migrant role models increase the feeling of control over individuals' future. On the contrary, negative role models don't have any impact neither on welfare aspirations neither on expected income abroad, nor on locus of control. When investigating treatment response heterogeneity through the causal forests algorithm Wager and Athey (2018), we find that people with living conditions that could facilitate migration have higher predicted responses to the film showing positive migrant role models, and that people who were relatively more depressed, poorer, with a more external locus of control and with more migrants in their households responded more to the film about local opportunities. These results are in line with De Haas (2021) who conceptualises migration as "a function of people's capabilities and aspirations to migrate within given sets of perceived geographical opportunity structures." (p. 17).

This paper contributes to the limited but growing economic literature on role models as a channel of change in behaviour or attitude. Bernard et al. (2015) demonstrate 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 behaviours. 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 behaviours 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. We show that the identification process mechanisms put forward by these previous articles are indeed at work in the Malian rural context studied; they impact welfare aspirations but are not sufficient enough to change intentions to migrate.

Finally, we also contribute to the economic literature about the impact of information on economic opportunities in urban areas or abroad, on migration behaviours. Bryan et al. (2014) test if providing information on types of jobs available in pre-selected destinations increase internal migration in Bangladesh. Beam et al. (2016) conduct an experiment in a rural province of the Philippines, and analyse the impact of unilateral facilitation, which takes the form of information provision, assistance and a subsidy for a passport application. Both articles conclude that it is not so much the lack of information on economic opportunities in migration that prevents people from migrating. Instead, financial constraints and risk

aversion, particularly in contexts of poverty like Bangladesh, may be too strong to realise the decision to migrate, even when this decision is beneficial for the economic well-being of all. In recent years, concern about increased migration from Sub-Saharan African countries has prompted international organisations such as the International Organisation for Migration (IOM) and the European Commission to fund information campaigns on migration.² Our work is an opportunity to question the manner in which information is provided. Aside from the factual content provided, the emotional charge (or salience) of information may matter.³ We show that such interventions have no effect on intentions to migrate, even when information is transmitted by role models.

In the following section, we present the background and the experimental design. Section 3 is devoted to the presentation 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 intentions, 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 labour 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 randomisation of the treatment, the nature of projections and their attendance) and migration intentions at baseline.

1.1. Setting

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%.⁴ Sikasso, bordering Côte d'Ivoire, represents the second most important region from which Malians emigrate. In terms of the emigration rate, Kayes

²For instance, the IOM project *Aware migrants*, funded by the Italian Ministry of the Interior, 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.

³Consistent with this idea is the finding by Shrestha (2020) that migrants "overupdate" their beliefs on mortality risk when receiving information about the death of a migrant in their community.

⁴Source: the EMOP survey (*Enquête Modulaire et Permanente auprès des Ménages*) 2016, our own calculations.

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.

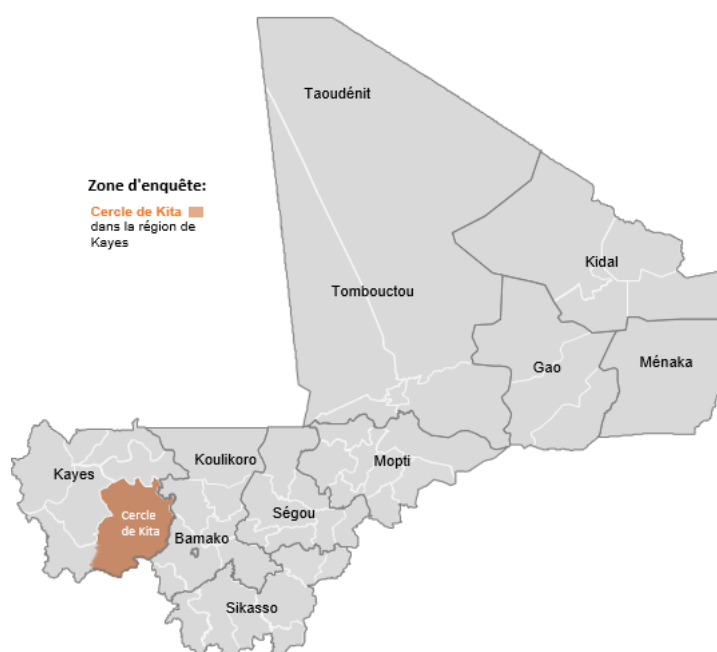


Figure 1: Kita and Mali Map

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 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 20th century, growing to become the second most populated of Kayes' seven cercles by 2009, behind the *cercle* of Kayes.

1.2. The interventions

1.2.1. The Films

Our intervention sought to evaluate the impact on migration intentions of watching documentaries reporting on success stories from the local community and migration experiences.⁵ Three documentary films were conceived and filmed by Sidylamine Bagayoko, a Malian anthropologist specialised in visual communication. The films are very similar in terms of style, length and protagonist background: all three films portray young men from rural areas of Kita telling stories about their lives and their economic success (or lack thereof). None of the protagonists were rich or had any connections to begin with. We deliberately decided that the stories told in the films relating migration episodes show experiences that took place on the African continent. This was done in order to bring the protagonists of the films as close as possible to the respondents, insofar as African countries are the most common actual destinations of Malian migrants, and are also the most feasible ones given the average living standards of the respondents. The films last about 20 minutes, which is about the same length as the *placebo* film we show in control villages, and as documentaries shown in Ethiopia by Bernard et al. (2015). Protagonists speak in Bambara, and the films were subtitled in French. Initially, we planned for each film to tell the story of two individuals. However, it was very difficult to find a person willing to testify about failure in migration. The negative migration experience film thus only tells the story of one protagonist.

The first film (**Film LO** – *Local opportunities*) 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.

The second film (**Film NM** – *Negative migration experience*) tells the story of Bamadi, who migrated to Libya through Algeria. After a long spell in Libya, during which he considered attempting a passage to Italy, which never materialised, 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

⁵The films can be obtained per request to the authors.

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 (**Film PM** - *Positive migration experience*), 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.

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 et al. (2015) or Chong and La Ferrara (2009) who show that exposure to role models through documentaries or TV programs impacts behaviour. We hypothesise that the provision of information through role models on local opportunities and migration experiences may affect perceptions on opportunities and consequently intentions to migrate.

1.2.2. Sampling, data collection and randomisation

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 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 mobilised 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.

Randomisation of the treatments took place at the village level.⁶ 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, randomisation 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 randomisation (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); Athey and Imbens (2017) raise concerns about pairwise randomisation, since the estimator for the variance in the case of pairwise randomisation 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 randomisation 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

⁶For several reasons, individual randomisation is infeasible in this setting. First, it would be difficult to show different films to different villagers who are neighbours 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.

Malian comedy featuring an individual from the region of Segou trying to win back his wife who left him for a wealthier man.

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 measures can overestimate the effects on persistent intentions, which are then unlikely to translate into actual behavioural changes.⁷ Just after arriving in the village, investigators invited baseline interviewees to a film screening. The screenings were scheduled at night in order to maximise 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.⁸

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 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

⁷This is corroborated by Facchini et al. (2016) who have shown that the effects of information campaigns destined to improve attitudes towards migration in Japan persist over time, but 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, but remains significantly positive.

⁸Whether the Imam or the Village head were present, for example.

Table 1: Presence at screening and location of absentees

<i>Presence at screening</i>	N	%
Present	1508	75.3
Absent ¹	475	23.7
Sick	1	0.1
Household not found ²	5	0.3
Refused to assist	11	0.6
Missing data	4	0.2
Total	2004	100
<i>Location of absentees</i>		
Kita city	53	10.9
Elsewhere in Kita <i>cercle</i>	32	6.6
Keniéba <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 ³	40	8.0
Unknown	52	10.9
Total	475	100

¹ Corresponds to cases where the individual was absent from the village, but where other members of the household were present.

² Corresponds to cases where no trace of the individual's household was found.

³ Corresponds to cases where a location was filled out, but where we were unable to find that location on a map and categorize it.

allowed to attend. Table 13 (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.

1.3. Migration intentions 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 (Table 2). Nearly all of them wanted to leave to improve their standard of living. They had high hopes that migration would improve their living conditions, which three-quarters of them saw as only fair, if not difficult (Table 14 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 Mali. A total of 28% of the entire sample (or 47% of those wishing to migrate) said they wanted migrate within Mali – essentially to Kénieba or Bamako – and only one-third of these planned to migrate for more than one year (Table 2). 31.9 % of the entire sample declare a willingness to migrate abroad, with 9% interested in moving to another Sub-Saharan African country (most often Gabon or Côte d'Ivoire), 4.5% to North Africa (Algeria 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 (Table 2). For international migrants, the vast majority intended to stay abroad for more than a year. When asked why they had not yet left the majority stated a 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 realise their long-term plans (King and Skeldon, 2010).

As has been well documented by previous research, we observe that young men who would like to migrate are more often than not sons of the household head and have fewer children than those who do not express any willingness to migrate (Table 2); they work more in the agricultural sector and are slightly more educated. They also belong more to households with current or return migrants, and they are more likely to have left their village or gone abroad in the past. Interestingly, they also displayed more of a tendency to be depressed and to have more mental or physical health problems.⁹ 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, health status and migration experience: those who wish to migrate abroad are less likely to be Maninka, to have health problems but more likely to have ever left their village or ever gone abroad (Table 15 in the Appendix).

⁹These 'negative' health statuses go hand in hand with a stronger sentiment of living in poverty: as can be seen in Table 14 in the Appendix, young people with migration intentions 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)

Table 2: Migration intentions and sociodemographic characteristics of individuals with and without migration intentions

	Total	Wish to migrate ¹	No wish to migrate	Statistical difference between (2) and (3)
	(1)	(2)	(3)	(4)
N	2000	1200	800	
%	100	60.0	40.0	
<i>Abroad</i>		31.9		
<i>Outside Africa</i>		18.5		
<i>Sub-Saharan African</i>		8.9		
<i>North Africa</i>		4.5		
<i>Inside Mali</i>		28.1		
Age	25.3	25.2	25.5	ns
Have been to school	63.7	65.3	61.1	*
Have achieved the primary level	41.6	43.2	39.3	*
Malinke (Mother tong)	59.4	58.5	60.6	ns
Work in agricultural sector	79.4	81.2	76.8	*
Aide familial	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'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	46.0	44.3	48.4	*
Suffer from depression disease ²	21.7	26.9	13.8	***
Declare to be sick ³	63.5	66.3	59.3	**
Current migrant in the household	58.7	62.8	52.5	***
Return migrant in the household	43.1	50.8	31.4	***
Ever left their village	58.9	68.8	44.1	***
Ever went abroad	23.1	27.6	16.4	***

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

² 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.

³ 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; *: $p < 0.10$, **: $p < 0.05$, ***: $p < 0.01$.

2. Empirical strategy

2.1. Experimental integrity

The internal validity of the impact evaluation relies on the comparability of the three treatment groups and the control group. Tables 16 through 20 in the Appendix report balance tests for the three treatment experiments on a variety of individual, household and village level variables. Tables 17 and 20 show the means of a set of socio-demographic characteristics at the individual and village levels, by treatment. No significant differences are found when comparing treatment groups to the control 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 PM in the proportion of people suffering from depression at the individual level, and a significant difference between Film LO and the control in the share of households with return migrants.¹⁰ A comparison of subjective and objective living conditions also shows few differences (Table 18): there are no differences in the average number of durable goods owned by the household as well as for each type of durable good owned, the one exception being a lower percentage of individuals who declare owning bikes in the control group compare to the three treatment groups. There is only one significant difference in migration behaviour, the percentage of individuals with current migrants in their households is lower for Film LO than in the control group (Table 19). Turning to our outcome variables at baseline, most of them appear not to be significantly different across groups. However, intentions to migrate in Mali are significantly higher in the control group, particularly when compared with Film PM. Village averages by group are shown in Table 20 and suggest no major differences among our four groups. Comparing to the control group, only in the dimension "Share with current migrants in household" is the difference significant (for Film PM), at the 10% significance level.

2.2. Empirical strategy

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 intentions, we study the impact of the treatments by presenting results from the following regression:

$$I_{i,post} = \delta + \beta F_i + \gamma I_{i,pre} + \nu_1 X'_i + \nu_2 X'_v + \alpha_{strata} + \epsilon_i \quad (1)$$

Where $I_{i,post}$ denotes an outcome variable related to migration intentions at endline, measured as the willingness to leave one's place of residence for 6 months or more. Five outcome variables are used: the intention to migrate abroad, to countries outside Africa, to Sub-

¹⁰Nine 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.

Saharan Africa, to North Africa and, finally, the intention to migrate within Mali. F_i is a categorical variable denoting the film shown in the village of individual i , α_{strata} are strata fixed effects and ϵ_i a stochastic error term. Knowing that some of our outcomes of interest – aspiration to migrate inside Mali – are not balanced at baseline, taking baseline intentions into account is appropriate. Our preferred specification makes use of the ANCOVA estimator, where the pre-treatment value of our outcome variable, $I_{i,pre}$ is included in the regression. As shown by McKenzie (2012), the power gains from the ANCOVA estimator over a difference-in-difference specification are proportional to the autocorrelation of the outcome variable. 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 is included in the equation. Controls at the individual level X_i are baseline dummy variables indicating if the individual is depressed, whether or not there is at least one current migrant in the household, and if the household owns a bicycle. At the village level, controls X_v include the share of households with current migrants, and two dummy variables equal to one when the village head or an Imam were present at the film screening.

The coefficient β captures an intention-to-treat (ITT) effect and it is our chosen estimator of the impact, since we want to capture the *direct* and *indirect* effects of the screening in the treated group. Although uptake of our treatment—exposure to films—was excellent among individuals present in the village, absent individuals obviously could not watch the films. Most of absentees had however returned to their village by the endline, and were likely informed about the screening and its contents. 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 tests 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 compute significance levels both with and without the correction.

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 0.04 to 0.14 depending on the arm and the outcome variable considered, with an average of 0.1.¹¹ These are however upper bounds on the MDE. McKenzie (2012) shows that the variance of the ANCOVA estimator is smaller than that of a simple OLS (POST) estimator by an approximate factor of $(1 - \rho^2)$, where ρ is the coefficient of autocorrelation in outcomes, and smaller by a factor of $2 \frac{(1-\rho)}{(1-\rho^2)}$ with respect to the difference-in-difference estimator. In our control group, autocorrelation ranges from 0.02 to 0.37 depending on the outcome considered. To give an overall idea, thus, to detect an effect, our films need provoke a change in migration intentions of one individual per village. Below, we also draw on a machine learning literature

¹¹The minimum detectable effect for the OLS (POST) estimator 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 ρ the estimated intraclass correlation coefficient.

to estimate conditional average treatment effects, enabling us to discuss the distribution of effects in the study population. As shall be seen, this allows us to put our null results into perspective.

2.2.2. Attrition

Even if our attrition rate is fairly low (92.6% of baseline individuals were reinterviewed), 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 families declared that they had moved to a foreign country¹²), death and failed tracking.¹³

The first way to investigate to what extent the treatments induce attrition is to decompose the attrition dummy into 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. Table 21 in Appendix presents the decomposition of the attrition rate on the whole sample, on the control, and three 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 PM (positive film on migration) but the difference with the control group is not statistically significant.

To more thoroughly investigate attrition, however, we resort to two different 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.

¹²For 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.

¹³There are other—rare— reasons for failure to capture interviewees a second time in the data, such as imprisonment.

As a second, more robust look at attrition, and following Lee (2009), 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. Machine Learning and 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 the estimation of a treatment effect with asymptotic confidence intervals (Athey and Imbens, 2016). Based on the random forest algorithm by Breiman (2001), Wager and Athey (2018) develop a causal forest algorithm that is shown to outperform k -nearest neighbour 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 (Bertrand et al., 2017; Davis and Heller, 2017a; Athey and Wager, 2019; Davis and Heller, 2020). Apart from examining heterogeneity in a secular manner, the use of machine learning also permits a deviation from the linearity assumption in estimating the ATE, a useful addition to the main results.

We run the causal forest algorithm in R using the **grf** package. We estimate the propensity score for Y using local linear forests, since these show improved performance over standard regression forests, in particular when smooth signals are present, when the covariate space is big and when correlation is expected to be strong among many of the covariates (Friedberg et al., 2020). 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. The forests are *honest* (Wager and Athey, 2018), meaning that different sets of observations are used for training and for prediction. 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 whole clusters instead of individual observations in the subsampling procedure. It is important to notice that since clustering intervenes at the sampling stage of forest training, it affects not only standard errors, but also the estimands themselves. Athey and Wager (2019) discuss the implications of their clustering strategy, which can be thought of as estimating:

$$Y_i = m_{A_i}(X_i) + W_{i\tau_{A_i}}(X_i) + \epsilon_i, \quad \tau(x) = \mathbb{E}[\tau_j(x)] \quad (2)$$

where each cluster $A \in \{1, \dots, J\}$ has its own main function and treatment effect, and the ATE is averaged over clusters. In their application on the National Study of Learning Mindsets, they find that clustering substantially reduced estimated CATE sizes and widened confidence intervals, suggesting that some of the variation captured was due to school-specific effects. Using the cluster-based algorithm, the resulting standard errors are cluster-robust and based on a bootstrapping procedure. In what follows, all of our results based on the causal forest algorithm are obtained using the clustering subsampling procedure. Finally, Friedberg et al. (2020) point out the benefits from locally adjusting predictions from a causal forest, which may strongly improve the predictions of a forest when capturing a smooth signal in the presence of a lot of noise. In our setup, locally linearising predictions greatly improves fit, and we thus systematically make use of it (selecting linearisation variables through LASSO) in our heterogeneity analysis.

3. Treatment effects on intentions to migrate

Table 3 presents the ITT treatment effects of the positive documentary on non-migrant individuals (Film LO), the negative documentary on migration (Film NM) and the positive documentary on migration (Film PM), on five variables that describe intentions to migrate: 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 internal migration intentions (column 5). Estimations from equation 1 are presented, with and without controls. We also add the average treatment effect resulting from the *causal forests* algorithm.

Table 4 presents the results when inverse probability weights are used to control for attrition, and Table 5 the non-parametric trimming procedure.

3.1. Impact of being informed of positive experiences of non-migrants

This film investigates the role of knowledge of local economic opportunities. Portraying successful entrepreneurs living in the Kita region, it could be expected to have a negative impact on intentions to migrate both abroad and within the country. However, it could also favour migration, at least for those who think that their locality of residence cannot provide them with sufficient conditions to realise their economic potential at present, or for those who do not have enough savings to develop their local activities and think about migrating temporarily to accumulate savings. If migration is favoured, it is more likely to be within Mali

or to neighbouring countries.

It appears that exposure to non-migrant professional success (Film LO) produces no significant negative impact on international migration intentions (first panel of Table 3). The coefficient for migration outside Africa is negative, as expected, but not significant. The coefficients of migration intentions to African countries (columns 2 and 3, first panel, Table 3) are on the contrary positive, but not significant. The results from a correction for attrition using inverse proportional weights (Table 4) confirms this absence of effect, and decreases the size of coefficients. Logically, this absence of average impact is confirmed by the Lee bound estimates (Table 5). None of the lower or upper bounds are significantly different from zero and all the confidence intervals that capture both uncertainty about the selection bias and uncertainty about the sampling error for the treatment effect itself contain zero. Finally, Tables 3, 4 and 5 also show that non-migrant positive role models do not have any impact on internal migration: in no case is the coefficient on migration within Mali (column 5) statistically different from zero.

In summary, viewing Film LO did not impact intentions 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 intentions to migrate abroad or within Mali.

3.2. Impact of being informed of negative experiences of migration

Organizations aiming 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 hypothesise that Film NM will have a negative impact on intentions to migrate abroad. The film portrays an individual who faced deplorable conditions in the North African countries of Algeria and Libya and is still suffering dire consequences from 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 favour willingness to migrate within Mali as alternative destinations.

The second panel of Table 3 reports the impacts of Film NM. As can be observed, this treatment has no impact on intentions to migrate abroad (column 1). The point estimates are close to zero and non significant in both specifications. Neither does it significantly decrease the willingness to migrate to North Africa or outside the continent (Table 3, columns 2 and 4, second panel). The hypothesis of a substitution of destinations is also not substantiated. Intentions to migrate to both Sub-Saharan countries and within Mali do not increase after the viewing of Film NM (Table 3, columns 3 and 5, second panel), although the coefficient for internal migration is larger than for the other outcomes.

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 21 in Appendix), we run a parametric specification of the selection bias confirming no significant effect on the propensity to want to migrate, either internationally or internally (Table 4). These results are supported by the more conservative Lee bound estimates (Table 5). The upper and lower bounds are not significant and the confidence interval for treatment effect itself contains zero. Given these results, we conclude that showing documentaries of failed migration attempts has a low potential to affect intentions.

3.3. Impact of being informed of positive experiences of migration

Lastly, we look at the impact of a film conveying a positive message about migration on the African continent. Our priors are that Film PM has a positive impact on intentions to migrate abroad. Moreover, to the extent that film PM 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 intentions 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 PM 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 (columns 1 through 4, first panel, first line), and coefficients for internal migration are indeed negative, but not significantly different from zero. It is worth noting that the estimated coefficients are larger for film PM than for the two other films, suggesting that this treatment may indeed produce detectable effects in a setting with very high statistical power. Looking at attrition in the next paragraph however suggests the grounds for a large impact are weak.

As can be seen in the third panel of Table 4, the inclusion of inverse probability weights in the estimations reduces the size of coefficients for destinations outside Africa, barely modifies coefficients for Sub-Saharan African, and increases the size of coefficients for migration within Mali. None of the coefficients are significantly different from zero. The non-parametric trimming procedure of Lee (2009) confirms this absence of impact (Table 5). Even if one lower bound is significantly different from zero, suggesting that Film PM could have 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 intentions. 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).

Summing up all three interventions, the coefficients from our regressions tend to be close to zero and the randomised controlled trial reveals no detectable average impacts on migration intentions from the provision of information in the form of life stories about migration experiences and non migration experiences. These results are common to both the ANCOVA estimator—with and without controls—and the computed ITT from the causal forests algorithm.

Table 3: Intentions to migrate, baseline model

	(1)	(2)	(3)	(4)	(5)
Wish to migrate	abroad	to North c.	to SSA c.	to North African c.	Mali
Pos. Non Migrant Doc. (LO)					
<i>Strata controls</i>	-0.001 (0.045)	-0.027 (0.039)	0.021 (0.021)	0.003 (0.013)	-0.012 (0.034)
<i>Additional controls</i>	-0.010 (0.049)	-0.018 (0.043)	0.004 (0.022)	0.002 (0.014)	-0.006 (0.033)
<i>ITT from causal forests</i>	0.006 (0.051)	-0.019 (0.043)	0.02 (0.022)	0.004 (0.014)	-0.019 (0.035)
Observations	909	909	909	909	909
Negative Migrant Doc. (NM)					
<i>Strata controls</i>	-0.003 (0.041)	-0.007 (0.037)	-0.004 (0.018)	0.007 (0.015)	0.024 (0.033)
<i>Additional controls</i>	0.021 (0.039)	0.026 (0.037)	-0.003 (0.018)	-0.001 (0.015)	0.023 (0.030)
<i>ITT from causal forests</i>	0.004 (0.046)	0.00 (0.040)	-0.004 (0.018)	0.008 (0.016)	0.013 (0.035)
Observations	932	932	932	932	932
Positive Migrant Doc. (PO)					
<i>Strata controls</i>	0.035 (0.043)	0.020 (0.039)	0.011 (0.018)	0.008 (0.015)	-0.014 (0.033)
<i>Additional controls</i>	0.009 (0.039)	0.006 (0.036)	0.001 (0.019)	0.006 (0.016)	-0.010 (0.034)
<i>ITT from causal forests</i>	0.056 (0.047)	0.032 (0.042)	0.021 (0.019)	0.007 (0.016)	-0.020 (0.034)
Observations	927	927	927	927	927
Mean dep. var. (%)	27.2	18.3	5.4	3.4	18.1

Notes: Standard errors clustered at the village level; First estimator of each panel: ANCOVA ITT estimator without control variables, except for the strata dummies; Second estimator of each panel: ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline; Third estimator of each panel: average treatment effect resulting from the causal forests algorithm. *c*: $p < 0.10$, *b*: $p < 0.05$, *a*: $p < 0.01$.

Table 4: Intentions to migrate, IPW correction for attrition bias, ITT

	(1)	(2)	(3)	(4)	(5)
Wish to migrate	abroad	to North c.	to SSA c.	to North African c.	Mali
Pos. Non Migrant Doc. (LO)					
<i>Strata controls</i>	-0.005 (0.048)	-0.030 (0.041)	0.025 (0.023)	-0.003 (0.013)	-0.016 (0.034)
<i>Additional controls</i>	-0.010 (0.055)	-0.017 (0.049)	0.005 (0.025)	-0.001 (0.016)	-0.036 (0.036)
Observations	743	743	743	743	743
Negative Migrant Doc. (NM)					
<i>Strata controls</i>	0.001 (0.041)	-0.010 (0.036)	0.002 (0.019)	0.002 (0.017)	0.012 (0.033)
<i>Additional controls</i>	0.016 (0.040)	0.018 (0.036)	-0.000 (0.020)	-0.005 (0.017)	0.010 (0.033)
Observations	736	736	736	736	736
Positive Migrant Doc. (PO)					
<i>Strata controls</i>	0.016 (0.045)	0.006 (0.040)	0.014 (0.021)	-0.001 (0.017)	-0.027 (0.029)
<i>Additional controls</i>	-0.018 (0.040)	-0.015 (0.039)	0.003 (0.022)	-0.004 (0.018)	-0.033 (0.030)
Observations	757	757	757	757	757
Mean dep. var. (%)	27.2	18.3	5.4	3.4	18.1

Note: Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline; Attrition bias is controlled for by the introduction of inverse probability weights of an attrition equation that includes: strata dummies, 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; $c: p < 0.10$, $b: p < 0.05$, $a: p < 0.01$.

Table 5: Intentions to migrate, control for attrition bias, Lee bounds procedure.

	Film LO		Film NM		Film PM	
	(1)	(2)	(3)	(4)	(5)	(6)
Wish to migrate	Lower	Upper	Lower	Upper	Lower	Upper
Abroad	-0.0004	0.0093	-0.0142	-0.0029	0.0491	0.0738
	[-0.0607	0.0664]	[-0.0682	0.0492]	[-0.0060	0.1252]
Outside Africa	-0.0220	-0.0123	-0.0175	-0.0062	0.0151	0.0397
	[-0.0740	0.0345]	[-0.0660	0.0381]	[-0.0375	0.0876]
Sub-Saharan African	0.0091	0.0188	-0.0174	-0.0061	0.0010	0.0256
	[-0.0254	0.0468]	[-0.0509	0.0209]	[-0.0354	0.0556]
North Africa	-0.0068	0.0028	-0.0018	0.0094	-0.0162	0.0084
	[-0.0351	0.0254]	[-0.0328	0.0326]	[-0.0446	0.0296]
Inside Mali	-0.0332	-0.0235	0.0038	0.0151	-0.0523*	-0.0277
	[-0.0836	0.0234]	[-0.0473	0.0635]	[-0.1030	0.0173]
Observations	986		1010		998	
Number of selected obs.	909		932		927	
Trimming proportion	0.0096		0.0112		0.0241	

Note: Columns (1) to (6) present the treatment effect bounds. The lower and upper bounds correspond to extreme assumptions about the missing information that are consistent with the observed data. Either from below or from above, the group (treatment, control) that suffers less from sample attrition is trimmed at the quantile of the outcome variable that corresponds to the share of 'excess observations' in this group. Calculating group differentials in mean outcome yields the lower and the upper bounds, respectively, for the treatment effect depending on whether trimming is from below or above. The 95% confidence interval for treatment effect are presented into bracket below. Standard errors are bootstrapped (500 replications);*, $p < 0.10$, **, $p < 0.05$, ***, $p < 0.01$

3.4. Heterogeneity in responsiveness

Although average effects are not significantly different from zero, it may be that subsets of our sample experience positive or negative impacts, which are cancelled 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, holding the desirable features of relaxing the linearity assumption, taking into account high order 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 2.2.3, running the algorithm with some 127 explanatory variables.

Figures 2, 3 and 4 in Appendix show conditional distributions of the average treatment effect as estimated through the locally linearised version of the *causal forests* algorithm run with 25000 trees, 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 centred 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 PM. 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, although simply eyeballing the figures does not allow to distinguish noise from true heterogeneity.

Understanding across which dimensions heterogeneity operates is not straightforward, even

Table 6: Summary statistics by quartile of predicted effect –Film LO

	Q1	Q2	Q3	Q4
Age	24.433 (4.986)	25.866 (5.461)	25.773 (5.457)	25.947 (5.491)
Father alive	0.789 (0.409)	0.732 (0.444)	0.757 (0.430)	0.756 (0.430)
Farmer	0.907 (0.291)	0.752 (0.433)	0.798 (0.403)	0.699 (0.460)
HH	0.138 (0.345)	0.175 (0.381)	0.117 (0.323)	0.138 (0.346)
Has children	0.397 (0.490)	0.520 (0.501)	0.490 (0.501)	0.476 (0.500)
No. Siblings	6.275 (2.424)	5.846 (2.344)	5.721 (2.291)	5.764 (2.540)
Ever left	0.664 (0.473)	0.606 (0.490)	0.628 (0.484)	0.488 (0.501)
Ever abroad	0.231 (0.422)	0.256 (0.437)	0.267 (0.443)	0.163 (0.370)
Disease	0.794 (0.406)	0.711 (0.454)	0.664 (0.473)	0.541 (0.499)
Depression	0.340 (0.475)	0.232 (0.423)	0.219 (0.414)	0.179 (0.384)
Subjective poverty	1.964 (0.640)	2.020 (0.629)	2.012 (0.653)	1.898 (0.580)
Locus of control index	-0.181 (2.400)	0.764 (3.386)	0.022 (3.058)	-0.085 (3.059)
Aspirations index	2.059 (0.546)	1.782 (0.527)	1.800 (0.654)	1.551 (0.484)
Current migrants in HH	2.506 (4.954)	1.533 (2.507)	1.640 (2.578)	1.411 (1.981)
Distance Bamako	175.444 (43.896)	171.216 (38.699)	174.439 (41.239)	185.085 (50.095)
Distance Kita	59.019 (36.331)	46.933 (32.922)	46.992 (26.847)	68.424 (37.853)
Distance Dakar	883.064 (41.392)	883.535 (36.868)	878.237 (38.908)	876.580 (41.556)
Observations	247	246	247	246

Source: authors' compilation from causal forest predictions.

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. Instead of searching for variables associated with heterogeneity (a difficult exercise in a non-parametric setting), we follow Davis and Heller (2020) who partition their sample into quartiles based on the estimated individual treatment effect obtained from the causal forests algorithm. The procedure, thoroughly described in Davis and Heller (2020), first regresses the outcome on an interaction between the treatment dummy and the predictions from the causal forest.¹⁴ Being able to exclude zero implies that the predictions are indeed relevant. We find that the treatment interacted with predictors is positively and significantly associated with our outcome variable, suggesting that overall heterogeneity is present and captured by the locally linearised forest.¹⁵ We then partition the sample into quartiles according to the predicted CATEs from the forest algorithm, and present descriptive statistics by quartile on a set of sociodemographic variables. The results can be seen in Tables 6,7 and 8.

Since the hypothesised effect from Film LO is a decrease in migration intentions, the lower quartiles in Table 6 give hints on the profile of individuals more likely to react to the treatment in the expected manner. The films shows a protagonist doing well in agriculture, and it may perhaps come as no surprise that individuals predicted to be more impacted (Q1) are more

¹⁴In our case, from the locally linearised causal forest.

¹⁵However, the predictions underestimate actual heterogeneity, since our coefficients are higher than one.

Table 7: Summary statistics by quartile of predicted effect –Film NM

	Q1	Q2	Q3	Q4
Age	24.233 (4.873)	25.611 (5.560)	25.194 (5.548)	25.758 (5.793)
Father alive	0.779 (0.416)	0.734 (0.443)	0.735 (0.442)	0.722 (0.449)
Farmer	0.830 (0.376)	0.766 (0.424)	0.715 (0.452)	0.845 (0.362)
HH	0.154 (0.362)	0.206 (0.405)	0.115 (0.319)	0.095 (0.294)
Has children	0.415 (0.494)	0.524 (0.500)	0.443 (0.498)	0.448 (0.498)
No. Siblings	6.332 (2.231)	5.675 (2.478)	5.549 (2.261)	5.746 (2.286)
Ever left	0.660 (0.475)	0.591 (0.493)	0.514 (0.501)	0.560 (0.497)
Ever abroad	0.304 (0.461)	0.187 (0.390)	0.142 (0.350)	0.234 (0.424)
Disease	0.719 (0.450)	0.667 (0.472)	0.577 (0.495)	0.544 (0.499)
Depression	0.312 (0.464)	0.190 (0.393)	0.170 (0.376)	0.298 (0.458)
Subjective poverty	2.166 (0.658)	1.889 (0.595)	1.862 (0.585)	1.873 (0.612)
Locus of control index	0.182 (3.239)	0.915 (3.007)	0.590 (3.163)	-0.722 (2.545)
Aspirations index	1.858 (0.524)	1.830 (0.562)	1.712 (0.591)	1.684 (0.569)
Current migrants in HH	2.209 (3.823)	1.587 (2.622)	1.340 (1.855)	2.099 (2.533)
Distance Bamako	174.742 (42.406)	184.617 (43.385)	178.807 (40.451)	182.741 (37.941)
Distance Kita	52.976 (32.377)	56.023 (32.959)	49.673 (28.089)	43.013 (39.261)
Distance Dakar	880.330 (39.225)	870.893 (40.637)	875.059 (39.915)	872.872 (32.282)
Observations	253	252	253	252

Source: authors' compilation from causal forest predictions.

Table 8: Summary statistics by quartile of predicted effect –Film PM

	Q1	Q2	Q3	Q4
Age	25.604 (5.131)	25.434 (5.458)	25.312 (5.654)	25.201 (5.728)
Father alive	0.736 (0.442)	0.703 (0.458)	0.792 (0.407)	0.735 (0.442)
Farmer	0.912 (0.284)	0.863 (0.344)	0.772 (0.420)	0.647 (0.479)
HH	0.192 (0.395)	0.141 (0.348)	0.092 (0.290)	0.100 (0.301)
Has children	0.516 (0.501)	0.538 (0.500)	0.428 (0.496)	0.422 (0.495)
No. Siblings	5.928 (2.329)	5.610 (2.313)	6.108 (2.306)	5.835 (2.314)
Ever left	0.660 (0.475)	0.554 (0.498)	0.576 (0.495)	0.627 (0.485)
Ever abroad	0.240 (0.428)	0.169 (0.375)	0.256 (0.437)	0.245 (0.431)
Disease	0.672 (0.470)	0.558 (0.498)	0.572 (0.496)	0.627 (0.485)
Depression	0.328 (0.470)	0.193 (0.395)	0.188 (0.391)	0.161 (0.368)
Subjective poverty	2.168 (0.685)	1.920 (0.636)	1.824 (0.622)	1.908 (0.535)
Locus of control index	-0.996 (2.436)	0.176 (2.977)	0.403 (3.261)	0.807 (3.431)
Aspirations index	1.959 (0.643)	1.839 (0.581)	1.696 (0.515)	1.621 (0.471)
Current migrants in HH	2.128 (3.163)	1.594 (2.342)	1.472 (2.081)	1.550 (2.170)
Distance Bamako	155.564 (45.538)	169.633 (39.946)	174.421 (37.239)	203.593 (34.542)
Distance Kita	55.663 (28.007)	45.266 (30.490)	44.626 (33.124)	59.956 (41.576)
Distance Dakar	897.895 (44.371)	883.991 (37.768)	880.453 (33.294)	856.539 (29.782)
Observations	250	249	250	249

Source: authors' compilation from causal forest predictions.

likely to work as farmers. They furthermore tend to be younger, in worse health (particularly mental health) and with lower aspirations. Finally, they seem to come from households with a larger number of current migrants, suggesting that they are inserted in a culture where migration is seen as the only way of escaping poverty and securing a good life for oneself.

For our second film, NM, we also expect a negative response and therefore focus on Q1 in Table 7. Again, individuals are younger, coming from larger households, more often declare a disease and thoughts of depression, and live in households with a higher number of migrants with respect to Q2 and Q3 (but less so when comparing with Q4). They declare a low standard of living, and, interestingly, have more often been abroad, suggesting they may come from more migrant-oriented households and view migration as the only viable way to increase their standards of living.

For our last film, PM, we hypothesise a positive effect on migration intentions and therefore focus on Q4, corresponding to the predicted high-responders to the treatment. The summary statistics of Table 8 here point to a different profile from the two previous high-responders. Individuals responding positively to the film may be less mobility constrained, as witnessed by a lower share of farmers, a lower share of households heads, and a lower probability of having children. Furthermore, they less often declare being depressed, and more often report an internal locus of control together with higher aspirations. Altogether, high-responders paint a portrait of being less constrained, and of higher aspirations and beliefs in their own ability to shape their future.

4. Mechanisms

In this section, we explore a series of mechanisms through which our films could alter migration intentions. Firstly, the rationale for the use of role models as an intervention hinges on the idea that individuals identify with the protagonists of the documentaries shown. We show summary statistics on reported identification and relevance in the next sub-section. Secondly, once an identification mechanism occurs, the films may modify individual aspirations. Our hypothesis is that young men confronted with positive professional and social trajectories of role models increase their economic and social aspirations. Conversely, witnessing a negative experience of one of their “peers” can decrease their own aspirations. This mechanism is distinct from a potential effect of films on factual knowledge about benefits or risks of migration. To identify these potential mechanisms, we investigate whether the films modified aspirations in terms of future income, wealth, housing and social status, and whether their income expectations in Kita town, Bamako, Côte d’Ivoire and France changed.

Finally, we examine locus of control: it may be that the documentaries aside from providing *identification* and providing *higher aspirations* convey a message of *control* over one’s fate. However, the intended impact is uncertain, and may vary depending on the film shown. The successful endeavours of individuals in Films PM and LO may convey a feeling that life trajectories are within one’s control and that by making the right decisions, future prospects can be improved. On the other hand, confronted with portraits of men whose life paths have evolved quite positively (Film PM and Film LO), some individuals may acquire an accentuated feeling of powerlessness in their own life projects, lose personal confidence and think that their destiny is fundamentally shaped by factors totally beyond their control.

4.1. Subjective relevance and identification

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. At the end of the endline questionnaire, we asked questions relative to the screenings. These questions, shown in Table 9 help us partially assess the extent of identification, while at the same time gauging 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.¹⁶ 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.

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 PM and Film LO). Also somewhat reassuring, the two same films (PM and LO) also comforted individuals in their initial projects to a larger extent than the control film and film NM.

Table 9: Opinions of the films

Perceptions about the films	P value						
	Control	Film LO	Film NM	Film PM	C-LO	C-NM	C-PM
Do you think that the film provided you with interesting information?	73.743 (4.717)	94.226 (1.499)	96.032 (1.303)	94.709 (1.640)	0.000***	0.000***	0.000***
Do you think this information will be useful for your future projects?	57.821 (6.094)	85.827 (2.970)	82.540 (3.693)	84.921 (3.350)	0.000***	0.001***	0.000***
Why?							
It helped me formulate a personal project	42.029 (5.039)	52.294 (4.321)	42.949 (5.358)	46.417 (3.931)	0.123	0.9	0.491
It comforted me in my initial personal project	18.841 (3.378)	31.804 (4.359)	16.346 (3.165)	33.022 (3.563)	0.020**	0.589	0.005***
It made me reconsider my initial project	20.290 (4.220)	10.398 (1.892)	17.308 (3.012)	15.576 (2.320)	0.034**	0.564	0.327
It forced me to abandon my original project	18.841 (4.749)	5.505 (1.500)	23.397 (4.148)	4.984 (1.211)	0.008***	0.469	0.005***
Identified with the characters	67.598 (5.271)	75.591 (4.787)	70.899 (4.866)	78.307 (3.788)	0.262	0.645	0.100
N	358	381	378	378			

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

Although the evaluative nature of the questions¹⁷ 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.

¹⁶Not shown. The largest error rate was for the Placebo film, where 7.3% of interviewees identified a different film.

¹⁷Individuals may consider that they are to some extent evaluating the performance of the surveyor.

4.2. Aspirations and information on expected earnings

We elicited a set of aspiration-related measures at baseline and endline. Column 1 of Table 10 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. 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 and at baseline, average aspirations are high, with all indicators averaging below 2 (last line, Table 10). 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 10). 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% claim to live rather unsatisfactorily (which is equivalent to an average of 1.96 of the poverty index, column 6, last line, Table 10). 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 10).

The film showing local opportunities (LO) significantly increased aspirations, in particular in the dimensions income and housing, with and without baseline controls. Furthermore, the last film, showing a positive migration experience (PM), also increases individuals’ aspirations, particularly in the dimensions of income, wealth and social status (although only income is significantly different from zero in the specification with baseline controls). The film showing negative experience in migration didn’t have any impact on aspiration but decreased the probability of being depressed. When correcting for attrition using IPW or Lee bounds (Table 22, in Appendix), all the signs and significance levels of Table 10 remain, including when attrition is controlled with the Lee bounds procedure.¹⁸ These results confirm our initial hypotheses. Role models with ascending professional experiences positively impact individuals’ aspirations. This stands to prove that although films LO and PM did not show much potential for modifying migration intentions, they did strike a chord in the subjects by changing their aspirations in term of well-being.

¹⁸One exception being depression in Film NM, which is no longer significant with IPW correction of attrition bias.

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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Asp. index	Inc. asp.	Hous. asp.	Wealth asp.	Soc. asp.	Subj. liv. cond.	B.N.	Depression
Positive Non-Migrant Doc. (10)								
<i>Strata controls</i>	-0.0859* (0.0492)	-0.121* (0.0623)	-0.124* (0.0646)	-0.0865 (0.0571)	-0.0720 (0.0550)	-0.0330 (0.0609)	0.0424 (0.138)	-0.0721* (0.0376)
<i>Additional controls</i>	-0.0746 (0.0463)	-0.117* (0.0643)	-0.105* (0.0599)	-0.0588 (0.0562)	-0.0603 (0.0555)	-0.0132 (0.0632)	0.0566 (0.148)	-0.0904** (0.0425)
Observations	909	909	909	909	909	909	909	909
Negative Migration Doc. (NM)								
<i>Strata controls</i>	0.0225 (0.0492)	-0.0586 (0.0699)	0.0472 (0.0586)	0.0198 (0.0545)	0.0356 (0.0608)	0.0431 (0.0598)	-0.0301 (0.142)	-0.0385 (0.0364)
<i>Additional controls</i>	-0.00628 (0.0438)	-0.0825 (0.0670)	0.0220 (0.0524)	-0.00102 (0.0497)	-0.0106 (0.0536)	0.00747 (0.0604)	-0.156 (0.139)	-0.0681* (0.0409)
Observations	932	932	932	932	932	932	932	932
Positive Migrant Doc. (PM)								
<i>Strata controls</i>	-0.0855* (0.0472)	-0.128** (0.0610)	-0.0866 (0.0590)	-0.0951* (0.0539)	-0.101* (0.0566)	-0.0616 (0.0638)	-0.0386 (0.151)	-0.0477 (0.0329)
<i>Additional controls</i>	-0.0625 (0.0466)	-0.114* (0.0632)	-0.0461 (0.0565)	-0.0593 (0.0535)	-0.0589 (0.0563)	-0.00655 (0.0611)	-0.0116 (0.149)	-0.0402 (0.0330)
Observations	932	932	932	932	932	932	932	932
Control mean (baseline)	1.82	1.94	1.79	1.80	1.77	1.97	10.93	26.96

Notes: The aspiration index in column (1) is the average of 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. Subjective living condition in column (6) is the answer of: "Given your household income, do you feel that you are living 1 = well or quite well 2 = Fairly well 3 = with difficulty. Basic needs in column (7) are the number of needs out of 13 items considered as a minimum to enjoy satisfactory living conditions. In column (8), a person is defined as suffering from depressive symptoms if s/he answered more than five questions positively among nine standard questions about depressive symptoms.

Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline

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

Do films showing role models change expected incomes in migration? Although the films did not aim to provide information on average incomes in migration, they convey approximate 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.¹⁹ Bearing in mind that information on expected earnings is noisy and the variance is very high (especially for France²⁰), we nevertheless use it to test to what extent films change their perceptions of individual's earnings possibilities. Film LO, by showing economic success stories of people who have stayed in their villages of origin may reduce 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. Film NM, showing a person who has failed in his attempt to migrate abroad and who lives quite poorly in the town of Kita may, similarly, lower the estimated income in that town. Finally, film PM, showing returnees from Côte d'Ivoire who have made their mechanical repair businesses flourish in Kita city could positively impact expected earnings in Kita city and Côte d'Ivoire.

Table 11 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 normalised to 100. In the last panel of Table 11, 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.²¹ Overestimation may not be the case for expected incomes within the country, however. Baseler (2020) showed that rural parents underestimated their children's urban incomes by as much as 50%, and that underestimation is related to the incentive to hide income. We however have no way of verifying this hypothesis in our study. The fact that expected earnings abroad are overestimated, especially in France, may explain why we see no effect from our negative film on international migration intentions.²² The perceived gains from migration are so high that risky migration prospects are not sufficient to deter migration. This is corroborated by a recent lab-in-the-field experiment run by Bah and Batista (2018) on potential irregular migrants to Europe in The Gambia that shows an extremely large overestimation of both the probability of getting a residence permit upon a successful crossing and of dying *en route* for those willing to migrate irregularly.²³

As can be seen in Table 11, the effects of the three treatments on expected incomes in different destinations are generally quite high, as most of them are above 10%. The coefficients are significant only for film PM that reduces the expected incomes in Bamako but also in Kita. However, the significance of these coefficients disappears when attrition bias is controlled for using IPW or Lee bounds procedure (Table 23 in Appendix). We conclude that the treatments do not have any impact on expected incomes in the regional and national capitals as well as in the main foreign destinations.

4.3. Locus of control

¹⁹We also ask this question concerning their desired destination of migration, when different from the four destinations above. Unfortunately, there is too little reliable data for this last question to be exploited.

²⁰Lending credibility to an argument stating that these wages—especially when concerning far away destinations—are little more than mere guesses.

²¹Based 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).

²²Recall that Bamadi, the young men of film NM stayed in Algeria and Libya but intended to go to Europe (Italy).

²³Those 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 11: Expected income by destination

	(1)	(2)	(3)	(4)
	Income Kita	Inc. Bamako	Inc. CIV	Inc. France
Positive Non-migrant Doc. (LO)				
<i>Strata controls</i>	7.615 (9.932)	10.12 (17.99)	10.10 (48.46)	568.2 (451.2)
<i>Additional controls</i>	-5.113 (10.50)	-18.86 (20.08)	-63.42 (52.18)	932.6 (693.9)
Observations	811	754	679	652
Negative Migrant Doc. (NM)				
<i>Strata controls</i>	4.073 (11.14)	27.53 (30.59)	-25.17 (38.35)	218.4 (303.0)
<i>Additional controls</i>	7.462 (12.95)	26.37 (33.13)	-13.54 (40.20)	615.3 (380.0)
Observations	861	789	720	697
Positive Migrant Doc. (PM)				
<i>Strata controls</i>	-9.056 (6.897)	-15.38 (11.83)	-4.114 (47.67)	1.821 (1.127)
<i>Additional controls</i>	-17.26** (7.412)	-25.57* (13.03)	-45.88 (49.79)	1.811 (1.125)
Observations	842	773	705	686
Mean expected income at baseline	100	152.5	281.7	2,835.4
s.d.	(167.0)	(232.7)	(657.2)	(30,159.5)

Notes: Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – intention to migrate, to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline

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

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 (LO and PM) 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. The negative migration documentary (NM) may on the other hand accentuate the feeling that fortune (and misfortune in particular) are beyond one's control. Even though the treatments increased individual welfare aspirations, the absence of an impact on intentions to migrate may have to do with the extent to which locus of control is external rather than internal.

Table 12 investigates this. We compute a synthetic index with the normalised 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 12). 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 LO (Table 12). Note that positive coefficients indicate a stronger level of disagreement with the questions, and thus a stronger belief that locus of control is internal, rather than external. When control variables are included in the estimations, none

of the coefficients that are significantly different from zero in the first specification without controls remains significant. However, when attrition is corrected by Lee bounds (Table 24 in Appendix), coefficients of the main component of locus of control index of Films LO and NM specifications are statistically positive and different from zero. It seems that these both films resonated with our subjects, increasing the extent to which they believe that their destinies depend on their own actions rather than external forces. As previously shown, however, this fails to translate into an impact on migration intentions.

Table 12: Locus of control

	(1) Synt. index	(2) LC1	(3) LC2	(4) LC3	(5) LC4	(6) LC5
Positive Non-Migration Doc. (LO)						
<i>Strata controls</i>	0.674* (0.349)	0.180** (0.0895)	0.0975 (0.0864)	0.185** (0.0923)	0.0388 (0.0835)	0.184 (0.120)
<i>Additional controls</i>	0.286 (0.312)	0.0364 (0.0819)	0.0275 (0.0802)	0.0773 (0.0842)	0.0887 (0.0930)	0.0361 (0.112)
Observations	909	909	909	909	909	909
Negative Migration Doc. (NM)						
<i>Strata controls</i>	0.345 (0.333)	0.133 (0.0910)	0.134* (0.0754)	0.104 (0.0941)	-0.0395 (0.0770)	0.0459 (0.113)
<i>Additional controls</i>	0.248 (0.324)	0.0892 (0.0860)	0.0684 (0.0751)	0.0964 (0.0909)	-0.0261 (0.0843)	0.00352 (0.101)
Observations	932	932	932	932	932	932
Positive Migration Doc. (PM)						
<i>Strata controls</i>	0.332 (0.341)	0.164** (0.0815)	0.144 (0.0890)	0.0931 (0.0927)	-0.0605 (0.0811)	-0.00627 (0.109)
<i>Additional controls</i>	5.90e-05 (0.300)	0.0590 (0.0706)	0.0861 (0.0843)	0.00600 (0.0786)	-0.0399 (0.0848)	-0.117 (0.0971)
Observations	927	927	927	927	927	927
Mean dep. var.	0.20	0.02	-0.03	0.04	-0.01	0.09
Agree/str. agree (%)		70.82	84.71	62.58	62.98	61.97

Notes: 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. Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline.

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

In the end, our findings about the mechanisms at work suggest that in all three treatments an identification process with the protagonists occurs, and that positive non migrant and migrant role models shape general life aspirations. We also find weak evidence of an impact on locus of control from films LO and NM, but no robust evidence that expected incomes are affected. The absence of an average treatment effect on migration intentions can be explained by the fact that migration aspirations are certainly a function of people's general life aspirations but are also shaped by perceived economic opportunities.

Conclusion

In this paper, we present results from a field experiment whose aim was to examine the impact of role models on migration intentions, by exposing young Malian males to films depicting life stories of non-migrants and migrants. We found no evidence that any of the three interventions provided an impact on migration intentions. These results stand when we control for attrition bias and when we relax the linearity assumption and estimate intention to treat effects using the causal forests algorithm.

Turning to potential channels, our findings suggest that the films showing a positive outcome (LO and PM) increased welfare aspirations, bearing witness to an identification effect. Films LO and NM further had a positive impact on locus of control, the belief that internal rather than external forces shape one's destiny. They did not, however, affect expected earnings at destination. The absence of an effect on average migration intentions thus suggests that these channels may not be the most useful levers to act on migration intentions, at least not in a context where migration is culturally embedded in society, aspirations are high and the gains from migration substantial. Exploring heterogeneity using the causal forests algorithm, we derive common traits in high-responders for all three films. For the film showing local opportunities, the highest responders were more likely to be poor, working in agriculture and with worse health and lower aspirations. On the contrary, high responders to the film showing a positive migration experience tended to be the opposite: relatively less poor, less often in agriculture and with higher aspirations. This fits with an overall narrative in which the subjective welfare gains from migration are so high that a revision of local opportunities is not enough to modify migration intentions.

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. We add to the debate on the nature of information provision, focusing on role models as message vectors. In particular, we analyse how migration intentions in rural Mali react to the exposure to documentaries depicting life stories of migrants and non-migrants. We confirm that welfare aspirations are impacted by role model documentaries. However, it is not enough, in such a context to impact migration aspirations. This lack of effect may be due to the fact that our experiment took 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 intentions 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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Appendix

A. Tables

Table 13: 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 14: Subjective living conditions and durable goods of individuals by migration intention

	(1) Total	(2) Wish to migrate ¹	(3) No wish to migrate	(4) Stat. dif. be. (2) & (3)
<i>Subjective living conditions² (%)</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 ³ (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:¹ 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?".

² 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.

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

ns: difference not statistically significant; *, $p < 0.10$, **, $p < 0.05$, ***, $p < 0.01$.

Table 15: Sociodemographic characteristics of individuals who wish to migrate abroad and within Mali

	(1) Wish to migrate ¹	(2) Wish to migrate abroad	(3) Wish to migrate within Mali	(4) Stat. dif. bet.(2) & (3)
Age	25.2	24,9	25,5	*
%				
Has been to school	65.3	64.3	66.5	ns
Has 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 ²	26.9	26.8	27	ns
Suffering from a disease ³	66.3	61.3	71.9	***
Current migrant in the household	62,8	65,4	60,0	*
Return migrant in the household	50,8	45,9	56,4	***
Ever left their village	68,8	64,7	73,3	***
Ever went abroad	27,6	34,5	19,8	***
N	1,200	638	562	

Notes: ¹ 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?"

² 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.

³ 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; *: $p < 0.10$, **: $p < 0.05$, ***: $p < 0.01$.

Table 16: Migration aspirations at baseline

Migration aspirations	Total	Control	Film LO	Film NM	Film PM	P-values (t-test)			F-stat	P-value (F)
						C-FLO	C-FNM	C-FPM		
Wish to migrate at baseline (%)	31,900	30.584	28.630	29.825	38.523	0.659	0.879	0.103	4,67	0,003
Abroad	(1,690)	(3,402)	(2,838)	(3,659)	(3,447)					
Outside Africa	18,500	18,109	17,382	17,739	20,758	0.838	0.923	0.526	0,78	0,504
	(1,390)	(2,633)	(2,389)	(2,803)	(3,258)					
SS Africa	8,900	8,652	6,748	7,602	12,575	0.387	0.682	0.195	4,1	0,0066
	(0,934)	(1,858)	(1,181)	(1,776)	(2,386)					
North Africa	4,500	3,823	4,499	4,483	5,190	0.664	0.634	0.385	0,36	0,7811
	(0,566)	(0,906)	(1,272)	(1,056)	(1,287)					
Inside Mali	28,100	33,400	30,470	26,901	21,756	0.562	0.173	0.010***	6,25	0,0003
	(1,631)	(3,610)	(3,556)	(3,102)	(2,566)					
Observations	2000	497	501	513	489					

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

Table 17: Experimental integrity

Individual characteristics						P-value (t-stat)			F-stat	P-value (F)
	Total	Control	Film LO	Film NM	Film PM	C-FLO	C-FNM	C-FPM		
Age	25.316 (5.397)	25.45473 (5.560)	25.55419 (5.197)	24.94932 (5.392)	25.32136 (5.427)	0.820	0.244	0.777	1.22	0.3021
Have been to school	63.650 (1.443)	62.978 (2.954)	66.667 (2.799)	61.793 (2.703)	63.273 (3.121)	0.364	0.767	0.945	0.94	0.4215
Primary level completed	41.600 (1.424)	38.431 (2.400)	43.967 (2.835)	40.546 (3.002)	43.513 (3.108)	0.137	0.581	0.196	1.39	0.2437
Malinke (Mother tong)	59.350 (3.037)	58.350 (6.294)	50.716 (6.479)	67.057 (5.781)	60.878 (5.697)	0.398	0.308	0.765	9.59	0.000
Work in agr. sector	79.400 (1.858)	78.873 (3.555)	78.937 (3.863)	78.947 (3.695)	80.838 (3.853)	0.990	0.988	0.707	0.28	0.8386
Aide familial	71.650 (2.138)	69.014 (4.380)	69.121 (4.549)	74.074 (4.157)	74.251 (4.103)	0.987	0.402	0.383	2.13	0.094
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	1.53	0.2037
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	1.85	0.1353
Household head'son	65.500 (1.599)	67.203 (3.129)	67.689 (3.369)	61.014 (3.174)	66.267 (3.128)	0.916	0.166	0.832	0.83	0.4788
Household Head	14.350 (1.330)	12.877 (2.536)	15.542 (2.686)	15.595 (2.861)	13.373 (2.592)	0.470	0.477	0.891	0.83	0.4799
Married	58.850 (1.436)	60.966 (2.613)	60.123 (2.950)	56.725 (2.597)	57.685 (3.322)	0.830	0.250	0.437	0.83	0.4788
Have children	45.950 (1.427)	48.491 (2.720)	45.603 (3.065)	43.080 (2.393)	46.707 (3.228)	0.480	0.136	0.672	1.04	0.3721
Suffer from depression	21.650 (2.049)	26.962 (4.182)	21.472 (4.291)	21.637 (4.247)	16.567 (3.625)	0.359	0.371	0.062*	5.33	0.0012
Declare to be sick	63.450 (2.895)	64.185 (5.883)	71.370 (5.727)	61.209 (5.500)	57.285 (6.042)	0.381	0.711	0.413	7.63	0.000
Observations	2000	497	489	513	501					

Notes: ¹ 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.

² 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.

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

Table 18: Subjective living conditions and living standards

Subjective living conditions and living standards						P value				
	Total	Control	Film LO	Film NM	Film PM	C-FLO	C-FNM	C-FPM	F-stat	P-value (F)
Subj. living c. (1=Good 2=Fairly 3=Hardly)	1.955 (0.627)	1.966 (0.632)	1.9816 (0.622)	1.930 (0.618)	1.944 (0.636)	0.851	0.678	0.796	0,67	0,5717
Nb of owned durable g. by household	3.500 (1.781)	3.374 (1.809)	3.462 (1.753)	3.571 (1.758)	3.589 (1.802)	0.621	0.298	0.291	0,67	0,5717
Their household has one or more Motorbike or car	68.650 (1.463)	68.410 (3.021)	66.667 (2.845)	69.006 (3.092)	70.459 (2.787)	0.674	0.890	0.617	0,57	0,6376
Bike	64.600 (1.861)	56.137 (4.103)	65.235 (3.568)	70.370 (3.317)	66.467 (3.694)	0.096*	0.008***	0.063*	8,04	0***
TV	32.350 (1.390)	33.400 (2.312)	31.902 (3.018)	32.749 (2.727)	31.337 (3.080)	0.693	0.855	0.592	0,19	0,904
Fridge	0.550 (0.162)	0.604 (0.341)	1.022 (0.439)	0.195 (0.195)	0.399 (0.279)	0.451	0.298	0.642	1,14	0,3327
Power generator	0.850 (0.198)	0.402 (0.282)	1.227 (0.474)	0.975 (0.418)	0.798 (0.386)	0.136	0.257	0.407	0,7	0,5491
Solar module	58.150 (1.819)	57.948 (3.696)	56.646 (3.427)	56.725 (3.635)	61.277 (3.838)	0.796	0.813	0.531	0,97	0,4071
Observations	2000	497	489	513	501					

Notes: ¹ 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.

² List of owned durable goods: car or motorbike, bike, cart, TV set, radio, fridge, solar panel, power generator.

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

Table 19: Migration behavior (individual and in the household)

Migration behaviors	P value									
	Total	Control	Film LO	Film NM	Film PM	C-FLO	C-FNM	C-FPM	F-stat	P-value (F)
Current migrant in the hous.	58.700 (2.075)	64.588 (3.601)	53.374 (4.636)	60.234 (3.860)	56.487 (4.409)	0.058*	0.409	0.156	4,8	0,0024
Return migrant in the hous.	43.050 (2.417)	49.095 (4.783)	38.241 (4.809)	43.860 (5.088)	40.918 (4.646)	0.111	0.453	0.221	4,38	0,0044
Ever left their village	58.900 (1.687)	60.362 (3.441)	58.896 (3.641)	55.945 (3.374)	60.479 (3.091)	0.769	0.359	0.980	0,93	0,4232
Ever went abroad	23.100 (1.384)	21.127 (2.637)	24.744 (2.875)	22.222 (2.549)	24.351 (3.047)	0.354	0.765	0.423	0,83	0,4762
Observations	2000	497	489	513	501					

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

Table 20: Village average variables

	Total	Control	Film LO	Film NM	Film PM	P-value (t-stat)			F-stat	P-value (F)
						C-FLO	C-FNM	C-FPM		
Average age	25.3 (2.16)	25.5 (2.35)	25.6 (1.95)	25 (1.96)	25.3 (2.36)	-0.11	0.49	0.12	0.72	0.5408
Share never been to school	0.36 (0.2)	0.37 (0.21)	0.33 (0.19)	0.38 (0.19)	0.37 (0.22)	0.039	-0.011	0.005	0.56	0.641
Share with mother who is alive	0.88 (0.11)	0.88 (0.12)	0.89 (0.12)	0.89 (0.09)	0.88 (0.13)	-0.007	-0.003	0.001	0.05	0.986
Subjective living conditions (1 - 4 scale)	2.87 (0.52)	2.88 (0.58)	2.9 (0.49)	2.83 (0.54)	2.87 (0.49)	-0.02	0.04	0.003	0.14	0.9338
Share whose HH has a motorbike/car	0.69 (0.21)	0.68 (0.22)	0.67 (0.20)	0.69 (0.22)	0.7 (0.20)	0.017	-0.007	-0.019	0.26	0.8567
Share whose HH has a solar panel	0.58 (0.26)	0.58 (0.26)	0.57 (0.24)	0.57 (0.26)	0.61 (0.27)	0.01	0.01	-0.03	0.34	0.8
Share with any economic activity last week	0.74 (0.34)	0.74 (0.34)	0.79 (0.31)	0.69 (0.38)	0.74 (0.33)	-0.05	0.06	0.009	0.81	0.4901
Share that wants to migrate	0.6 (0.27)	0.64 (0.25)	0.59 (0.59)	0.57 (0.28)	0.6 (0.26)	0.05	0.07	0.04	1.78	0.1344
Share that wants to migrate abroad	0.32 (0.24)	0.31 (0.24)	0.29 (0.20)	0.3 (0.26)	0.39 (0.24)	0.02	0.007	-0.08	1.79	0.1317
Share who ever left the village (6 months)	0.59 (0.24)	0.61 (0.24)	0.59 (0.25)	0.56 (0.24)	0.6 (0.22)	0.02	0.05	0	1.8	0.1298
Share who ever went abroad (6 months)	0.23 (0.20)	0.21 (0.19)	0.25 (0.20)	0.22 (0.18)	0.24 (0.22)	-0.03	-0.01	-0.03	0.61	0.6589
Share with return migrants in HH	0.43 (0.34)	0.49 (0.34)	0.38 (0.34)	0.44 (0.36)	0.41 (0.33)	0.11	0.05	0.08	1.11	0.3548
Share with current migrants in HH	0.58 (0.30)	0.64 (0.25)	0.53 (0.33)	0.6 (0.27)	0.56 (0.31)	0.11*	0.04	0.08	2.06	0.0871*
Observations	200	50	50	50	50					

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

Table 21: Attrition rates

	Total	Control	Film LO	Film NM	Film PM	P value			
						C-FLO	C-FNM	C-FPM	F-stat P-value (F)
Attrition rate (%)	7.200 (0.734)	8.249 (1.516)	7.362 (1.528)	7.212 (1.661)	5.988 (1.136)	0.680	0.644	0.233	0,65 0,5855
Attrition rate due to departure abroad	2.100 (0.344)	2.355 (0.761)	2.790 (0.913)	1.245 (0.571)	2.484 (0.629)	0.714	0.243	0.896	1,05 0,3702
Attrition rate due to departure within Mali	3.600 (0.505)	4.403 (1.227)	3.412 (0.936)	4.418 (1.135)	2.686 (0.876)	0.520	0.993	0.255	0,96 0,4124
Attrition rate to incomplete questionnaire	1.500 (0.352)	1.935 (1.093)	1.522 (0.624)	1.856 (0.707)	1.050 (0.451)	0.742	0.951	0.454	0,47 0,7014
Observations	2000	497	489	513	501				

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

Table 22: Aspiration, subjective poverty, basic needs and depression, attrition bias, IPW correction and Lee bounds procedure

	Film LO						Film NM						Film PM					
	IPW			Lee bound			IPW			Lee bound			IPW			Lee bound		
	Strata contr.	Add. contr.	Lower	Up-per	Strata contr.	Add. contr.	Lower	Up-per	Strata contr.	Add. contr.	Lower	Up-per	Strata contr.	Add. contr.	Lower	Up-per		
Asp. index	-0.0856 (0.0519)	-0.0746 (0.0521)	-0.1178*** [-0.1668]	-0.0986*** [-0.0509]	0.0106 (0.0537)	-0.0168 (0.0474)	-0.0181 [-0.0678]	-0.0008 [0.483]	-0.102** (0.0451)	-0.0890** (0.0445)	-0.1491*** [-0.1995]	-0.1067*** [-0.0555]						
Income asp.	-0.129** (0.0632)	-0.148** (0.0682)	-0.1457*** [-0.2125]	-0.1264*** [-0.0631]	-0.0669 (0.0718)	-0.0898 (0.0702)	-0.0813* [-0.1510]	-0.0587 [0.0065]	-0.144** (0.0602)	-0.149** (0.0608)	-0.1932*** [-0.2688]	-0.1417*** [-0.0715]						
Housing asp.	-0.115 (0.0726)	-0.0923 (0.0730)	-0.1448*** [-0.2131]	-0.1210*** [-0.0566]	0.0456 (0.0679)	0.0150 (0.0609)	0.0126 [-0.0523]	0.0373 [0.0988]	-0.0898 (0.0577)	-0.0567 (0.0557)	-0.1382*** [-0.2083]	-0.0889** [-0.0268]						
Wealth asp.	-0.0786 (0.0605)	-0.0390 (0.0620)	-0.1174*** [-0.1875]	-0.0981** [-0.0328]	-0.00255 (0.0602)	-0.0218 (0.0529)	-0.0268 [-0.0882]	-0.0021 [0.0577]	-0.104** (0.0514)	-0.0747 (0.0508)	-0.1570*** [-0.2197]	-0.1077*** [-0.0471]						
Social stat. asp.	-0.0642 (0.0559)	-0.0455 (0.0600)	-0.1088 [-0.1701]	-0.0894 [-0.0286]	0.0267 (0.0648)	-0.0189 (0.0577)	0.0013 [-0.0594]	0.0239 [0.0855]	-0.122** (0.0581)	-0.0856 (0.0586)	-0.1474*** [-0.2086]	-0.1032** [-0.0370]						
Subj. liv. cond.	-0.0114 (0.0557)	0.0209 (0.0598)	-0.0427 [-0.1121]	-0.0234 [0.0398]	0.0222 (0.0593)	-0.00380 (0.0618)	-0.0057 [-0.0751]	0.0169 [0.0831]	-0.0594 (0.0586)	-0.0125 (0.0545)	-0.0966** [-0.1636]	-0.0473 [0.0188]						
Basic needs	-0.0148 (0.129)	-0.0421 (0.139)	0.0228 [-0.1028]	0.0756 [0.2108]	-0.0462 (0.136)	-0.129 (0.142)	-0.0116 [-0.1488]	0.0704 [0.2213]	-0.0458 (0.148)	-0.0390 (0.148)	-0.0503 [-0.1996]	0.1070 [0.2633]						
Depression	-0.0627* (0.0326)	-0.0819** (0.0384)	-0.0850*** [-0.1255]	-0.0754*** [-0.0396]	-0.0386 (0.0298)	-0.0558 (0.0337)	-0.0504** [-0.0912]	-0.0391* [-0.0017]	-0.0408 (0.0283)	-0.0468* (0.0277)	-0.0803*** [-0.1240]	-0.0557** [-0.0191]						
Observations	743		986 (909 / 0.0096)		736		1010 (932 / 0.0112)		757		998 (927 / 0.0241)							

Notes: The aspiration index is the average of 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 represents the weighted measure. 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. Subjective living condition is the answer of: "Given your household income, do you feel that you are living 1 = well or quite well 2 = Fairly well 3 = with difficulty. Basic needs are the number of needs out of 13 items considered as a minimum to enjoy satisfactory living conditions. A person is defined as suffering from depressive symptoms if s/he answered more than five questions positively among nine standard questions about depressive symptoms.

Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline.

IPW correction: attrition bias is controlled for by the introduction of inverse probability weights of an attrition equation that includes: strata dummies, 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.

The Lee lower and upper bounds correspond to extreme assumptions about the missing information that are consistent with the observed data. Either from below or from above, the group (treatment, control) that suffers less from sample attrition is trimmed at the quantile of the outcome variable that corresponds to the share of 'excess observations' in this group. Calculating group differentials in mean outcome yields the lower and the upper bounds, respectively, for the treatment effect depending on whether trimming is from below or above. The 95% confidence interval for treatment effect are presented into bracket below. Standard errors are bootstrapped (500 replications); Number of selected observations and trimming proportion are indicated into brackets in the last line of the table.

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

Table 23: Expected income by destination, attrition bias, IPW correction and Lee bounds procedure

	Film LO				Film NM				Film PM			
	IPW		Lee bound		IPW		Lee bound		IPW		Lee bound	
	Strata contr.	Add. contr.	Lower	Up- per	Strata contr.	Add. contr.	Lower	Up- per	Strata contr.	Add. contr.	Lower	Up- per
Expected income in destination												
Kita	6.384 (11.24)	-12.95 (12.14)	5.40 [-11.88 947 (870 / 0.0083)]	15.32** 30.13]	8.416 (13.59)	11.09 (15.17)	-2.43 [-19.36 984 (906 / 0.0123)]	8.26 22.83]	-11.96 (7.945)	-21.67** (8.569)	-14.07** 972 (901 / 0.0254)]	-6.97 3.56]
Observations	650				667.00				675.00			
Bamako	7.493 (20.03)	-29.78 (23.05)	0.41 [-27.29 932 (855 / 0.0074)]	11.53 36.76]	31.96 (34.93)	29.10 (37.41)	-4.02 [-37.81 964 (886 / 0.0108)]	31.30 79.69]	-21.30 (12.84)	-30.56** (14.75)	-28.734** 956 (885 / 0.0249)]	-15.3691 4.90]
Observations	597				600.00				610.00			
Ivory Coast	17.45 (61.82)	-74.54 (73.44)	-6.40 [-76.72 870 (793 / 0.0072)]	29.94 106.82]	-33.16 (48.22)	-18.11 (49.33)	-30.77 [-93.59 909 (831 / 0.0126)]	-1.06 61.47]	-0.556 (67.90)	-41.94 (72.33)	-60.41* [-122.69 910 (839 / 0.0288)]	13.79 97.56]
Observations	535				546.00				549.00			
France	-9.171 (195.5)	81.28 (230.6)	-0.64 [-503.97 817 (740 / 0.0056)]	533.88 1392.05]	321.8 (348.7)	669.3 (412.2)	-261.04 [-650.93 864 (786 / 0.0138)]	225.74 756.03]	2.152 (1.333)	2.398* (1.421)	-141.50 [-919.07 855 (784 / 0.091)]	1708.70 3997.30]
Observations	519				530				542			

Notes: Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline.

IPW correction: attrition bias is controlled for by the introduction of inverse probability weights of an attrition equation that includes: strata dummies, 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.

The Lee lower and upper bounds correspond to extreme assumptions about the missing information that are consistent with the observed data. Either from below or from above, the group (treatment, control) that suffers less from sample attrition is trimmed at the quantile of the outcome variable that corresponds to the share of 'excess observations' in this group. Calculating group differentials in mean outcome yields the lower and the upper bounds, respectively, for the treatment effect depending on whether trimming is from below or above. The 95% confidence interval for treatment effect are presented into brackets below. Standard errors are bootstrapped (500 replications); Number of selected observations and trimming proportion are indicated into brackets in the last line of each panel.

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

Table 24: Locus of control, attrition bias, IPW correction and Lee bounds procedure

	Film LO				Film NM				Film PM			
	IPW		Lee bound		IPW		Lee bound		IPW		Lee bound	
	Strata contr.	Add. contr.	Lower	Up-per	Strata contr.	Add. contr.	Lower	Up-per	Strata contr.	Add. contr.	Lower	Up-per
Locus of control												
Synthetic index	0.668*	0.2940	0.5792**	0.7121**	0.3970	0.1470	0.4656*	0.6209***	0.1690	-0.0770	0.1413	0.4799*
	-0.3630	-0.3170	[0.1577	1.0939]	-0.3810	-0.3500	[0.0346	1.0143]	-0.3730	-0.3240	[-0.3205	0.8858]
LC1	0.167*	0.0031	0.1867***	0.1944***	0.1430	0.0929	0.2019***	0.2110***	0.1290	0.0404	0.1806***	0.2001***
	-0.0948	-0.0842	[0.0940	0.2894]	-0.0943	-0.0857	[0.1024	0.3129]	-0.0858	-0.0727	[0.0875	0.2953]
LC2	0.0985	0.0446	0.0308	0.0610	0.1450	0.0531	0.1205*	0.1558**	0.1380	0.1030	0.0677	0.1446**
	-0.0959	-0.0876	[-0.0852	0.1608]	-0.0881	-0.0845	[0.0025	0.2644]	-0.0961	-0.0913	[-0.0617	0.2563]
LC3	0.187*	0.0603	-0.1922***	0.1986***	0.1200	0.0832	-0.2021***	0.1674**	0.0629	-0.0104	-0.2535***	0.0898
	-0.1050	-0.0998	[-0.2764	0.2953]	-0.1080	-0.1020	[-0.2883	0.2657]	-0.1020	-0.0853	[-0.3392	0.1863]
LC4	0.0448	0.170*	0.0523	0.0781	-0.0662	-0.0804	0.0153	0.0454	-0.1010	-0.0341	-0.0487	0.0169
	-0.0866	-0.0903	[-0.0647	0.1960]	-0.0875	-0.0921	[-0.0920	0.1455]	-0.0909	-0.0920	[-0.1620	0.1295]
LC5	0.0251	0.0534	0.1591**	0.6652***	0.0894	-0.0001	0.1888	0.6488***	-0.0214	-0.0048	-0.0178	0.6625***
	-0.0964	-0.0905	[0.0609	0.7565]	-0.1060	-0.0908	[-0.0846	0.7451]	-0.1030	-0.1030	[-0.1160	0.7598]
Observations	743		986 (909 / 0.0096)		736		1010 (932 / 0.012)		757		998 (927 / 0.0241)	

Notes: 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.

Standard errors clustered at the village level; ANCOVA ITT estimator with control variables at the village level – strata dummies, share of household with current migrants at baseline, and dummy variables equal to one whether an Imam was present at film screening, or whether the village head attended the film screening and at the individual level – to have at least one current migrant in his household, and to live in a household having at least one bicycle, all at baseline.

IPW correction: attrition bias is controlled for by the introduction of inverse probability weights of an attrition equation that includes: strata dummies, 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.

The Lee lower and upper bounds correspond to extreme assumptions about the missing information that are consistent with the observed data. Either from below or from above, the group (treatment, control) that suffers less from sample attrition is trimmed at the quantile of the outcome variable that corresponds to the share of 'excess observations' in this group. Calculating group differentials in mean outcome yields the lower and the upper bounds, respectively, for the treatment effect depending on whether trimming is from below or above. The 95% confidence interval for treatment effect are presented into bracket below. Standard errors are bootstrapped (500 replications); Number of selected observations and trimming proportion are indicated into brackets in the last line of the table.

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

B. Figures

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

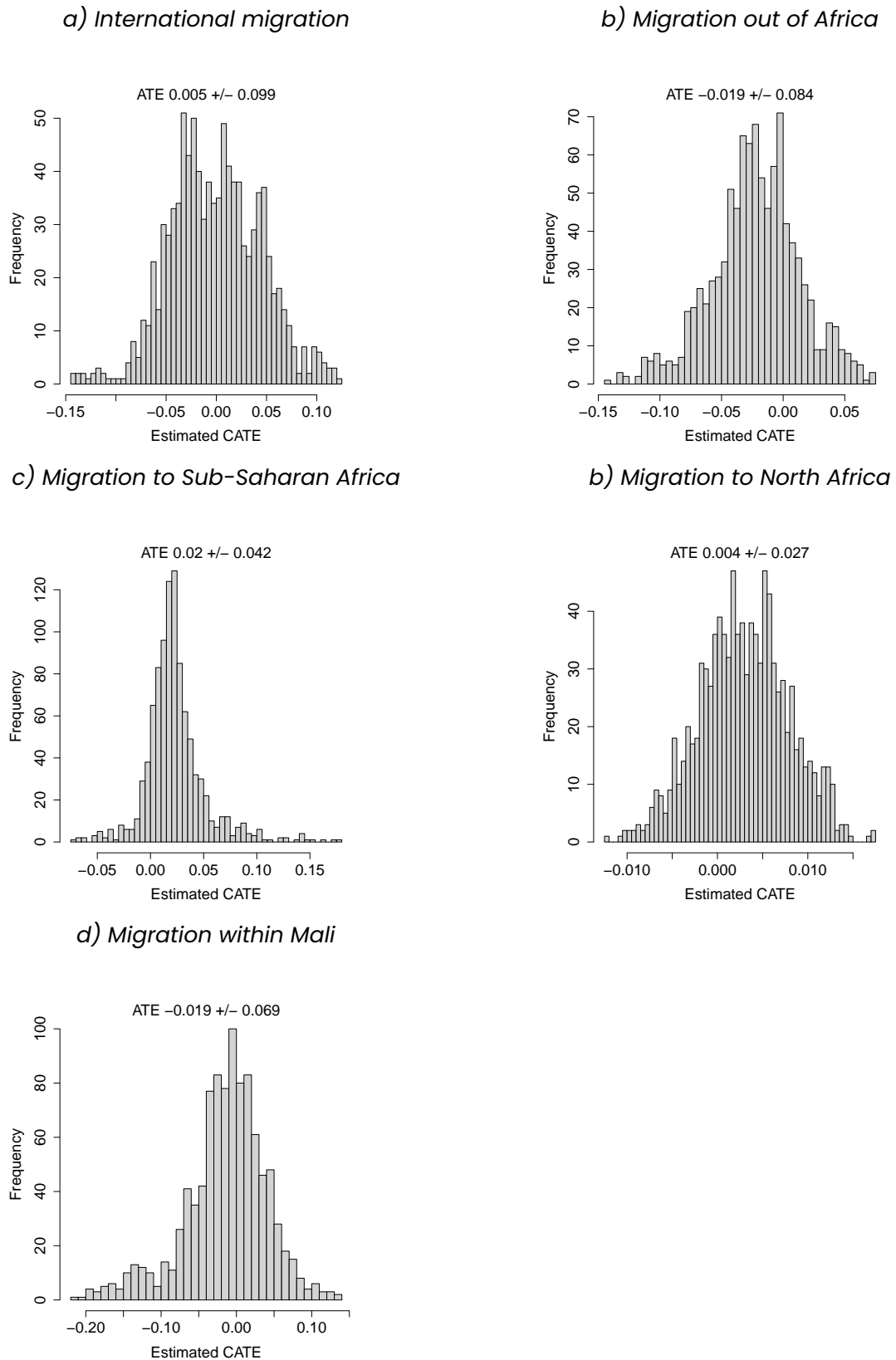
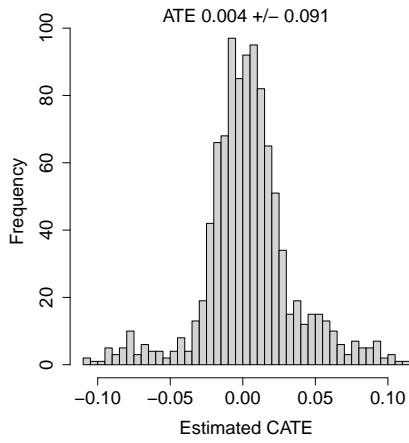
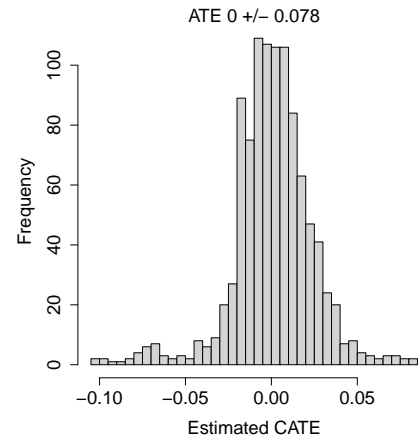


Figure 3: Film NM conditional average treatment effects (causal forest algorithm)

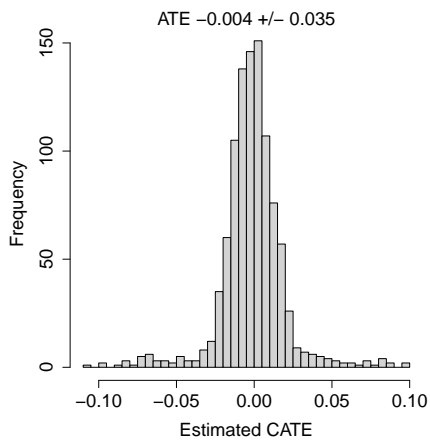
a) *International migration*



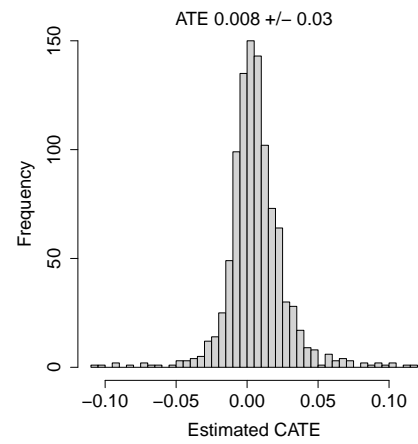
a) *Migration out of Africa*



c) *Migration to Sub-Saharan Africa*



d) *Migration to North Africa*



e) *Migration within Mali*

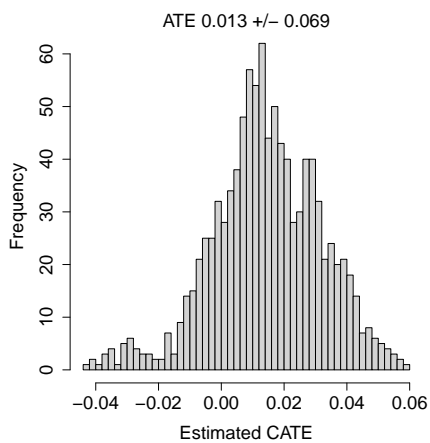
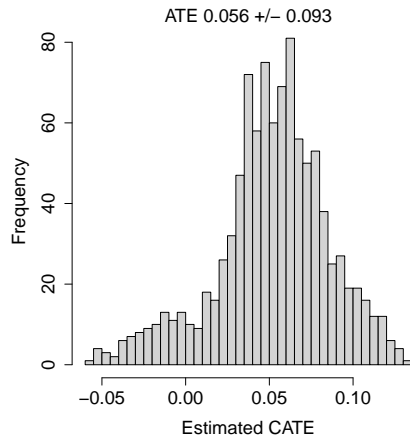
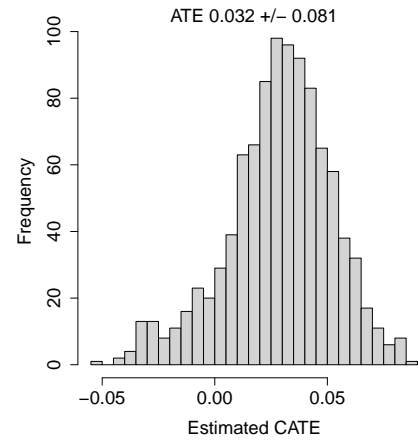


Figure 4: Film PM conditional average treatment effects (causal forest algorithm)

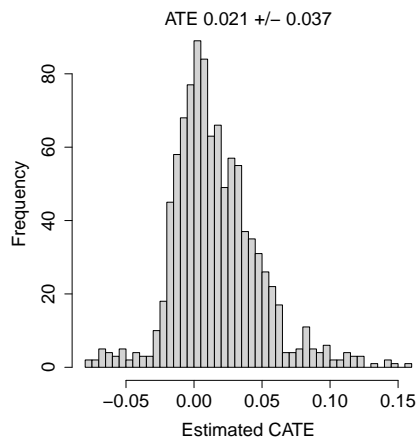
a) *International migration*



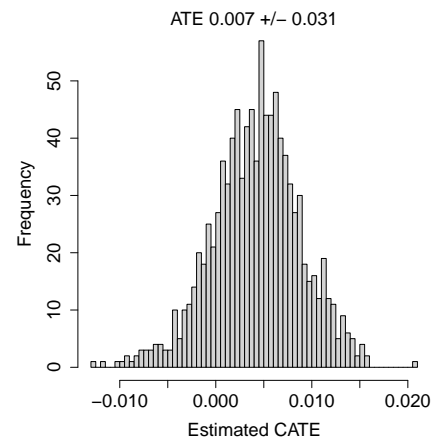
b) *Migration out of Africa*



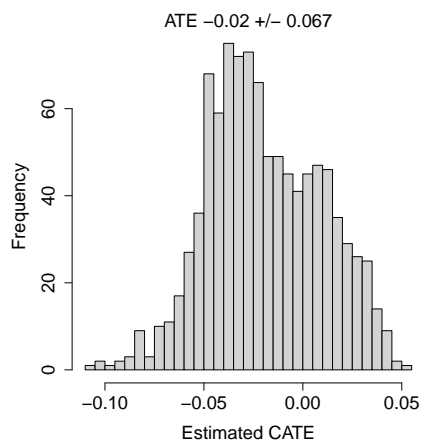
c) *Migration to Sub-Saharan Africa*



d) *Migration to North Africa*



e) *Migration within Mali*



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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