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The algorithm is not an oracle.

Predictive systems,youth, and inclusion: the case of debt

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Abstract
The article presents an ethnographic case study on mortgage bank lending practices and discusses the method of assessing individual applicant behaviour, with a specific focus on young people. Creditworthiness assessment isan important issue to study in terms of the use of predictive systems in decision-making processes and their effects in terms of social inclusion. The papershows how specific social representations regarding the creditworthiness and reliability of people are embedded in customer risk assessments in Italian banks. It also highlights how these embedded representations have performative power in defining the boundaries of access to credit, and how branch operators attempt to negotiate the algorithm-defined assessment when it does not match their view of the social assessment. The representations embedded in the algorithms have considerable constraining power in differentiating the opportunities for certain social categories. These tools have been constructed ac-cording to the historically situated behaviour of people with creditworthiness characteristics defined by stability, which does not seem to fit with the actual behaviour of people with different characteristics framed in changing contexts. Keywords: digital infrastructures, predictive automated systems, social inclusion, practical behaviour, indebtedness, youth.

1. Introduction

The process of assessing young people's «creditworthiness» for the purpose of obtain a mortgage loan to purchase a house has increasingly become a public

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policy issue in Italy. Since 2008 the Italian government, particularly the Ministry of Welfare, has endeavored to facilitate this type of access to credit for young people by offering itself as their guarantor to banks. In fact, the issue of young people's indebtedness has wider dimensions: specific support programmes, ac- tivated through the creation of state guarantee funds, provide for the possibil- ity of incurring debt to face transitions to adult life – such as undertaking or completing one's studies or training, becoming parents – or in the event of un- expected expenses, especially medical ones (see Moiso, 2012; Scialdone, 2012). The state guarantee can be activated also in the case of mortgages for young people's first house, loans for students and first-time parents, and social micro- credit. The latter is a specifically social credit, not aimed at starting a business or professional activity, but designed to provide help to overcome a momentaryfinancial difficulty that puts someone in a state of «social vulnerability» (explic- itly referred to in Article 111 of the Italian «Consolidated Banking Act»)[1]. A political problem arises here. It has to do with considering debt a functional substitute for government transfers for categories such as students, youths, and parents, so that it is a (even partial) substitution for scholarships, subsidies or other instruments such as nursery school enrolment facilities or rent tax relief. Support for dealing with the new social risks affecting these groups in Italy is among the lowest among European Union countries (Saraceno *et al*., 2022).In other words, the state's choice of devoting capital to the creation of fundsto stand as guarantor of young people's bank debts appears rather dissonant amid the scarcity of resources intended to support young people without going through banks.

The state guarantee was reconfirmed and strengthened in May 2021 by the Recovery Plan measures (PNRR) dedicated to young people after the Covid-19 pandemic of 2020-21[2]. How can we better understand this need for guarantee? For what «lack» in young people's characteristics would it compensate? These questions have to be framed in terms of economic availability, but the way in which people's solvency can be assessed varies widely: is it a matter of contrac-tual employment stability, income level, continuity, a mixture of these elements?On what other aspects is the clients' creditworthiness assessment based? Is there a moral judgment of their characteristics?

The focus of this paper – the provision of mortgages to young people –is part of a wider analysis of relationships between indebted households and

[1] Testo Unico Bancario, Decreto legislativo 1° settembre 1993, n. 385 – Testo unico delle leggi in materia bancaria e creditizia, Versione aggiornata alla legge 23 dicembre 2021, n. 238.

[2] The Act was: DECRETO-LEGGE 25 maggio 2021, n. 73 (Decreto Sostegni bis), art. 64, «Misure in favore dell'acquisto della casa di abitazione ed in materia di prevenzione e con- trasto al disagio giovanile». A month earlier, in the spring of 2021, Prime Minister Mario Draghi, presenting the National Recovery and Resilience Plan to the Chamber of Deputies, included among «aids to young people» the possibility of making it easier for under-35s tobuy a house: the state will act as a guarantor for mortgages that finance 100 per cent of the value of the property. The purpose of the measure is to make it easier for young people to takeout a mortgage, even without a share of savings. Cfr. *Il Sole 24Ore*, «Pnrr, Draghi: lo Stato garantirà il mutuo sulla casa dei giovani», 26 aprile 2021. https://stream24.ilsole24ore.com/ video/italia/pnrr-draghi-stato-garantira-mutuo-casa-giovani/AEj0m0D.

banks. During an extensive research study that started in 2008, which included ethnography in two banking institutions in Northern Italy and repeated inter- views over time with families and bank operators, I found that access to mort- gages for young people occurred almost exclusively under two conditions: hav- ing a permanent employment contract, or having parents who could sign the guarantee, and thus formally state that they would pay in case of default. I found other evidence in subsequent research on the living conditions of young people:the exclusion of young workers with fixed-term or other «atypical» employment contracts and no guarantor parents occurs more frequently – other things being equal, i.e., income level, demonstrable continuity of income in past years – thanit does with peers who are included because of their permanent contract[3]. Thisis a serious issue in regard to the inequality of opportunity, so that when I hadthe occasion to read a confidential document – the customer assessment form used in a bank branch in which I was conducting ethnographic observation, i.e.,unpublished and rare material not usually made available – I took the oppor- tunity to go deeper into assessment practices and processes, including «credit scoring» on which much of the analysis in this article will focus.

Overall, starting in 2008, I conducted a 16-month-long non-continuous participant observation in five branches of two banking institutions, including the office dedicated to mortgage underwriting in the head office of one of the two institutions, where I had access to the documents I describe in this article. The fieldwork started at a particularly interesting time: a few months earlier,a new information system had been implemented in the bank, with the aim of digitalising the assessment of creditworthiness, and speeding up the transition from «social assessment» to «credit scoring» (a transition that I will explain later). The participant observation[4] was followed by a longitudinal qualitative in-depth study on the progressive change in branch practices resulting fromthe liberalisation of banking services, with an exclusive focus on customer risk assessment through documentary analysis and interviews with operators, and

[3] Research carried out under the Project EXCEPT – Social Exclusion of Youth in Europe: Cumulative Disadvantage, Coping Strategies, Effective Policies and Transfer, European Com-mission Horizon 2020 – a program which investigated the consequences of precariousness for the autonomy of young people (see Bertolini, Moiso 2022).

[4] The observation was non-covert: presented as a researcher, I had a desk position next to the person conducting the assessment procedures. Due to this proximity, I was able to conduct discursive interviews with the practitioners, some repeated over time, and many daily informal interviews. During the observation period, I attended industry meetings and events dedicatedto bank lending. I also conducted semi-structured interviews with main informants: both people working in centralised offices of the bank, e.g., the official responsible for configuring mortgages or assessing risks; and external figures, chosen among professionals, experts and scholars in the sector, who helped me to understand the processes observed. I interviewed twenty internal figures in total: a general manager, two managers and a private loan officer, eight branch managers, four mortgage advisers, four general advisers, and I also had numerous informal interviews with all the household advisers (six people). These interviewees werealmost all male: the article does not intend to conduct an in-depth examination of the gender variable in banking work; but the presence of a strong inequality in professions related to money and finance, which has long been documented in the literature, is noted (Godechot, 2001).

finally an update of interviews with households already involved started in the years 2019-2020.

The analytical approach of this paper is predominantly descriptive and pragmatic. Its prime objective is to describe the concrete functioning of these customer assessment forms: the process in which their compilation is embed- ded, and how they are used in bank branch practices. The documentary analy- sis reported was complemented with ethnographic observation and discursive interviews conducted with bank branch operators: they share tacit knowledge and common practices, which have taken time to be identified, understood, andanalyzed[5]. The paper combines materials collected with multiple techniques and following an approach used in similar studies (Ossandòn, 2014; Ducourant, 2009; Lazarus, 2012; Guseva, Rona-Tas, 2001).

The interest in customer assessment extends beyond the financial issue itself, and more generally makes it possible to increase knowledge about in- equality of opportunity, and its legitimation, in contemporary Italy. In recent years, this topic has undergone a significant change. In banks, so-called «so-cial assessment», i.e., the qualitative evaluation of customers' creditworthiness based on the operators' knowledge of clients' positioning in the socio-economic context (type of work, family networks and social capital, but also reputation) has been progressively flanked, sometimes completely replaced, by an automat- ed process involving a mathematical-statistical calculation of a level of default risk[6]. In fact, algorithms are used to predict an individual behaviour – the timely repayment of debt – and strongly impact on the credit decision-making process

[5] They are employees who possess specialised knowledge, acquired through specific statistical-economic training, and they share a repertoire of meanings that are socialised inthe workplace, through daily interaction with colleagues, room managers, the deputy manager and the director, as well as through the dissemination of organisational devices, documents such as reports, analyses, newsletters to refer to when implementing operations (see Preda, 2002). The observation mainly concerned the work of the operators in handling the mortgage files, not so much their interactions with would-be borrowers: the face-to-face exchange of information is the initial point of an automated process that the operator carries out withthe bank's information system, and on which attention was focused. This approach was also intended to enhance the absolutely original material that was accessed: the assessment forms of all borrowers with a mortgage for their first home at the time of my participant observationin the branch. This material was particularly sensitive because it contained all the information on the borrowers' debt exposure, and it was used with the greatest care in order to anonymise it completely: nothing in this article makes it possible to trace the name of the banking institution,its precise location, or the identity of people mentioned. This was also to protect the branch operators, who were anything but calm when showing me documents and situations that would
«reveal» the bank's work, fearing reprisals from those responsible.

[6] The quantitative assessment, called *credit scoring*, gradually became established in Italy following the processes of privatisation and concentration of the banking system initiated by the reforms of the 1990s, progressively flanking and replacing the previous method of social assessment, where the strong local embeddedness of institutions guaranteed greater proximity to clients and an advantage in knowing their situation (see Zurru, 2022). This is an international trend resulting from the prudential agreements known as the «Basel Accords» within the G10, and which have a very strong binding power over national prudential supervision. The bankin which I had access to the scorecards was the head office of a national bank that had been particularly affected by this process of redefining territory contact and branch practices.

by defining access possibilities. Credit assessment is thus a significant example of the use of automated predictive systems in decision-making processes, with important effects in terms of social inclusion/exclusion. Understanding which characteristics of customers are assessed as better, and especially which ones are assessed as worse, by the algorithm to give access to additional economic resources improves knowledge about what attributes are associated with relia- bility in a given society. These attributes have been changing in recent decades:in the era of financialization of everyday life (Van der Zwan, 2014), it is a matterof understanding where and how new lines of inclusion and exclusion are drawn.

2. Why it is important to open the black box of youth credit assessment

Young people, defined as the «losers of globalization» (Blossfeld *et al*., 2005), are highly marginalized citizens in the labour market and with respect to the welfare state, particularly in Italy, in terms of contractual stability, income continuity, and income level (Bertolini, 2018). They search for access to credit in order to cope with situations and needs such as buying a home with a mortgage. The above-mentioned case of the PNRR measures is indicative of a question-able European tendency to consider access to credit as an important element in the design of policies directed toward the social inclusion of vulnerable people, such as young people or precarious workers, two categories that often overlap (Ossandòn *et al*., 2021; Pellandini-Simányi *et al*., 2015). Therefore, indebted-ness, whether an individual strategy or a possibility offered by policies, assumesa specific and ambiguous valence for the younger generation in the current financialized capitalism: it is being configured by several parties as a collective problem, recalling the individualization of social risk (Ossandòn *et al*., 2021;Unt *et al*., 2022).

The risk of this tendency is well exemplified by the case of sub-prime mortgages: far from being instruments of financial and social inclusion for vulner- able households, they have become means of enrichment, at least at first, for investors in the financial market, and of social expulsion of initially included households (Sassen, 2014)[7].

In this framework, the complex interrelationship between the vulnerability of subjects, on the one hand, and the conditions that make the debt sustainableover time for those who receive it, on the other, is particularly delicate. In this regard, the credit-granting procedure emerges as a crucial phase in which the assessment of debt sustainability should take into account its impact in termsof the client's effective social inclusion.

In the literature, this issue is beginning to take center stage. Some stud- ies have considered debt sustainability as the result of a set of factors at the intersection among different institutions: the level of banking innovation (e.g.,

[7] Sub-prime mortgages were used to build financial instruments traded on markets that,in an early period, saw a high volume of trading (see Poon, 2009, and Sassen, 2014, for further discussion of this issue called «securitisation process»).

the ability to suspend repayments), the buoyancy of the labor market, the presence or absence of a citizenship income (Bertolini, Moiso, 2022). Instead, the present article looks inside the banks. As noted above, an individual's default risk for the purpose of granting access to credit is assessed by calculating a score through the application of an algorithm (*credit scoring*). This score depends on how the algorithm is defined, what characteristics are parameterized to weigh negatively or positively, and, equally importantly, how its implementation takes place. Whence derives the importance of «opening the black box» of credit to see the conditions of inclusion, given the variety of tools and situations, and then reassembling the picture.

Customer evaluation is analyzed in this paper as the result of the situated interaction between the branch operator and the technology he or she uses in performing his or her job, during which data collected as the result of inter- action with customers are sorted and processed. Technology is conceived asthe set of tools (or devices) made available to and used by trained operators (Callon *et al.*, 2007). In analyzing evaluation practices embedded in the social and material contexts in which they take shape and considering the joint rela- tionships between human and material actors in work settings, I first adopt an approach developed by the so-called *Social Studies of Finance* (Knorr Cetina, Preda, 2005; Preda, 2007). This is a predominantly European stream of studies that has produced important analyses of the interrelationships between finance and society over the past decade, highlighting the role of technical and scientific knowledges inscribed in tools and valuation practices of operators in financial institutions (Chambost *et al.*, 2015). Another type of social scientific studies of the «low finance» – the financial practices in the household – finance pair – thatis important for this paper is the so called «studies of financial oikonomization» (Ossandòn *et al.*, 2021). They have the shared goal of understanding how the financial administration and governance of the household operate in practice. Interested in the practical sense of these concepts, these studies understand
«government» as the practices of controlling one's own and others' conduct and «administration» as the activities that concern coordinating, taking care of, attending to, or managing practical affairs. It is therefore a matter of analyzing how the financial administration and government of the household[8] take shape in different spaces, in the home as well as in bank branches, but while alsotaking into account the institutions that define policy and regulation, so thatsubject to analysis are «the practices, devices and problems of the different ac- tors involved (providing) a descriptive account of how households are adminis- tered and financially governed» (Ossandòn *et al.*, 2021, p. 3). Ossandòn and col- leagues identify seven main areas of analysis. Of these, the empirical analysis in this article covers two in particular[9]: the area of *evaluating*, which is concerned

[8] In this paper, the analysis of the concept of «household» is not addressed, although especially in the analysis of money management practices and inequalities it should be (Zelizer, 1994). The term is used to denote the nucleus subject to creditworthiness assessment bythe bank.

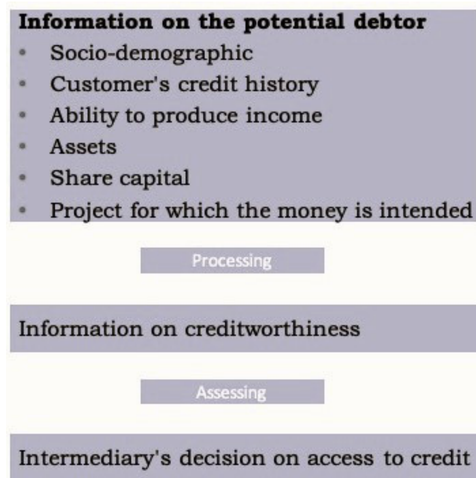
[9] In addition to evaluating, infrastructuring and publicising, other areas include: budget-

with customer assessment practices; and the area of *infrastructuring*, whichis concerned with the development of tools that connect households and the financial industry at the technical and institutional level. The final remarks lookat the area of *publicizing* or making household financial problems a public issue.

3. The situated construction of the client's profile: virtual worthiness

The assessment procedure consists of a set of operations directed primarily at distinguishing between what, in technical jargon, is termed «bankable» and «non-bankable», the latter being understood to mean «undeserving» (more tech- nical jargon) of trust with a view to granting credit. In the Western banking systems that I have had the opportunity to study, regulations have contributed to the strong standardization and quantification of these operations, so that itis possible to identify a common procedure (Fig. 1): information is collected andthen translated into an indicator of default risk (or, speculatively, creditworthi- ness); based on this indicator, the banking institution decides whether or notto grant credit.

Fig. 1 Customer assessment for mortgage lending: the decision-making process.



Source: Author elaboration.

3.1. The selection of customer information

In the bank under analysis, information was gathered by the operator duringan interview with the customer. In the branch, each customer was assignedto a counselor, and in special cases had the option of contacting the deputy

ing, representations and practices in budget management; juggling and managing transactions while taking multiple obligations into account; attaching, keeping customers connected by financial institutions; and educating, teaching families how to keep accounts.

manager or the manager; but in the case of mortgages there was a specialized operator who dealt with everyone, and who normally conducts the preliminary interview.

Thus, the operator-customer interaction took place face-to-face in the branch, even if the first contact by the customer was online. The operator, seat-ed at the desk, has a dual interaction: while talking to the would-be debtor seated opposite him, he enters data and read information on his computerscreen, which the customer has no way of viewing unless the operator tem- porarily turned the screen toward him (which happens rarely and only in caseswhere the operator needs to use numbers or a chart to emphasize what he is saying).

The operator first listens to the customer's requests regarding the money he wants to receive and the use he would like to make of it; then the operator begins to enact a performance (Vargha, 2011) in which he plays the role of both advisor (who recommends the best product: rate, duration, ancillary possibilities) and evaluator (who has to weigh the risk for the bank of losing the money lent). The first operation he performs, therefore, was to enter the would-be borrower's name into the appropriate software and check if he was already on file with the bank: if so, he displays on the screen the customer biographical data, the balanceof his current accounts with the bank, the amount of his debts, if any, and, most importantly, the transactions carried out on the current account, which made it possible to know the incoming and outgoing payments. If not, the operator would have to start filing the client by logging his type of employment contract – fixed-term or not – and income, but also his residence, the number of changes of residence in recent years, telephone number, marital status, socio-economic information about parents.

The customer, for his part, receives printed information about what was taking place during the interaction between operator and computer: the simu- lation of the loan installments he would have to pay if his application was ac- cepted (the so-called «amortization plan»), the mortgage information sheet, the list of information to be provided to the bank, during subsequent meetings or by e-mail, to finalize his application.

This initial collection and exchange of data is only the beginning of the technology-mediated interaction between operator and customer: however, its importance is paramount because it marks the start of the assessment process. At this time, the customer signs the privacy sheet, thereby consenting to the conduct of investigations into his account by the bank institution.

When the customer left, the operator is entitled to telematically consultthe CRIF databases containing important information about the customer's fi- nancial history, particularly debts with other banks and the presence of missed payments. CRIF is the risk center that operates in Italy: it is a center that provide access to large databases that store and make available all customers' credit positions to financial firms that pay to have such access, using information tech- nologies (Lauer, 2017; Poon, 2009).

3.2. The processing of information: the automated calculation of creditworthiness (credit scoring)

Special software in banks makes it possible to store and manage a large amount of information about individual customers by quantifying it, i.e, converting it into numbers, so that it can be used to estimate the probability that a given event (customer default) will occur.

First, the information directly collected from the client or by consulting computerized databases is filed and initial computing process is enacted (see Box 1). Subsequently, the file on the customer is forwarded to the central office, which periodically issues loan resolutions, in order to process these indicators with the socio-demographic characteristics and express the customer's creditworthiness with a score (credit scoring).

Box 1. First indicator in customer's dossier.

(i) loan-to-value, the amount of the loan requested compared to the value of the property to be purchased. Banks usually grant a maximum of 80 percent of the value of the property. This indicator considers the past: for the bank, it is indicative of the customer's savings capacity and family wealth.
(ii) installment-to-income ratio, the amount of the mortgage monthly installment compared to the customer's monthly income. This indicator considers the present and the future: for the bank, it is indicative of the customer's debt sustainability, that is strictly correlated to his earning capacity.
(iii) customer's debt position indicator, provided by the CRIF credit bureaus. The parameter encapsulates information on how many loans have already been granted to the customer and how punctual the customer has been in repaying them. In the case considered, the higher the score, the less creditworthy the customer is deemed to be.
The Bank of Italy's prudential guidelines, which transpose international directives, indicate that not to be exceeded is the threshold of 80 percent of loan-to-value and 35 percent of the available net installment-to-income ratio. Moreover, having a "warning in the CRIF databases" – that is, a delay in repayment of any debt – is tantamount to the label of "bad payer" and makes it very difficult to grant further credit.

Source: Author elaboration.

The bank has developed credit scoring models to predict customer behav- ior by evaluating alongside the three indicators described above (loan-to-value, debt-to-income ratio, and credit history) also customers' socio-demographic in- formation. The models are shrouded in the strongest secrecy, so much so that the operators of the offices in charge were totally reluctant even to be seen chattingwith a researcher. These are systems developed with external consultants. Theyare very expensive and the bank believes that they give it a significant compet- itive advantage over its competitors because of their ability to predict customerinsolvency and thus their function of warding off those labeled as bad payers.

Before the transmission of the client file to the central office, on the basis of the data entered the software warns the operator in advance of the outcome of the evaluation with an initial visual signal: i) a stop signal, which warns him if the client is not creditworthy, so that the file could not be transmitted to the

central office; (ii) an alert signal, if the client is assessed as risky, so the practice has critical elements that will be evaluated; (iii) a go signal, if the practice has no problems.

In the case of stop signal (red light), the software act on behalf of the branch operator, even contrary to his or her assessment as a practitioner. The effect is an important change in operation:

> While maybe last year I could have done it... because maybe I trusted the customer so maybe I made an investment because the customer had otherthings, and so on, this year maybe, actually not maybe, this year no, if there isa loss-making transaction… I don't do it anymore, because I am not allowedto... (Branch manager)

The moral standards of the branch operators are based on the possibility of tracing the past actions of the customers, in order to have cognitive anchorson which to base the belief that they would repay the debt on time: their trust,as defined by Mutti (1987), is based on information regarding the client's re- sponsible behaviour and ability to produce income. So much so that the branchoperator complained that the system made him lose a customer who was an «investment», i.e., a source of profit for the bank (cfr. Moiso, 2019).

Failure to grant mortgages to customers whom one had known in person for decades but who had an unsuitable credit scoring score was accompanied byno longer rejecting, as in the past, customers who were "quantitatively clean" but unknown in person:

> Years ago, a mortgage to a non-customer was not granted... Before, a mort- gage was granted only if a branch operator had known him or her for so-me time. It was odd if someone came for a mortgage and was a customerof another bank, why didn't he do it in his own? They wouldn't give it to him! That's right, it was like that! It was the different mentality, now with databases going to verify just everything [he is referring to CRIF]. (Branch manager)

These words well express the change in the way in which the past actions of customers are tracked and operationalized: no longer through a reconstruction of their behaviour, but through a score that takes some elements into consider-ation. The «datafication» of creditworthiness is enacted.

Automation and the consequent high standardization of the assessmentprocess are legitimized at the international banking regulatory level as elementsthat prevent the operator from making subjective and particularistic assess-ments, and thus ensure the efficiency of the assessment procedure and fairness in the treatment of customers (Leyshon, Thrift, 1999; Marron, 2007).

> If we made it explicit that we did not use scoring, we would immediatelyend up in the newspapers for opacity in mortgage management. (Branch Ad- visor)

This is a process that exhibits many similarities with the standardization of medical knowledge through the introduction of automated tools to support deci-sion making (Berg, 1997, in Bruni, 2009). The adoption of credit scoring systemscan be read as a shift from personal trust to systemic trust: the bank-creditor trusts to lend money because it is protected by regulation (e.g., in the case of mortgages, home mortgage guarantees) and because it trusts the operation of automated credit management fine-tuned through technology (Lacan, 2010).

Actually, these processes are very opaque:

> While borrowers may know some key variables used in the assessment process – e.g., their credit score or their past debts – the precise ways such indicators feed into the models used by lenders, and the particular thresholds used, almost always will be opaque to those that are being evaluated. What empirical research in this area has started to do is to open up these processes to scrutiny and to make the work of financial evaluation an empirical object of analysisin its own right. (Ossandòn *et al.*, 2021, p. 11)

The assumed objectivity of standardized assessment processes is under-mined by the fact that algorithms incorporate normative views of social facts that can be defined as situated, and therefore changeable, in time and space: the literature has shown how predictive systems incorporate social facts (Airoldi, 2021). In the case of credit scoring, the credit score calculated by the algorithm rewards certain customer profiles rather than others according to the weight that was given to socio-demographic variables at the time the algorithm was programmed. In the bank studied, these are the variables considered during the face-to-face interview, as a branch advisor confirmed:

> It also includes parameters like how long you've been residing in a certain area, how long you've been working... for example, the fact of residency: you may have changed residence a month ago, but you've actually been living in Turin for 30 years, so that's a bit fictitious as a calculation, I honestly can't tell you how much it counts. But if you have been opening the bank account for a month, that is a parameter that makes this person's score definitely lower. Ifthe terminal has an application, that application has 90 percent command, soif he says no, you can put all the reasons to him, that he is a very good person who is very nice, that you love him so much and that he will never create any problems for you and will always pay all the installments. However, in reality the system says no. There are cases when you can't give the mortgage and you know that there is no problem and this person would rather kill himself than not pay the installment, however, it is impossible to give it to him. (Branch Advisor)

The technological device incorporates socially widespread categorizations in a given space-time context and charges them with considerable normative power regarding the characteristics a customer must possess to be deemed worthy of access to a loan. In Italy, what is defined as the applicant's stability

is judged first: having an officially recognized identity, a residence evidencedby household utility bills made out to the declared address, seniority of resi- dence calculated in years, being married rather than cohabiting, or worse beingdivorced, the number of children, profession, type of contract, seniority of em- ployment relationship, employer references, and seniority of relationship with the bank. Social integration is assessed, which also happens in France (Lazarus, 2009), while in the United States the central element of assessment by rating isthe customer's credit and repayment history (Poon, 2009).

The ideal type of borrower, the one with the highest score, is based on the figure typical of the years when bank lending developed: the years of stable jobs and predictable careers, in a society with a lower degree of banking, in which most of those applying for loans were members of the upper or middle classes.Banks have statistical confirmations of these borrowers' payments, while they have no data to prove the reliability – and thus navigate uncertainty – with respect to the new types of borrowers: young people with precarious jobs and fluctuating lives (Lazarus, 2009).

> Mauro, 29 years old, has a fixed-term contract, lives alone, has no savingsto draw on in case of difficulties: the burden of paying the mortgage rests entirely and exclusively on his monthly income (1300 euro). He has the dreamof buying a house with certain characteristics, he is willing to make many sacrifices to bear the burden of the instalment on his budget and to repaythe mortgage responsibly, but at the time of taking out the mortgage he was not a client of the bank, he had no traceable debt history, in short, nothingto show that he was already a «good payer». The bank operator advised him to apply for the mortgage to the financial company («finanziaria») linked to the banking group: through this channel, Mauro obtained the mortgage, at costs and conditions significantly worse than those proposed in the branch. (Fieldnote of Mauro's profile)

In Mauro's case, the bank considered the uncertainty of a young profile, with no credit history, struggling with his first important debt, no saving and no wealthy relatives behind him: too risky, red light for him. Inclusion is possible through the back door of financial administrator companies, which can followa less stringent risk management regulation, of the same corporate group: it isa case of *differential inclusion* based on customer profiling. It was only aftertwo years of regular repayments, when his profile therefore had a minimumof good historicity, that Mauro was able to transfer his mortgage to the bank, obtaining a more advantageous rate than that of the finance company, which allowed him to lift the burden of the mortgage on his monthly budget and to livemore serenely with the repayment of the debt.

It is interesting to compare Cecilia's story with Mauro's one: same age, same income level.

> Cecilia is 29 years old, an architecture graduate struggling with the preca- riousness of her first job contracts, also attending a PhD in architecture with

a scholarship. The PhD course gives a monthly scholarship of €1,000 for 3 years, to which the income from some collaborations with architectural firms has to be added: her income is estimated at €1,300 a month, but the collabo-rations are not paid on a monthly basis, which makes managing income and expenditure more complicated. Her financial inclusion – she has a first home mortgage – surprises me given her precarious job and uncontinuous income but looking closer from her personal dossier stored in the loan advisor's fol- ders, I discovered that she has a parental guarantee. During the interview, other important evidence emerged: at the time of first interview with the bank counsellor, she immediately pointed out that her parents would not only act asa guarantee, but would also pay the mortgage. Moreover, Cecilia tells me: «I have the prospect of greatly lowering the value of the mortgage soon, becausemy grandparents are very old». The mortgage consultant confirms to me that Cecilia's traffic light was red: without her family background, she would not have been financially included on her own. (Fieldnote on Cecilia's profile)

In this case the financial credit to a young people works as a multiplier of resources for middle class families: although her parents do not have money to buy a new house, they manage to do it thanks to bank intermediation. Cecilia, for her part, has the possibility of inheriting a house and not having the burden of housing autonomy on her budget.

In short, the red light immediately switches on in cases of young people with fixed-term contracts and without parental guarantees. At the time of my survey, any person that matched this profile was labelled with a red line.

4. The situated construction of waivers: practices of virtual and social reconnection

The mortgage-product to be offered to the client seems far from taking accountof the individual needs of those with an «atypical» profile. Some adjustment, however, is possible.

During the fieldwork, I detected strategies on the part of practitioners to obtain exceptions to prudential criteria and standard costs in the case of clientswho were well-liked or known as deserving by the consultants, but who were not well evaluated by the algorithm. These strategies concern clients in general,and I have found few cases concerning young people in particular. In this para-graph, the moral judgements that motivates operators to seek such exceptionsis highlighted.

Analysis of the enactment of the evaluation process, in fact, makes it pos- sible to show the situated action of different factors and their processes of ali- gnment or misalignment, reconstructing the processes of interaction, negotia- tion and conflict between human subjects and technological objects (Leigh Star, 1999).

Gianni, a branch counselor not specifically in charge of mortgages, spends twodays «wrangling with the software» over a critical signal issued in connection

> with the mortgage application of two customers to whom he would «grant the loan with his eyes closed» but who have a blemish on their telematics profile: both are divorced with dependent children, a socio-economic characteristicthat is not well viewed by the algorithm, and with past debts. Gianni is very involved with this critical signal and asks a colleague «how risky is it to falsifya Crif?» (i.e., To enter a CRIF indicator in the software that does not match the one extrapolated from the risk center query) The colleague says that he would not do it, and that if he changes the parameters in the queries aftera response there remains a trace and in the case of inspection they can ask for an explanation. Gianni deals with this case all day long, he often goes to the mortgage consultant. He tells me that «all the mortgages we do in this period in fact are not accepted and trigger the critical signal», complaining that since they introduced this software things have become really restrictive. Gianni, too, says that «the machine decides everything now», and tells me about a previous branch manager who was moved out of the branch because he continued to grant mortgages with the old, less restrictive model, which is still on the PC, and not with the new one. In the end he doesn't advance the application form: «I didn't like the situation», he told the customer, and «he got pissed off». (Fieldnote, branch observation)

At first, I read the persistence of these practices as a strategy used by operators to resist the introduced software. In reality, they were much more consistently a kind of indicator of technological stratification. As Berg shows in the case of medical practice, «it is not only the tools that shape the practices, but the latter in turn modify the assumed uses for the said tools» (in Bruni, 2009, p. 456) or rather, «the introduction of a tool rather than regulating the practice it is aimed at, requires instead a new arrangement of all "boundary" practices» (*ibidem*). In the technologically dense environment of bank branches, work activity is not directly pre-ordained by technology, but it is performed by the interaction of technology with human actors. Moreover, the introduction ofa new technology does not prevent the use of the old one, configuring a kindof «technological stratification» (Bruni, 2009). In bank branches, knowledge among operators about how to conduct social assessment leads to recalibration of the assessment made by the newly introduced digital system. The goal is a common one: to provide customers with access to credit that will enable them to reach the budget and bring in revenue.

When analyzing the practical use of the tools in charge of risk assessment,there emerge practices of alignment between the customer's telematics profile and his or her assessment as a flesh-and-blood person by the operator which seeks to mitigate operational standardization and strict profiling. In effect, oper-ators try to find reasons for negatively judged customer parameters and commu- nicate them directly to the central office. Sometimes, they contact those working there by telephone. The head office manager, for example, is busy investigating a negative creditworthiness based on data from the risk center, assigned to a long-standing customer who has all other parameters with regular values:

> Twenty years ago, this important customer was a founding partner of a com- pany that later went bankrupt. He had nothing to do with it because it went bankrupt three years ago, he got out in 1984. In the data that exist in the system there is this slope. So you have to go to Jesus himself to get you to signsuch a permission, and spent a lot of time, but it works… (Bank Director).

The direct phone call to the higher decision-making centers is usually pre-ceded by the paper production of information. In particular, it is still possible for operators to submit the request for funding not electronically, but by printing itout and inserting handwritten notes to which they want to draw the attention of the decision-making center. They write a comment at the bottom, or if very long, use an additional stapled sheet as the last page. This practice is remin- iscent of the paper transmission of the folder, which was characteristic of the more social-oriented evaluation prevalent in the bank before the recent advent of digitization.

Below is an example of a sheet with a branch operator's remarks, stapled to a customer's credit scorecard:

Box 2. Transcript of contents of a customer file with information for assessment: a case of bad customer's debt position indicator.

Customer with salary credit always regular and correct. Interesting transaction to build cu- stomer loyalty.
Useful operation to renegotiate our land loan plus restructuring. Customer will reduce the amount as soon as they sell two apartments (proposal attached) one of them in September. Regular payments.
Mortgage for first home purchase 100% variable without policy. [LTV 93.46%, installment/ income 47.52%, MR4] fee waiver 0.25.
Always regular and correct, current account holder since 1997.
Favorable opinion of entrepreneurs sector.
MR4 to be further investigated.
[a note is added later] Deepened: related to the presence of the waiver of the loan by the pre-vious bank and the marital status of both (cohabitants).

Source: Author's transcription

As can be seen in the example, the main numerical parameters that the operator accompanies with comments are precisely the indicators mentioned earlier: the loan-to-value (LTV) ratio of the property, the installment-to-income ratio, and the customer risk extrapolated from the risk centers (MR) ranging from values of1 (the best, least risky) to 5 (the worst). In the client's case, all values are high and define a critical situation. Moreover, the issue is complicated by the applicant's marital status: all other things being equal, cohabitants are considered less good payers than the average based on time series. But the operator believes he wantsto continue.

What are the characteristics of a would-be borrower that warrant the grant-ing of waivers? Of great importance are the «attaches» in the sense given by Michel Callon and Bruno Latour (Callon 1986; Latour, 2007; see Lazarus, 2009),

i.e., all the goods, instruments and characteristics that are linked to the person and that are translated appropriately so that they can be evaluated and canpositively influence the final judgement of the resolution. In the case considered here, this is a customer whom the branch's small business follow-up sector judges to be important and would rather not lose.

But when someone is not an «important» customer, as in the most casesof young people with no parental guarantees, what factors can matter? The financial history of a young couple, recounted verbally to the operator during the interaction in the branch and summarized by him or her by means of the sample sheet below, provides assurance regarding their future solvency, sinceit is a mortgage lower than the one they have been regularly repaying for years,and the bank becomes their confidant when, with sincerity, they spontaneously show an account in the black and minor debts.

Thanks to a sheet stapled to the bottom of the mortgage file, the operatorensured that an installment-to-income ratio did not remain a simple number,in this case very high compared to prudential criteria (55 percent versus the recommended 35 percent) but assumed meaning in relation to the clients' pre- vious history. These clients, although young, had a history as debtors, a good history, which, before the advent of the automatic decision-making system, the operators were used to valuing.

In the fieldnotes that I collected, the phrase «income sufficient for an adequate/decent standard of living» refers to completely different figures for households similar in the number of members but different in occupation and lifestyle. The prudential indicator thus reveals an indexical nature (Garfinkel, 1967), in the sense that the adequacy of the money available is declined relatively to the consumption habits of each borrower, as recounted by the borrower to an operator. The exchange of information between operator and client is structured by the spatial and temporal order of the relationship and the technologies used in it, but it is not structurally determined (Vargha, 2011): attaches are shown by the able-bodied client in the course of interactions with the operator, sometimesa reference to a mutual friend, the role held in a recognized organization or with an employer who is also a client is enough. Lazarus (2012) showed how, in France, this process takes the form of a true social test, where the assessment of clients' appropriateness goes far beyond their solvency to include moral con- siderations about habits and life plans, which then inform predictions about their behavior.

Customers can thus benefit from the operator's intervention, which ensures that they possess characteristics that are agreeable to the bank: that is, ones that informally attest to their creditworthiness. The «mending» between the telem- atic profile and the individual characteristics has a very strong value because it determines the client's inclusion in the debt market.

Box 3. Transcript of contents of a customer file with information for assessment: a case of bad installment-to-income ratio of young people.

Newly acquired clients. He is a noncommissioned army officer, she works at a bakery, has a net income of 944 which is actually 1,000 monthly as per the movements in their bank account in our hands. Monthly debt situation:

	Previous	*After the loan*
Credit agency XXX	300.00	repaid with liquidity
Credit agency YYY	345.00	Repaid with liquidity
Credit agency ZZZ	345.00	345.00
Credit agency TTT	333.00	333.00
Ford (car purchase instalment)	367.00	367.00
Vacuum cleaner (purchase instalment)	69.00	69.00
Previous bank mortgage	797.00	-
Current bank mortgage	-	658.00
TOTAL	2556.00	1772.00
Installment-to-income ratio	80.5%	55.8%
Income	3152.00	3152.00
Net income	616.00	1400.00

Reported in a commentary on the note, it is highlighted how the share of income allocated to debt servicing would be reduced by the new stipulation, with a «net income that is a sufficient to maintain a decent standard of living for the applicants. In addition, the Ford and vacuum cleaner repayments will end in September: the debt service will reduce to 47.1 percent and net income will rise to 1800,00».
The remaining parameters from CRIF are regular.
It is favorably proposed.

Source: Author's transcription.

Hence «mending» compensates for the lack by these young applicants of characteristics in the present, particularly a permanent contract or parentalguarantee, but with a past history of being good payers, having demonstrated that they have been regular and correct debtors as in the case of Mauro reported above, and as Brunella – a branch operator – confirms:

> Not surprisingly, many young people first excluded from debt have been asked to first get into debt with a finance company, which is known to have less stringent inclusion constraints, and then return to the bank after two years of regular payments. (Interview with Brunella, branch operator)

Mauro or the young couple described above are included because they have successfully performed the moral judgement on creditworthiness, showing a history of «behaving appropriately». The literature points to these mechanisms of credit de-standardization in large commercial banks as social violence, whereonly those who do not immediately show compliance with the criteria set by the company are subjected to the magnifying glass in their money management

practices, and only upon further scrutiny for compliance do they gain access to debt if they have shown in their past that they can sustain it.

5. Concluding remarks: this is not an algorithm for young people

By showing the use of algorithms for predictive purposes in decision-making processes governing access to credit, this article highlighted how social representations about the creditworthiness and reliability of individuals are embed- ded in the customer risk assessment of an Italian bank; how these embedded representations have performative power over defining the boundaries of ac- cess to credit; and how branch operators, who perform the assessment practicein direct contact with the customer, when they have social interaction with the customer, and thus direct knowledge, try to use margins of autonomy to negoti-ate and redefine the assessment defined by the algorithm, where necessary.

On tracing this process, there emerges a double exclusion of young people with non-permanent employment contracts and without parental guarantee: they are first excluded from the algorithm, and then excluded from the «mend- ing» practices, unless they can build a history of being good payers for the bank. There follow some reflections on the modalities of this double exclusion.

The social representations embedded in the algorithm that automates the assessment process have considerable binding force in differentiating the opportunity of certain social categories to access resources, precisely because of their social construction (see Aragona, Felaco 2020; Massimo, 2020). These are tools constructed with socially included people in mind; people who possess cer-tain deserving characteristics, which are closely linked to stability, and thus do not lend themselves well to predicting the actual behavior of people with differ-ent life and work characteristics who live in greatly changed contexts. Practices deployed by branch operators, who attempt to «mend» to the score calculated by the algorithm a qualitative assessment of customers, indicate a need for the integration of automated work that becomes necessary if one wishes to include an individual whose worthiness characteristics are deemed different from those incorporated by the algorithm. Net of favoritism and particularistic practices, and assuming that operators are interested in stipulating «good» debts, it would seem that the algorithm is inefficient in assessing the reliability of customers who have some sort of vulnerability, uniting them in an indistinct group of un- deserving persons. However, this argument is decidedly underestimated among professionals and in public opinion. When the algorithm issues the score, it seems that its rootedness in a socio-economic system is forgotten, and what it predicts becomes reality. Above all, it becomes an element by which a social group is judged as a whole. It is not uncommon that, in the analyses or in the words of experts during conferences or in public opinion, the score appears to be issued by an oracle, not by an algorithm: the complexity of contemporary financial engineering – how many people can describe the process by which they are evaluated? – requires almost a faith in the functioning of the system, toput it *à la* Giddens, which obscures its subjectivity and its roots in a historically

and geographically determined system. It obscures, so to speak, its nature as a «social fact».

When, however, the link between branch operator and customer exists, practices of great interest are discovered. The practices put in place by branch operators, who try to «mending» the score calculated by the algorithm witha qualitative assessment of customers, show a need for integration of the au- tomated work that becomes necessary if it is wanted to include an individual whose characteristics of worthiness are considered different from those incor- porated by the algorithm. These practices concern young people only if they have an history as good payers: it is a difficult history to construct in the time of my research, and quite impossible in more recent years. Moreover, in the case of young people, the requirement to build a history as loyal customers in the financial world, places the responsibility for inclusion on them. This is an important element to consider.

Algorithms incorporate implicit categorizations and normative views that reward job, income, and life stability: a system ill-suited to assessing young peo- ple in contemporary society, who are characterized by a kind of «institutional- ized precarity» (Meo *et al.*, 2022). Vulnerability affects young people in various ways. The situations that define their ability to repay the debt, and thus the sus- tainability of the debt throughout their future lives, are variable and changing; above all, young people have no historicity behind them that can substantiate whether or not they are good payers. They have no individual history, having never been bankable, and they have no historicity as a social group, given theirvariety and recent experience in society of the job and life insecurity that char-acterizes them.

In other words, historicity is favorably incorporated by algorithms, which are poorly applied to assessing subjects characterized by non-historicity: thus, algorithms not only fail to capture new social risks; they also reproduce forms of inequality in access to credit. They are constructed from socially undiffer- entiated categories; they process forms of typification; they tend to reproduce inequalities; and they fail to take into account the new innovative strategies that young people can develop to put themselves in a position to sustain forms of indebtedness, as literature begins to show (Unt *et a.l*, 2022) if these forms are different from the conventional ones embedded in the devices themselves.

Thus, the moral dimension of assessment mechanisms for access to cred- it emerges: the labeling of individuals according to predefined categories that define expected behavior. The resulting further exclusion has the effect of exac- erbating the marginalization of young people and disregard of their real needs and living conditions as individuals and citizens.

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