Indebtedness in Rural India: The Contribution of Cognitive Skills and Personality Traits

Arnaud Natal* & Christophe J. Nordman†

Preliminary draft

June 28, 2021

Abstract

Keywords : Gender, caste,

1 Introduction

1.1 Recent spotlight

Since a decade, there has been increasing interest in psychology in economics literature[1], especially through personality traits and cognitive skills (PT&CS). Institutions –such as World Bank, are more and more interesting in collecting data on skills because it enable a "better understanding of skill requirements in the labor market, backward linkages between skills acquisition and educational achievement, personality, and social background, and forward linkages between skills acquisition and living standards, reductions in inequality and poverty, social inclusion, and economic growth" (Valerio, Sanchez Puerta, Pierre, Rajadel, & Monroy Taborda, 2014).

Cognitive skills can be defined as a "term that refers to mental processes involved in the acquisition of knowledge, manipulation of information, and reasoning [that] include the domains of perception, memory, learning, attention, decision making, and language abilities" (Kiely, 2014). While "personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristics behavior and thought" (Allport, 1961). Among the theories of personality, the traits can be defined as thought, emotion and habitual patterns of behavior (Kassin, 2003). The Big-Five model –or Five Factor model (FFM)– constitute the main personality trait taxonomy. Based on Goldberg (1981) and McCrae and Costa (1987) works, this taxonomy identify five dimensions of personality from factor analysis [on specific questionnaires]: neuroticism (i), *i.e.* the capacity to experience negative emotions (anxiety, anger, depression, etc); extraversion (ii), *i.e.* the energy, the capacity to experience positive emotions, the tendency to seek stimulation and company from others; openness to experience (iii), *i.e.* "one's capacity to be creative and unstructured versus one's tendency to need structure and clarity" (Piedmont, 2014); agreeableness (iv), *i.e.* "perceptions of others that are caring, compassionate, and altruistic versus manipulative, self-serving, and antagonistic" (Piedmont, 2014); conscientiousness (v), *i.e.* the capacity to display self-discipline, act dutifully, and strive for achievement against measures or outside expectations.

*Univ. Bordeaux, CNRS, GREThA, UMR 5113, F-33600 Pessac, France - arnaud.natal@u-bordeaux.fr
†IRD, UMR LEDa-DIAL, IFP - nordman@dial.prd

[1] Scopus data

1.2 Studies in economics

Researchers focused[2] on the role of skills on labour market and especially on income gap, performance at work and type of work.

- Income gap: (Bowles, Gintis, & Osborne, 2001) (Heckman, Stixrud, & Urzua, 2006) (Cawley, Heckman, & Vytlacil, 2001)
- Performance at work: la consciensiocité est le trait qui prédit le mieux la performance au travail de facon générale: (Nyhus & Pons, 2005) (Salgado, 1997) (Hogan & Holland, 2003) (Barrick & Mount, 1991)
- Type of work: À la différence du quotient intellectuel (Q.I.), ce trait de personnalité ne varie pas avec la complexité du travail effectué, laissant penser que la conscienciosité concerne un plus large éventail d'emplois. En effet, les professeurs, les scientifiques et les cadres supérieurs ont en général de meilleurs résultats en matière de compétences cognitives par rapport à des travailleurs non qualifiés (Schmidt & Hunter, 2004) (Almlund et al., 2011) (Barrick & Mount, 1991). + (Cobb-Clark & Tan, 2011) trouvent que le degré d'agréabilité a une relation négative avec la probabilité d'être un manager et d'être un professionnel des affaires (business professional).

Others studies focuses on the link with education. Almlund et al. (2011) : Avant tout, les auteurs constatent que parmi les cinq (5) traits du Big Five, la conscienciosité et le névrosisme prédisent bien un grand nombre d'outcomes, notamment ceux en rapport avec l'éducation (la conscienciosité explique assez bien l'attainment et achievement à l'école). L'ouverture à l'expérience prédit, elle, assez bien la course difficulty selected et l'attendance.

1.3 Skills and household finances

Few researcher have been interested in the relationship with household finances while **Pq HH fin impt ?** (Campbell, 2006).

PTCS

- Investment decision and financial distress: (Nga & Yien, 2013) (Pinjisakikool, 2017) (Bucciol & Zarri, 2017) (Agarwal & Mazumder, 2013) (Parise & Peijnenburg, 2019)
- Saving: (Cobb-Clark, Kassenboehmer, & Sinning, 2016) (Gerhard, Gladstone, & Hoffmann, 2018)
- Debt: (Forlicz & Rólczyński, 2019) (Silva et al., 2018) (Brown & Taylor, 2014)

Financial literacy Other studies focuses on financial literacy[3] (Hastings, Madrian, & Skimmyhorn, 2013) (Gaurav & Singh, 2012) (Klapper, Lusardi, & Panos, 2012)

1.4 Debt in rural India

Aucun articles ne s'est intéressé à ça en Inde (ni même dans les PED) (en Inde il y a (Michiels, Nordman, & Seetahul, 2021) qui regardent cognitive sur labour mobility) alors que l'endettement des ménages est colossal et que c'est un sujet super chaud: literature

[2] For a comprehensive review, see Almlund, Duckworth, Heckman, and Kautz (2011).

[3] Financial literacy measure "how well an individual can understand and use personal finance-related information" (Huston, 2010).

1.4.1 Incidence of debt and disparities

The Indian context is unique in terms of household finance (Badarinza, Balasubramanian, & Ramadorai, 2016).

% HH concerned and amount with NSSO (2014) The largest part of households debt is informal in rural India (Badarinza et al., 2016).

- car les terres et les maisons s'héritent : (Badarinza et al., 2016) avancent que cela peut provenir de la « prédominance des ménages multigénérationnels, dans lesquels les terres et les propriétés résidentielles constituent une part importante des legs » donc pas beaucoup besoin d'emprunt formel. 4% des ménages dont le chef a moins de 35 ans ont un prêt hypothécaire ce qui est nettement inférieur à la situation des autres pays émergents comme la Chine (Badarinza et al., 2016).

- Pénétration bancaire très hétérogène : (Badarinza et al., 2016) et (Burgess, Wong, & Pande, 2005) : les États ayant un taux de pénétration bancaire élevé sont ceux où les ménages sont les moins dépendants de l'endettement non institutionnel.

Paysage financier de Guérin, Roesch, Michiels, and Venkatasubramanian (2012) for informal debt and reasons of debt: beaucoup de cérémonies, beaucoup de survie quotidienne.

OK, on voit que beaucoup de monde est concernés, avec tel montant, tel type de dette et telle raison, mais many disparities. Disparities

- Guérin, D'Espallier, and Venkatasubramanian (2013) show that caste affect borrowing strategies as amount, type and source of debt in rural India. Moreover, they show that debt is a "social transaction which inscribes debtors and creditors into local system of hierarchies".

- Reboul, Guérin, and Nordman (2021) find an interest in the gender perspective.

- Debt bondage for dalits (Guérin & Venkatasubramanian, 2020)

- The case of microfinance for womens (Guérin, Michiels, Nordman, Reboul, & Venkatasubramanian, 2020)

- Castes, sex, moc, etc. (Guérin et al., 2012) (Guérin et al., 2013) (Guérin, 2014) (Reboul et al., 2021)

1.4.2 "Social meaning of debt"

- Question de la confiance très présente dans la dette : Guérin, Roesch, Venkatasubramanian, and Kumar (2014) Households' creditworthiness is above all a matter of trust (nambikai), the term used locally when people refer to their ability to access credit. The fabric of trust covers many aspects that far exceed good credit history and repayment behaviour, and relates to every aspect of the borrowers' reputation. Creditworthiness is rarely assessed on the individual level, and often incorporates the reputation and morality of the whole family or even lineage (Harriss-White and Colatei 2004). Lenders often state that they take two levels into account. One relates to family and lineage (taradaram), namely the family's history, its "ethical" background and "morality". The second level is individual (daram), relating very broadly to the "quality" of a person. It is therefore perfectly rational that the poor attach an equal importance to their reputation.

  "Behavior" also matters. As previously discussed, low castes are often seen as risky borrowers. Irrespective of caste, bad habits such as laziness, alcoholism and gambling are considered as indicators of poor repayment potential. As discussed above, respect and deference are also highly valued. Potential borrowers should equally show respect to

their lenders and at times to its community. Giving money is a matter of respect. I respect them, they should respect me. How could I give them money if they talk badly about me? (Rajagopalan, Reddiar [FC], landowner and lender). If you don't want credit from a particular community, then you can talk about them to others; otherwise you should not criticize. It might spoil creditworthiness. We should talk respectfully about these people, this is the only way to get creditworthiness (Gundusammy, Goundar (MBC), agriculture coolie and marginal farmer).

- Rapport de force Guérin (2014)

  (Guérin & Venkatasubramanian, 2020) inseparable from an overall set of interdependencies, protection and social differentiation

- Social and moral experience imbued with subjectivities, felt-obligations and also aspirations

- Prestige sociale Guérin et al. (2014) To understand debt practices, motivations and rationales, however, it is necessary to examine how the poor perceive and experience debt. It also requires taking into account the diversity of debt meanings and debt relationships. Of those in extremely vulnerable financial situations, very few consider themselves as over-indebted. The contrast between exogenous categorisations and local subjectivities is striking. One could of course argue that the poor suffer from "false consciousness", in the sense that they are not even able to assess their own exploitation. Our explanation is different: we argue that the poor have their own "frameworks of calculations" (Villarreal 2009; this volume) and debt hierarchies (Shipton 2007). Such phenomena transcend questions of material or self-centred motivations and reflect issues of status, honour, power, and individual and group identity. This is our second argument: individuals engage multiple criteria to establish debt hierarchies and to evaluate debt burdens. Though financial criteria certainly matter, the social meaning of debt is equally, or more valued. While some debts are dishonoring, others are not. This depends upon the social relation between the debtor and the creditor and their respective status. Caste, class, kin and gender relationships are instrumental here.

  Guérin (2014) Firstly, the social meaning of debt clearly matters. Debt is a marker of social hierarchy in kinship groups, the neighborhood and community alike. People try to avoid debts degrading to their status, or at least try to pay back these debts first.

Guérin et al. (2014) : What is however clear is that over-indebtedness as a concept has little meaning to the poor. Financial indicators are certainly useful (and will be used here) to quantify the cost of debt.

1.4.3 Individual debt and public policies

- Financial inclusion : more and more HH are financial included (Badarinza, Balasubramaniam, & Ramadorai, 2019), especially in India (Chakravartya & Pal, 2013). **Literature Isabelle**

- Secondly, on a vue que quasi tout le monde est concernés par la dette et especially to consume which is an determinants of global wealth (expenditures approach of GDP). In India, the households and non-profit institutions serving households (NPISHs) final consumption expenditure represent 60.29% of GDP[4].

[4]World Bank Data – https://data.worldbank.org/indicator/NE.CON.PRVT.ZS?locations=IN. Accessed January 22, 2021.

- Household finance has faced a renewed interest since a decade (Guiso & Sodini, 2013). Indeed, household are more implicated in financial decision such as privatization of retirement pension, liberalization of loan market, increase in credit purchase, which are more complicated because of financial innovation[5]. Household finance (or consumer finance for researchers in business sciences) refer to the way that "households use financial instruments to attain their objectives" (Campbell, 2006). More precisely[6] its a "research field to study how financial institutions provide products and services to meet financial needs of consumers, how consumers make financial decisions, how government agencies regulate financial institutions and protect financial consumers and how science and technology help optimize the efficiency of consumer finance markets and improve social welfare" (Xiao & Tao, 2020).

1.5 Conditioned individuals through caste and gender with aspirations

More recently, several works highlight disparities between *jāti* and gender in terms of aspirations. Mukherjee (2017) show that "gender and caste primes can significantly affect long run aspirations and beliefs". Alvi, Ward, Makhija, and Spielman (2019) use priming[7] to study the effect of identity salience on aspirations. They find that "when women are primed on gender, they exhibit higher aspirations for their daughters [and] low-case women primed on caste are more aspirational for their daughters". Finally, Sarkar, Chakravorty, and Lyonette (2020) show that caste and gender work as double jeopardy instead of intersectionality for aspirations. Indeed, "the most socially disadvantaged groups – Scheduled Tribe (ST) and Scheduled Caste (SC) – have significantly lower income aspiration when compared to Other Backward Class (OBC) and Other Caste (OC) partiipants" [and] [f]emale participants also have significantlty lower aspiration than their male counterparts". Moreover, SC/ST female participants have lower income aspiration levels compared to other groups. Thus, beyond being a source of inequality, *jātia*nd gender seems to deeply impact individuals by conditioning them. More than an fregmentation and more than sources of dispartities, caste and gender seems to deeply impact social identities of individuals in India. Indeed, it seems to conditionned individuals, it is part of their identity that affect action deep inside them as determine their aspirations. In this context it appears important to analyse the role of personality traits & cognitive skills on debt in take into account the deepness of this social identity.

Aspirations limitée par notre caste et notre sexe.

1.6 Topic relevance

C'est d'autant plus intéressant que la dette est omniprésente Guérin, Michiels, Natal, Nordman, and Venkatasubramanian (2020); **?**

Try to capture the role of cognitive skills and personality traits thus allows to better understand the determinants of indebtedness in India, which is an important vector of wealth through consumption.

Est-ce qu'il y a un lien entre compétences cognitives et endettement ? Plus particulierement, est-ce qu'à l'intérieur des carcans, des individus se différencient par leurs compétences cognitives ?

[5] For a comprehensive review on the subject, see Tufano (2003).

[6] For a comprehensive review on household finance, see Tufano (2009) for whom household finance is "the study of how institutions provide goods and services to satisfy the financial functions of households, how consumers make financial decisions, and how government action affects the provision of financial services", Guiso and Sodini (2013), or Xiao and Tao (2020).

[7] Priming, in cognitive psychology, is "the effect in which recent experience of a stimulus facilitates or inhibits later processing of the same or a similar stimulus." – https://dictionary.apa.org/priming. Accessed June 21, 2021.

2 Data and methodology

2.1 Data

Our empirical analysis is based on the NEEMSIS-1 & NEEMSIS-2 (Networks, Employment, dEbt, Mobilities and Skills in India Survey) surveys carried out respectively in 2016-17, and 2020-21 (Nordman, Guérin, Michiels, Natal, & Venkatasubramanian, 2019; Nordman et al., 2017). This survey was the second and third waves of a longitudinal data collection project start in 2010 with RUME (RUral Microfinance and Employment survey) project in ten villages of Tamil Nadu. Located in the Cuddalore and Villupuram districts, a mostly agricultural area, economies benefits from the proximity of two large industrial towns (Neyveli and Cuddalore) and a regional business center (Panruti).

RUME randomly selected 405 households using stratified sample framework based on three dimensions: proximity to small towns (Panruti, Villupuram and Cuddalore), an agro-ecological criterion, and caste affiliation. Thus, half of villages are irrigated (the other half have dry lands) and within villages, half of the sample was selected from the mostly upper and middle caste part of the village (Ur) while the other half from the Colony part, where dalits (the ex-untouchables) mainly live. NEEMSIS1 recovered 388 households (4.19% attrition rate) and randomly selected 104 news households (for a total of 492 households) from these 10 villages, based on the same method. NEEMSIS2 recovered 485 households (1.42% attrition rate) from 2016-17 and recovered 10 households from 2010 that were not recovered in 2016-17. Moreover, 100 news households were randomly selected (for a total of 595 households).

In NEEMSIS1 & NEEMSIS2, two household members, called "ego 1" (mostly household questionnaire respondent) and "ego 2" (one younger household member randomly selected on a criterion of age), are directly addressed individual questionnaires that provide for instance a range of information on cognitive skills and personality traits.

NEEMSIS's surveys stands out from other Indian data sources such as the All India Debt and Investment Survey (AIDIS), as it has the rare and valuable advantage of recording debt at the individual level (identifying the person who went to the lender and borrowed in her own name).

Concerning the reliability, the great expertise of the team[8], helped to formulate questions appropriately. This for instance involved using particular terms that are less degrading than the generic term "debt" lists of the main local lenders, and asking indirect questions. As stated by Reboul et al. (2021) (same data sets) "[i]mproved data accuracy is for example reflected by an incidence of indebtedness found higher than in the estimates of the nation-wide AIDIS: 99% of households are in debt in our case study, as opposed to 30% in rural Tamil Nadu in 2012 according to the AIDIS (NSSO, 2014)."

Moreover, the moderate magnitude of the survey, compared to nationally representative datasets, ensures the high quality of the data and the tablet-based mode of data collection improved data quality in including constraints on answers to prevent inconsistencies.

Our final sample consists of 473 households and 835 egos because in 2016-17, two households does not have egos; and for 10 households all egos have changed between 2016-17 and 2020-21 (see Appendix A).

2.2 Construction of personality traits & cognitive skills variables

As stated earlier, our survey allow us to construct Big-5 personality traits. On the basis of 35 questions relatives to Big-5 taxonomy, we averaged answers –based on a Likert scale from 1-"Almost Never" to 5-"Almost always", that belong to a determined trait after correcting for

[8]Some members of the research team are present since more than twenty-year on the region for numerous quantitative and qualitative surveys.

acquiescence bias[9] (see Appendix C). The resulting mean represent the score on each traits.

McDonald's ω[10], a measure of internal consistency, are mostly satisfactory: 0.81 for openness; 0.86 for conscientiousness; 0.59 for extraversion; 0.60 for agreeableness and 0.80 for emotional stability.

Cognitive skills include three score variables: literacy, numeracy, Raven[11]. These scores are construct in adding up the correct answers of a set of four questions for literacy and numeracy test and 36 for Raven.

Exogeneity The exogeneity of personality traits is well assume because of stability over time while there is no consensus in psychology (Ardelt, 2000).

According to Costa and McCrae (1997); McCrae et al. (2000) it remains stable, in part, because it is a genetic predisposition that, by definition, cannot be changed over life. Economist follow this path and the majority of then assume stability over time after the age of 25 and other verify this stability (Cobb-Clark & Tan, 2011).

This stability refutes sociological and psychological literature which interesting in the influence of childhood and adulthood socialization on personality (Moen, Elder Jr., & Lüscher, 1995; Mortimer & Simmons, 1978). Following this path, Ardelt (2000) state that "personality can change over the course of a person's life, particularly if age at first measurement is low or over 50, if the retest interval is large, if individual personality aspects rather than the overall personality are considered, and if personality aspects other than the big five NEO traits are assessed."

Our data allow us to examine stability over time of Big-5 personality traits for 835 individuals of rural India. Calculating variation rate between 2016-17 and 2020-21 of each traits, results show a stability for minor part of the population (see Table 2 of Appendix B).

Thus, in order to limit endogeneity –through reverse causality, we investigate the role of personality traits and cognitive skills (and all others independents variables) in 2016-17 on 2020-21 debt.

Factor analysis As warned by Laajaj et al. (2019), the Big-Five taxonomy is limited in developing countries for several reasons: the enumerator-respondent interactions (i) in face-to-face survey can induce a bias; the low education levels (ii) can make questions more difficult to understand and can induce a systematic response patterns, especially the acquiescence bias (iii).

The very good knownledge of the field allow us to collect data of high quality and avoid a bias due to misunderstanding of questions. Moreover, we implement our own factor analysis of the 41 questions by principal component with promax rotation. To avoid a bias in factor analysis, we do not corrected for acquiescence bias. In our dataset, acquiesence bias is measure with a set of inverse questions that are supposed to measure the same aspect of personality. This assumption is true only in the context of Big-5 model. In another context, the questions can, perhaps, have a different meaning.

The resulting factors are relatively similar to the Big-5 personality traits (see Table 1) with satisfactory McDonald's ω: Factor 1 as Extraversion-Openness ($\omega = 0.91$); Factor 2 as Conscientiousness ($\omega = 0.87$); Factor 3 as Emotional stability-Conscientiousness ($\omega = 0.76$); Factor 4 as Emotional stability ($\omega = 0.81$) and Factor 5 as Agreeableness ($\omega = 0.64$).

[9] Acquiescence bias represent the "tendency for survey respondents to agree with statements regardless of their content" (Lavrakas, 2008).

[10] Literature on internal consistency estimators increasingly agrees that Cronbach's α –the most wide used estimator, is maybe not very efficient (Bourque, Doucet, LeBlanc, Dupuis, & Nadeau, 2019; Trizano-Hermosilla & Alvarado, 2016).

[11] Raven test is "a nonverbal test of mental ability consisting of abstract designs, each of which is missing one part. The participant chooses the missing component from several alternatives to complete each design." – https://dictionary.apa.org/ravens-progressive-matrices. Accessed January 27, 2021.

Life-cycle effects To mitigate against the potential problem of life-cycle events –that might induce endogeneity through measurement error, we run univariate OLS regression with cognitive skills and personality traits as endogenous variables and age as exogenous variable (see Appendix C). We standardised the resulting residuals and use it as cognitive and personality measures net of life cycle influences (Brown & Taylor, 2014; Nyhus & Pons, 2005).

Table 1: Correlation table between Big-5 classification and factor analysis

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Big-5 classification											
(1)	OP	1.00									
		[0.00]									
(2)	EX	0.49	1.00								
		[0.00]	[0.00]								
(3)	ES	0.23	0.35	1.00							
		[0.00]	[0.00]	[0.00]							
(4)	CO	0.25	0.38	0.66	1.00						
		[0.00]	[0.00]	[0.00]	[0.00]						
(5)	AG	-0.01	0.23	0.30	0.35	1.00					
		[0.88]	[0.00]	[0.00]	[0.00]	[0.00]					
Factor analysis											
(6)	Factor 1	0.56	0.54	-0.20	0.01	-0.24	1.00				
		[0.00]	[0.00]	[0.00]	[0.71]	[0.00]	[0.00]				
(7)	Factor 2	0.33	0.23	0.10	0.69	0.22	0.33	1.00			
		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]			
(8)	Factor 3	-0.01	0.27	0.66	0.68	0.22	0.02	0.25	1.00		
		[0.83]	[0.00]	[0.00]	[0.00]	[0.00]	[0.60]	[0.00]	[0.00]		
(9)	Factor 4	0.32	0.32	0.70	0.40	0.04	-0.09	0.06	0.06	1.00	
		[0.00]	[0.00]	[0.00]	[0.00]	[0.24]	[0.00]	[0.08]	[0.07]	[0.00]	
(10)	Factor 5	-0.40	0.13	-0.08	0.07	0.40	0.16	0.11	0.26	-0.21	1.00
		[0.00]	[0.00]	[0.01]	[0.03]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
McDonald's ω		0.81	0.59	0.8	0.86	0.6	0.91	0.87	0.76	0.81	0.64

Note: p-value between [hooks].

Source: NEEMSIS-1 (2016-17); author's calculations.

2.3 Indebtedness measures

Before exploring the role of cognitive skills and personality traits, it is necessary to discuss debt and over-indebtedness measures. There is no consensus in the literature but three approaches are often retained (Betti, Dourmashkin, Rossi, & Yin, 2007; Ferreira, 2000). Objective measures focus on the ability (or inability) to service or repay debts. Typically, it is the debt to income ratio, debt to asset ratio, debt service ratio. Over-indebtedness occurs when a certain threshold is exceeded. Although this is the most widely used measure, it under-estimate the burden of debt in ousting personal feeling and sacrifice associated with debt and over-indebtedness (Betti et al., 2007).

Subjectives measure assume that "individual households are the best judges of their own net debt/wealth position" (Betti et al., 2007). The robustness of the results are based on the degree of honesty and literacy of individuals that can make it, sometimes, less reliable (Betti et al., 2007; D'Alessio & Iezzi, 2013). As stated by Rinaldi and Sanchis-Arellano (2006) and Keese (2012), in general, objective measures align quite well with subjective measures at the household classification level.

Administrative measures treat indebtedness and over-indebtedness as "all cases where non-payment of debts have been registered officially or declared before a court" (Betti et al., 2007).

In rural Indian context, this type of measures have little meaning since most of the debt is informal.

In order to best measure the debt, we could combine objective and subjective measures as Aniola and Golas (2012) do in European Countries, but this brings the risk that all households will find themselves categorized as over-indebted according to the measure used (Chichaibelu & Waibel, 2018).

It is recommended to analyse indebtedness at household level because generally income is grouped between household members (Fondeville, Ozdemir, & Ward, 2010). However, in order to explore the role of individual characteristics such as personality and cognitive skills on indebtedness, we focus on three types of individual objective measures allowing us to understand the debt from three angles.

First, we wish to understand the role of personality traits & cognitive skills on the incidence of individual debt –through the probability of being in debt[12] in 2020-21.

Second, we investigate the size/breadth of the individual debt through an absolut and a relative objective measure of debt. We use the total amount of individual debt taken out in her own name and the number of loans taken by an individual as absolut measure of debt. Our relative measure of debt is the individual debt service ratio[13]. Then, to measure over-indebtedness, we dichotomize IDSR at 0.4 and 0.5 threshold. An individual is considered to be over-indebted when it is annual debt represent more than 40-50% of his annual income (Chichaibelu & Waibel, 2017; D'Alessio & Iezzi, 2013).

2.4 Econometric framework

Selected sample In order to understand the relationship between personality traits & cognitive skills in t and indebtedness situation in $t+1$ in a constraint environement and to deal with sample size issue and with constraint environment (through caste and gender), we use interaction variable strategy. Although the best strategy is to use sub-sample (allow different coefficient for all variables), we use interactions variables to satisfy the assumption of $N->+\infty$.

Data structure and clustering As mention earlier, in our data, individual questionnaire concerned two individuals "egos" of each household. In analyzing debt at individual scale here, we investigate the role of personality traits & cognitive skills for all "egos". **Cluster car plusieurs indiv par HH = non indépendants en stat et dans la lit avec allocation of ressources:** Question of the allocation of ressources within household is, obviously, essential in this configuration. Indeed, (Lazear & Michael, 1988) (Bonke, 2015) We find that in most households the income distribution is correlated with the sharing of consumption—the economic approach—and that this holds true even if the household pools its resources—the economic psychology approach, implying that there is no strong relationship between the two approaches.

Thus, we clustered error by households to take into account the fact that observations within each household are not independently and identically distributed.

Estimators see Table 2 First, to estimates dummy variables, we use probit modele with maximum likelihood (ML) estimation and we clusterize the error at household level. Same estimator for over-indebtedness because dummy variable too.

$$P(Y = 1|x) = \phi(\beta_0 + X_1'\beta_1) \tag{1}$$

To estimates the total loan amount, we use OLS with cluster at household level and not use tobit model because our data are not censored or truncated, but defined on $\mathbb{R}^+$ (Maddala, 1991).

[12] Dummy variable equal to 1 if the individual has some unsettled debt taken out in her own name, 0 otherwise.

[13] $\frac{Individual\ Debt\ service}{Individual\ Annual\ Income}$ which represent the share of income required to cover the repayment of interest and principal on a debt for one year.

For IDSR, we also use OLS with cluster at household level and not GLM because of the upper bound of the variable ($+\infty$ and not 1).

$$Y_i = \alpha + X_i'\beta + Z_i'\gamma + \epsilon_i \tag{2}$$

Last, for count data as the number of loans, we use Poisson regression.

$$P(Y = y) = \frac{e^{-\lambda}\lambda^y}{y!} \tag{3}$$

Table 2: Summary of specifications

Code	Specifications	In debt (=1)	Loan amount	Number of loans	IDSR	Over-indebtedness (=1)
(1)	All controls	✓	✓	✓	✓	✓
(2)	+ PTCS X Gender[†]	✓	✓	✓	✓	✓
(3)	+ PTCS X Caste[‡]	✓	✓	✓	✓	✓
(4)	+ PTCS X Gender X Caste[§]	✓	✓	✓	✓	✓
Estimator		Probit	OLS	Poisson	OLS	Probit
Interpretation		M.E.	M.E.	M.E.	M.E.	M.E.
Number of individuals		835	606	606	606	606
Description of individuals		All egos	All indebted egos	All indebted egos	All indebted egos	All indebted egos

Note: [†]Two-way interaction terms allow us to separate M.E. between sex, which mean that we obtains two columns: male and female. [‡]Two-way interaction terms allow us to separate M.E. between caste, which mean that we obtains two columns: dalits and middle-upper caste. [§]Three-way interaction terms allow us to separate M.E. between gender and caste, which mean that we obtains four columns: muc male, dalits male, muc female and dalits female.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21).

Control variables Our control variables are based on Brown and Taylor (2014); Chichaibelu and Waibel (2017); Reboul et al. (2021) which take the existing classic controls. We use two vector of variables in 2016-17.

One at individual level, includes: age; age square; dummy variable which take 1 if individual is the household head, 0 otherwise; main occupation[14]; number of occupation (dummyvariable if plusieurs occupations plutôt); dummy variable which take 1 if individual received formal education through school, 0 otherwise (no formal education) and a dummy variable for marital status (1 if married, 0 otherwise). And households controls:

One at household level, includes: monetary value of assets[15]; sex ratio; annual income; household size; number of children (individual under 16 years old); shock exposure (dummy variable which take 1 if the household experienced a shock[16] between 2010 and 2016-17, 0 if not); number of income sources. Finally, we added villages fixed effects.

[14]Define as the most time-consuming activity.

[15]The monetary value of assets includes the monetary value of gold; land; house; livestock; agricultural equipment and consumption good such as car, computer, cookgas, phone, etc.

[16]Marriage of at least one of the household members or/and household surveyed after the demonetisation.

3 Descriptive statistics

3.1 Study population

Household unit in Table 3 Our final sample consists of 835 individuals from 473 households and almost half are dalits. Three quarters of households have 2 egos, the last quarters have only one egos. The sex ratio is significantly different through caste: in 24% of dalits households there are as many men as women while in middle-upper caste, it is 34% of households. In terms of assets, middle-upper caste households are three times richer than dalits on average –respectively 1,493,350 INR and 487,420 INR. 50% of middle-upper caste have less than 666,500 INR of assets while 50% of dalits households have less than 266,400 INR. This economic advantage is also found with income: the median income of middle-upper caste is 33.71% higher than dalits one (respectively 142,200 INR and 106,350 INR). We do not find difference in terms of shock and indebtedness between caste: 57% of households faced a shock between 2016-17 and 2020-21 and 99% of households have at least one outstanding loan.

Table 3: Household-unit descriptive statistics in 2016-17

	Dalits	Middle-upper	F-stat (χ^2)	p-value
Number of households	n=228	n=245		
Socio-demographic characteristics				
Household size (mean)	4.93	4.46	2.53	0.01
Number of ego (%)				
1	24.12	22.86		
2	75.88	77.14		
Sex ratio (%)			(6.59)	0.04
More female	32.02	26.12		
Equal	23.68	34.29		
More male	44.30	39.59		
Location (%)				
Near Panruti	74.56	57.55		
Near Villupuram	16.23	31.84		
Near Tiruppur	0.00	2.45		
Near Chengalpattu	6.14	6.53		
Near Kanchipuram	3.07	0.82		
Near Chennai	0.00	0.82		
Wealth & finance characteristics				
Assets* (1,000 INR)				
Mean	487.42	1,493.35	-6.05	0.00
SD	846.30	2,373.47		
Median	266.40	666.50		
Income† (1,000 INR)				
Mean	179.56	193.13	-0.54	0.59
SD	332.51	206.40		
Median	106.35	142.20		
Shock (=1)	57.02	56.33	(0.02)	0.88
Indebted household (=1)	99.12	98.78	(0.14)	0.71

Note: * desc of assets † desc of income

Source: NEEMSIS-1 (2016-17); author's calculations.

Individual unit in Table 4 At egos scale, 22% of our sample are dalits female, 26% are dalits male, 22% are middle-upper caste female and 30% are middle-upper caste male. Dalits women

are, on average, the youngest (39 years old) and middle-upper caste male are the oldest (45 years old). Three quarters of male are the head of household while female are only 9%. In terms of education, middle-upper caste are more formal educated than dalits and male than female. Thus, 48% of dalits female received formal education at school and this rate is around 76% for middle-upper caste male.

Significant differences through caste and gender are found in terms of occupation. One quarter of middle-upper caste male have agriculture as main occupation, more than three times higher than other groups (going to 16 times for dalits female). Self-employment is also over-represented for middle-upper caste male: while there are 20%, there only are 13% for dalits male, and last than 6% for female (dalits and non-dalits). Salaried job in agriculture appears as one of the major main occupation for dalits (37% for female and 26% for male) but not for non-dalits (17% for female and 7% for male). There is no important differences for salaried job in non-agricultural activity through the four groups (from 34% for non-dalits male to 44% for dalits male). A third of non-dalits female have unpaid work as main occupation –or they does not work at all, while they are less than 13% among middle-upper male, 10% among dalits male and 15% among dalits female. The significant differences between caste corroborate with data on labour income: On average, male have 102,000 INR per year as labour income, but the standard deviation is more than two times lower for non-dalits thus 50% of non-dalits have 67,000 INR per year while 50% of dalits have 45,000 INR. Non-dalits individual have more income generating occupation that allow members of household to not work. **literature** The conclusion is the same with data on multiple occupation. More than a half of dalits female (55%) have more than one occupation, while there are "only" 45% among middle-upper caste female. For male, more than a third of non-dalits have multiple occupation while they are 42% among dalits. Finally, on average, female have more than five times less than male in terms of labour income (around 20,000 INR per year for female and 102,000 INR for male).

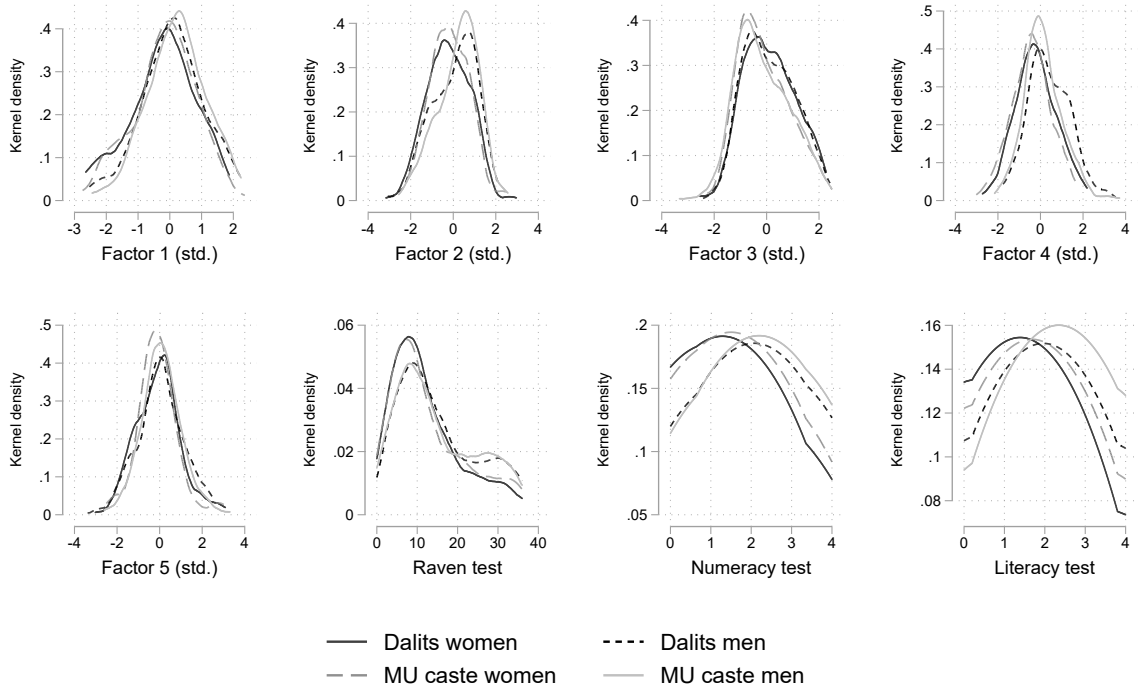
Table 4: Individual-unit descriptive statistics in 2016-17

	Dalits		Middle-upper			
	Women	Men	Women	Men	F-stat (χ^2)	p-value
Number of individuals	n=187	n=214	n=185	n=249		
Age (mean)	39.19	43.58	41.49	45.21	8.18	0.00
Head of family (=1)	10.70	74.77	7.57	75.90	(364.92)	0.00
Married* (=1)	79.68	80.84	89.19	81.12	(7.50)	0.06
Formal school education (=1)	48.13	60.28	57.30	75.90	(37.47)	0.00
Main occupation (%)					(189.79)	0.00
Agriculture	1.60	7.01	5.41	25.70		
Self-employed	4.81	12.62	5.95	20.08		
Salaried job (agri.)	37.43	26.17	17.30	7.23		
Salaried job (non-agri.)	41.18	43.93	38.38	34.14		
Unpaid working or not working	14.97	10.28	32.97	12.85		
Multiple occupation (=1)	55.08	42.06	45.41	34.54	(18.80)	0.00
Labour income (1,000 INR)						
Mean	17.96	102.03	20.63	102.75	14.13	0.00
SD	21.49	328.80	54.53	131.72		
Median	9.90	45.00	5.60	67.50		

Note: *Or not (unmarried, widowed, etc.).

Source: NEEMSIS-1 (2016-17); author's calculations.

Personality traits & cognitive skills in Figure 1 Figure 1 shows the distribution of each personality traits net of life-cycle. Middle-upper caste male tends to be more extraverted-openned than others (Factor 1). For Conscientiousness (Factor 2), male have significant higher score than women, whatever the caste (see Appendix C, Table 18). Dalits tend to be more emotional stable and conscientiousness (Factor 3) than non-dalits and dalits male more emotional stable than other (Factor 4). For Agreeableness (Factor 5), we do not find significant differences between our four groups (see Appendix C, Table 18). In terms of cognitive skills, male tends to have higher score.



Kernel: Epanechnikov;
Bandwidth: 0.32 for factors, 3 for raven, 1.5 for literacy, 1 for numeracy.

Figure 1: Distribution of cognitive skills and personality traits – The resulting cognitive score and personality trait is based on the standardised residual from univariate OLS regression with age as exogenous variable. This is the cognitive score and personality trait purged from life-cycle effects
Source: NEEMSIS (2016-17); author's calculations.

Individual debt with Table 5 and 6 Dalits female are more indebted than others, but there is no statistical evidence: 79% of dalits female while 71% for others. Middle-upper caste male have highest total loan amount (124,440 INR that represent 1.21 years of labour income for the average dalit male), relatively similar for other groups (mean around 66,000 INR). But, the distribution is very different: median at 54 for dalits female, around 24 for dalits male and non-dalits female.

Number of loans

IDSR, share of income for principal and interest repayment can represent the burden of debt: double jeopardy for dalits female 185.87% on average and 44% for 50% of individuals while 4% for dalit male, 26% for middle-upper caste female and 4% for middle-upper caste male.

Female more over-indebted than male :

Table 6 shows correlation test between personality traits & cognitive skills and individual

Table 5: Dependent variables descriptive statistics in 2020-21

	Dalits		Middle-upper			
	Female	Male	Female	Male	F-stat (χ^2)	p-value
Number of individuals	n=187	n=214	n=185	n=249		
In debt in 2020-21 (=1)						
Mean	0.79	0.71	0.70	0.71	(4.58)	0.21
Number of indebted individuals	n=147	n=153	n=129	n=177		
Loan amount (1,000 INR)						
Mean	69.18	66.26	64.90	124.44	6.98	0.00
SD	75.46	140.59	103.37	253.30		
Median	54.25	23.12	25.83	39.61		
Number of loans						
Mean	4.23	3.69	4.11	3.76	2.96	0.03
SD	2.64	1.88	2.33	2.09		
Median	4.00	3.00	4.00	3.00		
IDSR						
Mean	185.87	92.79	189.65	97.97	2.51	0.06
SD	468.32	349.38	512.52	562.63		
Median	43.99	3.89	25.51	4.14		
Over-indebted (=1)						
Mean	0.65	0.27	0.64	0.24	(85.56)	0.00

Note:

Source: NEEMSIS-2 (2020-21); author's calculations.

indebtedness measures. For dalits, cognitive skills sems to be more correlated with debt than personality traits. Indeed, Numeracy appears as well negatively correlated with indebtedness measure for dalits, as Raven. Literacy seems to be positively correlated with individual debt for male while it is negatively correlated for female IDSR, whatever the caste.

Factor 1 –as Extraversion-Openness, is significantly positively correlated with individual debt service ratio for dalits female while, for dalits male, Factor 3 –as ESCO, is significantlty negatively correlated with the probability of being in debt in 2020-21. For middle-upper caste female, Factor 1 is more correlated with the probability of being in debt than Raven test (respectively -0.18 and -0.13) Factor 1 to 4 are always negatively correlated with indebtedness measure for non-dalits female, going against cognitive skills for individual debt service ratio: Factor 3 and Factor 4 are negatively correlated while Raven, Numeracy and Literacy are positively correlated with the ratio.

Last, for non-dalits male, Factor 1 pulls debt in opposite directions depending on the measure used: it is positively correlated with loan amount and over-indebtedness (strongest relation with loan amount) and negatively correlated with the number of loans. **Peut-être car les gens très F1 ont peu de prêts mais des montants élevés, ca semble cohérent avec les hommes qui empruntent plus pour un besoin économique, donc besoin d'être EXOP alors que Femme petits prêts mais beaucoup : il n'y a que voir les montants avec les stat descriptives précédents**

Table 6: Correlation test between personality traits & cognitive skills and individual debt

	Personality traits					Cognitive skills		
	F1 (std)	F2 (std)	F3 (std)	F4 (std)	F5 (std)	Raven	Numeracy	Literacy
Dalits female								
In debt (=1)	0.02	-0.04	0.03	-0.02	-0.03	-0.10	-0.18	-0.11
	[0.78]	[0.60]	[0.68]	[0.84]	[0.72]	[0.18]	[0.02]	[0.13]
Loan amount (1,000 INR)	0.11	-0.03	0.04	0.01	-0.04	0.00	-0.13	-0.05
	[0.15]	[0.64]	[0.61]	[0.87]	[0.63]	[0.97]	[0.07]	[0.52]
Number of loan	0.10	-0.08	-0.06	-0.06	-0.02	-0.02	-0.16	-0.08
	[0.18]	[0.25]	[0.41]	[0.40]	[0.83]	[0.74]	[0.02]	[0.26]
IDSR	0.13	-0.11	-0.02	0.02	0.06	0.06	0.07	0.13
	[0.08]	[0.13]	[0.83]	[0.76]	[0.38]	[0.42]	[0.34]	[0.07]
Over-indebtedness (=1)	0.05	-0.05	0.02	0.11	-0.02	0.00	-0.02	0.06
	[0.50]	[0.51]	[0.82]	[0.12]	[0.82]	[0.99]	[0.83]	[0.38]
Dalits male								
In debt (=1)	0.03	-0.01	0.01	0.02	0.01	-0.16	-0.16	-0.20
	[0.69]	[0.91]	[0.87]	[0.79]	[0.87]	[0.02]	[0.02]	[0.00]
Loan amount (1,000 INR)	0.00	-0.06	-0.06	-0.04	-0.06	-0.06	-0.01	-0.02
	[0.97]	[0.35]	[0.42]	[0.56]	[0.40]	[0.42]	[0.87]	[0.77]
Number of loan	0.06	-0.05	0.03	-0.05	0.04	-0.21	-0.16	-0.20
	[0.35]	[0.49]	[0.70]	[0.50]	[0.58]	[0.00]	[0.02]	[0.00]
IDSR	-0.01	-0.03	-0.06	-0.04	0.02	-0.11	-0.13	-0.14
	[0.85]	[0.66]	[0.41]	[0.61]	[0.76]	[0.12]	[0.06]	[0.04]
Over-indebtedness (=1)	-0.01	-0.07	-0.13	-0.04	-0.06	-0.13	-0.05	-0.09
	[0.93]	[0.28]	[0.06]	[0.59]	[0.42]	[0.05]	[0.46]	[0.19]
Middle-upper caste female								
In debt (=1)	-0.18	-0.10	0.10	0.00	-0.03	-0.13	-0.07	-0.05
	[0.01]	[0.18]	[0.17]	[1.00]	[0.65]	[0.09]	[0.33]	[0.53]
Loan amount (1,000 INR)	-0.04	-0.06	0.01	-0.09	-0.05	-0.09	0.09	0.03
	[0.58]	[0.42]	[0.88]	[0.24]	[0.47]	[0.23]	[0.22]	[0.64]
Number of loan	-0.13	-0.14	0.03	-0.10	-0.06	-0.14	-0.15	-0.08
	[0.08]	[0.05]	[0.64]	[0.16]	[0.41]	[0.05]	[0.04]	[0.30]
IDSR	0.01	-0.11	-0.14	-0.14	-0.04	0.15	0.14	0.15
	[0.92]	[0.14]	[0.07]	[0.06]	[0.57]	[0.05]	[0.07]	[0.04]
Over-indebtedness (=1)	-0.19	-0.13	-0.01	0.00	-0.11	-0.07	0.01	-0.06
	[0.01]	[0.08]	[0.87]	[0.98]	[0.12]	[0.36]	[0.92]	[0.40]
Middle-upper caste male								
In debt (=1)	-0.08	0.12	0.09	-0.03	-0.11	-0.17	-0.17	-0.21
	[0.23]	[0.05]	[0.15]	[0.63]	[0.08]	[0.01]	[0.01]	[0.00]
Loan amount (1,000 INR)	0.16	0.01	0.06	0.12	0.02	0.07	0.15	0.08
	[0.01]	[0.85]	[0.34]	[0.06]	[0.78]	[0.30]	[0.02]	[0.20]
Number of loan	-0.13	0.10	0.16	0.03	-0.10	-0.09	-0.13	-0.21
	[0.04]	[0.13]	[0.01]	[0.60]	[0.12]	[0.16]	[0.04]	[0.00]
IDSR	0.06	0.01	0.04	0.00	0.02	-0.07	-0.02	-0.03
	[0.32]	[0.92]	[0.52]	[0.95]	[0.73]	[0.28]	[0.75]	[0.60]
Over-indebtedness (=1)	0.12	0.01	0.05	-0.08	0.04	-0.12	-0.07	-0.13
	[0.06]	[0.91]	[0.39]	[0.24]	[0.56]	[0.07]	[0.26]	[0.05]

Note: p-value between [hooks].

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

4 Results

Table 7: Marginal effects of the probability of being in debt in 2020-21

	Probability of being in debt in 2020-21								
	(1)	(2)		(3)		(4)			
	All	Male	Female	MUC	Dalits	MUC male	Dalits male	MUC female	Dalits female
Factor 1 (std)	-0.027	-0.008	-0.037	-0.065	0.001	-0.038	0.009	-0.085	-0.000
	(-1.839)	(-0.334)	(-1.810)	(-3.030)	(0.046)	(-1.249)	(0.291)	(-2.490)	(-0.006)
Factor 2 (std)	0.002	0.034	-0.038	0.018	-0.010	0.069	-0.003	-0.064	-0.013
	(0.166)	(1.603)	(-1.658)	(0.895)	(-0.496)	(2.293)	(-0.088)	(-1.910)	(-0.459)
Factor 3 (std)	0.014	0.004	0.028	0.032	0.003	0.017	0.009	0.069	-0.007
	(0.984)	(0.205)	(1.342)	(1.565)	(0.169)	(0.600)	(0.269)	(2.224)	(-0.257)
Factor 4 (std)	0.001	0.014	-0.013	-0.021	0.012	-0.031	0.049	-0.036	-0.020
	(0.050)	(0.643)	(-0.623)	(-1.028)	(0.629)	(-1.023)	(1.656)	(-1.038)	(-0.766)
Factor 5 (std)	-0.023	-0.030	-0.024	-0.038	-0.015	-0.049	-0.021	-0.045	-0.022
	(-1.521)	(-1.418)	(-1.127)	(-1.684)	(-0.750)	(-1.625)	(-0.711)	(-1.275)	(-0.797)
Raven	0.000	0.002	-0.002	-0.002	0.003	0.000	0.004	-0.004	-0.000
	(0.082)	(0.566)	(-0.682)	(-0.755)	(0.914)	(0.021)	(1.025)	(-1.001)	(-0.014)
Numeracy	-0.003	0.003	-0.019	-0.005	-0.002	-0.027	0.029	0.001	-0.033
	(-0.208)	(0.135)	(-0.777)	(-0.211)	(-0.103)	(-0.866)	(0.847)	(0.024)	(-1.015)
Literacy	0.016	0.001	0.038	0.022	0.010	0.016	-0.013	0.040	0.042
	(1.129)	(0.031)	(1.975)	(1.275)	(0.501)	(0.678)	(-0.483)	(1.588)	(1.605)
Indebted situation in 2016-17	✓	✓		✓				✓	
Indiv. controls	✓	✓		✓				✓	
HH controls	✓	✓		✓				✓	
Villages FE	✓	✓		✓				✓	
N	831	831		831		831			
Pseudo R^2	0.201	0.213		0.210		0.232			
Log-likelihood	-390.039	-384.134		-385.729		-375.052			
χ^2	222.391	229.338		286.188		272.868			
p-value	0.000	0.000		0.000		0.000			

Note: Marginal effects with T-stat in parentheses.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

Table 8: Marginal effects of the number of loans in 2020-21

	Number of loans in 2020-21								
	(1)	(2)		(3)		(4)			
	All	Male	Female	MUC	Dalits	MUC male	Dalits male	MUC female	Dalits female
Factor 1 (std)	0.063	-0.144	0.265	-0.068	0.188	-0.228	-0.053	0.146	0.424
	(0.716)	(-1.390)	(2.042)	(-0.566)	(1.520)	(-1.496)	(-0.370)	(0.901)	(2.146)
Factor 2 (std)	-0.112	0.007	-0.226	-0.052	-0.150	-0.011	0.033	-0.193	-0.286
	(-1.134)	(0.060)	(-1.415)	(-0.359)	(-1.070)	(-0.063)	(0.199)	(-0.896)	(-1.299)
Factor 3 (std)	0.105	0.330	-0.127	0.233	-0.018	0.404	0.257	0.118	-0.278
	(1.037)	(2.612)	(-0.896)	(1.690)	(-0.134)	(2.488)	(1.332)	(0.600)	(-1.459)
Factor 4 (std)	-0.139	-0.104	-0.276	-0.195	-0.148	-0.100	-0.175	-0.458	-0.222
	(-1.375)	(-0.753)	(-2.005)	(-1.328)	(-1.129)	(-0.487)	(-0.953)	(-2.388)	(-1.291)
Factor 5 (std)	-0.117	-0.036	-0.303	-0.259	-0.027	-0.151	0.095	-0.531	-0.188
	(-0.996)	(-0.309)	(-1.491)	(-1.625)	(-0.164)	(-0.832)	(0.637)	(-2.208)	(-0.674)
Raven	0.016	-0.001	0.033	0.018	0.011	0.027	-0.055	-0.004	0.066
	(1.180)	(-0.087)	(1.555)	(1.134)	(0.486)	(1.215)	(-2.254)	(-0.155)	(2.089)
Numeracy	-0.206	-0.023	-0.462	-0.241	-0.188	-0.023	-0.073	-0.540	-0.376
	(-2.016)	(-0.185)	(-2.890)	(-1.506)	(-1.417)	(-0.110)	(-0.447)	(-2.363)	(-1.651)
Literacy	0.070	-0.012	0.181	0.029	0.129	-0.093	0.199	0.256	0.135
	(0.757)	(-0.107)	(1.406)	(0.240)	(1.069)	(-0.624)	(1.442)	(1.501)	(0.786)
Indebted situation in 2016-17	✓	✓		✓				✓	
Indiv. controls	✓	✓		✓				✓	
HH controls	✓	✓		✓				✓	
Villages FE	✓	✓		✓				✓	
N	603	603		603		603			
df	32	40		40		57			
Pseudo R^2	0.040	0.049		0.043		0.057			
Log-likelihood	-1244.471	-1232.206		-1240.448		-1221.982			
χ^2	212.890	930.075		240.729		354.179			
p-value	0.000	0.000		0.000		0.000			

Note: Marginal effects with T-stat in parentheses.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

Table 9: Marginal effects of the total loan amount in 2020-21

	Total loan amount (1,000 INR) in 2020-21								
	(1)	(2)		(3)		(4)			
	All	Male	Female	MUC	Dalits	MUC male	Dalits male	MUC female	Dalits female
Factor 1 (std)	15.365	18.370	11.151	32.393	1.459	47.340	-7.210	13.239	13.080
	(2.200)	(1.506)	(1.681)	(2.450)	(0.243)	(2.197)	(-0.605)	(1.107)	(1.955)
Factor 2 (std)	-18.602	-30.605	-5.193	-35.895	-7.109	-64.529	-5.310	-3.916	-8.855
	(-1.809)	(-1.807)	(-0.659)	(-1.910)	(-0.755)	(-2.183)	(-0.296)	(-0.242)	(-1.507)
Factor 3 (std)	19.135	23.414	12.104	29.441	5.735	33.881	4.506	19.852	6.079
	(1.953)	(1.697)	(1.372)	(1.952)	(0.777)	(1.721)	(0.346)	(1.286)	(0.967)
Factor 4 (std)	-0.695	0.049	-4.275	17.012	-12.879	34.777	-16.304	-15.044	-4.619
	(-0.056)	(0.002)	(-0.524)	(0.630)	(-1.503)	(0.722)	(-1.042)	(-1.000)	(-0.654)
Factor 5 (std)	-3.608	-0.833	-11.160	11.470	-13.067	14.721	-9.153	-11.400	-14.849
	(-0.473)	(-0.068)	(-1.751)	(0.678)	(-2.286)	(0.585)	(-1.093)	(-0.910)	(-2.473)
Raven	0.162	0.942	-0.524	-0.332	0.245	2.291	-1.683	-3.821	2.297
	(0.160)	(0.597)	(-0.415)	(-0.213)	(0.225)	(1.039)	(-0.834)	(-1.704)	(2.141)
Numeracy	5.915	9.505	0.874	22.690	-6.791	21.474	2.780	19.945	-13.959
	(0.776)	(0.795)	(0.080)	(1.565)	(-0.932)	(0.942)	(0.239)	(1.138)	(-1.781)
Literacy	3.486	7.763	-1.185	4.144	7.275	6.197	8.534	2.093	2.883
	(0.385)	(0.673)	(-0.140)	(0.335)	(0.872)	(0.381)	(0.738)	(0.174)	(0.389)
Indebted situation in 2016-17	✓	✓		✓				✓	
Indiv. controls	✓	✓		✓				✓	
HH controls	✓	✓		✓				✓	
Villages FE	✓	✓		✓				✓	
N	603	603		603		603			
R^2	0.263	0.271		0.289		0.319			
Adjusted R^2	0.221	0.220		0.238		0.247			
F	5.427	3.049		5.184		2.429			
p-value	0.000	0.000		0.000		0.000			

Note: Marginal effects with T-stat in parentheses.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

Table 10: Marginal effects of the individual debt service ratio in 2020-21

	Individual Debt Service Ratio in 2020-21								
	(1)	(2)		(3)		(4)			
	All	Male	Female	MUC	Dalits	MUC male	Dalits male	MUC female	Dalits female
Factor 1 (std)	49.063	21.152	82.050	49.964	41.198	61.792	-20.783	37.326	95.252
	(2.175)	(0.641)	(3.103)	(1.411)	(1.352)	(1.043)	(-0.434)	(1.001)	(2.362)
Factor 2 (std)	-47.452	-2.705	-84.521	-45.256	-42.835	-19.294	17.994	-45.916	-101.826
	(-1.958)	(-0.126)	(-1.737)	(-1.516)	(-1.158)	(-0.638)	(0.634)	(-0.896)	(-1.410)
Factor 3 (std)	-4.488	12.828	-28.173	-1.675	-1.807	38.449	-22.672	-90.034	18.335
	(-0.186)	(0.352)	(-0.856)	(-0.049)	(-0.059)	(0.766)	(-0.467)	(-1.745)	(0.459)
Factor 4 (std)	-26.881	-10.184	-53.694	-68.008	3.119	5.120	-16.099	-136.647	22.371
	(-1.070)	(-0.426)	(-1.248)	(-1.570)	(0.111)	(0.128)	(-0.507)	(-1.883)	(0.537)
Factor 5 (std)	11.629	18.201	0.910	-7.311	26.201	17.272	21.826	-69.907	49.902
	(0.565)	(0.757)	(0.022)	(-0.261)	(0.893)	(0.489)	(0.674)	(-1.400)	(0.946)
Raven	2.396	-3.042	7.980	3.686	0.430	-3.778	-3.051	15.240	2.707
	(0.809)	(-1.118)	(1.301)	(0.854)	(0.099)	(-1.292)	(-0.633)	(1.472)	(0.380)
Numeracy	-9.683	-25.970	11.196	-0.525	-16.934	-26.442	-20.085	32.678	-1.722
	(-0.454)	(-1.058)	(0.272)	(-0.017)	(-0.625)	(-0.821)	(-0.565)	(0.491)	(-0.040)
Literacy	2.102	-10.986	12.737	-1.829	3.450	-3.446	-28.792	-27.808	27.397
	(0.113)	(-0.465)	(0.508)	(-0.075)	(0.137)	(-0.102)	(-0.969)	(-0.761)	(0.800)
Indebted situation in 2016-17	✓	✓		✓				✓	
Indiv. controls	✓	✓		✓				✓	
HH controls	✓	✓		✓				✓	
Villages FE	✓	✓		✓				✓	
N	603	603		603		603			
R^2	0.069	0.092		0.073		0.110			
Adjusted-R^2	0.016	0.027		0.007		0.017			
F	2.484	1.588		1.586		1.404			
p-value	0.000	0.015		0.015		0.034			

Note: Marginal effects with T-stat in parentheses.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

Table 11: Marginal effects of the probability of being over-indebted at 0.4 threshold in 2020-21

	Probability of being over-indebted in 2020-21								
	(1)	(2)		(3)		(4)			
	All	Male	Female	MUC	Dalits	MUC male	Dalits male	MUC female	Dalits female
Factor 1 (std)	0.016	0.025	0.003	0.026	0.002	0.071	-0.036	-0.050	0.021
	(0.781)	(0.929)	(0.114)	(0.882)	(0.062)	(1.946)	(-0.929)	(-1.240)	(0.616)
Factor 2 (std)	-0.010	-0.005	-0.008	-0.025	0.009	-0.022	0.024	0.006	-0.006
	(-0.490)	(-0.181)	(-0.268)	(-0.831)	(0.314)	(-0.610)	(0.598)	(0.136)	(-0.176)
Factor 3 (std)	-0.012	-0.013	-0.008	-0.001	-0.019	0.007	-0.043	-0.053	0.017
	(-0.587)	(-0.498)	(-0.269)	(-0.043)	(-0.622)	(0.210)	(-1.078)	(-1.262)	(0.432)
Factor 4 (std)	-0.007	-0.033	0.024	-0.054	0.024	-0.055	-0.012	-0.047	0.070
	(-0.356)	(-1.092)	(0.827)	(-1.856)	(0.872)	(-1.303)	(-0.300)	(-1.022)	(1.913)
Factor 5 (std)	-0.005	0.005	-0.011	-0.015	-0.001	0.012	-0.007	-0.079	0.023
	(-0.262)	(0.193)	(-0.357)	(-0.557)	(-0.033)	(0.344)	(-0.196)	(-1.674)	(0.605)
Raven	-0.001	-0.004	0.002	-0.001	-0.003	-0.003	-0.006	0.006	0.000
	(-0.420)	(-1.037)	(0.466)	(-0.221)	(-0.675)	(-0.775)	(-0.994)	(0.998)	(0.068)
Numeracy	0.019	0.012	0.025	0.036	-0.002	0.009	0.020	0.065	-0.026
	(0.876)	(0.421)	(0.738)	(1.174)	(-0.064)	(0.220)	(0.565)	(1.319)	(-0.540)
Literacy	-0.023	-0.024	-0.021	-0.055	0.013	-0.038	-0.013	-0.091	0.042
	(-1.205)	(-1.042)	(-0.782)	(-2.357)	(0.523)	(-1.307)	(-0.402)	(-2.654)	(1.222)
Indebted situation in 2016-17	✓	✓		✓				✓	
Indiv. controls	✓	✓		✓				✓	
HH controls	✓	✓		✓				✓	
Villages FE	✓	✓		✓				✓	
N	601	601		601		601			
Pseudo R^2	0.173	0.181		0.186		0.211			
Log-likelihood	-340.647	-337.377		-335.159		-324.895			
χ^2	124.045	125.451		144.065		168.428			
p-value	0.000	0.000		0.000		0.000			

Note: Marginal effects with T-stat in parentheses.

Source: NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

Conclusion

Les programmes de MC qui essayent de cibler les plus pauvres ne sont pas super efficient car même chez eux, il y a beaucoup de situation différentes en termes de dette. Pose la question de l'inclusion financière

References

Agarwal, S., & Mazumder, B. (2013, jan). Cognitive abilities and household financial decision making. *American Economic Journal: Applied Economics*, *5*(1), 193–207. Retrieved from https://www.aeaweb.org/articles?id=10.1257/app.5.1.193 doi: 10.1257/app.5.1.193

Allport, G. W. (1961). *Pattern and growth in personality*. Holt, Reinhart and Winston.

Almlund, M., Duckworth, A. L., Heckman, J. J., & Kautz, T. D. (2011). Personality Psychology and Economics. In E. Hanushek, S. Machin, & L. Woessman (Eds.), *Handbook of the Economics of Education* (Vol. 4, pp. 1–181). Amsterdam: Elsevier. Retrieved from https://doi.org/10.1016/B978-0-444-53444-6.00001-8 doi: 10.1016/B978-0-444-53444-6.00001-8

Alvi, M. F., Ward, P., Makhija, S., & Spielman, D. J. (2019, August). *Does identity affect aspirations in rural India? An examination from the Lens of Caste and Gender* (Discussion Paper No. 01857). Washington DC, USA: IFRPI.

Aniola, P., & Golas, Z. (2012, November). Differences in the Level and Structure of Household Indebtedness in the EU Countries. *Contemporary Economics*, *6*(1), 46–59. Retrieved from https://ssrn.com/abstract=2178364

Ardelt, M. (2000, dec). Still Stable after All These Years? Personality Stability Theory Revisited. *Social Psychology Quarterly*, *63*(4), 392. Retrieved from https://doi.org/10.2307/2695848 doi: 10.2307/2695848

Badarinza, C., Balasubramaniam, V., & Ramadorai, T. (2019, dec). The household finance landscape in emerging economies. *Annual Review of Financial Economics*, *11*(1), 109–129. Retrieved from https://doi.org/10.1146/annurev-financial-110118-123106 doi: 10.1146/annurev-financial-110118-123106

Badarinza, C., Balasubramanian, V., & Ramadorai, T. (2016). The Indian Household Finance Landscape. *India Policy Forum*, *13*, 1–55. Retrieved from http://dx.doi.org/10.2139/ssrn.2797680

Barrick, M. R., & Mount, M. K. (1991, mar). The Big Five Personality Dimensions and Job Performance: A Meta Analysis. *Personnel Psychology*, *44*(1), 1–26. Retrieved from http://doi.wiley.com/10.1111/j.1744-6570.1991.tb00688.x doi: 10.1111/j.1744-6570.1991.tb00688.x

Betti, G., Dourmashkin, N., Rossi, M., & Yin, Y. P. (2007, may). Consumer over-indebtedness in the EU: measurement and characteristics. *Journal of Economic Studies*, *34*(2), 136–156. Retrieved from https://doi.org/10.1108/01443580710745371 doi: 10.1108/01443580710745371

Bonke, J. (2015, apr). Pooling of income and sharing of consumption within households. *Review of Economics of the Household*, *13*(1), 73–93. Retrieved from https://doi.org/10.1007/s11150-013-9184-y doi: 10.1007/s11150-013-9184-y

Bourque, J., Doucet, D., LeBlanc, J., Dupuis, J., & Nadeau, J. (2019). Cronbach's alpha is one of the worst internal consistency estimators: a simulation study. *Revue des sciences de l'éducation*, *45*(2), 78. Retrieved from https://doi.org/10.7202/1067534ar doi: 10.7202/1067534ar

Bowles, S., Gintis, H., & Osborne, M. (2001, dec). The determinants of earnings: A behavioral approach. *Journal of Economic Literature*, *39*(4), 1137–1176. Retrieved from https://www.jstor.org/stable/2698522 doi: 10.1257/jel.39.4.1137

Box, G. E. P. (1954, jun). Some theorems on quadratic forms applied in the study of analysis of variance problems, i. effect of inequality of variance in the one-way classification. *The Annals of Mathematical Statistics*, *25*(2), 290–302. Retrieved from https://www.doi.org/10.1214/aoms/1177728786 doi: 10.1214/aoms/1177728786

Brown, S., & Taylor, K. (2014, dec). Household finances and the 'big five' personality traits.

Journal of Economic Psychology, *45*, 197–212. Retrieved from https://doi.org/10.1016/j.joep.2014.10.006 doi: 10.1016/j.joep.2014.10.006

Bucciol, A., & Zarri, L. (2017, jun). Do personality traits influence investors' portfolios? *Journal of Behavioral and Experimental Economics*, *68*, 1–12. Retrieved from http://dx.doi.org/10.1016/j.socec.2017.03.001 doi: 10.1016/j.socec.2017.03.001

Burgess, R., Wong, G., & Pande, R. (2005, apr). Banking for the poor: Evidence from india. *Journal of the European Economic Association*, *3*(2/3). Retrieved from https://www.jstor.org/stable/40004970

Campbell, J. Y. (2006, aug). Household finance. *The Journal of Finance*, *61*(4), 1553–1604. Retrieved from https://doi.org/10.1111/j.1540-6261.2006.00883.x doi: 10.1111/j.1540-6261.2006.00883.x

Cawley, J., Heckman, J., & Vytlacil, E. (2001, sep). Three observations on wages and measured cognitive ability. *Labour Economics*, *8*(4), 419–442. Retrieved from https://doi.org/10.1016/S0927-5371(01)00039-2 doi: 10.1016/s0927-5371(01)00039-2

Chakravartya, S. R., & Pal, R. (2013, October). Financial inclusion in India: An axiomatic approach. *Journal of Policy Modeling*, *35*(5), 813–837. Retrieved from https://doi.org/10.1016/j.jpolmod.2012.12.007 doi: 10.1016/j.jpolmod.2012.12.007

Chichaibelu, B. B., & Waibel, H. (2017, oct). Borrowing from "pui" to pay "pom": Multiple borrowing and over-indebtedness in rural thailand. *World Development*, *98*, 338–350. Retrieved from https://doi.org/10.1016/j.worlddev.2017.04.032 doi: 10.1016/j.worlddev.2017.04.032

Chichaibelu, B. B., & Waibel, H. (2018, jun). Over-indebtedness and its persistence in rural households in Thailand and Vietnam. *Journal of Asian Economics*, *56*, 1–23. Retrieved from https://doi.org/10.1016/j.asieco.2018.04.002 doi: 10.1016/j.asieco.2018.04.002

Cobb-Clark, D. A., Kassenboehmer, S. C., & Sinning, M. G. (2016, dec). Locus of control and savings. *Journal of Banking & Finance*, *73*, 113–130. Retrieved from https://doi.org/10.1016/j.jbankfin.2016.06.013 doi: 10.1016/j.jbankfin.2016.06.013

Cobb-Clark, D. A., & Tan, M. (2011, January). Noncognitive skills, occupational attainment, and relative wages. *Labour Economics*, *18*(1), 1–13. Retrieved from https://doi.org/10.1016/j.labeco.2010.07.003 doi: 10.1016/j.labeco.2010.07.003

Costa, P. T., & McCrae, R. R. (1997). Longitudinal Stability of Adult Personality. In R. Hogan, J. A. Johnsson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 269–290). San Diego: Academic Press.

Cronbach, L. J. (1951, sep). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334. Retrieved from https://doi.org/10.1007/BF02310555 doi: 10.1007/bf02310555

D'Alessio, G., & Iezzi, S. (2013). Household over-indebtedness: Definition and measurement with italian data. *SSRN Electronic Journal*. Retrieved from https://doi.org/10.2139/ssrn.2243578 doi: 10.2139/ssrn.2243578

Ferreira, A. (2000). *Household over-indebtedness* (resreport). Bruxelles: Economic and Social Committee, European Communities.

Fondeville, N., Ozdemir, E., & Ward, T. (2010). *Over-indebtedness: New evidence from the eu-silc special module* (resreport No. 4). European Commission Research Note.

Forlicz, M., & Rólczyński, T. (2019, sep). Overdue debt and selected personality traits – a research based on international surveys. *Journal of International Studies*, *12*(3), 198–211. doi: 10.14254/2071-8330.2019/12-3/16

Gaurav, S., & Singh, A. (2012, sep). An Inquiry into the Financial Literacy and Cognitive Ability of Farmers: Evidence from Rural India. *Oxford Development Studies*, *40*(3), 358–380. Retrieved from https://doi.org/10.1080/13600818.2012.703319 doi: 10.1080/13600818.2012.703319

Gerhard, P., Gladstone, J. J., & Hoffmann, A. O. (2018, apr). Psychological characteristics

and household savings behavior: The importance of accounting for latent heterogeneity. *Journal of Economic Behavior & Organization*, *148*, 66–82. doi: 10.1016/j.jebo.2018.02.013

Goldberg, L. R. (1981). Language and individual differences: the search for universals in personality lexicons. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 2, pp. 141–165). Beverly Hills, CA: Sage.

Guérin, I. (2014, aug). Juggling with debt, social ties, and values. *Current Anthropology*, *55*(S9), 40–50. doi: 10.1086/675929

Guiso, L., & Sodini, P. (2013). Household finance: An emerging field. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the economics of finance* (Vol. 2, pp. 1397–1532). Elsevier. Retrieved from https://doi.org/10.1016/B978-0-44-459406-8.00021-4 doi: 10.1016/b978-0-44-459406-8.00021-4

Guérin, I., D'Espallier, B., & Venkatasubramanian, G. (2013, sep). Debt in rural south india: Fragmentation, social regulation and discrimination. *Journal of Development Studies*, *49*(9), 1155–1171. Retrieved from https://doi.org/10.1080/00220388.2012.720365 doi: 10.1080/00220388.2012.720365

Guérin, I., Michiels, S., Natal, A., Nordman, C. J., & Venkatasubramanian, G. (2020, July). *Surviving debt, survival debt in times of lockdown* (CEB Working Paper No. 20-009). Brussels, Belgium: Centre Emile Bernheim, Université Libre de Bruxelles. Retrieved from https://econpapers.repec.org/paper/solwpaper/2013_2f309493.htm (Submitted to *Economic & Political Weekly*)

Guérin, I., Michiels, S., Nordman, C. J., Reboul, E., & Venkatasubramanian, G. (2020). There Has Been No Silent Revolution: A Decade of Empowerment for Women in Rural Tamil Nadu. In M. Ochman & A. Ortega-Díaz (Eds.), *Advances in women's empowerment: Critical insight from asia, africa and latin america* (Advances in Gender Research ed., Vol. 29, pp. 183–200). Bingley, United-Kingdom: Emerald Publishing Limited.

Guérin, I., Roesch, M., Michiels, S., & Venkatasubramanian, G. (2012). Dettes, protections et solidarités en inde du sud. *Economie et sociétés*, *46*(2), 385–413.

Guérin, I., Roesch, M., Venkatasubramanian, G., & Kumar, K. S. S. (2014). The social meaning of over- indebtedness and creditworthiness in the context of poor rural south indian households (tamil nadu). In I. Guérin, S. Morvant-Roux, & M. Villarreal (Eds.), *Microfinance, debt and over-indebtedness: Juggling with money.* New-York: Routledge.

Guérin, I., & Venkatasubramanian, G. (2020, jun). The socio-economy of debt. revisiting debt bondage in times of financialization. *Geoforum*. Retrieved from https://doi.org/10.1016/j.geoforum.2020.05.020 doi: 10.1016/j.geoforum.2020.05.020

Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013, aug). Financial literacy, financial education, and economic outcomes. *Annual Review of Economics*, *5*(1), 347–373. Retrieved from https://doi.org/10.1146/annurev-economics-082312-125807 doi: 10.1146/annurev-economics-082312-125807

Heckman, J. J., Stixrud, J., & Urzua, S. (2006, July). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics*, *24*(3), 411–482. Retrieved from https://doi.org/10.1086/504455 doi: 10.1086/504455

Hogan, J., & Holland, B. (2003). Using theory to evaluate personality and job-performance relations: A socioanalytic perspective. *Journal of Applied Psychology*, *88*(1), 100–112. Retrieved from http://doi.apa.org/getdoi.cfm?doi=10.1037/0021-9010.88.1.100 doi: 10.1037/0021-9010.88.1.100

Huston, S. J. (2010, jun). Measuring financial literacy. *Journal of Consumer Affairs*, *44*(2), 296–316. Retrieved from https://doi.org/10.1111/j.1745-6606.2010.01170.x doi: 10.1111/j.1745-6606.2010.01170.x

Kassin, S. (2003). *Psychology*. Pearson.

Keese, M. (2012, feb). Who feels constrained by high debt burdens? subjective vs. objective measures of household debt. *Journal of Economic Psychology*, *33*(1), 125–141. Retrieved from

https://doi.org/10.1016/j.joep.2011.08.002 doi: 10.1016/j.joep.2011.08.002
Kiely, K. M. (2014). Cognitive function. In *Encyclopedia of quality of life and well-being research* (pp. 974–978). Springer Netherlands. Retrieved from https://doi.org/10.1007/978-94-007-0753-5_426 doi: 10.1007/978-94-007-0753-5_426
Klapper, L., Lusardi, A., & Panos, G. (2012, mar). *Financial literacy and the financial crisis* (Working Paper No. 17930). National Bureau of Economic Research - NBER. Retrieved from https://www.nber.org/papers/w17930 doi: 10.3386/w17930
Laajaj, R., Macours, K., Hernandez, D. A. P., Arias, O., Gosling, S. D., Potter, J., ... Vakis, R. (2019, jul). Challenges to capture the big five personality traits in non-WEIRD populations. *Science Advances*, *5*(7). Retrieved from https://doi.org/10.1126/sciadv.aaw5226 doi: 10.1126/sciadv.aaw5226
Lavrakas, P. J. (Ed.). (2008). *Encyclopedia of survey research methods*. Thousand Oaks, CA: Sage Publications, Inc. Retrieved from https://dx.doi.org/10.4135/9781412963947.n3 doi: 10.4135/9781412963947.n3
Lazear, E. P., & Michael, R. T. (1988). *Allocation of income wihtin the household*. Chicago: University of Chicago Press.
Maddala, G. S. (1991, October). A Perspective on the Use of Limited-Dependent and Qualitative Variables Models in Accounting Research. *The Accounting Review*, *66*(4), 788–807. Retrieved from https://www.jstor.org/stable/248156
McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, *52*(1), 81–90.
McCrae, R. R., Costa, P. T., Ostendorf, F., Angleitner, A., Hřebíčková, M., Avia, M. D., ... Smith, P. B. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology*, *78*(1), 173–186. Retrieved from https://doi.org/10.1037/0022-3514.78.1.173 doi: 10.1037/0022-3514.78.1.173
McDonald, R. P. (1999). *Test Theory: A Unified Treatment*. New-York: Psychology Press. Retrieved from https://doi.org/10.4324/9781410601087 doi: 10.4324/9781410601087
Michiels, S., Nordman, C. J., & Seetahul, S. (2021). Many Rivers to Cross: Social Identity, Cognition and Labour Mobility in Rural India. *The ANNALS of the American Academy of Political and Social Science, Special Issue on Cognition and Migration*. (Forthcoming)
Moen, P., Elder Jr., G. H., & Lüscher, K. (Eds.). (1995). *Examining Lives in Context: Perspectives on the Ecology of Human Development*. Washington DC: American Psychological Association.
Mortimer, J. T., & Simmons, R. G. (1978, aug). Adult socialization. *Annual Review of Sociology*, *4*(1), 421–454. Retrieved from https://doi.org/10.1146/annurev.so.04.080178.002225 doi: 10.1146/annurev.so.04.080178.002225
Mukherjee, P. (2017, November). *The Effects of Social Identity on Aspirations and Learning Outcomes: A Field Experiment in India* (Working Paper No. S-35120-INC-7). London, UK: Internation Growth Center.
Nga, J. K., & Yien, L. K. (2013, aug). The influence of personality trait and demographics on financial decision making among generation y. *Young Consumers*, *14*(3), 230–243. doi: 10.1108/yc-11-2012-00325
Nordman, C. J., Guérin, I., Michiels, S., Natal, A., & Venkatasubramanian, G. (2019, December). *NEEMSIS Survey Report: A Full Statistical Picture of the Household and Individual Data* (techreport). French Institute of Pondicherry (IFP) and Institut de Recherche pour le Développement (IRD). Retrieved from https://neemsis.hypotheses.org/ressources/statistical-report
Nordman, C. J., Guérin, I., Venkatasubramanian, G., Michiels, S., Lanos, Y., Kumar, S., ... Hilger, A. (2017, November). *Neemsis survey manuel* (techreport). 11, rue Saint-Louis, 605-001 Pondichéry, Inde: Institut Français de Pondichéry - IFP, Institut de Recherche pour le Développement - IRD. Retrieved from https://neemsis.hypotheses.org/ (Networks, Employment, dEbt, Mobilities and Skills in India Survey (NEEMSIS))

NSSO. (2014, December). *Key Indicators of Debt and Investment in India, NSS 70th Round, 2013* (Tech. Rep. No. NSS-KI(70/18.2)). New-Delhi, India: Government of India & Ministry of Statistics and Programme Implementation & National Sample Survey Office (NSSO).

Nyhus, E. K., & Pons, E. (2005, jun). The effects of personality on earnings. *Journal of Economic Psychology*, *26*(3), 363–384. Retrieved from https://doi.org/10.1016/j.joep.2004.07.001 doi: 10.1016/j.joep.2004.07.001

Parise, G., & Peijnenburg, K. (2019, October). Noncognitive abilities and financial distress: Evidence from a representative household panel. *The Review of Financial Studies*, *32*(10), 3884–3919. Retrieved from https://doi.org/10.1093/rfs/hhz010 doi: 10.1093/rfs/hhz010

Piedmont, R. L. (2014). Five factor model of personality. In *Encyclopedia of quality of life and well-being research* (pp. 2282–2282). Springer Netherlands. Retrieved from https://doi.org/10.1007/978-94-007-0753-5_1055 doi: 10.1007/978-94-007-0753-5_1055

Pinjisakikool, T. (2017, nov). The influence of personality traits on households' financial risk tolerance and financial behaviour. *Journal of Interdisciplinary Economics*, *30*(1), 32–54. doi: 10.1177/0260107917731034

Reboul, E., Guérin, I., & Nordman, C. J. (2021, jun). The Gender of Debt and Credit: Insights from rural Tamil Nadu. *World Development*, *142*, 105363. Retrieved from https://doi.org/10.1016/j.worlddev.2020.105363 doi: 10.1016/j.worlddev.2020.105363

Rinaldi, L., & Sanchis-Arellano, A. (2006, January). *Household debt sustainability: What explains household non-performing loans? an empirical analysis* (resreport No. 570). European Central Bank. Retrieved from https://ssrn.com/abstract=872528

Salgado, J. F. (1997). The five factor model of personality and job performance in the European Community. *Journal of Applied Psychology*, *82*(1), 30–43. Retrieved from http://doi.apa.org/getdoi.cfm?doi=10.1037/0021-9010.82.1.30 doi: 10.1037/0021-9010.82.1.30

Sarkar, S., Chakravorty, B., & Lyonette, C. (2020, November). *Social identity and aspiration – Double jeopardy or intersectionality? Evidence from rural India* (Discussion Paper No. 724). Essen, Germany: Global Labor Organization.

Schmidt, F. L., & Hunter, J. (2004). General Mental Ability in the World of Work: Occupational Attainment and Job Performance. *Journal of Personality and Social Psychology*, *86*(1), 162–173. Retrieved from http://doi.apa.org/getdoi.cfm?doi=10.1037/0022-3514.86.1.162 doi: 10.1037/0022-3514.86.1.162

Silva, S. D., Jr, N. D. C., Matsushita, R., Vieira, C., Correa, A., & Faveri, D. D. (2018, mar). Debt of high-income consumers may reflect leverage rather than poor cognitive reflection. *Review of Behavioral Finance*, *10*(1), 42–52. Retrieved from https://doi.org/10.1108/RBF-07-2016-0046 doi: 10.1108/rbf-07-2016-0046

Trizano-Hermosilla, I., & Alvarado, J. M. (2016, may). Best Alternatives to Cronbach's Alpha Reliability in Realistic Conditions: Congeneric and Asymmetrical Measurements. *Frontiers in Psychology*, *7*. Retrieved from https://doi.org/10.3389/fpsyg.2016.00769 doi: 10.3389/fpsyg.2016.00769

Tufano, P. (2003). Financial innovation. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the economics of finance* (Vol. 1, pp. 307–335). Elsevier. Retrieved from https://doi.org/10.1016/S1574-0102(03)01010-0 doi: 10.1016/s1574-0102(03)01010-0

Tufano, P. (2009, dec). Consumer finance. *Annual Review of Financial Economics*, *1*(1), 227–247. Retrieved from https://doi.org/10.1146/annurev.financial.050808.114457 doi: 10.1146/annurev.financial.050808.114457

Valerio, A., Sanchez Puerta, M. L., Pierre, G., Rajadel, T., & Monroy Taborda, S. (2014, June). *STEP Skills Measurement Program - Snapshot 2014* (Tech. Rep.). Washington, DC, USA: The World Bank. Retrieved from https://microdata.worldbank.org/index.php/catalog/step/about

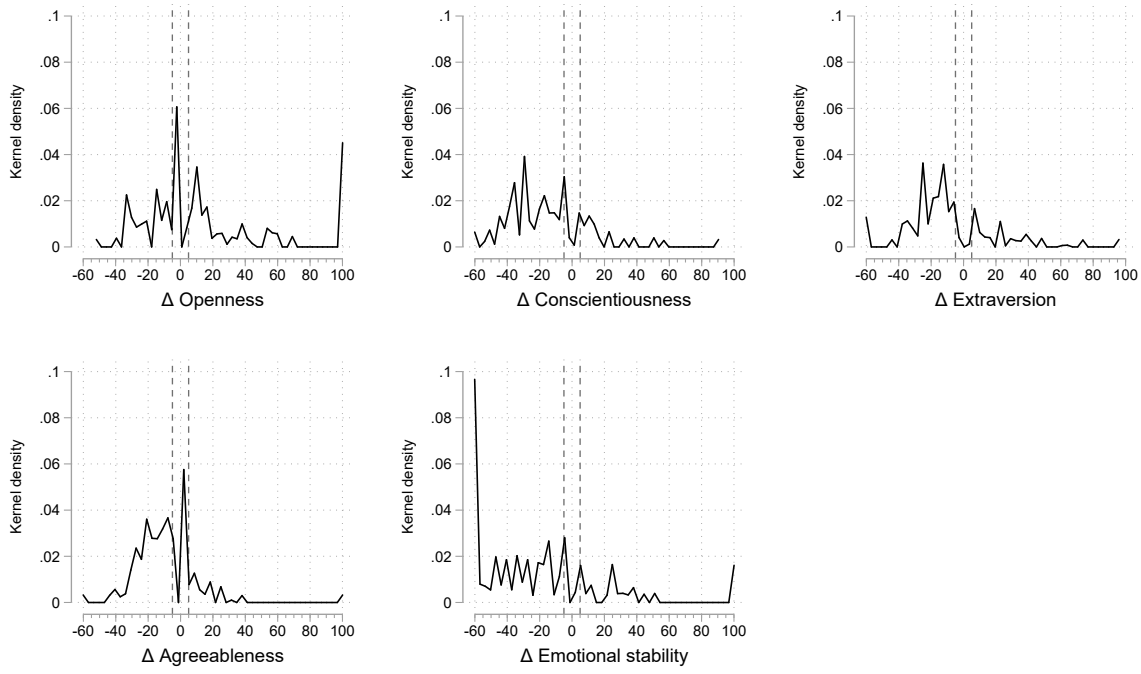
Xiao, J., & Tao, C. (2020, jun). Consumer finance / household finance: the definition and scope. *China Finance Review International*, *ahead-of-print*(ahead-of-print). Retrieved from https://doi.org/10.1108/CFRI-04-2020-0032 doi: 10.1108/cfri-04-2020-0032

Appendix

A Data description

In 2016-17, 492 households, 2,696 individuals, 953 egos. But, 2 households without egos. So we have 490 households and 953 egos. NEEMSIS2 (2020-21) recovered 485 households, 2,635 individuals. But, 600+1 individuals have left their households between the two wave, whose 98 egos. Which mean that we have 485 housholds and 2,034 individuals. But, we always have our two households without egos in 2016-17 that we can not compare. Thus, we have 483 households. But, for 10 households all egos have changed between 2016-17 and 2020-21. Egos of 2016-17 are still here in 2020-21, but they do not be selected as egos. Finally, our sample is constitute from 835 egos represented 473 households.

B Stability of Big-5 personality traits over time



Kernel: Epanechnikov;
Bandwidth: 0.1;
All traits are corrected from acquiescence bias.

Figure 2: Stability over time of Big-5 personality traits – Distribution of variation rate between 2016-17 and 2020-21 for Big-5 personality traits corrected from acquiescence biais for 835 individuals from rural Tamil Nadu, India.
Source: NEEMSIS-1 (2016-17) & NEEMSIS-2 (2020-21); author's calculations.

C Factor analysis for personality traits

Table 12: Factor 1 as Extraversion-Openness

Questions	Big-5	N	Mean	SD	Corr.	p-value
Do you like to think a lot, and reflect about ideas?	OP	953	2.84	0.97	**0.81**	0.00
Are you comfortable expressing your thoughts and opinions to others?	EX	953	3.12	0.91	**0.79**	0.00
Do you have an active imagination?	OP	953	2.78	0.93	**0.77**	0.00
Do you easily share your thoughts and feelings with other people?	EX	953	3.20	1.04	**0.76**	0.00
Do you come up with original or new ideas?	OP	953	2.69	0.94	**0.74**	0.00
Are you curious, interested in learning new things?	OP	953	3.08	1.18	**0.74**	0.00
Are you inventive, and discover new ways of doing things?	OP	953	2.77	1.02	**0.71**	0.00
In social gatherings, do you like to talk to many people?	EX	953	3.33	0.99	**0.70**	0.00
Do you manage stress well?	ES	953	3.35	0.93	0.61	0.00
Are you organized?	CO	953	3.37	0.95	0.50	0.00
Are you talkative?	EX	953	2.86	0.96	0.49	0.00
Do you stay calm in tense or stressful situations?	ES	953	3.38	0.91	0.48	0.00
Do you make plans and stick to them?	CO	953	3.32	0.97	0.47	0.00
Do you try to understand how other people feel and think?	AG	953	2.91	1.03	0.47	0.00
Are you enthusiastic and full of energy?	EX	953	3.40	0.93	0.46	0.00
Are you helpful with others?	AG	953	2.76	0.94	0.38	0.00
Are you interested in nature, art or music?	OP	953	3.13	1.10	0.37	0.00
Do you work hard to do things well and on time?	CO	953	3.48	0.84	0.36	0.00
Do you get to work and appointments on time?	CO	953	3.43	0.84	0.34	0.00
Do you enjoy being with people?	EX	953	4.12	0.86	0.28	0.00
Are you shy with people?	EX	953	3.39	0.87	0.22	0.00
Do you work well with other people?	AG	953	3.97	0.86	0.16	0.00
Do you put off your duties in order to relax?	CO	953	3.53	1.01	0.15	0.00
Are you generally trusting of other people?	AG	953	3.25	0.83	0.13	0.00
Do you complete your duties on time?	CO	953	3.27	0.83	0.12	0.00
Do you tolerate faults in other people?	AG	953	2.95	0.71	0.11	0.00
Do you forgive other people easily?	AG	953	3.00	0.73	0.09	0.01
Do you have sudden changes in your mood?	ES	953	3.52	1.04	0.07	0.03
Do you get easily distracted?	CO	953	3.55	0.96	0.04	0.17
Do you get easily upset?	ES	953	3.10	0.76	0.00	0.99
Do you worry a lot?	ES	953	3.05	0.75	0.00	0.99
Do you get nervous easily?	ES	953	3.30	0.87	-0.04	0.20
Do you tend to be rude to other people?	AG	953	4.62	0.82	-0.12	0.00
Do you feel sad, depressed?	ES	953	3.04	0.75	-0.22	0.00
Do you prefer work that involves repetitive tasks and routines?	OP	953	2.88	0.95	-0.28	0.00

Note: Most contributive **variables** are used to interpret factor: threshold at 0.7.

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 13: Factor 2 as Conscientiousness

Questions	Big-5	N	Mean	SD	Corr.	p-value
Do you get to work and appointments on time?	CO	953	3.43	0.84	**0.76**	0.00
Are you enthusiastic and full of energy?	EX	953	3.40	0.93	**0.75**	0.00
Do you make plans and stick to them?	CO	953	3.32	0.97	**0.74**	0.00
Do you complete your duties on time?	CO	953	3.27	0.83	**0.73**	0.00
Do you work hard to do things well and on time?	CO	953	3.48	0.84	**0.67**	0.00
Are you organized?	CO	953	3.37	0.95	**0.67**	0.00
Do you work well with other people?	AG	953	3.97	0.86	0.58	0.00
Do you put off your duties in order to relax?	CO	953	3.53	1.01	0.54	0.00
Are you inventive, and discover new ways of doing things?	OP	953	2.77	1.02	0.52	0.00
Are you curious, interested in learning new things?	OP	953	3.08	1.18	0.47	0.00
Do you enjoy being with people?	EX	953	4.12	0.86	0.46	0.00
Do you come up with original or new ideas?	OP	953	2.69	0.94	0.45	0.00
Do you have an active imagination?	OP	953	2.78	0.93	0.40	0.00
Do you like to think a lot, and reflect about ideas?	OP	953	2.84	0.97	0.39	0.00
Are you interested in nature, art or music?	OP	953	3.13	1.10	0.37	0.00
Do you get easily distracted?	CO	953	3.55	0.96	0.36	0.00
Are you generally trusting of other people?	AG	953	3.25	0.83	0.35	0.00
Do you manage stress well?	ES	953	3.35	0.93	0.31	0.00
Do you easily share your thoughts and feelings with other people?	EX	953	3.20	1.04	0.31	0.00
Do you have sudden changes in your mood?	ES	953	3.52	1.04	0.30	0.00
Do you tend to be rude to other people?	AG	953	4.62	0.82	0.26	0.00
Do you worry a lot?	ES	953	3.05	0.75	0.21	0.00
Do you tolerate faults in other people?	AG	953	2.95	0.71	0.20	0.00
Do you forgive other people easily?	AG	953	3.00	0.73	0.19	0.00
Do you stay calm in tense or stressful situations?	ES	953	3.38	0.91	0.18	0.00
Do you feel sad, depressed?	ES	953	3.04	0.75	0.18	0.00
Are you comfortable expressing your thoughts and opinions to others?	EX	953	3.12	0.91	0.17	0.00
Do you get nervous easily?	ES	953	3.30	0.87	0.15	0.00
Do you get easily upset?	ES	953	3.10	0.76	0.07	0.02
In social gatherings, do you like to talk to many people?	EX	953	3.33	0.99	0.07	0.04
Are you helpful with others?	AG	953	2.76	0.94	0.05	0.09
Do you try to understand how other people feel and think?	AG	953	2.91	1.03	0.03	0.31
Are you shy with people?	EX	953	3.39	0.87	0.02	0.57
Are you talkative?	EX	953	2.86	0.96	-0.10	0.00
Do you prefer work that involves repetitive tasks and routines?	OP	953	2.88	0.95	**-0.60**	0.00

Note: Most contributive **variables** are used to interpret factor: threshold at 0.6.

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 14: Factor 3 as Emotional stability-Conscientiousness

Questions	Big-5	N	Mean	SD	Corr.	p-value
Do you have sudden changes in your mood?	ES	953	3.52	1.04	**0.80**	0.00
Do you get easily distracted?	CO	953	3.55	0.96	**0.75**	0.00
Do you put off your duties in order to relax?	CO	953	3.53	1.01	**0.66**	0.00
Do you get nervous easily?	ES	953	3.30	0.87	**0.50**	0.00
Do you stay calm in tense or stressful situations?	ES	953	3.38	0.91	0.49	0.00
Do you tend to be rude to other people?	AG	953	4.62	0.82	0.42	0.00
Do you make plans and stick to them?	CO	953	3.32	0.97	0.37	0.00
Do you manage stress well?	ES	953	3.35	0.93	0.37	0.00
Do you enjoy being with people?	EX	953	4.12	0.86	0.31	0.00
Do you complete your duties on time?	CO	953	3.27	0.83	0.30	0.00
Do you get to work and appointments on time?	CO	953	3.43	0.84	0.30	0.00
Are you shy with people?	EX	953	3.39	0.87	0.30	0.00
Do you work hard to do things well and on time?	CO	953	3.48	0.84	0.26	0.00
Do you get easily upset?	ES	953	3.10	0.76	0.25	0.00
Do you work well with other people?	AG	953	3.97	0.86	0.22	0.00
Are you generally trusting of other people?	AG	953	3.25	0.83	0.21	0.00
Are you organized?	CO	953	3.37	0.95	0.14	0.00
Are you enthusiastic and full of energy?	EX	953	3.40	0.93	0.14	0.00
Do you tolerate faults in other people?	AG	953	2.95	0.71	0.12	0.00
Do you feel sad, depressed?	ES	953	3.04	0.75	0.11	0.00
Do you easily share your thoughts and feelings with other people?	EX	953	3.20	1.04	0.10	0.00
Do you like to think a lot, and reflect about ideas?	OP	953	2.84	0.97	0.08	0.01
Do you worry a lot?	ES	953	3.05	0.75	0.08	0.02
Are you comfortable expressing your thoughts and opinions to others?	EX	953	3.12	0.91	0.06	0.05
Are you inventive, and discover new ways of doing things?	OP	953	2.77	1.02	0.06	0.07
Are you curious, interested in learning new things?	OP	953	3.08	1.18	0.02	0.56
In social gatherings, do you like to talk to many people?	EX	953	3.33	0.99	-0.03	0.35
Do you have an active imagination?	OP	953	2.78	0.93	-0.06	0.09
Do you forgive other people easily?	AG	953	3.00	0.73	-0.07	0.03
Do you come up with original or new ideas?	OP	953	2.69	0.94	-0.10	0.00
Are you interested in nature, art or music?	OP	953	3.13	1.10	-0.21	0.00
Do you try to understand how other people feel and think?	AG	953	2.91	1.03	-0.27	0.00
Do you prefer work that involves repetitive tasks and routines?	OP	953	2.88	0.95	-0.42	0.00
Are you helpful with others?	AG	953	2.76	0.94	**-0.51**	0.00
Are you talkative?	EX	953	2.86	0.96	**-0.52**	0.00

Note: Most contributive **variables** are used to interpret factor: threshold at 0.5.

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 15: Factor 4 as Emotional stability

Questions	Big-5	N	Mean	SD	Corr.	p-value
Do you worry a lot?	ES	953	3.05	0.75	**0.75**	0.00
Do you get easily upset?	ES	953	3.10	0.76	**0.74**	0.00
Do you feel sad, depressed?	ES	953	3.04	0.75	**0.73**	0.00
Do you get nervous easily?	ES	953	3.30	0.87	**0.61**	0.00
Are you shy with people?	EX	953	3.39	0.87	**0.46**	0.00
Do you get easily distracted?	CO	953	3.55	0.96	0.31	0.00
Do you have sudden changes in your mood?	ES	953	3.52	1.04	0.27	0.00
Do you work hard to do things well and on time?	CO	953	3.48	0.84	0.11	0.00
Do you complete your duties on time?	CO	953	3.27	0.83	0.10	0.00
Do you get to work and appointments on time?	CO	953	3.43	0.84	0.09	0.01
Do you put off your duties in order to relax?	CO	953	3.53	1.01	0.09	0.01
Are you inventive, and discover new ways of doing things?	OP	953	2.77	1.02	0.08	0.01
Do you come up with original or new ideas?	OP	953	2.69	0.94	0.07	0.02
Do you make plans and stick to them?	CO	953	3.32	0.97	0.05	0.11
Do you have an active imagination?	OP	953	2.78	0.93	0.04	0.17
Are you enthusiastic and full of energy?	EX	953	3.40	0.93	0.03	0.34
Do you work well with other people?	AG	953	3.97	0.86	0.00	0.96
Are you organized?	CO	953	3.37	0.95	-0.01	0.82
Do you prefer work that involves repetitive tasks and routines?	OP	953	2.88	0.95	-0.02	0.58
Are you curious, interested in learning new things?	OP	953	3.08	1.18	-0.03	0.43
Are you interested in nature, art or music?	OP	953	3.13	1.10	-0.03	0.40
Are you talkative?	EX	953	2.86	0.96	-0.04	0.26
Do you like to think a lot, and reflect about ideas?	OP	953	2.84	0.97	-0.04	0.17
In social gatherings, do you like to talk to many people?	EX	953	3.33	0.99	-0.09	0.01
Are you helpful with others?	AG	953	2.76	0.94	-0.11	0.00
Do you enjoy being with people?	EX	953	4.12	0.86	-0.13	0.00
Do you tend to be rude to other people?	AG	953	4.62	0.82	-0.14	0.00
Do you forgive other people easily?	AG	953	3.00	0.73	-0.14	0.00
Are you comfortable expressing your thoughts and opinions to others?	EX	953	3.12	0.91	-0.16	0.00
Do you easily share your thoughts and feelings with other people?	EX	953	3.20	1.04	-0.17	0.00
Do you tolerate faults in other people?	AG	953	2.95	0.71	-0.19	0.00
Do you manage stress well?	ES	953	3.35	0.93	-0.22	0.00
Are you generally trusting of other people?	AG	953	3.25	0.83	-0.31	0.00
Do you stay calm in tense or stressful situations?	ES	953	3.38	0.91	-0.33	0.00
Do you try to understand how other people feel and think?	AG	953	2.91	1.03	-0.35	0.00

Note: Most contributive **variables** are used to interpret factor: threshold at 0.4.

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 16: Factor 5 as Agreeableness

Questions	Big-5	N	Mean	SD	Corr.	p-value
Do you tolerate faults in other people?	AG	953	2.95	0.71	**0.72**	0.00
Do you forgive other people easily?	AG	953	3.00	0.73	**0.71**	0.00
Do you stay calm in tense or stressful situations?	ES	953	3.38	0.91	**0.39**	0.00
Are you generally trusting of other people?	AG	953	3.25	0.83	**0.37**	0.00
Do you manage stress well?	ES	953	3.35	0.93	**0.33**	0.00
Are you helpful with others?	AG	953	2.76	0.94	**0.32**	0.00
Are you comfortable expressing your thoughts and opinions to others?	EX	953	3.12	0.91	0.27	0.00
Do you work well with other people?	AG	953	3.97	0.86	0.23	0.00
Do you enjoy being with people?	EX	953	4.12	0.86	0.23	0.00
Do you easily share your thoughts and feelings with other people?	EX	953	3.20	1.04	0.23	0.00
Do you complete your duties on time?	CO	953	3.27	0.83	0.21	0.00
Do you put off your duties in order to relax?	CO	953	3.53	1.01	0.20	0.00
Do you make plans and stick to them?	CO	953	3.32	0.97	0.19	0.00
Are you organized?	CO	953	3.37	0.95	0.19	0.00
Do you get to work and appointments on time?	CO	953	3.43	0.84	0.15	0.00
In social gatherings, do you like to talk to many people?	EX	953	3.33	0.99	0.14	0.00
Are you shy with people?	EX	953	3.39	0.87	0.13	0.00
Do you work hard to do things well and on time?	CO	953	3.48	0.84	0.13	0.00
Are you enthusiastic and full of energy?	EX	953	3.40	0.93	0.12	0.00
Do you get easily distracted?	CO	953	3.55	0.96	0.10	0.00
Do you like to think a lot, and reflect about ideas?	OP	953	2.84	0.97	0.10	0.00
Are you talkative?	EX	953	2.86	0.96	0.09	0.01
Do you tend to be rude to other people?	AG	953	4.62	0.82	0.07	0.02
Do you have sudden changes in your mood?	ES	953	3.52	1.04	0.03	0.35
Do you have an active imagination?	OP	953	2.78	0.93	0.01	0.73
Are you inventive, and discover new ways of doing things?	OP	953	2.77	1.02	-0.04	0.23
Do you get nervous easily?	ES	953	3.30	0.87	-0.05	0.13
Are you curious, interested in learning new things?	OP	953	3.08	1.18	-0.06	0.08
Do you come up with original or new ideas?	OP	953	2.69	0.94	-0.06	0.06
Do you try to understand how other people feel and think?	AG	953	2.91	1.03	-0.10	0.00
Do you feel sad, depressed?	ES	953	3.04	0.75	-0.11	0.00
Do you get easily upset?	ES	953	3.10	0.76	-0.14	0.00
Do you worry a lot?	ES	953	3.05	0.75	-0.15	0.00
Are you interested in nature, art or music?	OP	953	3.13	1.10	**-0.35**	0.00
Do you prefer work that involves repetitive tasks and routines?	OP	953	2.88	0.95	**-0.39**	0.00

Note: Most contributive **variables** are used to interpret factor: threshold at 0.3.

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 17: Results of univariate OLS on Factors

	Factor 1		Factor 2		Factor 3		Factor 4		Factor 5	
	β	T-stat	β	T-stat	β	T-stat	β	T-stat	β	T-stat
Age	-0.012	-4.91	-0.018	-7.44	0.009	3.710	0.002	0.780	0.017	6.530
N	835		835		835		835		835	
R^2	0.028		0.062		0.016		0.001		0.049	
Adjusted R^2	0.027		0.061		0.015		0.000		0.048	
F-stat	24.069		55.290		13.763		0.608		42.638	
p-value	0.000		0.000		0.000		0.436		0.000	

Source: NEEMSIS-1 (2016-17); author's calculations.

Table 18: One-way ANOVA for personality traits and cognitive skills

Source	SS	df	MS	F-stat	p-value	χ^{2*}	p-value
Factor 1 (std.)							
Between groups	26.12	3	8.71	8.96	0.00	4.45	0.22
Within groups	807.88	831	0.97				
Factor 2 (std.)							
Between groups	26.78	3	8.93	9.19	0.00	4.45	0.22
Within groups	807.22	831	0.97				
Factor 3 (std.)							
Between groups	12.22	3	4.07	4.12	0.01	1.27	0.74
Within groups	821.78	831	0.99				
Factor 4 (std.)							
Between groups	83.47	3	27.82	30.81	0.00	2.29	0.51
Within groups	750.53	831	0.90				
Factor 5 (std.)							
Between groups	4.83	3	1.61	1.62	0.18	8.44	0.04
Within groups	829.17	831	1.00				
Raven test score							
Between groups	1,296.55	3	432.18	4.80	0.00	3.86	0.28
Within groups	74,794.98	831	90.01				
Numeracy test score							
Between groups	120.21	3	40.07	24.07	0.00	3.63	0.30
Within groups	1,381.71	830	1.66				
Literacy test score							
Between groups	107.53	3	35.84	11.59	0.00	2.63	0.45
Within groups	2,558.20	827	3.09				

Note: * Bartlett's test. Although there is much debate, we admit that when the sample size is similar, ANOVA is robust to difference in variance between groups (Box, 1954).
Source: NEEMSIS-1 (2016-17); author's calculations.

Contents

1 Introduction **1**
- 1.1 Recent spotlight . . . 1
- 1.2 Studies in economics . . . 2
- 1.3 Skills and household finances . . . 2
  - PTCS . . . 2
  - Financial literacy . . . 2
- 1.4 Debt in rural India . . . 2
  - 1.4.1 Incidence of debt and disparities . . . 2
  - 1.4.2 "Social meaning of debt" . . . 3
  - 1.4.3 Individual debt and public policies . . . 4
- 1.5 Conditioned individuals through caste and gender with aspirations . . . 5
- 1.6 Topic relevance . . . 5

2 Data and methodology **6**
- 2.1 Data . . . 6
- 2.2 Construction of personality traits & cognitive skills variables . . . 6
  - Exogeneity . . . 7
  - Factor analysis . . . 7
  - Life-cycle effects . . . 7
- 2.3 Indebtedness measures . . . 8
- 2.4 Econometric framework . . . 9
  - Selected sample . . . 9
  - Data structure and clustering . . . 9
  - Estimators see Table 2 . . . 9
  - Control variables . . . 10

3 Descriptive statistics **11**
- 3.1 Study population . . . 11
  - Household unit in Table 3 . . . 11
  - Individual unit in Table 4 . . . 11
  - Personality traits & cognitive skills in Figure 1 . . . 13
  - Individual debt with Table 5 and 6 . . . 13

4 Results **16**

Conclusion **19**

Références **20**

A Data description **26**

B Stability of Big-5 personality traits over time **27**

C Factor analysis for personality traits **28**