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IZA DP No. 17214

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An Italian Case Study**

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**Samuel Nocito**

*Sapienza University of Rome*

**Alessandra Venturini**

*University of Turin, IZA and MPC-EUI*

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IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9  
53113 Bonn, Germany

Phone: +49-228-3894-0  
Email: [publications@iza.org](mailto:publications@iza.org)

[www.iza.org](http://www.iza.org)

## ABSTRACT

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# Inter-Institutional Cooperation and Migrants' Financial Education: An Italian Case Study\*

This study evaluates the effect of a financial education program on migrants, emphasizing the importance of inter-institutional cooperation. The Italian case study, the “Welcome-ED” project—a partnership between the Municipality of Turin and the Turin Museum of Savings (MoS)—aimed to provide tailored financial education to diverse migrant groups, relying on cooperation with various local migration center entities: cooperatives, non-profit associations, and provincial centers for adult education. Our evaluation reveals a significant positive increase in migrants' financial literacy after participating in the project. Furthermore, when we redefine the MoS evaluation criteria employing a model from Item Response Theory (IRT), we document that the post-course migrants' greatest improvement was in the topic identified as most difficult by the IRT model. The study documents variations in the project's results, with migrants from cooperatives and non-profit associations benefiting more than those from provincial centers for adult education, primarily due to the different compositions of the migrant groups served. Our findings also highlight the significance of financial education for African migrants, a substantial part of migrants in Europe. The program evaluation underscores the essential role of cooperation between public and private institutions, cooperatives, and non-profit associations in expanding the reach and effectiveness of financial education projects for migrants. We finally emphasize the strengths and limitations of the program, providing recommendations for future enhancement of similar initiatives.

**JEL Classification:** D14, L30, J15, P13

**Keywords:** migrants, institutions, cooperatives, non-profit, financial literacy

**Corresponding author:**

Alessandra Venturini  
Department of Economics Cogneetti de Martiis  
University of Torino  
Lungo Dora Siena 100  
10100 Torino  
Italy  
E-mail: [alessandra.venturini@unito.it](mailto:alessandra.venturini@unito.it)

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# 1 Introduction

The significance of economic and financial literacy is widely acknowledged on both a national and international scale as a pivotal factor influencing investment decisions (Calvet *et al.*, 2009; Van Rooij *et al.*, 2011) and savings behaviors (Lusardi and Mitchell, 2007; Van Rooij *et al.*, 2012). It extends its impact to various economic choices encountered in daily life (Lusardi and Mitchell, 2014; Calcagno and Monticone, 2015). More recently, scholars and policymakers have turned their attention to the crucial role of financial education for migrants.<sup>1</sup> Their focus is directed toward understanding its influence concerning aspects like integration, financial inclusion, and the potential contributions to economic development (Gibson *et al.*, 2012; Karunaratne and Gibson, 2014). The literature has also explored how enhanced financial education can affect savings management in households receiving remittances (Doi *et al.*, 2014; Atkinson and Messy, 2015). Additionally, research has delved into how financial inclusion policies can assist migrants in meeting their financial needs and mitigating the adverse effects of economic crises—as for instance the recent Covid-19 pandemic recession—in their destination countries (De Matteis, 2015).

In this framework, integration and education policies become effective if they are tailored to the specific needs of the group of migrants, which differ in terms of age, gender, years since migration, level of education, and linguistic and cultural distances. These factors are among the main drivers of integration (Strøm *et al.*, 2018; Venturini and Villosio, 2018). Therefore, one of the main challenges of these programs is to reach individuals, considering both the extensive margin (i.e., the number of beneficiaries and ethnic heterogeneity) and the intensive margin (i.e., tailoring partners and activities to migrants' specific needs).<sup>2</sup>

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<sup>1</sup>Following UN definition, migrants is a foreign citizen who plans to stay more than 12 months. More details at: <https://www.un.org/en/fight-racism/vulnerable-groups/migrants>.

<sup>2</sup>The limited economic and social integration of migrants dominates the scenario in all European countries (Tintori *et al.*, 2018; Laurensyeva and Venturini, 2017). Many actors are involved in the process of enhancing migrants' integration on multiple dimensions: public institutions, which generally provide basic services, and private actors which are usually established with the aim of addressing

For these reasons, we provide evidence of the role played by the cooperation between different types of institutions in fostering migrants' financial education. We do so by evaluating an Italian case study, the Welcome-ED project, which promoted a financial literacy course for migrants. The Welcome-ED project originates from a collaboration between the Municipality of Turin, an Italian provincial capital situated in the Piedmont region of northern Italy, and the Turin Museum of Savings (MoS).<sup>3</sup>

This initiative relies on cooperation with various local migration center entities (LC, hereafter): cooperatives, non-profit associations, and provincial centers for adult education (CPIA). Cooperatives and non-profit associations are part of the Italian third sector (Borzaga, 1991, 1996; Borzaga and Galera, 2012), primarily at the municipal level, while CPIA operate as public institutions supporting migrant integration through educational services.<sup>4</sup> The central goal of the project is to provide financial education to migrant groups from diverse national backgrounds, with the attempt of fostering their financial inclusion in the host society. To achieve this, the Welcome-ED program comprises two primary components. Firstly, local centers serve as hubs for migrants, promoting the initiative and conducting an initial questionnaire to collect background information and assess the migrants' baseline financial literacy. Subsequently, these local centers organize meetings at the MoS to facilitate migrant participation in the second phase. Secondly, at the MoS, migrants engage in a brief financial literacy course led by MoS professionals, who also administer a second questionnaire to evaluate the knowledge acquired during the course.

The main objective of our study is to evaluate the program proposed by the MoS, migrants' specific needs for adapting to life in another country.

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<sup>3</sup>The Turin Museum of Saving is financed by Intesa San Paolo Bank and it was born from the idea of creating a unique, innovative, entertaining location, dedicated to families, adults and children, where it is possible to approach the concepts of saving and investment with a clear and simple language, in order to improve financial literacy. More details at: <https://www.museodelrisparmio.it/home-en/>.

<sup>4</sup>The number of local migration centers participating in the Welcome-ED project is representative of the Turin urban area, excluding religious centers and other organizations not focused on migrant support. For additional information (in Italian), please refer to: <http://www.comune.torino.it/cooperazioneinternazionale/link/associazioni.shtml> and <http://www.comune.torino.it/circ8/cm/pages/ServeBLOB.php/L/IT/IDPagina/4666>.

emphasizing its strengths and limitations. We believe that this analysis can offer valuable insights to scholars, policymakers, and other institutions from various angles. By identifying the project’s limitations, we can provide recommendations for enhancements in future local initiatives. Additionally, the empirical results offer evidence regarding what has been effective and to what extent. Therefore, we evaluate the effect of this cooperation project on migrants’ financial literacy.

The initiative involved migrants from various geographic areas of the world, including Eastern Europe, South America, Asia, North Africa, and Sub-Saharan Africa. The cooperation between the MoS and the different LCs achieved the surprising result of reaching 153 migrants in the province of Turin. Even though this number may seem relatively small, it is actually impressive when compared to other studies, especially considering the context in which the initiative operates.<sup>5</sup> Moreover, it represents a rare case in which financial education is provided to African migrants in the host European country, in contrast to other initiatives that have primarily focused on migrants from Southeast Asia (Gibson *et al.*, 2012; Doi *et al.*, 2014).

We use these data to estimate a single-difference equation in which we examine changes in migrants’ financial literacy before and after the course. We find a significant positive improvement in both the overall level of knowledge and in each of the evaluated topics covered by the course.<sup>6</sup> However, it’s worth noting that a lack of a proper control group is a limitation of this analysis, stemming from the Welcome-ED design, which requires treating all participants to ensure the inclusion of every migrant in the financial literacy course.<sup>7</sup>

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<sup>5</sup>The Welcome ED project recruited migrants solely in the province of Turin (a relatively small Italian city). It resulted in a sample size that represents almost 20% of the samples used in comparative studies conducted in larger countries across multiple cities (see, for example, Gibson *et al.* (2012)). Nevertheless, we complement our empirical analysis with a power and sample size test to prove the validity of our results.

<sup>6</sup>Our study reveals that after explaining concepts of financial literacy, some migrants assimilate this information. However, according to the data provided by MoS, we cannot ascertain whether they implement these acquired skills in practice. Nonetheless, other empirical studies (see, for example, Gibson *et al.* (2012); Karunaratne and Gibson (2014)) indicate that an increase in knowledge is often accompanied by improved financial behavior.

<sup>7</sup>In several contexts, excluding anyone from the treatment might be ethically and practically chal-

In addition, to mitigate any potential limitations set by the MoS evaluation criteria,<sup>8</sup> we redefine question weights employing a one-parameter logistic model (Rasch, 1993) from Item Response Theory (IRT). This alternative scoring system provides a more refined assessment of respondents' performance by accounting for the potential varying difficulty levels of questions included in the test. Interestingly, we observe that after completing the course the question in which migrants demonstrate the highest performance was concurrently ranked as the most challenging by the IRT model.

Finally, we also examine the potential heterogeneous results among migrants from different local realities to determine who benefited more from the project. We find that the financial literacy course was more beneficial to migrants coming from cooperatives and non-profit associations than to those coming from CPIA. Specifically, improvements were double for migrants from cooperatives and triple for those from non-profit associations. These results are primarily influenced by the composition of migrants in terms of nationalities and inclusion needs who participate in the activities promoted by these types of local centers. In a second heterogeneity analysis based on local center types and migrants' geographical areas of origin, we demonstrate that the larger improvements observed for cooperatives and non-profit associations are mainly explained by the types of migrants they reach, with the majority being African migrants. More precisely, these results highlight that the main factor contributing to the different performance among migrants from various local centers lies in the distinct national composition of the migrants supported by these different local realities, as well as their varying lengths of stay in the country of destination (43% of migrants from CPIA arrived in Italy less than 2 years ago, while cooperatives and non-profit associations have 19% and 30%, respectively, in this category). This suggests that it's not the different administrative nature of the local migrant centers that determines the results, but rather the diversity

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lenging since the training opportunity could be unique and valuable. For this reason, in the section 6 ("Lessons Learned"), we suggest an alternative approach for constructing the control group without excluding anyone from the treatment.

<sup>8</sup>MoS equally weighted evaluation questions by assigning a score of one for correct answers and zero otherwise.

in recruitment of their members, influencing their intervention at different stages of the migration process.<sup>9</sup> In this context, we learn that projects cooperating with non-profit associations and cooperatives are more capable of reaching potentially more vulnerable individuals who can benefit more from the project. These individuals likely have a higher marginal return to education.

Our analysis offers valuable insights for policymakers and institutions aiming to design projects for migrants' financial education. We stress the importance of cooperation between private institutions, public bodies, cooperatives, and non-profit associations as a critical element in enhancing the effectiveness of such projects and extending their reach to a broader population of individuals who can potentially benefit more from these initiatives. We also identify the limitations of the project, providing suggestions for improvements in future local initiatives. Finally, our results underscore the importance of financial education programs for African migrants, who constitute a significant portion of the overall migrant population in Europe.

The remainder of the paper is structured as follows. Section 2 discusses the contribution of our study to the related literature. Section 3 explains the project Welcome-ED in details and describes data. Section 4 presents the empirical analysis. Section 5 shows and describes the results. Section 6 discusses the lessons learned. Finally, section 7 provides conclusive remarks.

## 2 Related Literature

This work speaks with the financial education literature providing further insight into the financial literacy of migrants. Moreover, it also contributes to the governance economic literature explaining how local projects should be articulated and integrated with local realities also operating in the third sectors to be more effective.

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<sup>9</sup>Migrants' selection into different types of organizations is not determined by specific Italian immigration rules. However, even though we cannot provide evidence that these differences are stable over time, we believe they are structural, resulting from the different objectives that these associations have for their work.



The financial education literature can be categorized into two main groups: studies that analyze financial education programs within the host country and those that focus on programs implemented in the migrants' home countries.<sup>10</sup> For example, in studies conducted within the home country context, Doi *et al.* (2014) carried out a randomized experiment involving 400 Indonesian migrant households to provide financial education to different treatment groups. They presented evidence that offering training to both migrants and their family members together had substantial and significant effects on their knowledge, financial behaviors, and savings. Another study by Lara Ibarra *et al.* (2021) assessed a large-scale financial education program in Mexico. The results indicated that a financial education workshop and personalized coaching increased the likelihood of timely credit card payments. On the other hand, McKenzie *et al.* (2022) investigated the impact of information-based and aspirations-based approaches in the Philippines and found no or negative effects on economic behaviors. More recently, Giuffrida *et al.* (2023) conducted a randomized financial literacy training intervention for refugees in Uganda, revealing that the training improved the financial knowledge and claimed financial behaviors of participating households but did not result in increased confidence in using financial services.

Conversely, with respect to studies focusing on host countries, Gibson *et al.* (2012) designed a randomized experiment to measure the impact of providing financial literacy training to migrants in New Zealand and Australia. Their sample consisted of 910 migrants from Pacific Islands, East Asia, and Sri Lanka, including second-generation migrants.<sup>11</sup> The study found that the training led to increased financial knowledge among Pacific Island and East Asian migrants but not among Sri Lankans, providing evidence that this type of training is most impactful for those with lower initial knowledge or less experience. This increased knowledge was accompanied by changes

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<sup>10</sup>More broadly, a meta-analysis conducted by Kaiser *et al.* (2022) estimated positive effects on financial knowledge and subsequent financial behaviors.

<sup>11</sup>These migrants were recruited in large New Zealand and Australian cities such as Hamilton, Auckland, and Melbourne.

in financial behavior.<sup>12</sup> Additionally, Seshan and Yang (2014) designed a workshop for Indian male migrant workers in Qatar that incorporated motivational content into financial education. Their findings revealed that the wives of treated migrants changed their financial practices and became more likely to seek out financial education themselves.

Our study evaluates the features and results of the Italian project Welcome-ED. This project is not based on an academic randomized controlled trial but is a field-based initiative that relies on intra-institutional cooperation to provide financial education to diverse migrant groups in the host country (Italy). The project collected rare data on migrants' backgrounds, financial education, and demographic characteristics. We use this data to evaluate the project, highlighting positive results and limitations and providing suggestions for improvements. To the best of our knowledge, this is the first study that analyzes a ground-based program of financial education for migrants in Europe, offering a description of the financial education of migrants coming from different countries in Africa and Asia, which warrants further exploration.

In this context, the multilevel governance of the migration phenomenon and the integration policies is fundamental (Van Breugel and Scholten, 2020). These policies often need to address a highly diverse phenomenon, characterized by different cultural backgrounds, which makes their implementation complex (Caponio, 2021). Various implementation models can be considered, ranging from more centralized to less centralized approaches (Geddes, 2021). However, the effectiveness of these policies depends on their ability to adapt to the diverse and evolving demands, providing tailored services to reduce cultural distances and promote inclusion (Scholten *et al.*, 2015; Levy *et al.*, 2020; Belabas *et al.*, 2020). This study also offers valuable insights for this area of the economic literature.

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<sup>12</sup>Another study by Karunaratne and Gibson (2014) examined variations in financial literacy among two immigrant groups in Australia, focusing on Sri Lankans and Samoans. Their survey paid particular attention to remittance-related and credit-related literacy.

## 3 Italian Case-Study

### 3.1 The Welcome-ED project

The Welcome-ED project emerged from a collaboration between the Municipality of Turin, an Italian provincial capital in the Piedmont region, and the Turin Museum of Savings (MoS). It was officially launched in September 2017 with the primary goal of providing financial education to migrants from various countries to promote their financial inclusion in the host society.<sup>13</sup>

One of the project's most notable aspects was its cooperation with local entities, including cooperatives, non-profit associations, and provincial centers for adult education (CPIA).<sup>14</sup> This cooperation facilitated the delivery of training courses to migrant groups within the province of Turin. Notably, local centers served as hubs for migrants, promoting the initiative and conducting an initial questionnaire to collect background information and assess the migrants' baseline financial literacy. Subsequently, these local centers organized meetings at the MoS to facilitate migrant participation in the second phase, characterized by the training activity.

The financial literacy course proposed by MoS lasted approximately 2 hours and employed interactive teaching methods, avoiding a traditional lecture format.<sup>15</sup> It covered various aspects of financial education. The course began by explaining what financial education entails, including insights from an interview with Anna Maria Lusardi. It emphasized the importance of financial education, drawing from surveys of financial literacy levels in Italy and worldwide. The course delved into effective money manage-

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<sup>13</sup>Description of the project (in Italian) is available at: <https://www.museodelrisparmio.it/welcome-ed-educazione-finanziaria-per-i-migranti/>.

<sup>14</sup>The project Welcome-ED relied on the cooperation of the following local centers. Cooperatives: Logos Eta Beta, Logos III, Orso; non-profit Associations: Abele, Alma, Articolo 10, Articolo 10 Colasanto, La Contrada, Tampep; CPIA: 3-Braccini, 3-Chieri, Chille, Ruggirello.

<sup>15</sup>The original intent of the Welcome-ED project was to offer a second module that delved into the intricacies of interest-bearing savings, examining the concept of risk and distinctions among major financial products. It also aimed to introduce fundamental insights into how insurance and pension systems operate. However, there were no migrants who possessed the slightly more advanced level of specialized knowledge required for this second module. Consequently, the project and the analysis of results have been concentrated on the first module.

ment, based on the mission of the MoS. Participants learned about the concept and significance of savings, clarifying what savings involve, how they are achieved, and their purposes. The course taught expense planning, clarifying the concept of goal-oriented thinking. It also covered the planning process, illustrating the steps, often through practical exercises. Furthermore, participants were instructed on creating a personal budget, emphasizing the utility and usage of available paper or digital tools in the market or on the internet.

The course was conducted entirely in Italian, but the MoS teachers have taken steps to bridge the linguistic gap for participants with varying levels of Italian language proficiency. For groups with slightly lower linguistic skills, they have created a mini-dictionary featuring translations of key terms into French and English, displayed on a flip chart. For groups with low or very low language proficiency, the participants were accompanied by a translator or mediator throughout the course. Thus, right from the outset, the MoS has addressed the linguistic disparity between the immigrants' mother tongue and the language of instruction in the course.

To assess the effectiveness of the training courses offered by the project, two questionnaires were administered to evaluate the knowledge levels on the covered topics. The first questionnaire, known as the "pre-module", was administered to migrant groups directly by the local centers (i.e., cooperatives, non-profit associations, and CPIA) before the training course. This questionnaire collected essential demographic characteristics such as age, gender, length of stay in Italy, marital status, and number of children. It also gathered information about the respondents' educational backgrounds and employment status. Participants were asked if they had previously attended any other financial education courses, and their savings and investment decisions were examined, including details about their savings levels and remittances, as well as the placement of their savings. The last section of the questionnaire included four questions designed to assess the participants' knowledge levels on the topics covered by the training module. These four questions, with slight modifications, were asked again after the financial

literacy course, and they were administered by the Welcome-ED project staff at the Turin Museum of Savings, where the course took place. In [Appendix.1](#), we provide a detailed description of the evaluation questions included in the questionnaires.

The limitation of this procedure is the absence of a properly constructed ex-ante control group. This design necessitates treating all participants, a choice made by the project Welcome-ED to ensure that no migrant is excluded from the financial literacy course. In contexts involving vulnerable individuals, as seen in the Welcome-ED project, it can be both an ethical and practical challenge to exclude anyone from the treatment, given the unique and valuable training opportunity it provides. Consequently, a standard randomized controlled trial (RCT) might not be the preferable approach, since it would randomly exclude a group of individuals from the treatment. However, avoiding such randomization would compromise the causal interpretation of the results.

An alternative design would involve randomly assigning both questionnaires before the course to the control group and administering the post-course questionnaire only to the treated group. This would guarantee that no one is excluded from the treatment and enable researchers to estimate the treatment effect using a classical difference-in-differences model. Such an approach would represent an enhancement over the one employed by MoS in the context of the Welcome-ED project.

Finally, the project did not conduct follow-up assessments of participants during the months following the financial literacy course. This limits the analysis of the long-term effects of financial literacy, including its impact on education and financial decision-making. For these reasons, we recommend that future field-based projects should consider incorporating follow-up interviews to delve further into these aspects.

## **3.2 Data**

The initiative successfully engaged 153 migrants who fully participated in the project, forming the basis for our analysis. While this number might appear relatively modest, it is indeed noteworthy when considering the project’s operational context. Welcome-ED

exclusively recruited migrants within the province of Turin, a comparatively smaller Italian city. In comparison to a study by Gibson *et al.* (2012), which involved 910 migrants from Hamilton, Auckland, and Melbourne, our sample size represents nearly 20% of their samples. It is fair to say that this demonstrates the first significant outcome of inter-institutional cooperation between the MoS and other local centers.

Table 1 provides an overview of the sample’s characteristics. The respondents in our sample represent diverse geographic regions, including Eastern Europe, South America, Asia, North Africa, and Sub-Saharan Africa. While the sample exhibits considerable heterogeneity in terms of ethnicity and cultural factors, these characteristics are more consistent within the groups defined by the local centers that participated in the project.

Notably, the majority of the sample comprises females, accounting for nearly 70 percent.<sup>16</sup> The age distribution is skewed towards younger individuals, with around 27.5 percent falling within the 36 to 50 years old range, and 8.5 percent aged 51 and above.

Geographically, a significant portion of migrants originate from Sub-Saharan Africa and North Africa, constituting 63 percent of the sample. Around 13.7 percent of participants hail from South America, with a smaller percentage originating from Asian and Eastern European countries. Approximately half of the sample has been in Italy for less than five years, with 32 percent arriving less than 2 years ago, 23.5 percent between 2 and 5 years ago, and 41.2 percent arriving more than 5 years ago.

Regarding marital and family status, 43.8 percent are married, with only 3.9 percent being married to an Italian spouse. Nearly 42 percent have no children, 22.2 percent have one child, and 35.9 percent have two or more children. Importantly, 48.4 percent

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<sup>16</sup>Regrettably, we lacked direct control over the selection of migrants participating in the project. The recruitment process was carried out by multiple organizations, such as cooperatives and non-profit entities, with the goal of engaging as many migrants as possible. Consequently, we obtained a sample of 153 participants without implementing specific selection criteria to ensure gender balance. To address this limitation, we incorporate controls for individual characteristics in our estimations. Moreover, the results presented in Appendix Table A.1 demonstrate that the gender of the participants does not have a statistically significant impact on the difference in financial knowledge before and after attending the course.

of respondents report living in Italy with their families.

In terms of education, 9.2 percent have an education level equal to or below an elementary school diploma, while almost 42 percent have completed middle school. Additionally, 23.5 percent have a high school certificate, and only 8.5 percent hold a university degree or a higher level of education.

Participants were asked about their previous financial training experiences, with only 10.5 percent reporting prior participation in financial courses.

Regarding employment, only 9.2 percent were employed at the time of the interview, despite 28.8 percent indicating that they save money, and 31.4 percent sending remittances to their home countries. This discrepancy may reflect job instability among migrants over time. The interview also revealed that 11.8 percent had borrowed money in the past 12 months through private loans or mortgages, while a larger share, 26.1 percent, reported unconventional borrowing from friends, relatives, or acquaintances. The variations in employment, saving, and remittance-sending behavior may be partially explained by the borrowing status of respondents.

One of the key aspects of the Welcome-ED project was its cooperation with local centers, which served as crucial hubs for migrants, offering assistance and valuable services. This cooperation encompassed 14 local centers in total, including 3 cooperatives, 7 non-profit associations, and 4 Centers for Adult Education (CPIA). To provide a more detailed breakdown, approximately 20.3 percent of migrants were engaged in the project through cooperatives, 49.7 percent through non-profit associations, and 30 percent through CPIA.

Table 1: Summary Statistics - Individual Characteristics

	Mean	SD
<b>Demographics:</b>		
Female	0.699	0.460
Age Class: 18-35	0.641	0.481
Age Class: 36-50	0.275	0.448
Age Class: over 50	0.085	0.280
<b>Geographical Origin:</b>		
Est-Europe	0.092	0.289
Asia	0.052	0.223
South America	0.137	0.345
Africa	0.634	0.483
<b>Time since in Italy:</b>		
Less than 2 years	0.320	0.468
Between 2 and 5 years	0.235	0.426
More than 5 years	0.412	0.494
<b>Family Status:</b>		
Married	0.438	0.498
Italian Spouse	0.039	0.195
N. of Children	1.111	1.133
One Child	0.222	0.417
Two or More Children	0.359	0.481
Family is in Italy	0.484	0.501
<b>Education:</b>		
Elementary School Diploma	0.092	0.289
Mid-School Diploma	0.418	0.495
High-School Diploma	0.235	0.426
University Degree or Higher	0.085	0.280
Fin-Lit Courses in the Past	0.105	0.307
<b>Employment and Savings Attitudes:</b>		
Works	0.092	0.289
Saves	0.288	0.454
Send Remittances	0.314	0.466
Borrower	0.118	0.323
Unconventional Borrower (from relative/friends)	0.261	0.441
<b>Local Center Type:</b>		
Non-profit Association	0.497	0.502
Cooperative	0.203	0.403
CPIA	0.301	0.460
N. of Observations	153	

**Note:** The table offers summary statistics for a sample of 153 individuals who are migrants originating from four primary geographical areas. These individuals are affiliated with 14 distinct local centers, which can be categorized into three main types: non-profit associations, cooperatives, and CPIA. The data presented in the table were collected from the questionnaires administered prior to the financial literacy course.



Finally, all participants responded to a set of four questions designed to assess their knowledge of financial literacy topics, with each correct answer being awarded 1 point. Consequently, the maximum achievable score is 4.<sup>17</sup> Table 2 provides a summary of the statistics for financial literacy knowledge both before and after the course. The pre-course score averages 1.4, while the post-course score averages 2.6. The last column displays t-statistics derived from t-tests comparing the means. The difference in means serves as the initial descriptive evidence of the positive impact of the course on the financial literacy of migrants.

Table 2: Financial Literacy Knowledge

	Pre-Course		Post-Course		t-stat
	Mean	SD	Mean	SD	
Score	1.44	1.32	2.57	1.19	7.81***
Question 1	0.42	0.50	0.72	0.45	5.43***
Question 2	0.29	0.46	0.65	0.48	6.73***
Question 3	0.35	0.48	0.54	0.50	3.51***
Question 4	0.38	0.49	0.65	0.48	4.98***
N. Observations					153

**Note:** The Score variable displays the results obtained in the four financial literacy questions before and after the course. The last column displays t-statistics derived from t-tests comparing the means.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In Appendix Table A.1, we examine the influence of individual characteristics on migrants' financial knowledge. In particular, we regress individual characteristics on delta outcomes, which measure the difference between the final and initial scores obtained. Concerning the total score, we observe that only originating from Asian countries or being employed has a significant impact. However, when looking at the delta score for

<sup>17</sup>The questions in the questionnaires and the evaluation criteria were designed by professionals from the MoS. These questions and evaluation criteria were based on the topics covered during the financial literacy course. The professionals at MoS chose to assign equal weight to the evaluation of each individual question. As a result, we incorporate their evaluation into our analysis. Nevertheless, in section 5.1, we define new evaluation criteria based on the Item Response Theory (IRT) that take into account potential varying difficulty among questions.

each individual question, we observe more heterogeneity, which further emphasizes the importance of including individual controls in the empirical analysis.

## 4 Empirical Analysis

To evaluate the impact of the Welcome-ED project and assess whether the financial literacy course enhanced migrants' knowledge, we employ a single-difference equation. This approach allows us to measure the average change in financial literacy knowledge before and after the course. Our analysis begins by stacking data collected after the financial literacy course with information obtained before its implementation. We create an indicator variable, denoted as  $Diff_t$ , which equals one in the post-course period ( $t = 2$ ). We estimate the following equation:

$$Y_{i,t} = \beta_0 + \beta_1 Diff_t + \beta_2 Demo_i + \beta_3 Geo_i + \beta_4 Fam_i + \beta_5 Edu_i + \beta_6 Emp_i + \beta_7 S_i + \delta_{LC} + \mu_{i,t} \quad (1)$$

In this equation, the outcomes of interest (financial literacy knowledge), denoted as  $Y_{i,t}$ , vary at both the individual and time levels, represented by subscripts  $i$  and  $t$ . We have two time periods:  $t = 1$  for the pre-course and  $t = 2$  for the post-course.

The matrix  $Demo_i$  includes dummy variables for gender, with male as the reference group, and age classes, with categories 18-35 and 36-50 years old, using individuals over 50 years old as the reference group. For simplicity,  $Demo_i$  also incorporates a variable that measures the time interval between the administration of the first and second questionnaires.<sup>18</sup> Matrix  $Geo_i$  contains dummy variables controlling for individuals from different geographic regions, such as Asia, South America, and Africa, while people from Eastern Europe serve as the excluded category. Matrix  $Fam_i$  includes a set of indicators covering various aspects: the time since the individual's first arrival in Italy,

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<sup>18</sup>It's important to note that, on average, the time gap between these two questionnaires is approximately 8 days. Furthermore, a substantial majority, specifically 81 percent of the sample, completed both questionnaires on the same day.

marital status, the presence of an Italian spouse, family residing in Italy, and a count variable for the number of children. Furthermore,  $Edu_i$  consists of indicator variables for different education levels, including mid-school diploma, high-school diploma, and university degree or higher education. Here, elementary or lower education levels are the reference group.

Matrices  $Emp_i$  and  $S_i$  include binary variables that take a value of one if the migrant is employed, saves money, sends remittances, has borrowed money (e.g., loan or mortgage) in the past 12 months, or has borrowed money unconventionally (from relatives or friends) in the past 12 months. Lastly, we introduce local center (LC) fixed effects ( $\delta_{LC}$ ) to account for potential non-parametric variations in education trends across different local centers, which are also aggregation centers for migrants.

We apply a two-way clustering of standard errors at both the country and local center levels, following the methodology proposed by Cameron *et al.* (2011); Cameron and Miller (2015). This approach accounts for the correlation between unobserved components of the outcomes across units within clusters. This robust estimation technique is based on the assumption that unobservable factors may be correlated among observations within the same clusters (Abadie *et al.*, 2023).

The coefficient  $\beta_1$  represents the single-difference effect of the course on all migrants. However, it's essential to note that single-difference estimates cannot separate the repetition effect from the financial literacy course's impact. Typically, people learn by doing, so we cannot assume the repetition effect to be zero. This implies that single-difference estimates should be considered an upper bound for the course's effect. Furthermore, the absence of a carefully constructed control group, necessitated by the design of the Welcome-ED project, implies a correlational interpretation of the single-difference coefficient  $\beta_1$ .

The results of this analysis are presented in Table 3, where we estimate equation 1 using a General Least Squares (GLS) model. In Appendix Table A.2, we offer robustness check estimates using probit and ordered probit models as alternatives to GLS. These

results are both qualitatively and quantitatively robust. Furthermore, given that our empirical analysis is based on 153 observations and includes several dichotomous variables to control for individual characteristics, we provide a power test in [Appendix.3](#), demonstrating the statistical power of the analysis.

Finally, in tables [7](#) and [8](#), we investigate potential heterogeneous effects based on the three different types of local centers (i.e., Cooperatives, non-profit associations, and CPIAs) and the different distributions of nationalities among them. Heterogeneity analysis is implemented by interacting the treatment dummy ( $Diff_t$ ) with the heterogeneity category. Therefore, the results reported in the tables [7](#) and [8](#) show the linear combination of the treatment variable and its interaction with the heterogeneity category.<sup>19</sup>

## 5 Results

In Table [3](#), we present the results obtained by estimating Equation [1](#). In this context, the treatment dummy ( $Diff_t$ ) represents the estimated single-difference effect of the course on all migrants. Our findings indicate that, on average, the course improved the total score by 1.12 points and the average success for individual questions by 20 to 36 percentage points. Having attended other financial literacy courses in the past or possessing a university degree are associated with improved outcomes, while being female and originating from African countries are associated with more challenges. These results provide correlational evidence of the positive and significant impact of the financial literacy course on migrants' financial knowledge, as it improved individual performance in all single questions and, consequently, the total score. These findings are in line with other studies which found a positive effect of training on migrants' financial knowledge (Gibson *et al.*, 2012; McKenzie *et al.*, 2022; Giuffrida *et al.*, 2023), and strengthen the importance of initiatives promoting financial literacy training.

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<sup>19</sup>In this context, this approach is preferable to a general split-sample analysis that may incur identification problems.

Table 3: Single Difference - Multivariate Analysis

	(1) Score	(2) Q1	(3) Q2	(4) Q3	(5) Q4
Financial Literacy Course	1.124*** (0.263)	0.294*** (0.088)	0.359*** (0.077)	0.196*** (0.061)	0.275** (0.118)
Distance in days between interviews	-0.005 (0.012)	-0.008* (0.005)	0.004+ (0.002)	-0.009** (0.004)	0.009*** (0.002)
<b>Demographics:</b>					
Female	-0.466** (0.176)	-0.218*** (0.060)	-0.144 (0.101)	-0.140* (0.065)	0.036 (0.100)
Age Class 18-35	-0.355+ (0.222)	-0.159 (0.140)	-0.026 (0.157)	-0.200** (0.089)	0.030 (0.083)
Age Class 36-50	-0.532** (0.237)	-0.247** (0.110)	-0.076 (0.134)	-0.228** (0.099)	0.020 (0.095)
<b>Geographical Origin:</b>					
Asia	-0.499* (0.278)	-0.119 (0.114)	0.016 (0.113)	-0.352** (0.149)	-0.043 (0.077)
South America	-0.310 (0.253)	-0.230* (0.120)	0.024 (0.111)	-0.126+ (0.075)	0.022 (0.093)
Africa	-1.113*** (0.190)	-0.227* (0.126)	-0.136** (0.045)	-0.546*** (0.130)	-0.205** (0.090)
<b>Time since in Italy:</b>					
Less than 2 years	-0.301+ (0.171)	-0.077 (0.062)	-0.050 (0.106)	-0.001 (0.057)	-0.173** (0.079)
Between 2 and 5 years	-0.182 (0.157)	-0.051 (0.079)	-0.008 (0.056)	-0.041 (0.080)	-0.082 (0.091)
<b>Family Status:</b>					
Married	-0.258 (0.249)	-0.044 (0.077)	-0.095 (0.102)	-0.154+ (0.094)	0.035 (0.083)
Italian Spouse	0.292 (0.460)	0.050 (0.168)	0.015 (0.116)	0.256 (0.252)	-0.028 (0.180)
N. of Children	0.061 (0.052)	0.030 (0.032)	0.011 (0.026)	0.036 (0.036)	-0.016 (0.032)
Family is in Italy	0.326 (0.324)	0.078 (0.100)	0.152 (0.106)	0.067 (0.126)	0.030 (0.078)
<b>Education:</b>					
Mid-School Diploma	0.361 (0.237)	0.156+ (0.089)	0.045 (0.086)	0.098 (0.080)	0.062 (0.055)
High-School Diploma	0.048 (0.175)	0.034 (0.097)	0.038 (0.060)	0.047 (0.101)	-0.071 (0.058)
University Degree or Higher	0.910* (0.422)	0.350** (0.132)	0.323** (0.125)	0.140 (0.164)	0.097 (0.173)
Fin-Lit courses in the Past	0.550** (0.183)	0.145** (0.067)	0.082 (0.078)	0.140 (0.092)	0.183* (0.102)
<b>Employment and Savings Attitudes:</b>					
Works	-0.056 (0.172)	0.003 (0.105)	0.056 (0.069)	0.008 (0.054)	-0.122 (0.103)
Saves	0.053 (0.254)	0.025 (0.122)	-0.004 (0.079)	-0.044 (0.114)	0.077 (0.100)
Sends remittances	-0.131 (0.181)	-0.090+ (0.055)	-0.024 (0.061)	-0.033 (0.090)	0.017 (0.063)
Borrower	0.477 (0.319)	0.160 (0.132)	0.165 (0.131)	0.052 (0.133)	0.100 (0.109)
Unconventional Borrower (from relative/friends)	0.151 (0.193)	0.019 (0.059)	-0.002 (0.149)	0.110 (0.091)	0.023 (0.031)
Observations	306	306	306	306	306
R-squared	0.481	0.301	0.304	0.291	0.288
Adjusted R-squared	0.405	0.199	0.202	0.188	0.183
Cultural Center FE	YES	YES	YES	YES	YES
Cluster SE at Country and LC levels	YES	YES	YES	YES	YES

**Note:** The table presents GLS single-difference multivariate regression analyses, comparing periods before and after the financial literacy course. The omitted categories include people in the age-class over 50 years old, those from the Est-European geographical area of origin, migrants residing in Italy for more than 5 years, and individuals with an elementary school diploma. The Score outcome measures the results obtained in the four financial literacy questions before and after the course. Regressions include local center fixed effects and individual controls described in equation 1. Standard errors are two-way clustered at the country and local center levels. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

## 5.1 Alternative Evaluation Criteria

We employ the Item Response Theory (IRT) to establish new evaluation criteria for pre-course assessment questions. Specifically, we utilized the one-parameter logistic model (1PL), also known as the (Rasch, 1993) model. This method is particularly suited for binary response items, which, in our context, are determined by the pre-course questions dichotomously evaluated by MoS.

The 1PL model is designed for situations where items (questions) elicit binary responses (e.g., correct or incorrect answers). It assumes that the probability of a correct response is a logistic function of the difference between the respondent's ability and the item's difficulty. The model is defined by the following logistic function:

$$P(X_{ij} = 1) = \frac{1}{1 + e^{-(\theta_i - b_j)}}$$

where  $P(X_{ij} = 1)$  is the probability of individual  $i$  answering item  $j$  correctly,  $\theta_i$  is the ability of individual  $i$ , and  $b_j$  is the difficulty of item  $j$ .

As shown in Table 4, the discrimination parameter that is shared by all items is almost equal to 1.6, which is relatively high, indicating that the questions are effective in differentiating between individuals with varying levels of ability. This high discrimination parameter suggests that the questions are particularly informative at the difficulty level of each question, making them useful for accurately assessing individuals' competencies or abilities in that specific area.<sup>20</sup>

The remaining rows present the estimated difficulty parameters for each question. On the item difficulty spectrum, the questions span a relatively narrow range, yet they differ from one another, with Q1 being the least difficult and Q2 being the most difficult. To illustrate the placement of the questions on the difficulty spectrum, we have plotted the Item Characteristic Curves (ICCs) for all questions in Figure 1.

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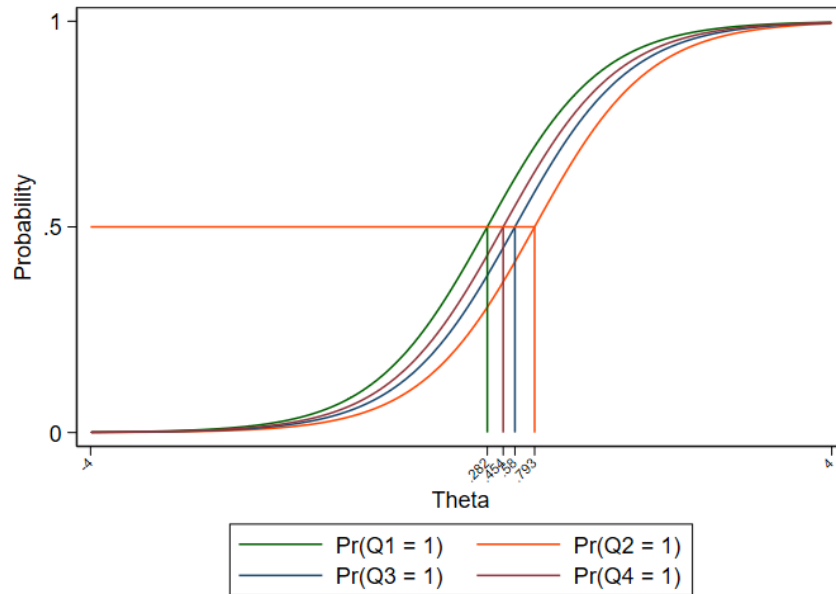
<sup>20</sup>For further details refer to De Ayala (2013); Bond and Fox (2013).

Table 4: IRT 1PL Model Results

Item	Difficulty	Std. Error	z-value	P >  z
Discrimination	1.6144	0.2184	7.39	<0.001
Pre-course Q1	0.2823	0.1488	1.90	0.058
Pre-course Q2	0.7930	0.1672	4.74	<0.001
Pre-course Q3	0.5804	0.1573	3.69	<0.001
Pre-course Q4	0.4540	0.1529	2.97	0.003
Observations	153			

**Note:** Table show results of a one-parameter logistic (1PL) model to binary items (i.e., pre-course questions). In the 1PL model, items vary in their difficulty but share the same discrimination parameter.

Figure 1: Item Characteristic Curves



Each curve represents the relationship between the latent trait ( $\theta$ ) and the probability of a correct response to each question. The difficulty of each item is indicated by the location of its curve along the  $\theta$ -axis. A curve that is centered further to the right suggests a more difficult item, requiring a higher level of ability to have a 50% chance of

answering correctly. The closeness of the curves to each other indicates that questions have similar difficulty levels. On the y-axis, the probability of a correct response ranges from 0 to 1. As  $\theta$  increases, the probability of a correct response increases for all items. The point at which each ICC crosses the 0.5 probability line corresponds to the difficulty parameter for that question as shown in Table 4.<sup>21</sup>

Based on the difficulty parameters obtained from the IRT 1PL model, we have redefined the scoring system for the course questions. To establish a new scoring system, we first calculated the total sum of these difficulty parameters. We then determined a normalization factor by dividing the desired total score (in this case, 10) by this sum. Each question’s score was computed by multiplying its difficulty parameter by this normalization factor. This process ensured that the total sum of the new scores across all questions was exactly 10, maintaining the relative difficulty of each question. The resulting scores are presented in Table 5 with corresponding summary statistics.

Table 5: Normalized Scores Based on IRT 1PL Model

Question	Difficulty Coefficient (1)	Normalized Score (2)	Pre-course Average (3)	Post-course Average (4)
Q1	0.2823075	1.338	0.568 (0.664)	0.962 (0.603)
Q2	0.7930011	3.759	1.106 (1.718)	2.457 (1.794)
Q3	0.5804128	2.751	0.953 (1.313)	1.492 (1.375)
Q4	0.4539658	2.152	0.816 (1.047)	1.406 (1.027)

Pre-course Avg. Score: 3.443 (3.310)

Post-course Avg. Score: 6.318 (3.082)

Observations: 153

**Note:** Table reports normalized scores based on IRT 1PL model. Column (1) shows estimated difficulty coefficients, column (2) reports the normalized scores, columns (3) and (4) sample averages and standard deviations in parenthesis of new scores in pre- and post-course responses, respectively. The maximum new total score is equal to 10 points.

<sup>21</sup>Appendix Figure A.1 plots the empirical proportions and the ICC for each question providing evidence that the model has a satisfactory fit to the data.



Finally, we estimate equation 1 on these new scores and we report the results in Table 6. After completing the course, the performance of migrants on all questions improved. On a scale ranging from 0 to 10, they exceeded the sufficient threshold, achieving scores higher than 6 points out of 10. Interestingly, the question where they demonstrated the highest performance (in relative terms) is Q2, which was also identified as the most challenging by the IRT model.

Table 6: Single Difference Analysis - Normalized Scores Based on IRT 1PL Model

VARIABLES	(1) IRT-Score	(2) IRT-Q1	(3) IRT-Q2	(4) IRT-Q3	(5) IRT-Q4
Treatment Dummy	2.875*** (0.611)	0.394*** (0.118)	1.351*** (0.289)	0.539*** (0.167)	0.591** (0.254)
Observations	306	306	306	306	306
R-squared	0.465	0.301	0.304	0.291	0.288
Adjusted R-squared	0.386	0.199	0.202	0.188	0.183
Individual Controls	YES	YES	YES	YES	YES
Cultural Center FE	YES	YES	YES	YES	YES
Cluster SE at Country and LC levels	YES	YES	YES	YES	YES

**Note:** The table presents GLS single-difference multivariate regression analyses, comparing periods before and after the financial literacy course, using normalized scores based on IRT 1PL Model as describe in Table 5. The omitted categories include people in the age-class over 50 years old, those from the Est-European geographical area of origin, migrants residing in Italy for more than 5 years, and individuals with an elementary school diploma. The Score outcome measures the results obtained in the four financial literacy questions before and after the course. Regressions include local center fixed effects and individual controls described in equation 1. Standard errors are two-way clustered at the country and local center levels. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

## 5.2 Heterogeneity Analysis

One of the most important features of the Welcome-ED project is the cooperation between the MoS and LCs. For this reason, in Table 7, we investigate the heterogeneous effects of the financial literacy course on the three different types of local centers: cooperatives, non-profit associations, and CPIA.<sup>22</sup> The main idea of this analysis is to examine the potential heterogeneous effect among migrants from different local realities

<sup>22</sup>Recall that the heterogeneity analysis is implemented by interacting the treatment dummy ( $Diff_i$ ) with the heterogeneity category. The results reported in the tables 7 and 8 show the linear combination of the treatment variable and its interaction with the heterogeneity category.

to see who benefited more from the project. We find stronger effects on migrants coming from cooperatives and non-profit associations than on those from CPIA. Specifically, migrants from CPIA increase their score by 0.5 points due to the course, whereas the effect doubles for migrants involved by cooperatives and triples for those brought in by non-profit associations, also with a stronger statistical significance.

Table 7: Single Difference - Multivariate Analysis - Heterogeneity

<b>Dependent Variable:</b> Score	(1) Cooperatives	(2) Non-profit	(3) CPIA
Financial Literacy Course	1.097*** (0.115)	1.513*** (0.392)	0.500** (0.203)
Observations	306	306	306
R-squared	0.481	0.501	0.503
Adjusted R-squared	0.403	0.426	0.429
Individual Controls	YES	YES	YES
Cultural Center FE	YES	YES	YES
Cluster SE at Country and LC levels	YES	YES	YES

**Note:** The table presents GLS single-difference multivariate regression analyses. Specifically, it reports coefficients representing the linear combination between the financial literacy course and the indicator variables related to each type of local center (i.e., cooperatives, non-profit associations, CPIAs). The omitted categories encompass people in the age-class over 50 years old, those from the Est-European geographical area of origin, migrants residing in Italy for more than 5 years, and individuals with an elementary school diploma. The Score outcome measures the results obtained in the four financial literacy questions before and after the course. Regressions include local center fixed effects and individual controls. Standard errors are two-way clustered at the country and local center levels. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

We further investigate these results by examining the effect based on the composition of migrants in terms of geographical areas of origin within each local center type. Table 8 presents these findings. We find that the stronger effects observed for cooperatives and non-profit associations are mainly explained by the fact that these local centers are able to reach the majority of individuals coming from African countries. Within the same national group in cooperatives and non-profit associations, the smaller share of recently arrived migrants explains the lower effect of the course. These migrants are the ones who may potentially benefit more from this initiative due to the higher cost of inclusion they

face in terms of cultural and language differences from the destination country, Italy. These individuals have potentially higher marginal returns to education. Lastly, these results underscore the importance of financial education programs for African migrants, who constitute a significant portion of the overall migrant population in Europe.

Table 8: Single Difference - Multivariate Analysis - Heterogeneity 2

<b>Dependent Variable:</b> Score	(1) East Europe	(2) South America	(3) Asia	(4) North Africa	(5) South-Eastern Africa	(6) West Africa
<b>Panel A: CPIA</b>						
Financial Literacy Course	-0.091 (0.387)	0.643* (0.332)	1.143*** (0.121)	0.250 (0.725)	1.000*** (0.000)	0.375 (0.268)
Observations	306	306	306	306	306	306
R-squared	0.482	0.454	0.456	0.457	0.450	0.462
Adjusted R-squared	0.406	0.374	0.376	0.378	0.369	0.384
<b>Panel B: Non-profit Associations</b>						
Financial Literacy Course	- -	0.333 (0.379)	0.000 (0.000)	1.071*** (0.105)	1.538*** (0.340)	2.360*** (0.443)
Observations	-	306	306	306	306	306
R-squared	-	0.455	0.457	0.454	0.452	0.493
Adjusted R-squared	-	0.375	0.377	0.374	0.372	0.419
<b>Panel C: Cooperatives</b>						
Financial Literacy Course	1.000 (0.000)	1.000*** (0.000)	- -	1.000*** (0.000)	- -	1.150*** (0.104)
Observations	306	306	-	306	-	306
R-squared	0.465	0.451	-	0.460	-	0.456
Adjusted R-squared	0.386	0.371	-	0.380	-	0.376
Individual Controls	YES	YES	YES	YES	YES	YES
Cultural Center FE	YES	YES	YES	YES	YES	YES
Cluster SE at Country and LC levels	YES	YES	YES	YES	YES	YES

**Note:** Table reports a GLS single-difference multivariate regression analysis. Specifically, the table presents coefficients of the linear combination between the financial literacy course and the indicator variables related to each type of local center (i.e., cooperatives, non-profit associations, CPIAs) and nationalities. Omitted categories include people belonging to the age-class over 50 years old, those from the Est-European geographical area of origin, migrants residing in Italy for more than 5 years, and individuals with an elementary school diploma. The Score outcome measures the results obtained in the four financial literacy questions before and after the course. Regressions include local center fixed effects and individual controls. Results are not reported when the heterogeneity category is not present in the sample. Standard errors are two-way clustered at the country and local center levels. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Furthermore, these results indicate that the main driver of the different performance among migrants belonging to different local centers lies in the different national composition of the migrants supported by the various local realities, as well as in their different seniority in the country of destination. This implies that it is not the different

administrative nature of the local migrant centers that determines the results, but the different recruitment of their members, which determines their intervention at different stages of the migration process. The selection of migrants into these different types of local centers is not defined by Italian rules, and we cannot provide evidence that such differences in the selection remain stable over time. However, we believe that the selection of migrants into local centers is quite structural and results from the different objectives that these associations have for their work. Therefore, these results emphasize the importance of cooperation with multiple local realities to reach more migrants both in terms of extensive and intensive margins.

## 6 Lessons Learned

We evaluate an Italian case study that focuses on the collaboration between the Turin Museum of Savings, a private institution, and local migration centers, which include public education centers (CPIA), cooperatives, and non-profit associations. These organizations share the common goal of promoting financial inclusion for migrants and have collectively worked on the Welcome-ED project, aimed at enhancing the financial literacy of migrants.

Our analysis presents correlational evidence that this cooperation has been effective, with migrants, on average, increasing their financial knowledge. However, the lack of a proper control group, stemming from the Welcome-ED design to ensure the inclusion of every migrant in the financial literacy course, limits the causal interpretation of the results. Ideally, one would evaluate the effectiveness of the financial literacy course through a randomized control trial (RCT).<sup>23</sup> However, in many contexts, especially those involving vulnerable individuals, it may be ethically and practically challenging to exclude anyone from the treatment since the training opportunity could be unique

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<sup>23</sup>In this scenario, the baseline questionnaire should be administered to all participants, with literacy training provided to the randomized treatment group. Subsequently, the second questionnaire would be administered to both groups to assess significant differences in key outcomes.

and valuable. This is especially true for migrants, who are often characterized by high levels of territorial and status mobility. In such cases, a suggested alternative approach would be to randomly assign participants to treatment and control groups. Both groups would complete the baseline questionnaire, while the second questionnaire would be administered to the control group before the course and to the treatment group immediately after the training activity. This ensures that nobody is excluded from the treatment and allows researchers to estimate the treatment effect using a classical difference-in-differences model. This approach would be an improvement over the one adopted by MoS in the circumstances of the Welcome-ED program and would guarantee a causal interpretation of the results.

Another characteristic of the Welcome-ED program is the equal weighting of evaluation questions, assigning a score of one for correct answers and zero otherwise. This approach simplifies the analysis of respondents' performance, without considering the potential varying difficulty of the questions included in the test. For this reason, we have also established new evaluation criteria based on IRT to account for potential variations in difficulty among the questions included in the evaluation test. Notably, we observed that, following the course, migrants demonstrated the highest performance on the question deemed most challenging by the IRT model, thereby emphasizing the effectiveness of the financial literacy course.

While the Welcome-ED data do not allow us to directly test the hypothesis that this leads to financial inclusion, it is a step in that direction. In this perspective, a suggestion for future initiatives, even if challenging, is to take into consideration follow-up interviews to measure labor status, financial/consumption choices, and inclusion. Furthermore, when we explore potential variations in the effects across different types of local migration centers, we find that migrants engaged by cooperatives and non-profit associations have benefited the most. However, these results also emphasize that the varying outcomes are not solely attributable to the different local migration centers. Instead, they demonstrate the efficacy of these centers, despite having different

compositions. This indicates that these organizations are engaged in different phases of the migrant integration process. Therefore, one suggestion for a future initiative would be to tailor the program’s intervention to the specific needs of the members of these associations, possibly basing it on co-creation (Galvagno and Dalli, 2014).

Finally, the analysis of the Welcome-ED project offers insights into the financial literacy of migrants and its variations across different countries of origin. It also highlights the positive impact of training on African migrants, who constitute a significant portion of the overall migrant population in Europe.

## 7 Concluding Remarks

This work provides insights into ground-based programs for improving the financial literacy of migrants in a European context. The program evaluations examine both the limitations and positive aspects of the Welcome-ED project. Despite its practical limitations, we find a positive correlation between the financial course implementation and the improvement of migrants’ financial knowledge post-course. Ultimately, inter-institutional cooperation seemed to play an important role.

These results provide critical insights for policymakers endeavoring to formulate initiatives that foster financial inclusion among migrants. Such initiatives are essential not only for assisting migrants in their daily lives but also for mitigating the potential negative impacts arising from pandemics or economic crises. They are also directly relevant to various organizations and financial institutions that are implementing financial training courses (e.g., among others, those proposed by ILO, HELVETAS, OECD). We underscore the significance of cooperation between private institutions, public entities, cooperatives, and non-profit associations as a fundamental element in enhancing the effectiveness of such projects and reaching a broader population of individuals who can potentially benefit from these initiatives.

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# Appendix

## Appendix.1 Welcome-ED Evaluation Questionnaires

In the Welcome-ED project, in addition to the questionnaire collecting demographic and socio-economic information from participants, two evaluation questionnaires were administered to assess migrants' knowledge of various financial literacy topics before and after the course's implementation. These topics include savings, financial planning, distinctions between short-term and long-term investments, and methods for resolving inter-temporal budget constraint issues.<sup>24</sup> The Museum of Savings (MoS) established evaluation criteria that equally weighted questions, where correct answers are scored as one and incorrect answers as zero. Specifically, the following questions were asked before the start of the course, with correct answers marked by [✓]:

Pre-Q1: What needs to be done in order to save money?

- a. Having a checking account
- b. Pay with electronic cards and not with cash
- c. Spend less than you earn [✓]

Pre-Q2: Why is it useful to make a financial plan?

- a. To understand what expenses I can bear [✓]
- b. Because we need a reminder
- c. To compare the prices of the things I buy

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<sup>24</sup>The questionnaires were originally administered in Italian, but for simplicity, they are presented here in English. The original questionnaires included a fourth option, allowing participants to choose "I don't know". This option was included to create a more comfortable environment for migrants to respond without the pressure of potential judgment for making mistakes. However, for the purpose of our analysis, we treat the "I don't know" choice as equivalent to a zero. For this reason, and to keep the questionnaire descriptions in the appendix simple, we do not include this alternative option.

Pre-Q3: Buying a home is usually a:

- a. short-term goal
- b. medium-term goal
- c. long-term goal [✓]

Pre-Q4: To buy a new phone that costs 150 euros, if I earn 800 euros a month and spend 780 euros a month and I already have 50 euros aside, how much time do I need?

- a. 4 months
- b. 5 months [✓]
- c. 6 months

The questionnaire administered at the end of the course featured a reversed order of questions compared to the one administered before the course. For simplicity, here, we present the questions in the same order as the financial literacy concepts covered in the pre-course questionnaire. The following questions were asked after the implementation of the financial literacy course:

Post-Q1: Saving is possible if:

- a. you buy in a trusted store
- b. you shop without borrowing
- c. you put away a part of your income without consuming it all today [✓]

Post-Q2: Building a financial plan serves to:

- a. determine the time it takes to reach a goal [✓]
- b. compare income and expenses with those of friends
- c. reconstruct all the expenses made during the month

Post-Q3: How long does a long-term time horizon correspond to?

- a. Less than 1 year
- b. Less than 5 years
- c. more than 5 years [✓]

Post-Q4: If a phone costs 300 euros, and I make 1000 a month, I spend 950 and I have already saved 100 euros, how many months does it take to buy it?

- a. 4 months [✓]
- b. 5 months
- c. 6 months

## Appendix.2 Appendix Tables and Robustness Checks

Table A.1: Financial Literacy and Individual Characteristics

	(1)	(2)	(3)	(4)	(5)
	Delta Score	Delta Q1	Delta Q2	Delta Q3	Delta Q4
Distance in days between interviews	-0.006 (0.012)	-0.011+ (0.006)	-0.010 (0.008)	-0.014* (0.007)	0.029*** (0.008)
<b>Demographics:</b>					
Female	0.344 (0.377)	0.040 (0.155)	0.027 (0.159)	0.201 (0.142)	0.075 (0.158)
Age Class 18-35	0.000 (0.603)	0.072 (0.277)	0.060 (0.291)	-0.023 (0.348)	-0.109 (0.184)
Age Class 36-50	0.413 (0.650)	0.169 (0.330)	0.009 (0.247)	0.089 (0.326)	0.146 (0.170)
<b>Geographical Origin:</b>					
Asia	0.883* (0.477)	0.251** (0.090)	0.052 (0.308)	0.599*** (0.162)	-0.018 (0.496)
South America	0.501 (0.441)	-0.080 (0.234)	0.217 (0.230)	0.323 (0.221)	0.041 (0.266)
Africa	0.681+ (0.402)	0.056 (0.147)	0.284 (0.199)	0.469*** (0.146)	-0.128 (0.243)
<b>Time since in Italy:</b>					
Less than 2 years	0.843+ (0.478)	0.555** (0.213)	-0.164 (0.146)	0.226 (0.207)	0.225 (0.216)
Between 2 and 5 years	0.363 (0.439)	0.522*** (0.102)	-0.278* (0.156)	-0.033 (0.144)	0.152 (0.173)
<b>Family Status:</b>					
Married	-0.034 (0.296)	0.010 (0.213)	-0.153 (0.195)	0.189 (0.150)	-0.080 (0.187)
Italian Spouse	-0.701 (0.506)	-0.056 (0.295)	-0.422** (0.185)	-0.443** (0.197)	0.221 (0.202)
N. of Children	-0.008 (0.171)	0.008 (0.057)	0.028 (0.073)	-0.048 (0.107)	0.003 (0.055)
Family is in Italy	-0.055 (0.586)	-0.095 (0.246)	0.202 (0.179)	-0.208 (0.178)	0.047 (0.184)
<b>Education:</b>					
Mid-School Diploma	0.115 (0.247)	0.011 (0.081)	0.095 (0.218)	0.021 (0.179)	-0.011 (0.158)
High-School Diploma	0.204 (0.264)	0.300*** (0.087)	0.011 (0.211)	0.027 (0.194)	-0.134 (0.184)
University Degree or Higher	0.239 (0.416)	0.040 (0.221)	0.155 (0.375)	0.362 (0.381)	-0.317 (0.215)
Fin-Lit Courses in the Past	-0.579 (0.634)	-0.085 (0.253)	-0.363 (0.244)	-0.255 (0.287)	0.125 (0.283)
<b>Employment and Savings Attitudes:</b>					
Works	0.712** (0.272)	0.316* (0.162)	0.180 (0.158)	0.123 (0.147)	0.093 (0.192)
Saves	-0.084 (0.359)	0.115 (0.094)	-0.122 (0.118)	0.007 (0.163)	-0.084 (0.205)
Sends Remittances	0.161 (0.268)	-0.136 (0.121)	-0.079 (0.162)	0.148 (0.108)	0.228 (0.181)
Borrower	0.199 (0.591)	0.127 (0.100)	-0.136 (0.275)	0.144 (0.229)	0.064 (0.214)
Unconventional Borrower (from relative/friends)	0.172 (0.679)	0.108 (0.212)	-0.090 (0.107)	-0.081 (0.171)	0.235 (0.274)
Observations	153	153	153	153	153
R-squared	0.334	0.369	0.270	0.274	0.350
Adjusted R-squared	0.112	0.159	0.0261	0.0323	0.134
Cultural Center FE	YES	YES	YES	YES	YES
Cluster SE at Country and LC levels	YES	YES	YES	YES	YES

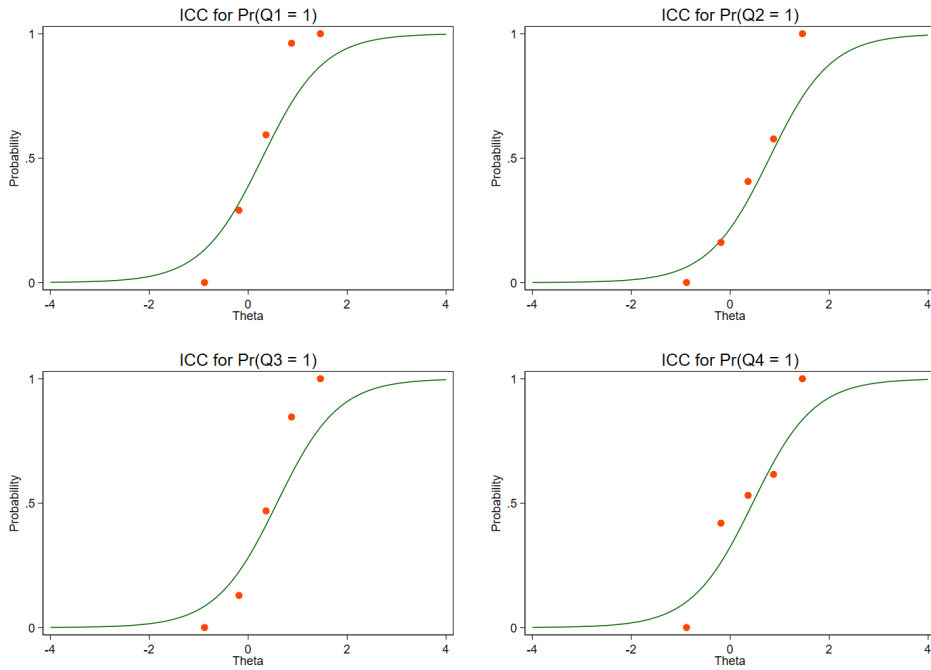
**Note:** The table presents GLS multivariate regression analyses on outcomes collected before the financial literacy course. Omitted categories include people in the age-class over 50 years old, those from the Est-European geographical area of origin, migrants residing in Italy for more than 5 years, and individuals with an elementary school diploma. Regressions include local center fixed effects. Standard errors are two-way clustered at the country and local center levels. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Table A.2: Single Difference - Probit Model

	(1)	(2)	(3)	(4)	(5)
	Score	Q1	Q2	Q3	Q4
Financial Literacy Course	1.234*** (0.181)	0.278*** (0.051)	0.332*** (0.046)	0.188*** (0.038)	0.257*** (0.066)
Observations	306	306	306	306	306
Pseudo R-squared	0.214	0.274	0.264	0.254	0.237
Individual Controls	YES	YES	YES	YES	YES
Cultural Center FE	YES	YES	YES	YES	YES
Cluster SE at Country level	YES	YES	YES	YES	YES

**Note:** Table reports an Ordered Probit (column 1) and Probit (columns 2-5) single-difference multivariate regression analyses, comparing periods before and after the financial literacy course. Omitted categories: people belonging to the age-class over 50 years old, Est-Europe geographical area of origin, migrants resident in Italy from more than 5 years, people with an elementary school diploma. The Score outcome measures the results obtained in the four financial literacy questions before and after the course. Regressions include local center fixed effects, and individual controls that are not reported for simplicity and are available upon request to the authors. Standard errors are clustered at the country level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Figure A.1: IRT 1PL Model Fit - ICC and Empirical Proportions



### Appendix.3 Power and Sample Size Analysis

Our analysis is based on a sample of 153 individuals and a multivariate linear regression that includes several controls and fixed effects. We conducted a power and sample size (PPS) analysis for an R-squared test within the context of a multivariate linear regression, estimated using the general least squares method (GLS). This essentially represents an F-test for the coefficient of determination (R-squared). Specifically, we conducted a PPS analysis for an R-squared test related to the coefficient of the financial literacy course.

We conducted a test to determine the significance of the coefficient for the financial literacy course within a multivariate linear regression model, while adjusting for 39 other covariates and fixed effects. This full model includes the coefficient for the financial literacy course as well as the other control covariates, as represented in Equation 1. The reduced model with only control covariates achieved an R-squared value of 0.314 ( $R_R^2$ ), and the full model, which also incorporates the variable for the financial literacy course, obtained an R-squared value of 0.481 ( $R_F^2$ ). Therefore, we computed the required sample size to achieve 90% power with a 5% significance level for a two-sided R-squared test. The results displayed in Table A.3 provide evidence that we need 48 observations to achieve a 90% power for our coefficient of interest, a number significantly lower than the sample size used in our analysis. Lastly, in Figure A.2, we illustrate the sample-size curve as a function of the R-squared value for the full model. These results demonstrate the statistical power of our analysis.

Table A.3: Power Test Analysis

<b>Ho: <math>R_F^2 = R_R^2</math> versus Ha: <math>R_F^2 \neq R_R^2</math></b>	
<b>Study Parameters</b>	
Parameter	Value
$\alpha$	0.0500
power	0.9000
$\delta$	0.3225
$R_R^2$	0.3140
$R_F^2$	0.4813
$R_{diff}^2$	0.1673
$n_{control}$	39
$n_{tested}$	1
<b>Estimated Sample Size</b>	
$N$	48

Figure A.2: Power Test Analysis

