

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

Arnaud Natal* & Christophe J. Nordman†

Very preliminary draft

July 27, 2021

Abstract

Keywords : Gender, caste, debt burden

1 Introduction

Since more than a decade, there has been increasing interest in psychology in economics literature¹, especially through personality traits and cognitive skills (PT&CS). The relevance of such analysis in economics is well documented in the literature. Hanushek and Woessmann (2008) shows that cognitive skills are correlated with individual earnings, distribution of income and economic growth. Moreover, other factors such as well-functioning economic institutions –although enter into growth and may well have stronger effects, may also amplify the effects of cognitive skills. Regarding personality traits, Borghans, Duckworth, Heckman, and ter Weel (2008) examines, for instance, the relevance of personality traits in economics. They show that psychological variables are a good predictor of socioeconomic success (especially on labour market²) **and they can be influenced by interventions and investment more readily than IQ after the early years because of the non-stability through life cycle.** Thus, institutions such as World Bank collecting more and more data³ 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).

Definition 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-5 model constitute the main personality trait taxonomy. Based on Goldberg (1981) and McCrae and Costa (1987) works, it identify five

*Univ. Bordeaux, CNRS, GREThA, UMR 5113, F-33600 PESSAC, FRANCE - arnaud.natal@u-bordeaux.fr

†IRD, UMR LEDa-DIAL, IFP - nordman@dial.prd

¹In 2020, we find more than 200 articles in economics with “Cognitive skills” or “Personality traits” in the title, abstract or keywords while there are less than 40 in 2009 – Scopus data. Accessed June 29, 2021.

²See Almlund, Duckworth, Heckman, and Kautz (2011).

³As stated by Laajaj and Macours (2019), the World Bank alone spent 1 billion USD a year.

dimensions of personality: neuroticism (or emotional stability), i.e. the capacity to experience negative emotions; extraversion, i.e. the capacity to experience positive emotions, the tendency to seek stimulation and company from others; openness to experience, i.e. “one’s capacity to be creative and unstructured versus one’s tendency to need structure and clarity” (Piedmont, 2014); agreeableness, i.e. “perceptions of others that are caring, compassionate, and altruistic versus manipulative, self-serving, and antagonistic” (Piedmont, 2014); conscientiousness, i.e. the capacity to display self-discipline, act dutifully, and strive for achievement against measures or outside expectations.

Skills in economics Studies in economics⁴ focuses on the role of skills on labour market and especially on income gap, performance at work and type of work or education through educational attainment, course grades or standardized achievement test (SAT) scores but few researcher have been interested in the relationship with household finances while it is a growing area of interest⁵. [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 (Guiso & Sodini, 2013).

The few studies that have focused on household finance mainly investigate four outcomes: risk aversion, financial distress, savings and debt. Nga and Yien (2013) show that conscientiousness, openness to experience and agreeableness are correlated with risk aversion, cognitive biases and socially responsible investing for undergraduate students of Malaysia. For 4,026 individuals from Netherland, Pinjisakikool (2017) shows that all the Big-5 personality traits are good predictor of financial risk tolerance as Bucciol and Zarri (2017) that shows that agreeableness, cynical hostility and anxiety are good predictor of financial risk taking for 10,641 individuals from USA (negative correlation). In terms of financial distress, Agarwal and Mazumder (2013) shows that individuals with high math scores are less likely to make financial distress in USA. Parise and Peijnenburg (2019) are one of the first who deal with causality instead of correlation. Using instrumental variable method⁶ on Dutch dataset, they shows that people in the bottom quintile of personality traits are 10 times more likely to experience financial distress than those in the top quintile. Regarding saving behaviour, Gerhard, Gladstone, and Hoffmann (2018) decompose 3,382 individuals from United-Kingdom in two groups (striving and established) and find that agreeableness is negatively correlated with total household savings for both groups and the effect is stronger for the striving than for the established. Nyhus and Webley (2001) shows that extraversion is negatively correlated with savings for 1,266 individuals from Netherland and in interesting in debt, they shows that emotional stability is positively correlated with debt. Still with debt, Brown and Taylor (2014) shows that extraversion and agreeableness are positively associated with the level of debt held while conscientiousness is negatively correlated with the level of unsecured debt for 10,000 individuals of United-Kingdom and Forlicz and Rólczyński (2019) shows differences between debtors and debt-free individuals in terms of conscientiousness, honesty, attitude towards money and shopping for 3,711 individuals from Poland, Spain, Romania and Italy.

Other research build a bridge between household finance and individual skills through the notion of financial literacy⁷ (Hastings, Madrian, & Skimmyhorn, 2013) (Gaurav & Singh, 2012) (Klapper, Lusardi, & Panos, 2012) **Developper ? Pas sûr**

⁴For a comprehensive review, see Almlund et al. (2011).

⁵This renewed interest led the Journal of Economic Literature (JEL) to create a field in its own right under the code G5.

⁶They instruments conscientiousness and emotional stability with shock during childhood à vérifier.

⁷Financial literacy measure “how well an individual can understand and use personal finance-related information” (Huston, 2010).

Indebtedness in India To our knowledge, no articles has looked at personality traits and cognitive skills on debt in India⁸ (nor even in developing countries) while the Indian context is unique in terms of household finance. Since the 80's, the incidence of indebtedness increase for rural and urban households (respectively from 19 to 32% and from 17 to 22%) with an increasing in the share of household indebted to formal (or institutional) sources (11 to 17%) and informal sources⁹ (10 to 19%) (Rajakumar, Mani, Shetty, & Karmarkar, 2019). As we discuss in section 2.1, this number is largely under-estimate (Jones, 1994) and micro-level studies indicates incidence of debt around 80-90% (Drèze, Lanjouw, & Sharma, 1997; Guérin, D'Espallier, & Venkatasubramanian, 2013; Jones, 1994; Reboul, Guérin, & Nordman, 2021). The average amount of debt per household strongly increased between 1951 and 2012 (from 83 INR to 32,522 INR) with an increasing in the share of formal debt (from 7 to 56% for rural households) and, thus, a decreasing in the share of traditional informal debt (from 93 to 43% for rural households) (Rajakumar et al., 2019).

Added to this is a high level of inequalities in terms of indebtedness. Guérin et al. (2013) show that the caste affect borrowing strategies as amount, type and source of debt in rural Tamil Nadu, India. Dalits, have higher incidence of indebtedness but borrow smaller amounts and more frequently from ambulant lenders (Guérin et al., 2013). They borrow less for economic reason than non-dalits but more for household expenditures (Guérin et al., 2013; Guérin, Roesch, Venkatasubramanian, & Kumar, 2014). Finally, they have the lower access¹⁰ to bank loans while it offer "the best conditions financially speaking" (low interest rate, higher amounts, long duration) (Chavan, 2007; Guérin et al., 2013).

Disparities is also important through the gender. Reboul et al. (2021) show that the relative amount of debt is higher for female than for male while male earn much more. Moreover, female in the poorest households have the highest borrowing responsibilities and dalit female tend to face higher debt burdens than non-dalit one. In terms of use, male borrow more for economic investment while female more for daily survival and debt repayment (Reboul et al., 2021). **Add details?**

Paragraph on social meaning of debt

Individual debt and public policies (demonetisation Guérin, Lanos, Michiels, Nordman, and Venkatasubramanian (2017) and lockdown ?)

- Financial inclusion : more and more HH are financial included (Badarinza, Balasubramaniam, & Ramadorai, 2019), especially in India (Chakravarty & 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 GDP¹¹.
- 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

⁸Michiels, Nordman, and Seetahul (2021) interesting in the role of personality traits on labour mobility in rural Tamil Nadu. Dasgupta, Mani, Sharma, and Singhal (2020) interesting in

⁹In part due to the economic and financial sector reforms of 1991: <http://indiabefore91.in/1991-economic-reforms>.

¹⁰In part, because of they does not have necessary guarantee (i) such as good land (irrigated one and good location), specific know-how (ii), or because they self-excluded themselves because dalits are persuaded to fail (Guérin et al., 2013).

¹¹World Bank Data – <https://data.worldbank.org/indicator/NE.CON.PRVT.ZS?locations=IN>. Accessed January 22, 2021.

more complicated because of financial innovation¹². 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 precisely¹³ 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).

Strength of social identity More recently, several works highlight disparities between caste 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 priming¹⁴ 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) participants” [and] [f]emale participants also have significantly lower aspiration than their male counterparts”. Moreover, SC/ST female participants have lower income aspiration levels compared to other groups.

Beyond being a source of inequality, caste and gender seems to deeply impact individuals by conditioning them. In this context it appears important to investigate the role of PT&CS on indebtedness in take into account the deepness of this social identity.

Problematic, contribution and plan In a context where indebtedness is omnipresent but at different level according to social identity, study the relationship with PT&CS appears full of meaning. In this article we investigate how PT&CS shape indebtedness situation (i), how does debt change over time as PT&CS changes? (ii), how PT&CS influences the debt trajectory (iii). More finely, we try to capture the weight of social identity by investigating the contribution of PT&CS for each social groups on the shape of debt and the variation of debt (iii). In other word, in a highly sensitive country to social identity, do individuals manage to differentiate themselves by their skills?

By providing descriptive and econometric empirical insights, this paper contributes to furthering our understanding of the determinants of individual indebtedness –which is rare and valuable in developing countries, as well as, contributing more generally to the expanding literature exploring the implications of PT&CS for economic outcomes.

The rest of the article is organised as follow: section 2 is devoted to data and methodology, then, in section 3 we discuss some descriptive statistics to highlight the weight of social identity before exploring and discussing the relationship between PT&CS and indebtedness in section 4.

¹²For a comprehensive review on the subject, see Tufano (2003).

¹³For 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).

¹⁴Priming, 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).

Regarding the reliability, the great expertise of the team¹⁵, 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 follows in 2016-17 and 2020-21.

2.2 Construction of personality traits & cognitive skills variables

As stated earlier, our survey allow us to construct measures of cognitive skills. It include three score variables: literacy, numeracy, Raven¹⁶. These scores are construct in adding up the correct

¹⁵Some members of the research team are present since more than twenty-year on the region for numerous quantitative and qualitative surveys.

¹⁶Raven 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.

answers of a set of four questions for literacy and numeracy (six for 2020-21) test and 36 for Raven. Then, we standardize the score to ensure comparability of results.

Regarding Big-5, on the basis of 35 questions, 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 acquiescence bias¹⁷ (we also create Big-5 personality traits non-corrected from acquiescence bias) (see Appendix B). The resulting mean represent the score on each traits.

McDonald's Ω^{18} , a measure of internal consistency, are mostly satisfactory for 2016-17 data corrected from acquiescence bias: 0.81 for openness; 0.86 for conscientiousness; 0.59 for extraversion; 0.60 for agreeableness and 0.80 for emotional stability (see Figure 1). For 2020-21, the internal validity after correcting for acquiescence bias is not ideal (see Figure 1) and implies that results could suffer from measurement error, which would bias our results towards zero. We, therefore, implement our own exploratory factor analysis to identify personality traits.

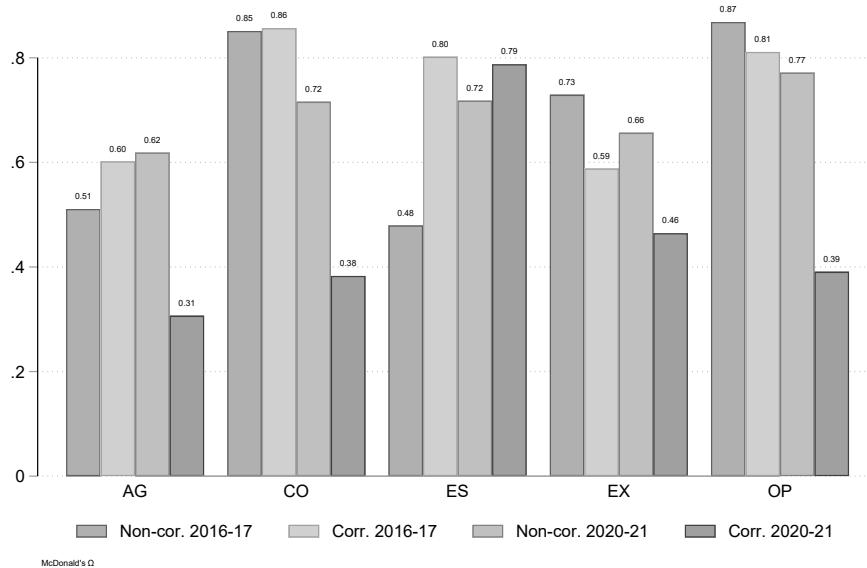


Figure 1: Internal consistency of Big-5 personality traits – Distribution of McDonald's Ω through time and correction for 953 individuals in 2016-17 and 1,316 in 2020-21 from rural Tamil Nadu, India.

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

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 in face-to-face survey can induce a bias; the low education levels can make questions more difficult to understand and can induce a systematic response patterns, especially the acquiescence bias. The very good knowledge of the field¹⁹ 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 35 questions by principal component with promax rotation. To avoid a bias in factor analysis, we do not recode reverse questions because it might force likeness with Big-5 taxonomy²⁰.

¹⁷ Acquiescence bias represent the “tendency for survey respondents to agree with statements regardless of their content” (Lavrakas, 2008).

¹⁸ 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).

¹⁹ More than 20 years.

²⁰ In our dataset, acquiescence bias is measured with a set of reverse questions that are supposed perfectly opposed to another set of questions. However, the assumption of opposition is supportable only in the Big-5 taxonomy, in

The resulting factors for 2016-17 data are relatively similar to the Big-5 personality traits with satisfactory McDonald's Ω : Factor 1 as Openness-Extraversion ($\Omega = 0.91$); Factor 2 as Conscientiousness ($\Omega = 0.88$); Factor 3 as *Porupillatavan* –tamil terms for talkative, easily distracted individual– ($\Omega = 0.69$); Factor 4 as Emotional stability ($\Omega = 0.78$) and Factor 5 as Agreeableness ($\Omega = 0.62$) (see Appendix B). The resulting factors for 2020-21 data are very different to the Big-5 taxonomy and to the 2016-17 factors: Factor 1 as Sociability (); Factor 2 as Conscientiousness (); Factor 3 as Emotional stability (); Factor 4 as () and Factor 5 as ()�.

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. We standardised the resulting residuals and use it at personality measures net of life cycle influences (Brown & Taylor, 2014; Nyhus & Pons, 2005).

Exogeneity The exogeneity of PT&CS is well assume because of stability over time while there is no consensus in psychology (Ardelt, 2000; Deary, 2014).

Concerning cognitive skills, majority of individuals have higher –or equal– score in 2020-21 than in 2016-17 (see Appendix A) which corroborate with the lifelong learning theory²¹. Raven (2000)

Nisbett et al. (2012)

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. Many economist²² follow this path and the majority of them assume stability over time after the age of 25 and others 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, Ardel (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. Non-corrected traits, in addition to having globally (2016-17 and 2020-21) higher internal consistency (see Table 1) are less unstable over time without being able to relate stability: 50% of egos have an absolute variation of Openness higher than 20%, and higher than 15% for other traits (see Appendix A).

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

another layout pairs of questions can measure different aspects of personality.

²¹“Development after formal education: the continuing development of knowledge and skills that people experience after formal education and throughout their lives” (?). See ? for further details.

²²But not all, see Almlund et al. (2011); Borghans et al. (2008); Heckman (2011). As stated by Heckman (2011), “Personality traits are not set in stone. They change over the life cycle. They are a possible avenue for intervention and policy.”

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 investigate the size of the individual debt with the total amount of individual debt taken out in her own name. Second, we investigate the burden of debt repayment with the individual debt service ratio²³ (DSR).

2.4 Econometric framework

In order to better understand the relationship between debt and PT&CS, our analysis take place in three step.

How PT&CS shape individual debt? In a first step, we use the PT&CS of 2016-17 (X'_i) on individual debt of 2020-21 to understand how personality shapes individual debt. Our analysis faces non-random sample selection issues because of the nature of our dependent variables: the sample is restricted to those who declared a non-zero and non-missing debt. We therefore do not account for entry and exit in debt by only considering total loan amount and debt service ratio. To overcome this sample selection issue, it is rigorous to use the Heckman (1976) procedure, which involves estimating a model of debt participation, where this is conditioned on factors additional to those that determine the amount of debt borrowed (named exclusion restriction –ER– variables). Strong theoretical background is needed to determine ER variables that affect the participation decision but not the amount of debt. Cox and Jappelli (1993) used years of education, occupation, area income, employment status and rural-urban status as exclusion restriction and Bertaut and Starr (2002) used the proportion of household heads employed in the financial services in the region and the proportion of household heads employed in a workplace of 500 or more. Duca and Rosenthal (1993) and Crook (2001) assumed that the same variables determined the probability of having debt and the amount borrowed. However, Lennox, Francis, and Wang (2011) point out that an absence of ER in the first stage can lead to severe multicollinearity in the second stage. del Río and Young (2006) used localisation, race and employment status. However, they results from Heckman procedures are no different from those from OLS regressions, suggested that “any corner-solution biases are small”. Therefore,

²³Individual debt service ratio represent the share of income required to cover the repayment of interest and principal on a debt for one year.

they focus separately on the participation equation and on debt equations (excluding non-participants). We follow [del Río and Young \(2006\)](#) in focusing separately on the participation equation and on debt equations in excluding non-participants. We also estimate a Heckman selection model as robustness check with the household debt dependency ratios –defined as the number of indebtedness individuals divided by the total number of household members, in 2016-17– as exclusion restriction variables²⁴. Results are no different from those from OLS regression, suggested that the non-random sample selection issues is small, which corroborate with literature ([Brown & Taylor, 2014](#); [del Río & Young, 2006](#)). We discuss the main findings of Heckman model in section 4, but full results are available on request.

Another way to estimate our model is to use tobit model which allow for the truncation of the dependent variables as [Brown and Taylor \(2014\)](#); [Cox and Jappelli \(1993\)](#). However, it would be unsuitable as the data are not censored or truncated, but defined on \mathbb{R}^+ ([Maddala, 1991](#)).

Therefore, we use, first, probit model with maximum likelihood estimation to estimate the probability for an individual of being in debt ($Indebt_i$) (eq. 1).

$$Indebt_i = \beta_0 + X'_i * \beta_1 + C'_i * \beta_2 + \mu_i \quad (1)$$

Our control variables (C'_{it}) 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:

- Individual level variables as age; age square; sex; dummy variable which take 1 if individual is the household head, 0 otherwise; main occupation²⁵; number of occupation (dummy variable which take 1 if individual declare more than one occupation, 0 otherwise); 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).
- Household level variables as caste; monetary value of assets²⁶; sex ratio; total annual income; household size; shock exposure (dummy variable which take 1 if the household experienced a shock²⁷ between 2010 and 2016-17, 0 if not).

The amount of debt is estimated in $t+1$ and our independent variables in t , we therefore control for the indebtedness situation in t in adding dummy variable which take 1 if individual is indebted in 2016-17, 0 otherwise.

Then, in order to investigate the amount of debt and the burden of repayment (Y_i), we use OLS (eq. 2). Despite the fact that DSR is a share, we do not use GLM because of the upper bond of the variable (> 1) ([Cook, Kieschnick, & McCullough, 2008](#)).

$$Y_i = \beta_0 + X'_i * \beta_1 + C'_i * \beta_2 + \epsilon_i \quad (2)$$

To take into account the strength of social identity (gender and caste) we investigate relationship on a pooled sample of egos with interactions variables to maximize statistical power, although splitting samples improves model specification (the sub-samples obtained are too small to make regressions). First we do not use interaction to see the global effect (1), then we add interaction variable with gender (2), caste (3) and both (4) to test whether the effect of PT&CS differ by gender and caste :

²⁴Nevertheless, we check for multicollinearity and find that the highest VIF score (for the **dummyhead**) is 4.33, which is less than the cutoff point of 10 ([Lennox et al., 2011](#)).

²⁵Define as the most time-consuming activity.

²⁶The monetary value of assets includes gold; land; house; livestock; agricultural equipment and consumption good (car, computer, cookgas, phone, etc.).

²⁷Marriage of at least one of the household members or/and household surveyed after the demonetisation.

$$\begin{array}{ll} (1) & Z'_i = 0 \\ (2) & Z'_i = Sex * X'_i \end{array} \quad \begin{array}{ll} (3) & Z'_i = Caste * X'_i \\ (4) & Z'_i = Sex * Caste * X'_i \end{array}$$

We choose to cluster the error at households scale to take into account the fact that observations within each household are not i.i.d. Indeed, we have data for two individuals from the same household and these latter sharing resources and pooling others. In terms of debt, as stated by Reboul et al. (2021), “our data is limited, [but] it suggests that fully pooling and sharing the household debt burden is not the norm.”

To interpret our results, we compute marginal effect (ME) at representative values on the predicted values of PT&CS Williams (2012). We use gender (male/female) and caste (non-dalits/dalits) as representative values, all other variables are at mean. Thanks to our interactions variables, we therefore obtains nine groups ME for each PT&CS variable: average individual; average male; average female; average non-dalits; average dalits; average non-dalits male; average dalits male; average non-dalits female and average dalits female.

How the PT&CS varies across the indebtedness distribution? As OLS regression is mean reasoning, we supplement this analysis with quantile reasoning to understand the variation of PT&CS across the indebtedness distribution. Quantile debt regressions consider specific parts of the conditional distribution of the debt and indicate the influence of the PT&CS variables on conditional debt respectively at P10, P25, P50, P75 and P90 of the distribution.

How does debt change over time as PT&CS changes? In a second step, we fully accept the non-stability of personality traits by using one-way²⁸ individual fixed effect regressions (eq. 3) in order to compare within individual over time. In other words, as PT&CS increases for an individual over time, how does the debt change over time? Unlike the previous approach (*How PT&CS shape individual debt?*), we do not use personality traits from factor analysis insofar as factor for 2016-17 are different from those for 2020-21. **Les résultats de l'analyse factorielle sont différents en 2016-17 et en 2020-21. On ne peut pas comparer les facteurs. Par contre, les traits du Big-5 se mesurent de la même façon avec la moyenne. Je peux comparer les scores. Je dois, je pense, écrire ça de façon plus habile que je ne l'ai fait.** We use the same debt measures as before (the total amount of debt and the individual debt service ratio (Y_{it})).

$$Y_{it} = X'_{it} \beta_1 + C'_{it} \beta_2 + \alpha_i + u_{it} \quad (3)$$

An important caveat lies in the study of causality. We do not pretend to show a causal relationship between PT&CS and indebtedness but to relate correlations because we cannot rule out the possibility of reverse causality between PT&CS variation and indebtedness variation.

We use the same vector of control variables than before. However, as we estimate FE model, time-invariant variables are omitted from the analysis: sex; education; caste.

How PT&CS influences the debt trajectory? In a last step, return to the factor analysis to understand the debt trajectory through time. With a multinomial probit, we investigate the contribution of PT&CS on the debt trajectory: Never indebted in 2016-17 and 2020-21 (i); Out of debt between 2016-17 and 2020-21 (ii); Became indebted between 2016-17 and 2020-21 (iii); Always indebted in 2016-17 and 2020-21 (iv).

$$Y_i = \beta_0 + X'_i \beta_1 + C'_i \beta_2 + \alpha_i \quad (4)$$

²⁸We choose to not compute two-way fixed effect for the many problems with maintaining assumptions and interpreting the coefficients (Imai & Kim, 2020; Kropko & Kubinec, 2020).

We use the same vector of control variables than for Heckman model.

3 Descriptive statistics

3.1 Household unit in Table 1

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 2016-17.** 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 in 2016-17. 50% of middle-upper caste have less than 666,500 INR of assets while 50% of dalits households have less than 266,400 INR in 2016-17. For 50% of dalits, the monetary value of assets increased by at least 47% between 2016-17 and 2020-21 while for 50% of non-dalits households, it decreased by at least 22%. However, middle and upper caste still have higher amount of assets in 2020-21. This economic advantage of non-dalit households is also found with income: the median income of middle-upper caste is 33.71% higher than dalits one in 2016-17 and 14.64% higher in 2020-21. Last, whatever the caste, we observe a reduction of total income: for 50% dalits households the total income decreased by at least 3.55% and for 50% of non-dalits households, it decreased by at least 5.40%.

3.2 Individual unit in Table 2

At egos level, 55.45% of our sample are male (44.55% are female) and among male, 46% are dalit (among female 50% are dalit). Male are, on average, older than female and three quarters of them are the head of household while female are only 9% in 2016-17 and 27% in 2020-21. This increase is partly due to the life cycle: when the household head died, the wife **take over**. In terms of education, male are more formal educated than female.

Disparities in terms of gender are found in the occupation. Despite the increasing of the number of female in agriculture and the decreasing of the number of male in self-employment, this activities are mostly reserved for male. The reverse assessment is true for salaried job in agriculture: between 2016-17 and 2020-21 the share of male increase by 47% (from 16% to 24%) but female remain relatively more numerous (27.42% in 2016-17 and 29.58% in 2020-21). Whatever the gender, non-agricultural salaried job remain stable over time and the share of male implicated is similar to the share of female (around 37%). Non-income generating work as the main occupation is over-represented for female while even though the share fell considerably between 2016-17 and 2020-21 (from 24% to 15%). Moreover, female are more likely to have multiple occupations and this probability increase between 2016-17 and 2020-21 (from 50% to 60%). In terms of income, disparities persist between male and female. On average, male have 102,000 INR per year as labour income while female have 19,000 INR. Between 2016-17 and 2020-21, the average variation rate is higher for female than for male (respectively 173% and 163%).

Individual debt trend There are also many disparities in terms of debt. While the share of individual is relatively stable through time and gender (around 75%), the path is different. Female are more vulnerable than male in the sense that the share of individual never in debt is lower for female than for male (respectively 10% and 14%) and the share of individual becomes in debt between 2016-17 and 2020-21 is higher for female than for male (respectively 14% and 8%). To finish with the path, we observe that more than six out of ten individuals remains indebted.

Our sample of indebted individual consists of 643 individuals in 2016-17 and 606 individuals in 2020-21 whose 516 are indebted in 2016-17 and in 2020-21. Male have a higher absolute amount of debt than female (two times more in 2016-17: 190,000 INR for male while 80,000 INR for female) despite a reduction in the amount between 2016-17 and 2020-21 (for 50% of

Table 1: Household-unit descriptive statistics in 2016-17

	Dalits			Middle-upper		
	2016-17	2020-21	Δ	2016-17	2020-21	Δ
Number of households	n=228	n=228	n=228	n=245	n=245	n=245
Socio-demographic characteristics						
Household size (mean)	4.93	4.94		4.46	4.41	
Number of ego (%)						
1	24.12	24.12		22.86	22.86	
2	75.88	75.88		77.14	77.14	
Sex ratio (%)						
<i>More female</i>	32.02	32.46		26.12	27.76	
<i>Equal</i>	23.68	26.32		34.29	31.84	
<i>More male</i>	44.30	41.23		39.59	40.41	
Location (%)						
<i>Near Panruti</i>	74.56	74.56		57.55	57.55	
<i>Near Villupuram</i>	16.23	16.23		31.84	31.84	
<i>Near Tiruppur</i>	0.00	0.00		2.45	2.45	
<i>Near Chengalpattu</i>	6.14	6.14		6.53	6.53	
<i>Near Kanchipuram</i>	3.07	3.07		0.82	0.82	
<i>Near Chennai</i>	0.00	0.00		0.82	0.82	
Wealth & finance characteristics						
Assets* (1,000 INR)						
<i>Mean</i>	487.42	458.69	192.19	1,493.35	768.25	79.93
<i>SD</i>	846.30	353.32	522.68	2,373.47	1,263.68	317.01
<i>Median</i>	266.40	360.59	47.12	666.50	447.00	-22.45
Income [†] (1,000 INR)						
<i>Mean</i>	179.56	146.21	59.80	193.13	191.20	85.87
<i>SD</i>	332.51	160.91	182.79	206.40	244.79	303.90
<i>Median</i>	106.35	104.71	-3.55	142.20	120.04	-5.40
Shock (=1)	57.02	26.75		56.33	17.96	
Indebted household (=1)	99.12	99.12	-	98.78	97.96	-
Household debt path (%)						
<i>Never in debt</i>			0.00			0.00
<i>Out of debt</i>			0.75			1.61
<i>Becomes in debt</i>			1.00			0.92
<i>Always in debt</i>			98.25			97.47

Note: * desc of assets [†] desc of income

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

male, debt has decreased by more than 57%). On the other hand, 50% of female saw their debt increased by more than 24% (on average, in 2016-17 a female has a debt of 80,000 INR, while it is at 90,000 INR in 2020-21. Male spend less of their annual income on debt repayment than female: in 2016-17 50% of male spend 27% of their annual income on debt repayment and 12% in 2020-21 while female spend 32% in 2016-17 and 77% in 2020-21. Furthermore, 50% of male have seen their DSR decreased by at least 0.27% while 50% of female have seen their DSR increased by at least 0.09%.

Personality traits & cognitive skills with Figures 2 Figure 2 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 higher score than women, whatever the caste. Dalits tend to be more *Porupillatavan* (Factor 3) than non-dalits and dalits male more emotional stable than other (Factor 4). For Agreeableness (Factor 5), we do not observe differences between our four groups. In terms of cognitive skills, male tends to have higher score.

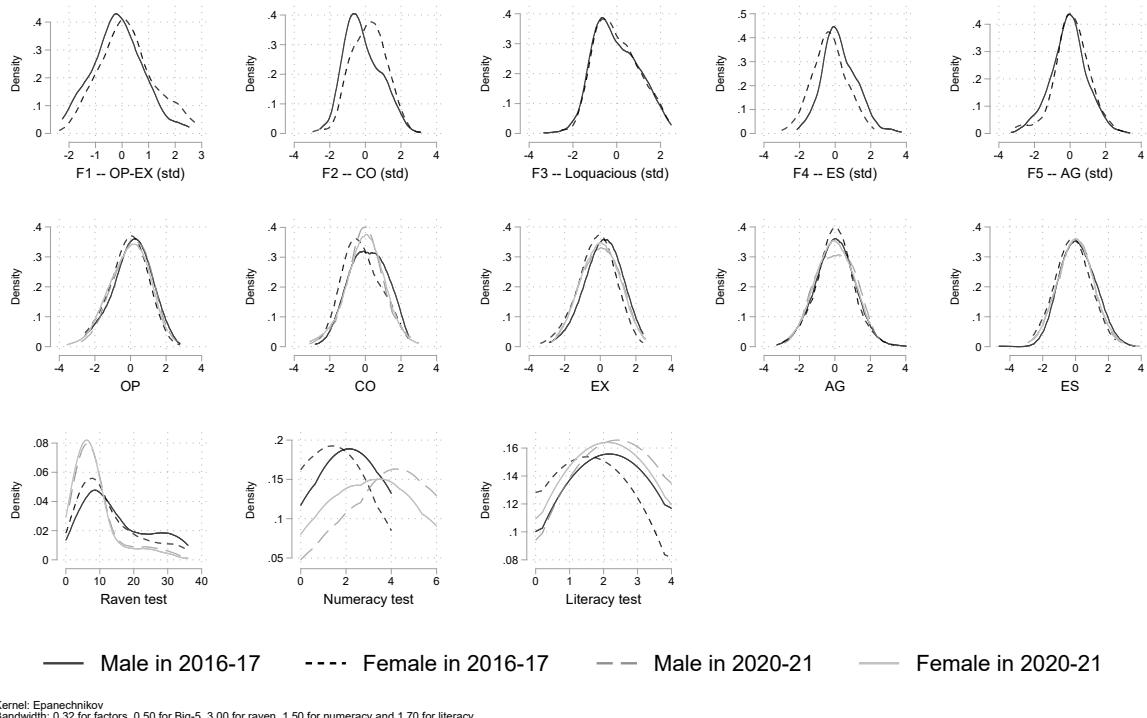


Figure 2: Distribution of PT&CS – The resulting personality trait from factor analysis and Big-5 taxonomy are based on the standardised residual from univariate OLS regression with age as exogenous variable. This is the personality trait purged from life-cycle effects.

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

Table 2: Individual-unit descriptive statistics in 2016-17

	Male			Female		
	2016-17	2020-21	Δ	2016-17	2020-21	Δ
Number of individuals	n=463	n=463	n=463	n=372	n=372	n=372
Socio-economic characteristics						
Caste (%)	46.22	46.22		50.27	50.27	
<i>Dalits</i>	53.78	53.78		49.73	49.73	
<i>Middle-upper caste</i>						
Age (mean)	44.46	48.46		40.33	44.33	
Head of family (=1)	75.38	74.08		9.14	27.15	
Married* (=1)	80.99	86.39		84.41	81.72	
School education (=1)	68.68	68.68		52.69	52.69	
Main occupation (%)						
<i>Agriculture</i>	17.06	16.20		3.49	11.74	
<i>Self-employed</i>	16.63	12.53		5.38	8.98	
<i>Salaried job (agri.)</i>	15.98	23.54		27.42	29.58	
<i>Salaried job (non-agri.)</i>	38.66	36.72		39.78	34.85	
<i>Unpaid working or not working</i>	11.66	11.02		23.92	14.85	
Multiple occupation (=1)	38.01	47.27		50.27	60.00	
Labour income (1,000 INR)						
<i>Mean</i>	102.42	74.63	162.78	19.29	21.71	173.02
<i>SD</i>	243.22	89.33	2,405.69	41.33	45.83	538.41
<i>Median</i>	56.00	51.67	-0.02	7.20	9.30	0.11
Debt characteristics						
In debt (=1)						
<i>Mean</i>	0.78	0.71	-	0.76	0.74	-
Individual debt path (%)						
<i>Never in debt</i>			14.04			9.95
<i>Out of debt</i>			14.69			15.86
<i>Became in debt</i>			8.42			13.71
<i>Always in debt</i>			62.85			60.48
Number of indebted individuals	n=359	n=330		n=284	n=276	
Loan amount (1,000 INR)						
<i>Mean</i>	189.74	136.87	2,067.62	79.52	90.38	126.21
<i>SD</i>	250.40	238.64	41,296.09	97.08	94.29	934.12
<i>Median</i>	105.00	64.58	-56.94	44.50	69.10	23.55
DSR (%)						
<i>Mean</i>	93.13	134.10	251.85	173.84	253.05	91.23
<i>SD</i>	417.16	558.99	1,580.94	411.71	554.54	575.37
<i>Median</i>	27.26	11.72	-0.27	31.59	77.30	0.09

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

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

4 Results

"Results are presented for the residual of the personality measures obtained from conditioning the personality traits on a polynomial function in age to mitigate against life cycle effects and potential problems of measurement error (Brown & Taylor, 2014)".

To interpret the results, marginal effects (ME) at representative values on the predicted value of the PT&CS are reported for the four specifications as describe previously (without interaction (1), with gender interaction (2), with caste interaction (3), with gender & caste interaction (4)). According to specifications, the representatives values are:

- (1) The average individual (col "All").
- (2) The average male (col "Male") and the average female (col "Female").
- (3) The average non-dalits (col "MUC") and the average dalits (col "Dalits").
- (4) The average non-dalits male (col "MUC male"), the average dalits male (col "Dalits male"), the average non-dalits female (col "MUC female") and the average dalits female (col "Dalits female").

All of our variables of interest (PT&CS) are standardized to ensure comparability between them. We will therefore speaks in terms of "one standard deviation" more of PT&CS²⁹.

4.1 How PT&CS shape individual debt?

Probability of being indebted Table 3 presents the results from the multivariates probit analysis of the first stage of the Heckman procedure. McFadden's pseudo R^2 indicate a very good goodness-of-fit for all the specification –they are all above 0.2 threshold (McFadden, 1979). Moreover, we observe that all p-values associated with the simultaneous coefficient nullity test ($LR\chi^2$) are low enough to conclude that at least one of the regression coefficients in the model is not equal to zero. Whatever the specification, the probability of being in debt in 2016-17 is positively correlated with the probability of being in debt in 2020-21 and the exclusion restriction variable (Debt ratio) is negatively correlated at the 95% confidence level.

The results show that 2016-17 cognitive skill –whatever the specification– are not correlated with the probability of being indebted in 2020-21 at 95% confidence level (neither at 90%), except for literacy which is positively correlated for the average female. However, three of the personality traits are correlated at the 90-95% confidence level. Without interaction variables, Factor 1 as OP-EX is negatively correlated with the probability for the average individual of being in debt. With gender interaction, the relationship becomes clearer for the average female and with caste interaction for the average non-dalits. With three way interaction variable, we observe that for the average non-dalits female, other things equal, when Factor 1 increase by one standard deviation, the probability of being in debt decrease by 11.1 pp. Factor 2 as CO and Factor 3 as Loquacious, are also negatively correlated for non-dalits female but less than Factor 1 (respectively 8.3 pp at 90% confidence level and 8.8 pp). literature. For Factor 2, the relationship is reverse for male and more precisely for non-dalits one: all else being equal, when Factor 2 increase by one standard deviation, the probability of being in debt increase by 9.3 pp.

Total amount of debt Table 6 presents the results from the multivariates OLS analysis of the first outcome of the Heckman procedure, the total amount of debt. All p-values associated with the simultaneous coefficient nullity test (F-stat) are low enough to conclude that at least one of the regression coefficients in the model is not equal to zero. The goodness-of-fit is less good than the previous one: we are able to explain around 22% of the total variance of the total amount of

²⁹Reminder: Factor 1 as EX-OP; Factor 2 as CO; Factor 3 as Porupillatavan; Factor 4 as ES; Factor 5 as AG.

Table 3: Marginal effects of the probability of being in debt in 2020-21

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
F1 – OP-EX (std)	-0.033 (-1.910)	-0.010 (-0.353)	-0.048 (-1.860)	-0.081 (-2.997)	-0.000 (-0.021)	-0.049 (-1.267)	0.011 (0.285)	-0.111 (-2.369)	-0.003 (-0.111)
F2 – CO (std)	0.005 (0.276)	0.045 (1.705)	-0.046 (-1.605)	0.026 (1.026)	-0.011 (-0.467)	0.093 (2.311)	-0.004 (-0.104)	-0.083 (-1.862)	-0.014 (-0.410)
F3 – Loquacious (std)	-0.018 (-1.035)	-0.006 (-0.217)	-0.036 (-1.386)	-0.039 (-1.529)	-0.005 (-0.233)	-0.022 (-0.605)	-0.010 (-0.268)	-0.088 (-2.082)	0.006 (0.177)
F4 – ES (std)	0.002 (0.096)	0.017 (0.672)	-0.016 (-0.599)	-0.023 (-0.871)	0.012 (0.550)	-0.034 (-0.877)	0.055 (1.523)	-0.045 (-0.960)	-0.023 (-0.761)
F5 – AG (std)	-0.026 (-1.446)	-0.035 (-1.347)	-0.028 (-1.042)	-0.045 (-1.618)	-0.016 (-0.680)	-0.062 (-1.604)	-0.021 (-0.605)	-0.053 (-1.154)	-0.026 (-0.788)
Literacy (std)	0.034 (1.094)	-0.002 (-0.039)	0.085 (1.976)	0.048 (1.237)	0.020 (0.491)	0.033 (0.603)	-0.029 (-0.479)	0.094 (1.585)	0.089 (1.625)
Numeracy (std)	-0.008 (-0.304)	0.002 (0.053)	-0.034 (-0.837)	-0.014 (-0.374)	-0.003 (-0.075)	-0.050 (-0.909)	0.045 (0.785)	-0.008 (-0.134)	-0.050 (-0.945)
Raven (std)	0.005 (0.239)	0.022 (0.708)	-0.021 (-0.609)	-0.017 (-0.567)	0.031 (0.928)	0.004 (0.102)	0.054 (1.106)	-0.042 (-0.848)	-0.004 (-0.103)
Indebted (=1) in 2016-17	0.414 (2.752)		0.412 (2.719)		0.390 (2.563)			0.389 (2.523)	
Debtor ratio in 2016-17	-0.157 (-2.194)		-0.165 (-2.344)		-0.152 (-2.141)			-0.144 (-1.966)	
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	831		831		831			831	
McFadden's pseudo R ²	0.205		0.218		0.214			0.236	
Log-likelihood	-387.994		-381.828		-383.822			-373.271	
LR X ²	240.884		246.493		326.328			314.239	
p-value	0.000		0.000		0.000			0.000	

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

debt. Unlike earlier, the debt situation of 2016-17 is not correlated at 90% confidence level with the outcome. The IMR is insignificant across all four estimations (**Be careful of three-way interaction**), indicating that self-selection does not significantly affect total loan amount of debt after controlling for PT&CS and other controls variables.

Numeracy and Raven are correlated with the total amount of debt at 95% confidence level for dalits female, but the relationship is reverse (negative relationship for Numeracy while positive relationship for Raven). In addition, Raven is negatively correlated for non-dalits female at 95% confidence level, and the relationship is more stronger than for dalits female (respectively +23,315 ₹ and -44,021 ₹). Regarding personality traits, Factor 2 and Factor 3 are negatively correlated with the total amount of debt when there is not interactions variables. The relationship becomes clearer at 90% confidence level for male, non-dalits and *in fine* for non-dalits male with a stronger relationship for Factor 2: all else being equal, when Factor 2 increase by one standard deviation, predicted total loan amount decrease by 49,000 ₹ (37,000 ₹ for Factor 3). Factor 2 and Factor 3 are also negatively correlated at 90% confidence level for respectively dalits female and non-dalits female. Among dalits female, those with higher Factor 5 as AG are also those with lower amount of debt, other things equal. Last, Factor 1 is positively correlated when there is not interactions variables and the relationship seems to be clarified for middle-upper caste individual and more for middle-upper caste male at 90% confidence level(40,167 ₹ of debt in more).

Individual debt service ratio Table 7 presents the results for the individual debt service ratio, the second outcome of the Heckman procedure. All p-values associated with the simultaneous coefficient nullity test (F-stat) are low enough and the goodness-of-fit is quite low compared to previous analysis. Debt situation of 2016-17 is still not correlated at 90% confidence level. The IMR is insignificant across all four estimations (**Be careful of three-way interaction**), indicating that self-selection does not significantly affect individual debt service ratio after controlling for PT&CS and other controls variables.

Table 4: Marginal effects of the total loan amount in 2020-21

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
F1 – OP-EX (std)	16.393 (1.979)	17.804 (1.419)	9.673 (1.192)	23.584 (1.651)	1.635 (0.269)	40.167 (1.861)	-5.738 (-0.487)	-4.828 (-0.323)	13.850 (2.017)
F2 – CO (std)	-18.845 (-1.820)	-29.207 (-1.736)	-7.115 (-0.794)	-33.633 (-1.827)	-8.425 (-0.913)	-49.214 (-1.728)	-5.290 (-0.296)	-20.554 (-1.057)	-11.659 (-1.874)
F3 – Loquacious (std)	-18.688 (-1.965)	-23.697 (-1.705)	-13.463 (-1.421)	-33.710 (-2.140)	-5.956 (-0.809)	-37.416 (-1.873)	-5.501 (-0.420)	-36.457 (-1.876)	-3.960 (-0.623)
F4 – ES (std)	-0.584 (-0.047)	0.619 (0.027)	-4.892 (-0.585)	14.518 (0.539)	-11.525 (-1.283)	28.774 (0.592)	-6.328 (-0.405)	-21.715 (-1.415)	-10.281 (-1.290)
F5 – AG (std)	-2.732 (-0.303)	-1.913 (-0.142)	-12.309 (-1.572)	7.001 (0.412)	-15.411 (-2.467)	4.561 (0.182)	-13.501 (-1.492)	-21.664 (-1.550)	-21.721 (-2.835)
Literacy (std)	4.945 (0.315)	13.862 (0.670)	0.844 (0.048)	12.692 (0.551)	15.621 (1.034)	15.986 (0.541)	9.899 (0.489)	23.632 (0.913)	24.323 (1.275)
Numeracy (std)	8.499 (0.817)	12.838 (0.797)	-0.008 (-0.001)	29.880 (1.537)	-10.306 (-1.023)	21.719 (0.709)	11.253 (0.659)	24.041 (0.982)	-30.772 (-2.150)
Raven (std)	1.445 (0.149)	9.408 (0.620)	-5.681 (-0.469)	-5.642 (-0.384)	6.085 (0.510)	21.417 (1.021)	-7.501 (-0.365)	-44.021 (-2.018)	22.315 (2.125)
Indebted (=1) in 2016-17	-19.063 (-0.677)		-5.392 (-0.222)		3.533 (0.141)			12.755 (0.575)	
IMR in 2016-17	-27.001 (-0.269)		28.434 (0.323)		95.547 (0.897)			157.737 (1.707)	
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	603		603		603			603	
R ²	0.263		0.272		0.290			0.322	
Adjusted R ²	0.220		0.218		0.238			0.249	
F-stat	5.351		2.969		4.478			2.396	
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.

As for the previous analysis, Factor 1 is positively correlated with the share of the annual income dedicated to debt (capital and interest) repayment and especially for dalits female at 95% confidence level. Indeed, for the average individuals, when Factor 1 increase by one standard deviation , the predicted debt service ratio increase by 94 pp, all else being equal. Factor 2 is negatively correlated and mainly for female at 90% confidence level. Magnitude of the correlation is similar to that of Factor 1 for the average female (83 pp in more for Factor 1 and 84 pp in less for Factor 2, other things equal). Factor 4 as ES and Factor 3 are also correlated with the individual debt service ratio for non-dalits female at 90% confidence level and with the same strength (around 123 pp) but relationship is reversed (positively correlated for Factor 3 and negatively correlated for Factor 4).

Specifically, a one standard deviation increase in EX is associated with a decrease in the ... by 1.87 percentage points.

4.2 How PT&CS variation is correlated with indebtedness variation?

4.3 How PT&CS shape the indebtedness path?

Table 5: Marginal effects of the individual debt service ratio in 2020-21

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
F1 – OP-EX (std)	48.149 (2.107)	21.127 (0.659)	83.370 (2.784)	63.143 (1.651)	40.677 (1.329)	74.766 (1.327)	-23.592 (-0.488)	74.075 (1.528)	94.170 (2.310)
F2 – CO (std)	-47.470 (-1.957)	-3.555 (-0.131)	-83.901 (-1.686)	-48.854 (-1.541)	-41.055 (-1.092)	-49.443 (-1.113)	17.690 (0.623)	-13.314 (-0.259)	-97.337 (-1.353)
F3 – Loquacious (std)	4.064 (0.157)	-12.703 (-0.346)	28.956 (0.760)	8.368 (0.233)	1.840 (0.059)	-32.003 (-0.644)	24.766 (0.507)	124.112 (1.848)	-23.733 (-0.591)
F4 – ES (std)	-26.730 (-1.063)	-10.476 (-0.422)	-52.602 (-1.241)	-63.622 (-1.506)	1.149 (0.041)	17.508 (0.438)	-35.907 (-1.021)	-122.386 (-1.807)	34.850 (0.802)
F5 – AG (std)	10.980 (0.459)	18.891 (0.660)	2.076 (0.048)	-0.423 (-0.014)	29.793 (0.954)	37.718 (0.958)	30.502 (0.861)	-49.156 (-0.953)	64.526 (1.171)
Literacy (std)	4.130 (0.118)	-19.495 (-0.459)	18.540 (0.349)	-11.696 (-0.250)	1.348 (0.030)	-15.835 (-0.264)	-40.657 (-0.760)	-90.022 (-1.148)	3.493 (0.050)
Numeracy (std)	-12.463 (-0.429)	-34.833 (-1.057)	19.285 (0.329)	0.458 (0.011)	-19.706 (-0.548)	-21.272 (-0.465)	-41.944 (-0.835)	50.136 (0.557)	31.676 (0.535)
Raven (std)	22.855 (0.808)	-29.403 (-1.122)	76.359 (1.284)	39.039 (0.904)	-1.809 (-0.042)	-35.522 (-1.268)	-46.203 (-0.924)	160.693 (1.560)	23.817 (0.350)
Indebted (=1) in 2016-17	6.689 (0.086)		-14.044 (-0.181)		-19.067 (-0.241)			-64.112 (-0.766)	
IMR in 2016-17	19.198 (0.067)		-18.563 (-0.069)		-148.052 (-0.536)			-315.454 (-1.080)	
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	603		603		603			603	
R ²	0.069		0.092		0.073			0.112	
Adjusted R ²	0.015		0.026		0.005			0.017	
F-stat	2.391		1.587		1.652			1.440	
p-value	0.000		0.014		0.008			0.024	

Note: Marginal effects with T-stat in parentheses.

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

Table 6: Marginal effects of the total loan amount in 2020-21

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
OP (std)	8.216 (0.711)	1.490 (0.082)	21.485 (1.995)	-0.009 (-0.000)	17.124 (1.646)	-21.862 (-0.741)	27.710 (1.794)	45.141 (2.556)	4.586 (0.401)
CO (std)	3.207 (0.333)	1.567 (0.096)	2.339 (0.289)	7.336 (0.462)	-2.640 (-0.248)	9.393 (0.365)	-14.255 (-0.766)	-3.357 (-0.253)	6.074 (0.619)
EX (std)	-12.243 (-1.110)	-10.093 (-0.611)	-20.887 (-1.866)	-6.388 (-0.396)	-19.390 (-1.477)	-0.339 (-0.013)	-24.432 (-1.211)	-31.375 (-2.015)	-11.599 (-0.924)
AG (std)	-1.150 (-0.102)	-2.038 (-0.109)	3.658 (0.391)	-6.665 (-0.382)	3.617 (0.313)	0.877 (0.033)	3.514 (0.158)	5.817 (0.409)	2.336 (0.192)
ES (std)	-6.361 (-0.748)	-12.390 (-1.049)	-0.220 (-0.022)	-3.642 (-0.244)	-8.558 (-1.055)	-21.097 (-1.012)	-6.546 (-0.542)	18.616 (1.094)	-12.512 (-1.117)
Literacy (std)	40.826 (3.292)	58.801 (2.952)	15.793 (1.638)	52.027 (2.697)	18.849 (1.575)	78.346 (2.742)	25.217 (1.137)	9.753 (0.620)	18.448 (1.473)
Numeracy (std)	-10.156 (-1.138)	-14.233 (-1.043)	-3.965 (-0.491)	-17.582 (-1.165)	2.979 (0.351)	-22.253 (-1.039)	6.338 (0.459)	-11.084 (-0.814)	1.521 (0.158)
Raven (std)	-8.431 (-0.746)	-23.409 (-1.352)	13.493 (1.726)	-9.580 (-0.486)	-3.674 (-0.376)	-22.334 (-0.839)	-21.823 (-1.251)	16.702 (1.255)	12.674 (1.275)
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Individuals FE	X		X		X			X	
Observations	1071		1071		1071			1071	
Nb of groups	708		708		708			708	
ρ	0.646		0.645		0.648			0.637	
Within R^2	0.154		0.174		0.164			0.199	
Between R^2	0.031		0.036		0.025			0.040	
Overall R^2	0.050		0.058		0.045			0.065	
F-stat	2.247		2.084		1.897			1.727	
p-value	0.001		0.001		0.003			0.003	

Note: Marginal effects with T-stat in parentheses.

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

Table 7: Marginal effects of the individual debt service ratio in 2020-21

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
OP (std)	-22.105 (-0.788)	-15.416 (-0.429)	-7.284 (-0.146)	-9.959 (-0.291)	-25.490 (-0.622)	5.954 (0.116)	-57.704 (-1.849)	-35.504 (-0.642)	18.698 (0.260)
CO (std)	-14.114 (-0.577)	4.863 (0.281)	-40.991 (-0.843)	14.388 (0.552)	-43.980 (-1.148)	6.373 (0.283)	-9.800 (-0.394)	19.443 (0.327)	-59.789 (-0.932)
EX (std)	4.867 (0.245)	50.170 (1.946)	-44.626 (-1.122)	31.643 (1.213)	-32.550 (-1.018)	66.363 (1.544)	31.399 (1.329)	6.045 (0.133)	-104.401 (-1.540)
AG (std)	-14.835 (-0.405)	-35.240 (-0.837)	-0.851 (-0.014)	-51.709 (-1.260)	33.751 (0.625)	-48.955 (-0.914)	11.456 (0.396)	-70.613 (-1.082)	44.629 (0.474)
ES (std)	5.730 (0.204)	-41.313 (-1.512)	65.162 (1.181)	-16.029 (-0.532)	30.346 (0.717)	-69.659 (-1.415)	-10.566 (-0.609)	44.894 (0.938)	69.835 (0.873)
Literacy (std)	54.493 (2.000)	65.821 (1.614)	60.198 (1.032)	59.768 (2.161)	44.478 (0.873)	92.366 (1.581)	24.064 (0.676)	50.833 (0.701)	64.516 (0.744)
Numeracy (std)	11.167 (0.451)	0.090 (0.007)	40.912 (0.720)	15.486 (0.653)	14.742 (0.354)	4.795 (0.240)	-12.728 (-0.683)	42.201 (0.718)	38.649 (0.490)
Raven (std)	21.823 (0.777)	-5.520 (-0.407)	62.735 (0.931)	-16.310 (-0.560)	58.916 (1.119)	-4.259 (-0.221)	-8.490 (-0.422)	-35.807 (-0.483)	128.739 (1.282)
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Individuals FE	X		X		X			X	
Observations	1071	1071		1071			1071		
Nb of groups	708	708		708			708		
ρ	0.551	0.550		0.539			0.546		
Within R^2	0.098	0.128		0.116			0.154		
Between R^2	0.013	0.015		0.014			0.018		
Overall R^2	0.016	0.023		0.023			0.030		
F-stat	1.106	1.032		1.026			0.946		
p-value	0.335	0.422		0.430			0.576		

Note: Marginal effects with T-stat in parentheses.

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

Table 8: Marginal effects of the individual debt path between 2016-17 and 2020-21

	(1)		(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female	
Never in debt										
F1 – OP-EX (std)	-0.006 (-0.978)	-0.026 (-1.338)	-0.002 (-0.428)	-0.004 (-0.448)	-0.007 (-0.914)	-0.027 (-1.268)	-0.021 (-0.924)	-0.001 (-0.161)	-0.003 (-1.010)	
F2 – CO (std)	-0.000 (-0.046)	-0.021 (-1.378)	0.008 (1.389)	-0.003 (-0.352)	0.003 (0.338)	-0.002 (-0.129)	-0.027 (-1.283)	0.004 (0.407)	0.009 (1.540)	
F3 – Loquacious (std)	0.012 (1.773)	0.000 (0.034)	0.015 (2.079)	0.026 (2.457)	0.002 (0.289)	0.012 (1.017)	-0.004 (-0.207)	0.030 (1.935)	0.003 (1.049)	
F4 – ES (std)	-0.002 (-0.355)	-0.012 (-0.786)	-0.001 (-0.157)	0.015 (1.507)	-0.011 (-1.407)	0.012 (1.014)	-0.029 (-1.255)	0.009 (0.801)	-0.004 (-1.411)	
F5 – AG (std)	0.003 (0.447)	0.014 (1.069)	0.000 (0.029)	0.007 (0.777)	0.002 (0.347)	0.022 (1.513)	0.006 (0.393)	-0.001 (-0.103)	-0.001 (-0.345)	
Literacy (std)	-0.022 (-1.636)	-0.017 (-0.615)	-0.016 (-1.574)	-0.037 (-1.954)	-0.011 (-0.814)	0.010 (0.565)	-0.029 (-0.917)	-0.034 (-1.614)	0.002 (0.527)	
Numeracy (std)	0.008 (0.860)	-0.001 (-0.040)	0.010 (1.195)	0.008 (0.518)	0.008 (0.776)	-0.005 (-0.306)	0.000 (0.000)	0.015 (1.036)	0.001 (0.222)	
Raven (std)	-0.001 (-0.160)	0.010 (0.657)	-0.006 (-0.971)	0.012 (1.216)	-0.013 (-1.321)	0.010 (0.875)	0.003 (0.122)	0.005 (0.439)	-0.010 (-1.621)	
Out of debt										
F1 – OP-EX (std)	0.035 (2.128)	0.017 (0.750)	0.054 (2.017)	0.077 (3.134)	0.000 (0.023)	0.059 (1.776)	-0.004 (-0.119)	0.115 (2.400)	0.001 (0.020)	
F2 – CO (std)	-0.004 (-0.225)	-0.026 (-1.206)	0.033 (1.175)	-0.022 (-0.938)	0.009 (0.442)	-0.081 (-2.403)	0.025 (0.810)	0.074 (1.716)	-0.010 (-0.296)	
F3 – Loquacious (std)	0.008 (0.552)	0.002 (0.103)	0.022 (0.868)	0.009 (0.400)	0.010 (0.477)	0.002 (0.052)	0.018 (0.576)	0.037 (1.003)	-0.013 (-0.355)	
F4 – ES (std)	0.002 (0.154)	-0.008 (-0.417)	0.021 (0.781)	0.004 (0.155)	0.006 (0.323)	0.020 (0.599)	-0.025 (-0.919)	0.020 (0.430)	0.046 (1.365)	
F5 – AG (std)	0.023 (1.459)	0.019 (0.930)	0.040 (1.450)	0.030 (1.309)	0.021 (0.979)	0.029 (0.938)	0.025 (0.836)	0.059 (1.300)	0.041 (1.208)	
Literacy (std)	-0.005 (-0.181)	0.019 (0.559)	-0.051 (-1.149)	-0.014 (-0.429)	0.004 (0.110)	-0.041 (-0.965)	0.074 (1.438)	-0.023 (-0.388)	-0.094 (-1.571)	
Numeracy (std)	-0.004 (-0.184)	-0.008 (-0.246)	0.021 (0.533)	0.004 (0.114)	-0.010 (-0.303)	0.050 (1.150)	-0.056 (-1.157)	-0.008 (-0.148)	0.042 (0.763)	
Raven (std)	0.003 (0.135)	-0.014 (-0.535)	0.025 (0.717)	0.011 (0.411)	-0.011 (-0.370)	-0.000 (-0.010)	-0.049 (-1.193)	0.012 (0.251)	0.036 (0.841)	
Becomes in debt										
F1 – OP-EX (std)	0.001 (0.110)	0.016 (0.853)	-0.011 (-0.624)	0.018 (1.032)	-0.015 (-0.775)	0.023 (0.996)	0.015 (0.462)	0.023 (0.923)	-0.052 (-2.484)	
F2 – CO (std)	0.001 (0.094)	-0.002 (-0.100)	0.005 (0.261)	-0.017 (-0.954)	0.018 (0.877)	0.000 (0.001)	0.007 (0.207)	-0.024 (-0.829)	0.025 (1.005)	
F3 – Loquacious (std)	0.031 (2.280)	0.003 (0.164)	0.055 (2.455)	0.010 (0.616)	0.053 (2.356)	0.018 (1.200)	-0.005 (-0.153)	0.014 (0.484)	0.096 (3.040)	
F4 – ES (std)	0.019 (1.490)	0.025 (1.517)	0.011 (0.596)	0.004 (0.216)	0.030 (0.164)	0.022 (1.236)	0.028 (1.002)	-0.006 (-0.229)	0.021 (0.935)	
F5 – AG (std)	-0.012 (-0.911)	-0.033 (-1.870)	0.000 (0.013)	-0.009 (-0.464)	-0.015 (-0.813)	0.002 (0.083)	-0.067 (-2.352)	-0.014 (-0.477)	0.019 (0.903)	
Literacy (std)	-0.006 (-0.276)	0.005 (0.161)	-0.010 (-0.372)	-0.011 (-0.424)	0.005 (0.144)	0.010 (0.306)	0.007 (0.137)	-0.007 (-0.211)	0.004 (0.115)	
Numeracy (std)	0.008 (0.399)	-0.007 (-0.231)	0.030 (1.081)	0.005 (0.221)	0.014 (0.430)	-0.036 (-1.475)	0.020 (0.406)	0.043 (1.118)	0.024 (0.648)	
Raven (std)	-0.007 (-0.427)	0.034 (1.535)	-0.054 (-2.186)	-0.016 (-0.805)	-0.007 (-0.231)	0.026 (1.291)	0.041 (1.002)	-0.069 (-1.953)	-0.051 (-1.656)	
Always in debt										
F1 – OP-EX (std)	-0.030 (-1.621)	-0.008 (-0.265)	-0.042 (-1.479)	-0.091 (-3.285)	0.022 (0.852)	-0.055 (-1.378)	0.010 (0.245)	-0.136 (-2.893)	0.054 (1.613)	
F2 – CO (std)	0.003 (0.130)	0.050 (1.685)	-0.046 (-1.410)	0.042 (1.468)	-0.031 (-1.129)	0.083 (2.140)	-0.004 (-0.099)	-0.054 (-1.093)	-0.023 (-0.564)	
F3 – Loquacious (std)	-0.052 (-2.681)	-0.006 (-0.203)	-0.092 (-2.987)	-0.045 (-1.633)	-0.065 (-2.393)	-0.032 (-0.904)	-0.009 (-0.215)	-0.080 (-1.800)	-0.086 (-2.001)	
F4 – ES (std)	-0.019 (-0.994)	-0.005 (-0.174)	-0.032 (-1.031)	-0.022 (-0.785)	-0.025 (-0.976)	-0.053 (-1.417)	0.026 (0.662)	-0.022 (-0.480)	-0.063 (-1.551)	
F5 – AG (std)	-0.014 (-0.725)	0.001 (0.024)	-0.040 (-1.330)	-0.028 (-1.016)	-0.008 (-0.309)	-0.053 (-1.418)	0.036 (0.977)	-0.044 (-0.958)	-0.058 (-1.467)	
Literacy (std)	0.033 (0.963)	-0.007 (-0.144)	0.077 (1.618)	0.062 (1.473)	0.002 (0.036)	0.021 (0.396)	-0.052 (-0.775)	0.064 (1.039)	0.087 (1.330)	
Numeracy (std)	-0.012 (-0.404)	0.015 (0.366)	-0.062 (-1.383)	-0.017 (-0.412)	-0.012 (-0.288)	-0.009 (-0.175)	0.036 (0.579)	-0.050 (-0.844)	-0.068 (-1.106)	
Raven (std)	0.006 (0.229)	-0.029 (-0.853)	0.036 (0.930)	-0.007 (-0.226)	0.031 (0.761)	-0.035 (-0.867)	0.005 (0.087)	0.053 (1.027)	0.024 (0.468)	
Individuals controls	X		X		X			X		
Individuals controls	X		X		X			X		
Households controls	X		X		X			X		
Villages FE	X		X		X			X		
Observations	831		831		831			831		
Log-likelihood	-686.423		-669.353		-674.244			-639.615		
LR χ^2	362.307		407.915		425.893			573.264		
p-value	0.000		0.000		0.000			0.000		

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

5 Discussion

Intensity of results may seem high. However, this come from the low range of definitions of PT&CS. Ranging from -4 to 4, one more standard deviation represent a gap of $\frac{1}{8}$, which is high. Put another way, for a variable ranging from -4 to 4, take an additional unit come back to take 12.5% in more.

Discussion in three step:

- Discussion with debt and PT&CS ([Brown & Taylor, 2014](#); [Forlicz & Rólczyński, 2019](#); [Nyhus & Webley, 2001](#)). Ce sont les seules papiers qui parlent exactement de ce lien.
- Discussion du social meaning of debt avec ([Guérin et al., 2014](#); ?).
- Discussion de PT&CS with other outcomes in India ([Dasgupta et al., 2020](#); [Donato, Miller, Mohanan, Truskinovsky, & Vera-Hernández, 2017](#); [Gaurav & Singh, 2012](#); [Michiels et al., 2021](#)).

PT&CS and debt in the literature [Nyhus and Webley \(2001\)](#)

- ES is a positive predictor of debt

[Brown and Taylor \(2014\)](#)

- EX has the largest association (positively) compared to the other four personality traits (for single individuals sample).
- In couple sample, AG largest association (positively).
- CO inversely associated with level of unsecured debt as [Donnelly, Iyer, and Howell \(2012\)](#) who report that individuals who are highly conscientious are more able to manage their money through greater levels of financial self-control, and also with the results of Nyhus and Webley (2001) which suggest that conscientious individuals are less likely to have ever been in debt.
- CO le seul reverse, les autres sont positivement
- Neuroticism = only non significant suggesting that this personality trait is not important in influencing this aspect of an individual's economic decision-making, ceteris paribus. Given that neuroticism is related to pessimism, the finding that it has a statistically insignificant association with household finances is interesting in the context of the positive association found in the existing literature relating to financial optimism and debt.
- For spouse (female), nothing statistically significant, only EX et NE (but be careful because of risk of co linearity)
- Small magnitude
- For the probability of holding debt, CO inversely associated, les 4 autres positivement
- For relationship between finance and PT&CS accross debt distribution: in general there was no differential impact from personality traits on finances across the income distribution, the only exceptions being in the case of extraversion and neuroticism.
- for gender : All other gender interactions with each personality trait are statistically insignificant.

[Donnelly et al. \(2012\)](#)

- For the probability of holding debt, CO inversely associated

[Forlicz and Rólczyński \(2019\)](#)

-

[Bertaut and Starr \(2002\)](#)

-

Literature on individual debt practices

PT&CS and other outcomes in rural India

Conclusion As [Brown and Taylor \(2014\)](#) on montre l'importance des PT&CS dans l'analyse des finances

6 Conclusion

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., Makija, 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., Balasubramiam, 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
- Bertaut, C. C., & Starr, M. (2002). Household portfolios in the united states. In L. Guiso, M. Haliassos, & T. Jappelli (Eds.), *Household portfolios* (chap. 5). The MIT Press. Retrieved from <https://doi.org/10.7551/mitpress/3568.003.0010> doi: 10.7551/mitpress/3568.003.0010
- 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
- Borghans, L., Duckworth, A. L., Heckman, J. J., & ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of Human Resources*, 43(4), 972–1059. doi: 10.3388/jhr.43.4.972
- 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
- 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
- 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
- Chakravarty, 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.2013.08.003> doi: 10.1016/j.jpolmod.2013.08.003

[10.1016/j.jpolmod.2012.12.007](https://doi.org/10.1016/j.jpolmod.2012.12.007) doi: 10.1016/j.jpolmod.2012.12.007

- Chavan, P. (2007, August). Access to Bank Credit: Implications for Dalit Rural Households. *Economic & Political Weekly*, 42(31), 3219–3224. Retrieved from <http://www.jstor.org/stable/4419871>
- 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., & 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
- Cook, D. O., Kieschnick, R., & McCullough, B. (2008, dec). Regression analysis of proportions in finance with self selection. *Journal of Empirical Finance*, 15(5), 860–867. Retrieved from <https://doi.org/10.1016/j.jempfin.2008.02.001> doi: 10.1016/j.jempfin.2008.02.001
- 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.
- Cox, D., & Jappelli, T. (1993, may). The effect of borrowing constraints on consumer liabilities. *Journal of Money, Credit and Banking*, 25(2), 197. Retrieved from <https://doi.org/10.2307/2077836> doi: 10.2307/2077836
- 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
- Crook, J. (2001, feb). The demand for household debt in the USA: evidence from the 1995 survey of consumer finance. *Applied Financial Economics*, 11(1), 83–91. Retrieved from <http://dx.doi.org/10.1080/09603100150210291> doi: 10.1080/09603100150210291
- 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
- Dasgupta, U., Mani, S., Sharma, S., & Singhal, S. (2020, dec). *Caste gaps in behaviour and personality traits: A study of university students*. <https://www.ideasforindia.in/topics/social-identity/caste-gaps-in-behaviour-and-personality-trait-a-study-of-university-students.html>. (Accessed 15, July 2021)
- Deary, I. J. (2014, aug). The stability of intelligence from childhood to old age. *Current Directions in Psychological Science*, 23(4), 239–245. Retrieved from <https://doi.org/10.1177/0963721414536905> doi: 10.1177/0963721414536905
- del Río, A., & Young, G. (2006, oct). The determinants of unsecured borrowing: evidence from the BHPS. *Applied Financial Economics*, 16(15), 1119–1144. Retrieved from <http://dx.doi.org/10.1080/09603100500438791> doi: 10.1080/09603100500438791
- Donato, K., Miller, G., Mohanan, M., Truskinovsky, Y., & Vera-Hernández, M. (2017, may). Personality traits and performance contracts: Evidence from a field experiment among maternity care providers in india. *American Economic Review*, 107(5), 506–510. Retrieved from <https://www.aeaweb.org/articles?id=10.1257/aer.p20171105> doi: 10.1257/aer.p20171105
- Donnelly, G., Iyer, R., & Howell, R. T. (2012, dec). The big five personality traits, material values, and financial well-being of self-described money managers. *Journal of Economic Psychology*, 33(6), 1129–1142. Retrieved from <https://doi.org/10.1016/j.joep.2012.08.001> doi:

10.1016/j.joep.2012.08.001

- Drèze, J., Lanjouw, P., & Sharma, N. (1997, sep). *Credit in Rural India: A Caste Study* (Research Paper No. DEDPS06). LSE STICERD.
- Duca, J. V., & Rosenthal, S. S. (1993). Borrowing Constraints, Household Debt, and Racial Discrimination in Loan Markets. *Journal of Financial Intermediation*, 3(1), 77–103. Retrieved from <https://doi.org/10.1006/jfin.1993.1003> doi: 10.1006/jfin.1993.1003
- 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.
- 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., Lanos, Y., Michiels, S., Nordman, C. J., & Venkatasubramanian, G. (2017, dec). Insights on demonetisation from rural tamil nadu: understanding social networks and social protection. *Review of rural affairs*, 52(52).
- 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.
- Hanushek, E. A., & Woessmann, L. (2008, aug). The role of cognitive skills in economic development. *Journal of Economic Literature*, 46(3), 607–668. Retrieved from <http://www.aeaweb.org/articles.php?doi=10.1257/jel.46.3.607> doi: 10.1257/jel.46.3.607
- 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. (1976). The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models. In S. V. Berg (Ed.), *Annals of economic and social measurement* (Vol. 5, pp. 475–492). National Bureau of Economic Research - NBER. Retrieved from <http://www.nber.org/chapters/c10491>
- Heckman, J. J. (2011, August). *Integrating personality psychology into economics* (Working Paper No. 17378). Cambridge MA: National Bureau of Economic Research - NBER. Retrieved

- from <http://www.nber.org/papers/w17378> doi: 10.3386/w17378
- 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
- Imai, K., & Kim, I. S. (2020, November). On the use of two-way fixed effects regression models for causal inference with panel data. *Political Analysis*, 29(3), 405–415. Retrieved from <https://doi.org/10.1017/pan.2020.33> doi: 10.1017/pan.2020.33
- Jones, J. H. M. (1994, March). A Changing Financial Landscape in India: Macro-Level and Micro-Level Perspectives. In F. J. A. Bouman & O. Hospes (Eds.), *Financial Landscapes Reconstructed: The Fine Art of Mapping Development* (pp. 305–324). Routledge. Retrieved from <https://doi.org/10.4324/9780429038891-18> doi: 10.4324/9780429038891-18
- 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
- Kropko, J., & Kubinec, R. (2020, April). Interpretation and identification of within-unit and cross-sectional variation in panel data models. *PLOS ONE*, 15(4), e0231349. Retrieved from <https://doi.org/10.1371/journal.pone.0231349> doi: 10.1371/journal.pone.0231349
- Laajaj, R., & Macours, K. (2019, October). Measuring skills in developing countries. *Journal of Human Resources*, 1018–9805R1. Retrieved from <https://doi.org/10.3368/jhr.56.4.1018-9805r1> doi: 10.3368/jhr.56.4.1018-9805r1
- 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
- Lennox, C. S., Francis, J. R., & Wang, Z. (2011, nov). Selection models in accounting research. *The Accounting Review*, 87(2), 589–616. Retrieved from <https://doi.org/10.2308/accr-10195> doi: 10.2308/accr-10195
- 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
- McFadden, D. L. (1979). Quantitive Methods for Analysing Travel Behaviour of Individuals: Some Recent Development. In D. A. Hensher & P. R. Stopher (Eds.), *Behavioural travel*

- modelling* (chap. 13). London: Routledge.
- 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
- Nisbett, R. E., Aronson, J., Blair, C., Dickens, W., Flynn, J., Halpern, D. F., & Turkheimer, E. (2012, feb). Intelligence: New findings and theoretical developments. *American Psychologist*, 67(2), 130–159. Retrieved from <https://doi.org/10.1037/a0026699> doi: 10.1037/a0026699
- 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.jeop.2004.07.001> doi: 10.1016/j.jeop.2004.07.001
- Nyhus, E. K., & Webley, P. (2001, November). The role of personality in household saving and borrowing behaviour. *European Journal of Personality*, 15(S1), S85–S103. Retrieved from <https://doi.org/10.1002/per.422> doi: 10.1002/per.422
- 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, feb). The effect of personality traits on households' financial literacy. *Citizenship, Social and Economics Education*, 16(1), 39–51. Retrieved from <https://doi.org/10.1177/2047173417690005> doi: 10.1177/2047173417690005
- Rajakumar, J. D., Mani, G., Shetty, S. L., & Karmarkar, V. M. (2019, March). Trends and patterns of household indebtedness. *Economic & Political Weekly*, 54(9), 41–49.
- Raven, J. (2000, aug). The raven's progressive matrices: Change and stability over culture

- and time. *Cognitive Psychology*, 41(1), 1–48. Retrieved from <https://doi.org/10.1006/cogp.1999.0735> doi: 10.1006/cogp.1999.0735
- 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>
- 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.
- 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](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>
- Williams, R. (2012, June). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *The Stata Journal*, 12(2), 308–331. Retrieved from <https://doi.org/10.1177/1536867x1201200209> doi: 10.1177/1536867x1201200209
- 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

A Stability of skills over time

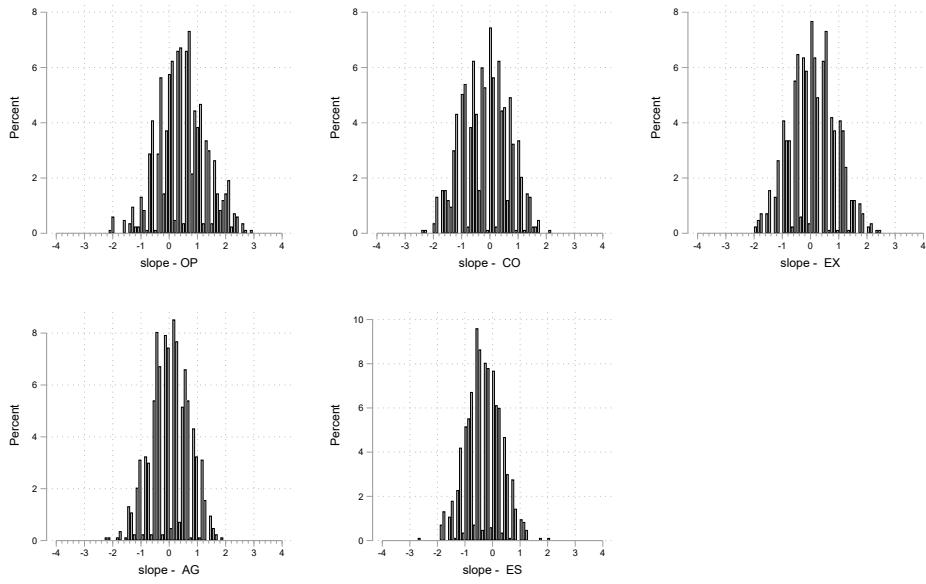


Figure 3: Stability over time of Big-5 personality traits non-corrected from acquiescence bias – Distribution of the difference of the score between 2016-17 and 2020-21 for Big-5 personality traits non-corrected from acquiescence bias for 835 individuals from rural Tamil Nadu, India.

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

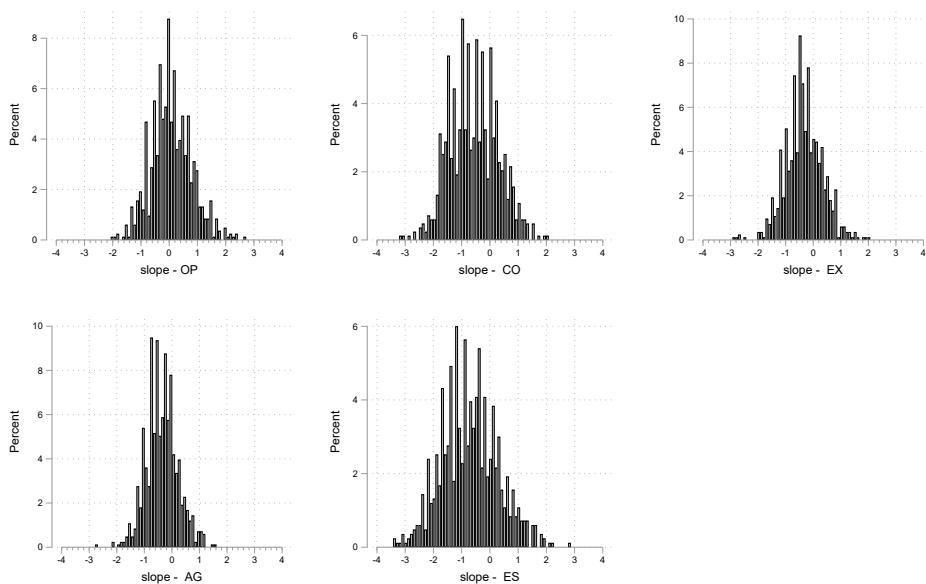


Figure 4: Stability over time of Big-5 personality traits corrected from acquiescence bias – Distribution of the difference of the score between 2016-17 and 2020-21 for Big-5 personality traits corrected from acquiescence bias for 835 individuals from rural Tamil Nadu, India.

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

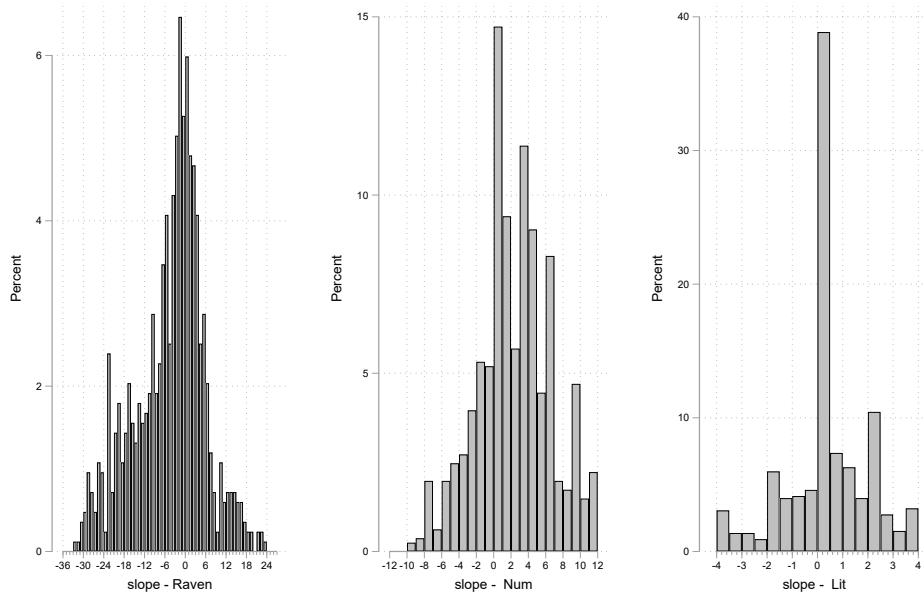


Figure 5: Stability over time of cognitive skills – Distribution of the difference of the score between 2016-17 and 2020-21 for three cognitive skills for 835 individuals from rural Tamil Nadu, India.

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

B Factor analysis for personality traits

Table 9: Details for personality test questions

Variable	Question	Big-5 traits
curious	Are you curious, interested in learning new things?	OP
interestbyart	Are you interested in nature, art or music?	OP
repetitivetasks	Do you prefer work that involves repetitive tasks and routines?	OP
inventive	Are you inventive, and discover new ways of doing things?	OP
liketothink	Do you like to think a lot, and reflect about ideas?	OP
newideas	Do you come up with original or new ideas?	OP
activeimagination	Do you have an active imagination?	OP
organized	Are you organized?	CO
makeplans	Do you make plans and stick to them?	CO
workhard	Do you work hard to do things well and on time?	CO
appointmentontime	Do you get to work and appointments on time?	CO
putoffduties	Do you put off your duties in order to relax?	CO
easilydistracted	Do you get easily distracted?	CO
completeduties	Do you complete your duties on time?	CO
enjoypeople	Do you enjoy being with people?	EX
sharefeelings	Do you easily share your thoughts and feelings with other people?	EX
shywithpeople	Are you shy with people?	EX
enthusiastic	Are you enthusiastic and full of energy?	EX
talktomanypeople	In social gatherings, do you like to talk to many people?	EX
talkative	Are you talkative?	EX
expressedthoughts	Are you comfortable expressing your thoughts and opinions to others?	EX
workwithother	Do you work well with other people?	AG
understandotherfeeling	Do you try to understand how other people feel and think?	AG
trustingofother	Are you generally trusting of other people?	AG
rudeattother	Do you tend to be rude to other people?	AG
toleratefaults	Do you tolerate faults in other people?	AG
forgiveother	Do you forgive other people easily?	AG
helpfulwithothers	Are you helpful with others?	AG
managestress	Do you manage stress well?	ES
nervous	Do you get nervous easily?	ES
changemood	Do you have sudden changes in your mood?	ES
feeldepressed	Do you feel sad, depressed?	ES
easilyupset	Do you get easily upset?	ES
worryalot	Do you worry a lot?	ES
staycalm	Do you stay calm in tense or stressful situations?	ES

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

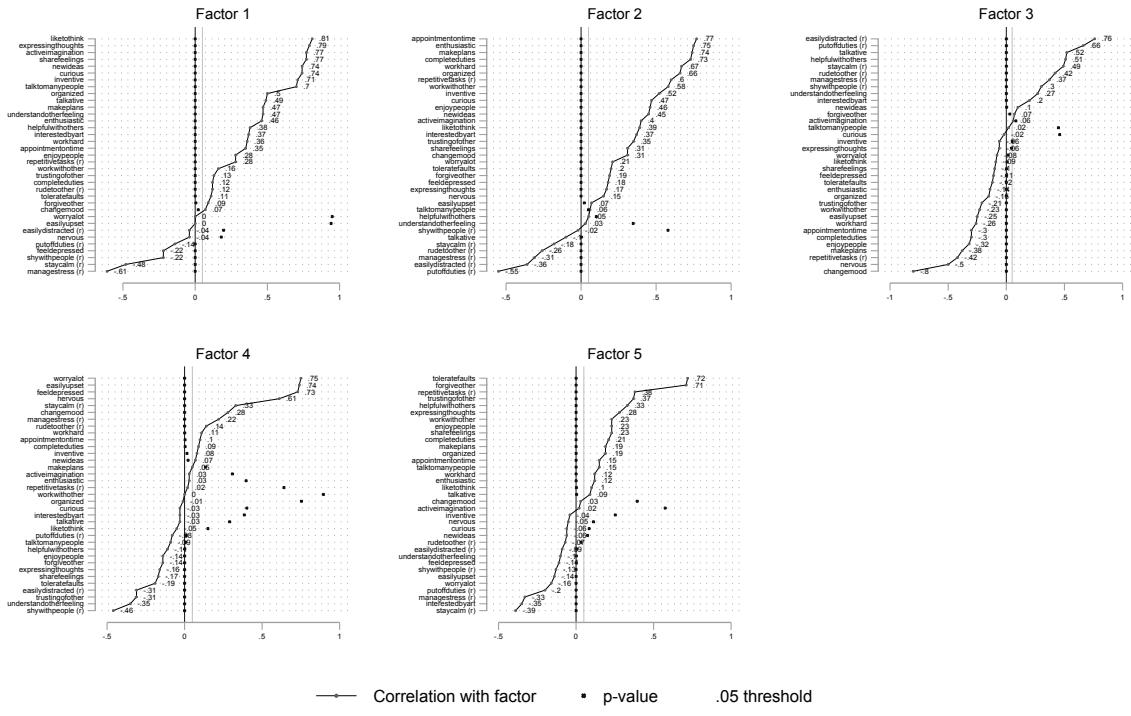


Figure 6: Results of factor analysis for 2016-17 raw items
Source: NEEMSSIS-1 (2016-17); author's calculations.

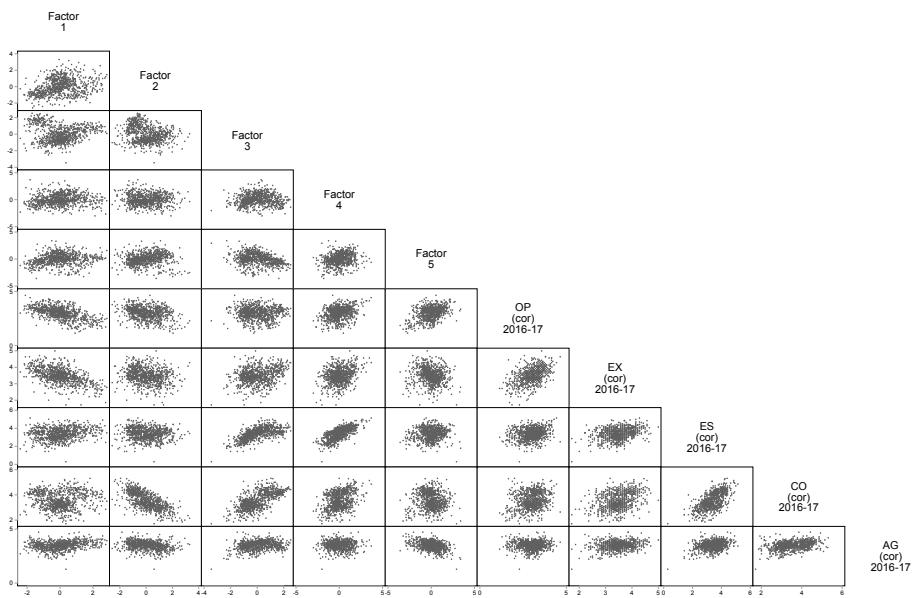


Figure 7: Correlation between Factor from EFA and Big-5 personality traits
Source: NEEMSSIS-1 (2016-17); author's calculations.

C Robustness check

Table 10: Marginal effects of the probability of being in debt in 2020-21 with Big-5 personality traits

	(1)		(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female	
OP cor (std)	-0.028 (-1.413)	-0.001 (-0.036)	-0.050 (-1.602)	-0.044 (-1.529)	-0.016 (-0.579)	0.025 (0.583)	-0.036 (-0.902)	-0.133 (-2.674)	0.014 (0.364)	
CO cor (std)	0.036 (1.689)	0.087 (2.640)	-0.014 (-0.443)	0.076 (2.383)	0.005 (0.160)	0.168 (3.237)	0.019 (0.409)	-0.020 (-0.411)	0.003 (0.081)	
EX cor (std)	-0.012 (-0.589)	-0.033 (-1.183)	0.014 (0.470)	-0.030 (-1.004)	-0.001 (-0.029)	-0.061 (-1.450)	-0.004 (-0.108)	0.037 (0.767)	-0.009 (-0.235)	
AG cor (std)	-0.003 (-0.172)	-0.023 (-0.755)	0.008 (0.345)	0.008 (0.269)	-0.015 (-0.653)	-0.000 (-0.010)	-0.050 (-1.174)	-0.013 (-0.346)	0.008 (0.283)	
ES cor (std)	0.006 (0.292)	-0.023 (-0.711)	0.042 (1.357)	-0.000 (-0.002)	0.010 (0.339)	-0.086 (-1.707)	0.045 (0.978)	0.093 (1.936)	-0.024 (-0.587)	
Literacy (std)	0.036 (1.171)	0.002 (0.043)	0.080 (1.924)	0.051 (1.339)	0.019 (0.450)	0.035 (0.621)	-0.029 (-0.492)	0.092 (1.635)	0.083 (1.524)	
Numeracy (std)	-0.004 (-0.140)	0.018 (0.472)	-0.025 (-0.643)	-0.021 (-0.564)	0.007 (0.183)	-0.039 (-0.688)	0.064 (1.122)	-0.011 (-0.215)	-0.041 (-0.806)	
Raven (std)	-0.002 (-0.105)	0.014 (0.429)	-0.030 (-0.929)	-0.025 (-0.839)	0.029 (0.847)	-0.011 (-0.258)	0.057 (1.161)	-0.054 (-1.179)	-0.014 (-0.343)	
Indebted (=1) in 2016-17	0.401 (2.689)		0.415 (2.726)		0.392 (2.604)			0.409 (2.637)		
Debtor ratio in 2016-17	-0.176 (-2.434)		-0.180 (-2.500)		-0.181 (-2.500)			-0.172 (-2.292)		
Individuals controls	X		X		X			X		
Households controls	X		X		X			X		
Villages FE	X		X		X			X		
Observations	830		830		830			830		
McFadden's pseudo R ²	0.204		0.214		0.210			0.233		
Log-likelihood	-388.519		-383.297		-385.294			-374.009		
LR X ²	281.935		260.132		331.913			312.816		
p-value	0.000		0.000		0.000			0.000		

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

Table 11: Marginal effects of the total loan amount in 2020-21 for Big-5 personality traits

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
OP cor (std)	8.716 (0.921)	4.611 (0.289)	15.092 (1.704)	2.314 (0.124)	14.918 (2.025)	-5.070 (-0.172)	11.260 (0.276)	6.690 (0.938)	17.174 (2.255)
CO cor (std)	-6.365 (-0.672)	-20.957 (-1.163)	8.105 (0.899)	-24.016 (-1.200)	0.549 (0.066)	-68.128 (-1.846)	13.240 (1.015)	21.158 (1.434)	-10.144 (-1.257)
EX cor (std)	12.076 (1.265)	17.815 (1.153)	6.498 (0.734)	30.376 (1.603)	-6.451 (-0.814)	39.121 (1.311)	-0.852 (-0.083)	16.055 (0.974)	-5.694 (-0.745)
AG cor (std)	-6.005 (-0.737)	-13.223 (-0.925)	1.453 (0.235)	-14.587 (-0.862)	0.960 (0.166)	-26.596 (-0.926)	-6.554 (-0.552)	-3.220 (-0.312)	2.466 (0.404)
ES cor (std)	7.133 (0.513)	21.308 (0.934)	-8.651 (-0.727)	31.221 (1.138)	-9.323 (-1.163)	80.452 (1.689)	-22.209 (-1.744)	-17.736 (-0.835)	5.469 (0.640)
Literacy (std)	0.424 (0.028)	11.301 (0.546)	-15.628 (-0.981)	2.033 (0.092)	10.371 (0.754)	6.931 (0.218)	13.324 (0.674)	-4.993 (-0.221)	0.417 (0.026)
Numeracy (std)	5.493 (0.531)	4.730 (0.329)	5.797 (0.370)	24.358 (1.351)	-11.361 (-1.137)	21.377 (0.845)	-1.600 (-0.103)	26.245 (1.086)	-17.130 (-1.214)
Raven (std)	-0.382 (-0.041)	7.297 (0.505)	-6.000 (-0.485)	1.813 (0.119)	-5.194 (-0.437)	32.964 (1.511)	-22.376 (-1.094)	-35.068 (-1.613)	15.790 (1.482)
Indebted (=1) in 2016-17	-19.082 (-0.730)		-14.824 (-0.589)		-17.256 (-0.676)			-11.773 (-0.474)	
IMR in 2016-17	-70.627 (-0.697)		-78.100 (-0.814)		-55.156 (-0.531)			-21.985 (-0.225)	
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	602		602		602			602	
R ²	0.255		0.264		0.275			0.308	
Adjusted R ²	0.212		0.210		0.221			0.235	
F-stat	4.224		3.592		4.475			2.515	
p-value	0.000		0.000		0.000			0.000	

Note: Marginal effects with T-stat in parentheses.

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

Table 12: Marginal effects of the individual debt service ratio in 2020-21 with Big-5 personality traits

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
OP cor (std)	-24.477 (-0.922)	5.223 (0.146)	-66.616 (-1.453)	-35.138 (-0.871)	-16.614 (-0.511)	14.316 (0.267)	-12.199 (-0.278)	-130.545 (-1.450)	-31.577 (-0.666)
CO cor (std)	-12.721 (-0.388)	40.947 (0.784)	-54.559 (-1.082)	-19.731 (-0.380)	-4.984 (-0.129)	29.064 (0.323)	45.501 (1.056)	-67.165 (-0.859)	-49.462 (-0.709)
EX cor (std)	80.956 (2.739)	59.046 (1.486)	91.890 (1.871)	87.214 (1.841)	77.024 (2.053)	91.484 (1.160)	25.816 (0.671)	45.499 (0.624)	126.211 (1.755)
AG cor (std)	-28.529 (-1.290)	-6.014 (-0.169)	-65.549 (-1.967)	-32.255 (-0.977)	-21.545 (-0.719)	-30.129 (-0.524)	2.434 (0.053)	-93.149 (-2.128)	-40.410 (-0.951)
ES cor (std)	-45.889 (-1.612)	-56.884 (-1.502)	-44.589 (-0.800)	-65.326 (-1.826)	-23.307 (-0.518)	-48.824 (-0.788)	-57.204 (-0.977)	-90.899 (-1.136)	5.426 (0.066)
Literacy (std)	1.491 (0.041)	-19.679 (-0.468)	13.658 (0.267)	-1.785 (-0.035)	0.600 (0.013)	-5.894 (-0.097)	-52.990 (-0.997)	-58.534 (-0.721)	53.001 (0.793)
Numeracy (std)	-21.377 (-0.705)	-51.413 (-1.461)	34.609 (0.617)	-22.528 (-0.487)	-23.628 (-0.637)	-68.698 (-1.285)	-30.003 (-0.580)	88.601 (0.996)	-11.134 (-0.188)
Raven (std)	15.971 (0.544)	-36.464 (-1.448)	69.068 (1.120)	30.002 (0.659)	-2.707 (-0.061)	-34.470 (-1.103)	-29.085 (-0.668)	118.936 (1.209)	19.107 (0.267)
Indebted (=1) in 2016-17	21.330 (0.275)		5.348 (0.073)		19.377 (0.243)			-8.400 (-0.111)	
IMR in 2016-17	37.530 (0.120)		49.078 (0.198)		46.253 (0.133)			68.365 (0.263)	
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	602		602		602			602	
R ²	0.073		0.099		0.076			0.116	
Adjusted R ²	0.020		0.033		0.009			0.022	
F-stat	3.442		1.459		2.108			1.233	
p-value	0.000		0.037		0.000			0.128	

Note: Marginal effects with T-stat in parentheses.

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

Table 13: Marginal effects of the individual debt path between 2016-17 and 2020-21 with Big-5 personal-ity traits

	(1)	(2)		(3)		(4)			
	ME/(t-stat) All	ME/(t-stat) Male	ME/(t-stat) Female	ME/(t-stat) MUC	ME/(t-stat) Dalits	ME/(t-stat) MUC male	ME/(t-stat) Dalits male	ME/(t-stat) MUC female	ME/(t-stat) Dalits female
Never in debt									
OP cor (std)	0.007 (0.909)	-0.005 (-0.337)	0.008 (1.229)	0.013 (1.131)	0.002 (0.286)	-0.016 (-0.861)	0.019 (1.161)	0.023 (1.964)	0.000 (0.058)
CO cor (std)	-0.014 (-1.696)	-0.041 (-1.959)	-0.003 (-0.518)	-0.031 (-2.432)	0.002 (0.233)	-0.030 (-1.307)	-0.041 (-1.560)	-0.022 (-1.890)	0.006 (1.351)
EX cor (std)	0.002 (0.314)	0.006 (0.346)	0.000 (0.018)	0.014 (1.177)	-0.007 (-0.808)	0.016 (0.865)	-0.012 (-0.511)	0.009 (1.028)	-0.003 (-1.294)
AG cor (std)	0.012 (1.872)	0.018 (1.047)	0.009 (1.767)	0.014 (1.431)	0.008 (1.000)	-0.004 (-0.268)	0.037 (1.558)	0.016 (1.876)	0.001 (0.279)
ES cor (std)	-0.001 (-0.145)	0.018 (1.089)	-0.007 (-1.224)	0.006 (0.618)	-0.009 (-0.974)	0.023 (1.014)	-0.002 (-0.078)	-0.002 (-0.344)	-0.006 (-1.444)
Literacy (std)	-0.021 (-1.569)	-0.019 (-0.643)	-0.015 (-1.638)	-0.030 (-1.699)	-0.009 (-0.752)	-0.002 (-0.114)	-0.028 (-0.927)	-0.021 (-1.512)	0.002 (0.627)
Numeracy (std)	0.005 (0.613)	-0.014 (-0.640)	0.009 (1.195)	0.002 (0.132)	0.004 (0.433)	-0.018 (-0.830)	-0.013 (-0.490)	0.009 (0.770)	-0.000 (-0.045)
Raven (std)	-0.004 (-0.622)	0.008 (0.540)	-0.007 (-1.162)	0.008 (0.792)	-0.014 (-1.388)	0.015 (1.247)	-0.011 (-0.465)	-0.001 (-0.156)	-0.006 (-1.419)
Out of debt									
OP cor (std)	0.018 (0.997)	0.001 (0.048)	0.032 (1.061)	0.028 (1.125)	0.008 (0.323)	-0.014 (-0.384)	0.021 (0.572)	0.096 (2.173)	-0.025 (-0.664)
CO cor (std)	-0.014 (-0.702)	-0.045 (-1.721)	0.025 (0.812)	-0.027 (-0.932)	-0.009 (-0.355)	-0.114 (-2.550)	0.007 (0.186)	0.064 (1.351)	-0.023 (-0.629)
EX cor (std)	0.002 (0.083)	0.011 (0.454)	-0.007 (-0.243)	0.009 (0.348)	0.001 (0.021)	0.034 (0.999)	-0.008 (-0.229)	-0.047 (-0.986)	0.026 (0.709)
AG cor (std)	-0.010 (-0.624)	0.003 (0.116)	-0.018 (-0.744)	-0.020 (-0.815)	0.008 (0.360)	-0.005 (-0.129)	0.018 (0.524)	-0.008 (-0.221)	0.002 (0.058)
ES cor (std)	-0.007 (-0.358)	0.017 (0.639)	-0.041 (-1.351)	-0.009 (-0.319)	0.003 (0.098)	0.065 (1.463)	-0.034 (-0.878)	-0.096 (-2.161)	0.046 (1.157)
Literacy (std)	-0.008 (-0.300)	0.014 (0.424)	-0.046 (-1.112)	-0.018 (-0.554)	0.004 (0.119)	-0.037 (-0.803)	0.062 (1.222)	-0.036 (-0.637)	-0.080 (-1.430)
Numeracy (std)	-0.006 (-0.256)	-0.010 (-0.326)	0.011 (0.307)	0.008 (0.237)	-0.014 (-0.432)	0.046 (1.014)	-0.058 (-1.179)	-0.011 (-0.228)	0.036 (0.704)
Raven (std)	0.014 (0.690)	-0.005 (-0.187)	0.036 (1.116)	0.025 (0.946)	-0.004 (-0.140)	0.010 (0.266)	-0.034 (-0.826)	0.046 (1.045)	0.035 (0.851)
Becomes in debt									
OP cor (std)	0.000 (0.033)	0.023 (1.104)	-0.012 (-0.618)	-0.003 (-0.166)	0.002 (0.078)	0.026 (1.184)	0.017 (0.465)	-0.030 (-0.815)	-0.006 (-0.245)
CO cor (std)	-0.000 (-0.005)	0.007 (0.252)	0.003 (0.124)	-0.009 (-0.401)	0.009 (0.296)	0.022 (0.975)	0.011 (0.215)	-0.015 (-0.388)	0.017 (0.610)
EX cor (std)	0.020 (1.369)	-0.004 (-0.204)	0.043 (1.964)	0.032 (1.655)	0.007 (0.307)	-0.010 (-0.479)	0.001 (0.023)	0.105 (2.407)	-0.002 (-0.056)
AG cor (std)	0.002 (0.157)	-0.023 (-1.024)	0.018 (1.097)	0.005 (0.277)	-0.009 (-0.403)	0.000 (0.009)	-0.054 (-1.504)	0.009 (0.382)	0.014 (0.590)
ES cor (std)	-0.007 (-0.443)	0.012 (0.510)	-0.024 (-1.070)	-0.006 (-0.278)	-0.011 (-0.428)	-0.020 (-0.806)	0.025 (0.650)	-0.009 (-0.246)	-0.035 (-1.135)
Literacy (std)	0.007 (0.315)	0.012 (0.377)	0.004 (0.140)	-0.002 (-0.091)	0.018 (0.511)	0.018 (0.501)	0.016 (0.306)	0.009 (0.281)	0.024 (0.596)
Numeracy (std)	0.009 (0.448)	-0.007 (-0.219)	0.033 (1.211)	0.003 (0.113)	0.016 (0.466)	-0.035 (-1.367)	0.023 (0.445)	0.046 (1.242)	0.011 (0.258)
Raven (std)	-0.017 (-0.941)	0.033 (1.415)	-0.069 (-2.657)	-0.023 (-1.128)	-0.009 (-0.295)	0.025 (1.094)	0.045 (1.105)	-0.092 (-2.432)	-0.055 (-1.531)
Always in debt									
OP cor (std)	-0.025 (-1.123)	-0.019 (-0.597)	-0.028 (-0.872)	-0.038 (-1.171)	-0.012 (-0.396)	0.003 (0.081)	-0.057 (-1.208)	-0.090 (-1.689)	0.031 (0.750)
CO cor (std)	0.028 (1.103)	0.079 (2.021)	-0.024 (-0.682)	0.067 (1.899)	-0.002 (-0.053)	0.122 (2.342)	0.023 (0.386)	-0.027 (-0.479)	-0.000 (-0.007)
EX cor (std)	-0.023 (-1.058)	-0.013 (-0.423)	-0.036 (-1.051)	-0.055 (-1.697)	-0.001 (-0.021)	-0.041 (-0.970)	0.020 (0.433)	-0.068 (-1.204)	-0.021 (-0.476)
AG cor (std)	-0.004 (-0.211)	0.002 (0.052)	-0.009 (-0.338)	0.001 (0.040)	-0.006 (-0.212)	0.008 (0.178)	-0.001 (-0.013)	-0.016 (-0.396)	-0.016 (-0.465)
ES cor (std)	0.015 (0.644)	-0.047 (-1.257)	0.072 (2.128)	0.009 (0.267)	0.018 (0.530)	-0.068 (-1.300)	0.011 (0.202)	0.108 (2.247)	-0.005 (-0.103)
Literacy (std)	0.022 (0.638)	-0.007 (-0.153)	0.057 (1.256)	0.051 (1.222)	-0.013 (-0.271)	0.021 (0.388)	-0.050 (-0.738)	0.048 (0.784)	0.054 (0.847)
Numeracy (std)	-0.009 (-0.295)	0.031 (0.711)	-0.054 (-1.271)	-0.012 (-0.297)	-0.006 (-0.133)	0.007 (0.138)	0.049 (0.751)	-0.044 (-0.748)	-0.047 (-0.785)
Raven (std)	0.007 (0.294)	-0.036 (-1.022)	0.040 (1.094)	-0.009 (-0.300)	0.027 (0.672)	-0.050 (-1.175)	-0.000 (-0.000)	0.048 (0.975)	0.027 (0.503)
Individuals controls	X		X		X			X	
Households controls	X		X		X			X	
Villages FE	X		X		X			X	
Observations	830		830		830			830	
Log-likelihood	-691.062		-676.968		-682.845			-649.005	
LR χ^2	333.100		383.229		409.114			533.366	
p-value	0.000		0.000		0.000			0.000	

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

D Detailed tables

Table 14: Complete regression table for Heckman procedure with factors as personality traits – **Source :** NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

	(1)			(2)			(3)			(4)		
	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR
Indebted (=1) in 2016-17	0.414 (2.752)	-19.063 (-0.677)	6.689 (0.086)	0.412 (2.719)	-5.392 (-0.222)	-14.044 (-0.181)	0.390 (2.563)	3.533 (0.141)	-19.067 (-0.241)	0.389 (2.523)	12.755 (0.575)	-64.112 (-0.766)
Factor 1 (std)	-0.106 (-1.915)	16.393 (1.979)	48.149 (2.107)	-0.029 (-0.352)	17.804 (1.419)	21.127 (0.659)	-0.245 (-0.304)	23.584 (1.651)	63.143 (1.651)	-0.145 (-1.254)	40.167 (1.861)	74.766 (1.327)
Factor 2 (std)	0.015 (0.276)	-18.845 (-1.820)	-47.470 (-1.957)	0.134 (1.709)	-29.207 (-1.736)	-3.555 (-0.131)	0.079 (1.030)	-33.633 (-1.827)	-48.854 (-1.541)	0.276 (2.385)	-49.214 (-1.728)	-49.443 (-1.113)
Factor 3 (std)	-0.057 (-1.036)	-18.688 (-1.965)	4.064 (0.157)	-0.017 (-0.217)	-23.697 (-1.705)	-12.703 (-0.346)	-0.117 (-1.525)	-33.710 (-2.140)	8.368 (0.233)	-0.064 (-0.603)	-37.416 (-1.873)	-32.003 (-0.644)
Factor 4 (std)	0.005 (0.096)	-0.584 (-0.047)	-26.730 (-1.063)	0.051 (0.677)	0.619 (0.027)	-10.476 (-0.422)	-0.068 (-0.879)	14.518 (0.539)	-63.622 (-1.506)	-0.101 (-0.872)	28.774 (0.592)	17.508 (0.438)
Factor 5 (std)	-0.081 (-1.441)	-2.732 (-0.303)	10.980 (0.459)	-1.040 (-1.342)	-1.913 (-0.142)	18.891 (0.660)	-0.135 (-1.619)	7.001 (0.412)	-0.423 (-0.014)	-0.185 (-1.580)	4.561 (0.182)	37.718 (0.958)
Raven (std)	0.017 (0.239)	1.445 (0.149)	22.855 (0.808)	0.067 (0.711)	9.408 (0.620)	-29.403 (-1.122)	-0.051 (-0.567)	-5.642 (-0.384)	39.039 (0.904)	0.013 (0.102)	21.417 (1.021)	-35.522 (-1.268)
Numeracy (std)	-0.025 (-0.304)	8.499 (0.817)	-12.463 (-0.429)	0.006 (0.053)	12.838 (0.797)	-34.833 (-1.057)	-0.043 (-0.375)	29.880 (1.537)	0.458 (0.011)	-0.148 (-0.909)	21.719 (0.709)	-21.272 (-0.465)
Literacy (std)	0.107 (1.093)	4.945 (0.315)	4.130 (0.118)	-0.005 (-0.039)	13.862 (0.670)	-19.495 (-0.459)	0.144 (1.240)	12.692 (0.551)	-11.696 (-0.250)	0.098 (0.608)	15.986 (0.541)	-15.835 (-0.264)
Age	0.126 (4.521)	8.718 (0.941)	-2.220 (-0.100)	0.131 (4.485)	10.208 (1.408)	3.555 (0.157)	0.131 (4.616)	15.468 (1.608)	-13.942 (-0.650)	0.139 (4.598)	18.531 (2.485)	-19.999 (-0.747)
Age square	-0.001 (-4.651)	-0.099 (-0.958)	0.026 (0.108)	-0.001 (-4.566)	-0.118 (-1.483)	-0.030 (-0.124)	-0.001 (-4.742)	-0.172 (-1.610)	0.151 (0.663)	-0.002 (-4.687)	-0.206 (-2.533)	0.216 (0.759)
HH head (=1)	0.183 (0.970)	15.088 (0.490)	101.941 (1.556)	0.135 (0.671)	32.978 (0.918)	52.552 (0.893)	0.194 (1.009)	33.218 (1.156)	83.979 (1.265)	0.154 (0.751)	47.152 (1.364)	35.237 (0.587)
MO: Agri	0.724 (2.891)	.	.	0.795 (3.156)	.	.	0.763 (2.962)	.	.	0.837 (3.164)	.	.
MO: SE	0.429 (1.974)	38.441 (0.706)	-132.524 (-0.822)	0.448 (2.064)	33.153 (0.624)	-147.530 (-0.895)	0.445 (2.044)	26.693 (0.519)	-120.578 (-0.766)	0.449 (2.011)	17.198 (0.360)	-128.908 (-0.770)
MO: SJ agri	0.686 (3.368)	0.523 (0.012)	-146.293 (-0.941)	0.747 (3.592)	-2.637 (-0.062)	-141.866 (-0.919)	0.682 (3.356)	13.193 (0.301)	-154.301 (-0.989)	0.717 (3.444)	5.665 (0.137)	-149.755 (-0.947)
MO: SJ non-agri	0.353 (2.294)	33.453 (0.631)	-78.000 (-0.468)	0.418 (2.670)	24.771 (0.492)	-82.768 (-0.501)	0.369 (2.368)	29.229 (0.589)	-67.027 (-0.417)	0.424 (2.659)	16.359 (0.361)	-63.356 (-0.379)
MO: UW or NW	.	39.401 (0.578)	40.642 (0.181)	.	20.560 (0.352)	45.640 (0.204)	.	19.418 (0.299)	75.611 (0.364)	.	3.526 (0.068)	129.019 (0.595)
School educ (=1)	0.006 (0.036)	-5.998 (-0.248)	34.277 (0.543)	0.018 (0.111)	-5.930 (-0.237)	42.246 (0.649)	0.007 (0.044)	-10.668 (-0.463)	35.681 (0.549)	-0.012 (-0.075)	-10.211 (-0.422)	45.863 (0.655)
Married (=1)	0.498 (3.658)	-13.689 (-0.430)	129.471 (1.560)	0.486 (3.235)	14.061 (0.413)	59.663 (0.794)	0.494 (3.593)	9.871 (0.300)	97.785 (1.293)	0.521 (3.371)	32.984 (0.871)	-9.321 (-0.126)
Multiple occupation (=1)	0.074 (0.594)	25.029 (1.425)	-36.350 (-0.610)	0.048 (0.376)	25.787 (1.453)	-35.699 (-0.609)	0.075 (0.603)	33.680 (0.603)	-46.928 (1.786)	0.050 (-0.753)	32.579 (0.384)	-49.827 (-0.822)
Assets (1,000 INR)	0.000 (1.194)	0.040 (2.313)	0.009 (0.338)	0.000 (1.118)	0.041 (2.345)	0.011 (0.430)	0.000 (1.415)	0.041 (2.503)	0.005 (0.200)	0.000 (1.383)	0.040 (2.646)	0.002 (0.072)
SR: More female	0.131 (1.051)	15.264 (0.744)	11.125 (0.215)	0.171 (1.370)	9.633 (0.482)	29.374 (0.566)	0.128 (1.014)	6.559 (0.334)	22.361 (0.420)	0.154 (1.221)	4.889 (0.250)	56.670 (0.990)
SR: Same nb	0.244 (1.984)	.	.	0.254 (2.056)	.	.	0.253 (2.023)	.	.	0.272 (2.094)	.	.
SR: More male	.	12.386 (0.523)	82.948 (1.219)	.	5.275 (0.234)	92.369 (1.389)	.	1.964 (0.085)	102.041 (1.441)	.	-2.396 (-0.111)	135.943 (1.835)
Household size	-0.027 (-0.991)	6.248 (1.394)	11.478 (0.108)	-0.031 (-1.127)	7.290 (1.666)	7.182 (0.641)	-0.020 (-0.744)	6.165 (1.340)	9.713 (0.848)	-0.026 (-0.922)	6.997 (1.608)	4.294 (0.346)
Shock (=1)	-0.075 (-0.679)	21.435 (1.167)	7.567 (0.128)	-0.073 (-0.645)	19.940 (1.112)	14.578 (0.252)	-0.079 (-0.711)	15.582 (0.954)	17.172 (0.287)	-0.091 (-0.792)	12.425 (0.780)	27.722 (0.484)
Total income (1,000 INR)	0.000 (0.459)	0.030 (0.727)	-0.016 (-0.252)	0.000 (0.359)	0.032 (0.764)	0.003 (0.058)	0.000 (0.287)	0.042 (1.087)	-0.011 (-0.192)	0.000 (0.346)	0.043 (1.190)	-0.007 (-0.132)
Loc: near Panruti	0.480 (2.575)	77.063 (1.295)	302.825 (3.155)	0.346 (1.746)	89.236 (1.402)	215.010 (2.493)	0.299 (1.478)	65.230 (0.814)	335.008 (2.894)	0.200 (0.859)	99.549 (1.103)	158.327 (1.769)
Loc: near Villupuram	0.612 (2.896)	21.489 (0.369)	182.116 (2.360)	0.513 (2.305)	34.490 (0.558)	97.066 (1.261)	0.463 (2.069)	21.433 (0.270)	202.636 (2.204)	0.392 (1.548)	56.009 (0.632)	33.524 (0.402)
Loc: near Tiruppur	0.351 (0.814)	.	.	0.174 (0.391)	.	.	0.282 (0.664)	.	.	0.073 (0.154)	.	.
Loc: near Chengalpattu	0.438 (1.880)	8.901 (0.166)	203.985 (2.299)	0.287 (1.185)	26.754 (0.459)	67.204 (0.780)	0.249 (1.014)	8.026 (0.106)	224.032 (1.980)	0.120 (0.440)	53.369 (0.627)	12.852 (0.135)
Loc: near Kanchipuram	0.705 (2.067)	14.914 (0.238)	186.459 (1.711)	0.559 (1.621)	40.217 (0.610)	65.047 (0.637)	0.559 (1.727)	24.538 (0.296)	177.873 (1.538)	0.395 (1.124)	74.668 (0.818)	-17.470 (-0.165)
Loc: near Chennai	.	-52.240 (-0.882)	91.536 (0.818)	.	-55.393 (-0.945)	72.536 (0.681)	.	-74.154 (-0.948)	137.583 (1.078)	.	-50.077 (-0.590)	65.158 (0.653)
Female (=1)	0.158 (0.937)	-34.793 (-1.226)	197.604 (3.288)	0.171 (0.601)	27.916 (0.628)	-87.425 (-0.813)	0.158 (0.930)	-22.025 (-0.859)	179.990 (2.840)	-0.175 (-0.469)	16.592 (0.361)	-155.866 (-0.910)
Dalits (=1)	0.152 (1.419)	-29.778 (-1.555)	-4.203 (-0.090)	0.160 (1.471)	-28.078 (-1.412)	2.820 (0.061)	-0.032 (-0.154)	6.468 (0.282)	55.673 (0.550)	-0.402 (-1.231)	6.692 (0.153)	88.776 (0.543)
IMR (no int)	.	-27.001 (-0.269)	19.198 (0.067)
Female X Factor 1 (std)	.	-0.126 (-1.067)	-8.131 (-0.607)	.	62.243 (1.402)	-0.183 (-1.015)	-44.995 (-1.880)	-0.691 (-0.009)
Female X Factor 2 (std)	.	-0.281 (-2.253)	22.092 (1.181)	-80.345 (-1.364)	-0.520 (-2.789)	28.660 (0.856)	36.129 (0.486)
Female X Factor 3 (std)	.	-0.101 (-0.882)	10.233 (0.749)	41.659 (0.792)	-0.195 (-1.192)	0.959 (0.043)	156.116 (1.806)
Female X Factor 4 (std)	.	-0.102 (-0.883)	-5.511 (-0.231)	-42.126 (-0.933)	-0.031 (-0.171)	-50.489 (-1.086)	-139.894 (-1.747)
Female X Factor 5 (std)	.	0.014 (0.124)	-10.396 (-0.749)	-16.814 (-0.351)	0.029 (0.159)	-26.225 (-0.935)	-86.874 (-1.383)
Female X Raven (std)	.	-0.133 (-0.133)	-15.090 (-0.067)	105.761	-0.137 (-0.137)	-65.438 (-0.935)	196.215

Female X Numeracy (std)	(-0.940)	(-0.760)	(1.600)				(-0.708)	(-2.073)	(1.838)
	-0.115	-12.846	54.118				0.125	2.322	71.408
Female X Literacy (std)	(-0.658)	(-0.536)	(0.828)				(0.524)	(0.058)	(0.744)
	0.278	-13.018	38.035				0.179	7.646	-74.187
IMR (gender int)	(1.620)	(-0.675)	(0.586)				(0.791)	(0.266)	(-0.814)
	28.434	-18.563							
Dalit X Factor 1 (std)			(0.323)	(-0.069)	0.244	-21.949	-22.466	0.178	-45.905
					(2.266)	(-1.386)	(-0.454)	(1.098)	(-2.014)
Dalit X Factor 2 (std)					-0.116	25.208	7.799	-0.288	43.923
					(-1.078)	(1.293)	(0.150)	(-1.850)	(1.299)
Dalit X Factor 3 (std)					0.099	27.753	-6.529	0.034	31.916
					(0.911)	(1.692)	(-0.144)	(0.218)	(1.467)
Dalit X Factor 4 (std)					0.108	-26.043	64.771	0.265	-35.102
					(1.043)	(-0.887)	(1.294)	(1.714)	(-0.682)
Dalit X Factor 5 (std)					0.082	-22.412	30.216	0.122	-18.062
					(0.724)	(-1.245)	(0.748)	(0.781)	(-0.694)
Dalit X Raven (std)					0.157	11.728	-40.848	0.147	-28.918
					(1.103)	(0.610)	(-0.613)	(0.803)	(-1.019)
Dalit X Numeracy (std)					0.034	-40.185	-20.164	0.281	-10.467
					(0.206)	(-1.782)	(-0.395)	(1.209)	(-0.298)
Dalit X Literacy (std)					-0.076	2.929	13.044	-0.184	-6.087
					(-0.460)	(0.137)	(0.233)	(-0.822)	(-0.199)
IMR (caste int)					95.547	-148.052			
					(0.897)	(-0.536)			
Female X Dalit							0.732	1.179	34.376
Dalit X Female X Factor 1 (std)							(1.622)	(0.021)	(0.172)
Dalit X Female X Factor 2 (std)							0.138	64.583	118.453
Dalit X Female X Factor 3 (std)							(0.584)	(2.428)	(1.139)
Dalit X Female X Factor 4 (std)							0.478	-35.028	-151.156
Dalit X Female X Factor 5 (std)							(1.880)	(-0.895)	(-1.326)
Dalit X Female X Raven (std)							0.246	0.581	-204.614
Dalit X Female X Numeracy (std)							(1.043)	(0.022)	(-1.802)
Dalit X Female X Literacy (std)							-0.221	46.536	210.651
IMR (gender and caste int)							(-0.925)	(0.976)	(1.935)
							-0.063	18.005	120.898
Debt ratio in 2016-17	-0.157		-0.165		-0.152		-0.144		
	(-2.194)		(-2.344)		(-2.141)		(-1.966)		
constant	-3.827	-201.672	-336.569	-3.856	-335.750	-125.219	-3.694	-457.734	-9.914
	(-5.959)	(-0.773)	(-0.553)	(-5.812)	(-1.496)	(-0.211)	(-5.661)	(-1.582)	(-0.017)
Observations	831	603	603	831	603	603	831	603	603
R ²		0.263	0.069		0.272	0.092		0.290	0.073
Adjusted R ²		0.220	0.015		0.218	0.026		0.238	0.005
McFadden's pseudo R ²	0.205		0.218		0.214		0.236		
Log-likelihood	-387.994			-381.828		-383.822		-373.271	
F-stat		5.351	2.391		2.969	1.587			
LR χ ²	240.884		246.493		326.328	4.478	1.652		
p-value	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.008	0.000
							314.239		
							0.000	0.000	0.024

Table 15: Complete regression table for fixed effects analysis – **Source :** NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

	(1)		(2)		(3)		(4)	
	b/t Amount	b/t DSR	b/t Amount	b/t DSR	b/t Amount	b/t DSR	b/t Amount	b/t DSR
OP (std)	8.216 (0.711)	-22.105 (-0.788)	1.490 (0.082)	-15.416 (-0.429)	-0.009 (-0.000)	-9.959 (-0.291)	-21.862 (-0.741)	5.954 (0.116)
CO (std)	3.207 (0.333)	-14.114 (-0.577)	1.567 (0.096)	4.863 (0.281)	7.336 (0.462)	14.388 (0.552)	9.393 (0.365)	6.373 (0.283)
EX (std)	-12.243 (-1.110)	4.867 (0.245)	-10.093 (-0.611)	50.170 (1.946)	-6.388 (-0.396)	31.643 (1.213)	-0.339 (-0.013)	66.363 (1.544)
AG (std)	-1.150 (-0.102)	-14.835 (-0.405)	-2.038 (-0.109)	-35.240 (-0.837)	-6.665 (-0.382)	-51.709 (-1.260)	0.877 (0.033)	-48.955 (-0.914)
ES (std)	-6.361 (-0.748)	5.730 (0.204)	-12.390 (-1.049)	-41.313 (-1.512)	-3.642 (-0.244)	-16.029 (-0.532)	-21.097 (-1.012)	-69.659 (-1.415)
Raven (std)	-8.431 (-0.746)	21.823 (0.777)	-23.409 (-1.352)	-5.520 (-0.407)	-9.580 (-0.486)	-16.310 (-0.560)	-22.334 (-0.839)	-4.259 (-0.221)
Numeracy (std)	-10.156 (-1.138)	11.167 (0.451)	-14.233 (-1.043)	0.090 (0.007)	-17.582 (-1.165)	15.486 (0.653)	-22.253 (-1.039)	4.795 (0.240)
Literacy (std)	40.826 (3.292)	54.493 (2.000)	58.801 (2.952)	65.821 (1.614)	52.027 (2.697)	59.768 (2.161)	78.346 (2.742)	92.366 (1.581)
Age	42.779 (2.879)	12.547 (0.355)	42.687 (2.924)	15.182 (0.433)	42.895 (2.876)	14.978 (0.427)	40.988 (2.791)	12.431 (0.354)
Age square	-0.502 (-3.080)	0.106 (0.290)	-0.502 (-3.122)	0.069 (0.190)	-0.506 (-3.071)	0.055 (0.153)	-0.484 (-2.966)	0.089 (0.245)
HH head (=1)	8.705 (0.356)	-147.311 (-1.400)	7.979 (0.333)	-113.642 (-1.023)	6.844 (0.279)	-129.932 (-1.258)	1.458 (0.063)	-100.130 (-0.897)
MO: Agri	0.000 (.)	0.000 (.)	71.107 (1.760)	-397.042 (-1.624)	70.135 (1.646)	-436.867 (-1.771)	0.000 (.)	0.000 (.)
MO: SE	2.401 (0.065)	155.715 (1.037)	78.533 (2.321)	-314.677 (-1.923)	75.482 (2.205)	-293.406 (-1.799)	-4.456 (-0.113)	88.978 (0.665)
MO: SJ agri	-6.416 (-0.183)	210.109 (1.513)	59.027 (2.008)	-231.287 (-1.454)	67.496 (2.273)	-222.803 (-1.418)	-23.036 (-0.603)	160.282 (1.274)
MO: SJ non-agri	-32.222 (-0.948)	132.939 (0.951)	35.290 (1.365)	-296.084 (-1.805)	45.282 (1.734)	-295.884 (-1.807)	-39.913 (-1.112)	89.660 (0.672)
MO: UW or NW	-73.685 (-1.785)	421.513 (1.715)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	-76.273 (-1.830)	409.797 (1.742)
School educ (=1)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)
Married (=1)	-27.949 (-1.049)	-92.131 (-1.340)	-25.767 (-0.944)	-118.181 (-1.586)	-32.170 (-1.120)	-74.769 (-1.071)	-29.404 (-1.020)	-93.598 (-1.184)
Multiple occupation (=1)	24.701 (1.436)	-67.488 (-1.519)	30.882 (1.737)	-49.339 (-1.103)	29.316 (1.637)	-54.202 (-1.228)	35.568 (1.962)	-44.938 (-1.010)
Assets (1,000 INR)	0.028 (1.260)	-0.004 (-0.240)	0.029 (1.324)	-0.006 (-0.335)	0.028 (1.262)	-0.007 (-0.444)	0.029 (1.388)	-0.008 (-0.482)
SR: More female	-52.110 (-1.325)	-2.118 (-0.035)	-52.663 (-1.334)	4.574 (0.076)	0.000 (.)	0.000 (.)	-52.178 (-1.253)	-39.801 (-0.583)
SR: Same nb	-33.097 (-1.179)	34.932 (0.472)	-27.433 (-0.979)	50.730 (0.700)	18.503 (0.680)	52.632 (1.080)	-20.499 (-0.728)	15.381 (0.189)
SR: More male	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	56.063 (1.381)	41.204 (0.625)	0.000 (.)	0.000 (.)
Household size	-13.299 (-1.494)	-11.245 (-0.821)	-13.846 (-1.576)	-10.085 (-0.703)	-12.048 (-1.297)	-11.434 (-0.779)	-11.783 (-1.266)	-4.916 (-0.293)
Shock (=1)	20.291 (0.899)	33.349 (0.898)	19.083 (0.842)	36.640 (0.965)	17.153 (0.742)	28.889 (0.751)	18.386 (0.759)	27.341 (0.661)
Total income (1,000 INR)	0.072 (1.629)	-0.109 (-1.529)	0.074 (1.702)	-0.097 (-1.302)	0.074 (1.658)	-0.115 (-1.615)	0.073 (1.655)	-0.106 (-1.441)
Female (=1)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)
Dalits (=1)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)	0.000 (.)
Female X OP (std)		19.995 (1.025)	8.132 (0.134)				67.003 (2.111)	-41.458 (-0.561)
Female X CO (std)		0.773 (0.044)	-45.854 (-0.891)				-12.749 (-0.464)	13.071 (0.197)
Female X EX (std)		-10.794 (-0.570)	-94.796 (-1.940)				-31.036 (-1.100)	-60.318 (-0.956)
Female X AG (std)		5.696 (0.290)	34.389 (0.532)				4.940 (0.183)	-21.658 (-0.278)
Female X ES (std)		12.170 (0.819)	106.475 (1.826)				39.713 (1.555)	114.552 (1.757)
Female X Raven (std)		36.902 (2.066)	68.255 (0.986)				39.035 (1.456)	-31.548 (-0.416)
Female X Literacy (std)		-43.008 (-1.984)	-5.623 (-0.068)				-68.594 (-2.208)	-41.533 (-0.369)
Female X Numeracy (std)		10.267 (0.666)	40.822 (0.731)				11.169 (0.451)	37.407 (0.612)
Dalit X OP (std)			17.134 (0.739)	-15.531 (-0.298)			49.571 (1.473)	-63.658 (-1.112)
Dalit X CO (std)			-9.976 (-0.501)	-58.368 (-1.305)			-23.647 (-0.712)	-16.172 (-0.500)
Dalit X EX (std)			-13.002 (-0.664)	-64.192 (-1.545)			-24.093 (-0.744)	-34.964 (-0.706)
Dalit X AG (std)			10.282 (0.493)	85.461 (1.346)			2.637 (0.076)	60.411 (1.156)
Dalit X ES (std)			-4.916 (-0.287)	46.375 (0.931)			14.551 (0.592)	59.092 (1.188)
Dalit X Raven (std)			5.906 (0.262)	75.225 (1.223)			0.510 (0.016)	-4.231 (-0.170)
Dalit X Literacy (std)			-33.178 (-1.414)	-15.290 (-0.263)			-53.130 (-1.433)	-68.301 (-1.020)
Dalit X Numeracy (std)			20.561 (1.189)	-0.745 (-0.016)			28.591 (1.111)	-17.522 (-0.632)

Dalit X Female X OP (std)							-90.127	117.860
Dalit X Female X CO (std)							(-2.475)	(1.053)
Dalit X Female X EX (std)							33.078	-63.060
Dalit X Female X AG (std)							(0.942)	(-0.732)
Dalit X Female X ES (std)							43.869	-75.482
Dalit X Female X Raven (std)							(1.274)	(-0.778)
Dalit X Female X Literacy (std)							-6.118	54.831
Dalit X Female X Numeracy (std)							(-0.168)	(0.423)
constant	-631.354 (-1.926)	-569.425 (-0.647)	-700.742 (-2.162)	-189.962 (-0.241)	-758.287 (-2.282)	-184.289 (-0.231)	-592.890 (-1.837)	-527.948 (-0.602)
Observations	1071	1071	1071	1071	1071	1071	1071	1071
Nb of groups	708	708	708	708	708	708	708	708
ρ	0.646	0.551	0.645	0.550	0.648	0.539	0.637	0.546
Within R^2	0.154	0.098	0.174	0.128	0.164	0.116	0.199	0.154
Between R^2	0.031	0.013	0.036	0.015	0.025	0.014	0.040	0.018
Overall R^2	0.050	0.016	0.058	0.023	0.045	0.023	0.065	0.030
F-stat	2.247	1.106	2.084	1.032	1.897	1.026	1.727	0.946
p-value	0.001	0.335	0.001	0.422	0.003	0.430	0.003	0.576

Table 16: Complete regression table for debt path – **Source :** NEEMSI-1 (2016-17) and NEEMSI-2 (2020-21); author's calculations.

	(1)		(2)		(3)		(4)	
	b/t Factor	b/t Big-5	b/t Factor	b/t Big-5	b/t Factor	b/t Big-5	b/t Factor	b/t Big-5
Never in debt								
Factor 1 (std) / OP cor (std)	-0.050 (-0.465)	0.149 (1.113)	-0.248 (-1.166)	-0.021 (-0.118)	0.086 (0.608)	0.259 (1.278)	-0.367 (-1.238)	-0.260 (-0.835)
Factor 2 (std) / CO cor (std)	-0.009 (-0.077)	-0.271 (-1.913)	-0.294 (-1.765)	-0.533 (-2.441)	-0.115 (-0.755)	-0.572 (-2.952)	-0.155 (-0.667)	-0.688 (-2.070)
Factor 3 (std) / EX cor (std)	0.280 (2.608)	0.075 (0.572)	0.014 (0.087)	0.085 (0.394)	0.443 (2.808)	0.298 (1.583)	0.254 (1.029)	0.329 (0.888)
Factor 4 (std) / AG cor (std)	-0.004 (-0.036)	0.207 (1.824)	-0.114 (-0.646)	0.176 (0.947)	0.246 (1.652)	0.202 (1.268)	0.282 (1.256)	-0.074 (-0.277)
Factor 5 (std) / ES cor (std)	0.062 (0.586)	-0.041 (-0.325)	0.134 (0.927)	0.254 (1.291)	0.145 (0.966)	0.076 (0.462)	0.462 (1.678)	0.488 (1.576)
Raven (std)	-0.027 (-0.212)	-0.084 (-0.640)	0.144 (0.833)	0.143 (0.766)	0.181 (1.151)	0.127 (0.788)	0.222 (1.099)	0.337 (1.556)
Numeracy (std)	0.144 (0.873)	0.101 (0.625)	-0.033 (-0.135)	-0.186 (-0.771)	0.134 (0.570)	0.046 (0.196)	-0.079 (-0.249)	-0.318 (-0.862)
Literacy (std)	-0.405 (-1.738)	-0.372 (-1.583)	-0.159 (-0.513)	-0.178 (-0.535)	-0.617 (-2.440)	-0.532 (-2.056)	0.137 (0.413)	-0.071 (-0.185)
Age	-0.330 (-6.194)	-0.332 (-6.126)	-0.358 (-6.472)	-0.351 (-6.117)	-0.340 (-6.425)	-0.348 (-6.333)	-0.414 (-7.482)	-0.431 (-7.537)
Age square	0.004 (6.272)	0.004 (6.166)	0.004 (6.496)	0.004 (6.143)	0.004 (6.553)	0.004 (6.369)	0.004 (7.614)	0.005 (7.494)
HH head (=1)	-1.438 (-3.965)	-1.412 (-3.865)	-1.325 (-3.217)	-1.318 (-3.148)	-1.505 (-4.064)	-1.438 (-3.947)	-1.229 (-2.924)	-1.421 (-3.255)
MO: Agri	-1.707 (-2.817)	-1.801 (-2.919)	-1.675 (-2.688)	-1.845 (-2.886)	-1.803 (-2.946)	-1.978 (-2.971)	-1.467 (-2.333)	-1.649 (-2.351)
MO: SE	-1.716 (-3.373)	-1.738 (-3.416)	-1.791 (-3.378)	-1.753 (-3.346)	-1.764 (-3.597)	-1.887 (-3.729)	-1.671 (-3.222)	-1.697 (-3.131)
MO: SJ agri	-1.314 (-3.090)	-1.399 (-3.338)	-1.433 (-3.342)	-1.473 (-3.577)	-1.325 (-3.114)	-1.410 (-3.340)	-1.547 (-3.572)	-1.423 (-3.427)
MO: SJ non-agri	-0.829 (-2.959)	-0.832 (-2.985)	-0.952 (-3.259)	-0.924 (-3.148)	-0.879 (-3.116)	-0.909 (-3.254)	-0.945 (-3.108)	-0.843 (-2.830)
MO: UW or NW	0.000 (.)							
School educ (=1)	-0.297 (-0.740)	-0.320 (-0.801)	-0.387 (-0.980)	-0.374 (-0.946)	-0.303 (-0.764)	-0.363 (-0.914)	-0.505 (-1.247)	-0.534 (-1.328)
Married (=1)	-1.236 (-4.706)	-1.274 (-4.934)	-1.150 (-4.000)	-1.217 (-4.270)	-1.220 (-4.715)	-1.255 (-5.009)	-1.134 (-3.878)	-1.275 (-4.279)
Multiple occupation (=1)	-1.050 (-3.780)	-1.104 (-3.979)	-1.052 (-3.685)	-1.113 (-3.933)	-1.085 (-3.858)	-1.183 (-4.269)	-1.139 (-3.757)	-1.335 (-4.283)
Assets (1,000 INR)	-0.000 (-1.801)	-0.000 (-1.564)	-0.000 (-1.874)	-0.000 (-1.434)	-0.000 (-1.772)	-0.000 (-1.524)	-0.000 (-1.896)	-0.000 (-1.223)
SR: More female	0.038 (0.161)	0.080 (0.338)	-0.009 (-0.036)	0.051 (0.211)	0.055 (0.223)	0.086 (0.351)	0.009 (0.033)	0.061 (0.223)
SR: Same nb	-0.218 (-0.924)	-0.246 (-1.062)	-0.205 (-0.843)	-0.270 (-1.165)	-0.260 (-1.067)	-0.344 (-1.423)	-0.320 (-1.230)	-0.407 (-1.611)
SR: More male	0.000 (.)							
Household size	0.029 (0.645)	0.045 (0.995)	0.048 (1.024)	0.053 (1.193)	0.020 (0.421)	0.033 (0.706)	0.039 (0.770)	0.028 (0.603)
Shock (=1)	0.316 (1.502)	0.354 (1.673)	0.288 (1.354)	0.386 (1.779)	0.358 (1.652)	0.406 (1.860)	0.383 (1.680)	0.555 (2.393)
Total income (1,000 INR)	0.001 (2.108)	0.001 (2.014)	0.001 (2.101)	0.001 (1.957)	0.001 (2.109)	0.001 (2.372)	0.001 (1.946)	0.001 (2.303)
Female (=1)	-0.751 (-2.438)	-0.785 (-2.657)	-0.233 (-0.395)	-0.477 (-0.826)	-0.797 (-2.545)	-0.851 (-2.887)	0.583 (0.740)	0.142 (0.178)
Dalits (=1)	-0.284 (-1.366)	-0.289 (-1.403)	-0.319 (-1.519)	-0.284 (-1.369)	0.045 (0.109)	0.056 (0.135)	1.113 (1.562)	1.123 (1.499)
Female X Factor 1 (std) / OP cor (std)	0.260 (0.946)	0.319 (1.154)	0.260 (1.154)	0.260 (1.154)	-0.193 (-0.717)	0.127 (0.326)	0.552 (1.369)	1.124 (2.657)
Female X Factor 2 (std) / CO cor (std)	0.627 (2.396)	0.474 (1.519)	0.627 (1.519)	0.627 (1.519)	-0.193 (-0.717)	0.340 (0.901)	0.340 (0.901)	0.032 (0.070)
Female X Factor 3 (std) / EX cor (std)	0.591 (2.578)	-0.021 (-0.073)	0.591 (-0.073)	-0.021 (-0.073)	-0.279 (-0.815)	0.668 (1.661)	0.668 (1.661)	0.063 (0.136)
Female X Factor 4 (std) / AG cor (std)	0.145 (0.634)	0.104 (0.438)	0.145 (0.438)	0.104 (0.438)	-0.437 (-0.815)	-0.014 (-0.404)	-0.437 (-0.404)	0.592 (1.855)
Female X Factor 5 (std) / ES cor (std)	-0.065 (-0.331)	-0.589 (-2.133)	-0.065 (-2.133)	-0.589 (-2.133)	-0.437 (-1.887)	-0.410 (-1.233)	-0.410 (-1.233)	-0.739 (-1.746)
Female X Raven (std)	-0.390 (-1.458)	-0.428 (-1.546)	-0.390 (-1.546)	-0.428 (-1.546)	-0.428 (-1.546)	-0.194 (-0.517)	-0.194 (-0.517)	-0.464 (-1.237)
Female X Numeracy (std)	0.443 (1.236)	0.560 (1.603)	0.443 (1.603)	0.560 (1.603)	0.560 (1.603)	0.574 (1.183)	0.574 (1.183)	0.681 (1.279)
Female X Literacy (std)	-0.453 (-1.376)	-0.361 (-1.068)	-0.453 (-1.068)	-0.361 (-1.068)	-0.361 (-1.068)	-1.152 (-2.757)	-1.152 (-2.757)	-0.674 (-1.487)
Dalit X Factor 1 (std) / OP cor (std)	-0.260 (-1.223)	-0.193 (-0.717)	-0.260 (-0.717)	-0.193 (-0.717)	0.127 (0.326)	0.591 (1.549)	0.591 (1.549)	0.591 (1.549)
Dalit X Factor 2 (std) / CO cor (std)	0.221 (0.948)	0.622 (2.111)	0.221 (2.111)	0.622 (2.111)	-0.126 (-0.371)	0.141 (0.296)	0.141 (0.296)	0.141 (0.296)
Dalit X Factor 3 (std) / EX cor (std)	-0.293 (-1.296)	-0.449 (-1.645)	-0.293 (-1.645)	-0.449 (-1.645)	-0.279 (-0.815)	-0.513 (-1.030)	-0.279 (-0.815)	-0.513 (-1.030)
Dalit X Factor 4 (std) / AG cor (std)	-0.437 (-1.990)	-0.023 (-0.096)	-0.437 (-0.096)	-0.023 (-0.096)	-0.630 (-1.909)	0.528 (1.405)	-0.630 (-1.909)	0.528 (1.405)
Dalit X Factor 5 (std) / ES cor (std)	-0.085 (-0.395)	-0.314 (-1.159)	-0.085 (-1.159)	-0.314 (-1.159)	-0.463 (-1.422)	-0.525 (-1.202)	-0.463 (-1.422)	-0.525 (-1.202)
Dalit X Raven (std)	-0.493 (-1.916)	-0.481 (-1.811)	-0.493 (-1.811)	-0.481 (-1.811)	-0.198 (-0.540)	-0.472 (-1.202)	-0.198 (-0.540)	-0.472 (-1.202)
Dalit X Numeracy (std)	0.048 (0.142)	0.053 (0.159)	0.048 (0.159)	0.053 (0.159)	0.021 (0.045)	0.078 (0.154)	0.021 (0.154)	0.078 (0.154)
Dalit X Literacy (std)	0.391 (0.391)	0.343 (0.343)	0.391 (0.343)	0.343 (0.343)	-0.358 (-0.358)	-0.191 (-0.191)	-0.358 (-0.191)	-0.191 (-0.191)

					(1.242)	(1.054)	(-0.808)	(-0.391)
Female X Dalit							-1.289	-1.416
Dalit X Female X Factor 1 (std) / OP cor (std)							(-1.346)	(-1.458)
Dalit X Female X Factor 2 (std) / CO cor (std)							-0.618	-1.492
Dalit X Female X Factor 3 (std) EX cor (std)							(-1.207)	(-2.736)
Dalit X Female X Factor 4 (std) / AG cor (std)							0.708	1.237
Dalit X Female X Factor 5 (std) / ES cor (std)							(1.311)	(1.845)
Dalit X Female X Raven (std)							-0.258	-0.261
Dalit X Female X Numeracy (std)							(-0.506)	(-0.406)
Dalit X Female X Literacy (std)							0.105	-0.945
constant	8.628	8.778	9.025	9.045	8.771	9.132	0.407	0.006
	(7.126)	(7.117)	(7.382)	(7.240)	(7.276)	(7.196)	(0.859)	(0.010)
							-0.670	-0.214
							(-1.194)	(-0.372)
							-0.319	-0.378
							(-0.448)	(-0.503)
							1.430	1.082
							(2.205)	(1.654)
							9.351	10.344
							(7.506)	(7.825)
Out of debt								
Factor 1 (std) / OP cor (std)	0.176	0.105	0.077	0.033	0.423	0.158	0.306	-0.055
	(2.119)	(1.122)	(0.645)	(0.268)	(3.390)	(1.206)	(1.777)	(-0.303)
Factor 2 (std) / CO cor (std)	-0.017	-0.093	-0.176	-0.290	-0.143	-0.200	-0.436	-0.581
	(-0.209)	(-0.932)	(-1.527)	(-2.122)	(-1.200)	(-1.369)	(-2.541)	(-2.750)
Factor 3 (std) / EX cor (std)	0.111	0.042	0.017	0.059	0.102	0.117	0.054	0.181
	(1.399)	(0.432)	(0.151)	(0.498)	(0.885)	(0.859)	(0.330)	(1.057)
Factor 4 (std) / AG cor (std)	0.037	-0.030	-0.024	0.008	0.048	-0.073	0.158	-0.030
	(0.481)	(-0.360)	(-0.228)	(0.065)	(0.390)	(-0.592)	(0.887)	(-0.155)
Factor 5 (std) / ES cor (std)	0.106	-0.050	0.072	0.136	0.153	-0.047	0.191	0.332
	(1.311)	(-0.489)	(0.661)	(0.947)	(1.306)	(-0.318)	(1.167)	(1.532)
Raven (std)	0.001	0.040	-0.007	0.038	0.050	0.104	0.052	0.110
	(0.012)	(0.382)	(-0.048)	(0.274)	(0.380)	(0.793)	(0.275)	(0.598)
Numeracy (std)	0.002	-0.009	-0.052	-0.084	0.039	0.046	0.205	0.151
	(0.019)	(-0.072)	(-0.326)	(-0.538)	(0.235)	(0.276)	(0.883)	(0.661)
Literacy (std)	-0.070	-0.064	0.080	0.063	-0.146	-0.145	-0.190	-0.161
	(-0.495)	(-0.460)	(0.456)	(0.365)	(-0.864)	(-0.854)	(-0.836)	(-0.715)
Age	-0.186	-0.181	-0.202	-0.193	-0.189	-0.183	-0.205	-0.195
	(-4.560)	(-4.428)	(-4.786)	(-4.574)	(-4.563)	(-4.432)	(-4.715)	(-4.546)
Age square	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	(4.803)	(4.662)	(4.992)	(4.796)	(4.784)	(4.655)	(4.935)	(4.748)
HH head (=1)	-0.040	-0.070	0.028	-0.029	-0.014	-0.076	0.016	-0.057
	(-0.150)	(-0.262)	(0.098)	(-0.102)	(-0.052)	(-0.284)	(0.058)	(-0.202)
MO: Agri	-1.145	-1.133	-1.211	-1.215	-1.175	-1.152	-1.300	-1.249
	(-3.268)	(-3.270)	(-3.436)	(-3.497)	(-3.289)	(-3.301)	(-3.538)	(-3.520)
MO: SE	-0.470	-0.459	-0.476	-0.477	-0.498	-0.460	-0.502	-0.475
	(-1.571)	(-1.543)	(-1.605)	(-1.611)	(-1.644)	(-1.535)	(-1.646)	(-1.570)
MO: SJ agri	-0.724	-0.772	-0.784	-0.832	-0.705	-0.771	-0.719	-0.767
	(-2.531)	(-2.725)	(-2.680)	(-2.895)	(-2.485)	(-2.717)	(-2.448)	(-2.677)
MO: SJ non-agri	-0.454	-0.462	-0.525	-0.513	-0.497	-0.484	-0.549	-0.526
	(-1.979)	(-2.023)	(-2.243)	(-2.223)	(-2.171)	(-2.123)	(-2.351)	(-2.269)
MO: UW or NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
School educ (=1)	-0.004	-0.026	-0.037	-0.016	-0.017	-0.043	-0.009	-0.010
	(-0.019)	(-0.118)	(-0.166)	(-0.072)	(-0.077)	(-0.198)	(-0.039)	(-0.046)
Married (=1)	-0.317	-0.288	-0.277	-0.266	-0.307	-0.272	-0.325	-0.320
	(-1.455)	(-1.328)	(-1.187)	(-1.152)	(-1.419)	(-1.267)	(-1.368)	(-1.375)
Multiple occupation (=1)	-0.075	-0.049	-0.047	-0.045	-0.076	-0.043	-0.056	-0.041
	(-0.426)	(-0.281)	(-0.262)	(-0.254)	(-0.428)	(-0.245)	(-0.309)	(-0.228)
Assets (1,000 INR)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.454)	(0.414)	(0.491)	(0.450)	(0.330)	(0.250)	(0.314)	(0.408)
SR: More female	-0.259	-0.231	-0.336	-0.276	-0.254	-0.233	-0.303	-0.243
	(-1.395)	(-1.244)	(-1.810)	(-1.498)	(-1.359)	(-1.245)	(-1.618)	(-1.287)
SR: Same nb	-0.246	-0.229	-0.269	-0.240	-0.247	-0.227	-0.276	-0.225
	(-1.335)	(-1.241)	(-1.450)	(-1.293)	(-1.329)	(-1.223)	(-1.448)	(-1.187)
SR: More male	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Household size	-0.002	-0.016	0.000	-0.016	-0.014	-0.020	-0.001	-0.018
	(-0.059)	(-0.391)	(0.001)	(-0.372)	(-0.333)	(-0.480)	(-0.033)	(-0.424)
Shock (=1)	0.010	-0.002	0.002	-0.008	-0.011	-0.005	0.018	0.041
	(0.062)	(-0.011)	(0.016)	(-0.049)	(-0.073)	(-0.032)	(0.109)	(0.261)
Total income (1,000 INR)	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-1.067)	(-0.735)	(-0.943)	(-0.694)	(-0.776)	(-0.657)	(-0.769)	(-0.735)
Female (=1)	0.049	-0.048	0.153	-0.024	0.067	-0.059	0.641	0.275
	(0.197)	(-0.199)	(0.381)	(-0.060)	(0.270)	(-0.243)	(1.233)	(0.536)
Dalits (=1)	-0.028	-0.023	-0.029	-0.012	0.112	0.144	0.649	0.602
	(-0.174)	(-0.141)	(-0.174)	(-0.074)	(0.376)	(0.488)	(1.362)	(1.291)
Female X Factor 1 (std) / OP cor (std)		0.165	0.125				0.255	0.530
		(0.943)	(0.636)				(0.922)	(1.817)
Female X Factor 2 (std) / CO cor (std)		0.354	0.417				0.747	0.844
		(1.933)	(1.930)				(2.609)	(2.505)
Female X Factor 3 (std) / EX cor (std)		0.196	-0.032				0.183	-0.242
		(1.172)	(-0.171)				(0.773)	(-0.839)
Female X Factor 4 (std) / AG cor (std)		0.141	-0.059				-0.063	0.027
		(0.865)	(-0.329)				(-0.237)	(0.094)
Female X Factor 5 (std) / ES cor (std)		0.122	-0.392				0.059	-0.833
		(0.703)	(-1.838)				(0.215)	(-2.599)
Female X Raven (std)		0.033	0.030				-0.096	-0.022
		(0.157)	(0.142)				(-0.339)	(-0.078)
Female X Numeracy (std)		0.217	0.207				-0.150	-0.122
		(0.866)	(0.839)				(-0.449)	(-0.366)
Female X Literacy (std)		-0.365	-0.316				0.020	-0.040
		(-1.447)	(-1.255)				(0.062)	(-0.117)
Dalit X Factor 1 (std) / OP cor (std)		-0.455	-0.107				-0.337	0.217
		(-2.749)	(-0.566)				(-1.439)	(0.855)
Dalit X Factor 2 (std) / CO cor (std)		0.226	0.167				0.528	0.568
		(1.418)	(0.850)				(2.311)	(1.989)
Dalit X Factor 3 (std) / EX cor (std)		0.037	-0.115				0.025	-0.241

Dalit X Factor 4 (std) / AG cor (std)				(0.229)	(-0.591)	(0.111)	(-0.989)
Dalit X Factor 5 (std) / ES cor (std)				0.012	0.112	-0.290	0.096
Dalit X Raven (std)				(0.074)	(0.670)	(-1.287)	(0.372)
Dalit X Numeracy (std)				-0.061	0.028	-0.159	-0.466
Dalit X Literacy (std)				(-0.380)	(0.140)	(-0.724)	(-1.597)
Female X Dalit				-0.141	-0.163	-0.231	-0.229
Dalit X Female X Factor 1 (std) / OP cor (std)				(-0.685)	(-0.793)	(-0.843)	(-0.836)
Dalit X Female X Factor 2 (std) / CO cor (std)				-0.058	-0.092	-0.460	-0.430
Dalit X Female X Factor 3 (std) EX cor (std)				(-0.246)	(-0.388)	(-1.392)	(-1.311)
Dalit X Female X Factor 4 (std) / AG cor (std)				0.159	0.181	0.531	0.452
Dalit X Female X Factor 5 (std) / ES cor (std)				(0.664)	(0.754)	(1.659)	(1.429)
Dalit X Female X Raven (std)						-1.138	-0.930
Dalit X Female X Numeracy (std)						(-1.752)	(-1.430)
Dalit X Female X Literacy (std)						-0.303	-0.847
constant	3.855 (4.026)	3.797 (3.907)	4.200 (4.275)	4.050 (4.118)	3.919 (4.037)	3.782 (3.839)	3.973 (3.846)
Becomes in debt							
Factor 1 (std) / OP cor (std)	0.053 (0.573)	0.042 (0.397)	0.112 (0.761)	0.164 (1.065)	0.260 (1.818)	0.040 (0.266)	0.281 (1.190)
Factor 2 (std) / CO cor (std)	0.004 (0.036)	-0.044 (-0.335)	-0.089 (-0.633)	-0.084 (-0.411)	-0.179 (-1.198)	-0.168 (-0.889)	-0.124 (-0.677)
Factor 3 (std) / EX cor (std)	0.262 (2.610)	0.148 (1.430)	0.027 (0.193)	-0.003 (-0.019)	0.142 (1.014)	0.298 (1.868)	0.215 (1.255)
Factor 4 (std) / AG cor (std)	0.140 (1.469)	0.021 (0.204)	0.163 (1.189)	-0.134 (-0.812)	0.060 (0.431)	0.034 (0.229)	0.278 (1.395)
Factor 5 (std) / ES cor (std)	-0.046 (-0.499)	-0.065 (-0.554)	-0.207 (-1.565)	0.143 (0.818)	-0.014 (-0.094)	-0.052 (-0.301)	0.099 (0.451)
Raven (std)	-0.051 (-0.412)	-0.108 (-0.838)	0.253 (1.515)	0.247 (1.465)	-0.097 (-0.598)	-0.142 (-0.845)	0.286 (1.380)
Numeracy (std)	0.067 (0.447)	0.066 (0.450)	-0.067 (-0.293)	-0.088 (-0.390)	0.063 (0.307)	0.037 (0.183)	-0.315 (-1.321)
Literacy (std)	-0.088 (-0.548)	0.004 (0.024)	0.040 (0.168)	0.082 (0.343)	-0.172 (-0.807)	-0.097 (-0.464)	0.063 (0.180)
Age	-0.213 (-4.438)	-0.205 (-4.528)	-0.245 (-4.937)	-0.240 (-5.060)	-0.211 (-4.272)	-0.201 (-4.329)	-0.254 (-4.889)
Age square	0.002 (4.464)	0.002 (4.648)	0.003 (4.962)	0.003 (5.183)	0.002 (4.244)	0.002 (4.418)	0.003 (4.897)
HH head (=1)	-0.704 (-2.320)	-0.819 (-2.739)	-0.518 (-1.649)	-0.635 (-2.105)	-0.625 (-2.068)	-0.760 (-2.558)	-0.517 (-1.589)
MO: Agri	-1.329 (-3.036)	-1.358 (-3.086)	-1.266 (-2.928)	-1.285 (-2.939)	-1.365 (-3.029)	-1.439 (-3.220)	-1.198 (-2.614)
MO: SE	-0.613 (-1.783)	-0.626 (-1.836)	-0.595 (-1.691)	-0.628 (-1.770)	-0.658 (-1.890)	-0.668 (-1.969)	-0.609 (-1.740)
MO: SJ agri	-0.177 (-0.544)	-0.228 (-0.716)	-0.118 (-0.361)	-0.154 (-0.482)	-0.142 (-0.451)	-0.204 (-0.654)	-0.022 (-0.067)
MO: SJ non-agri	-0.430 (-1.632)	-0.483 (-1.837)	-0.408 (-1.518)	-0.474 (-1.756)	-0.477 (-1.825)	-0.504 (-1.944)	-0.408 (-1.512)
MO: UW or NW	0.000 (.)						
School educ (=1)	-0.236 (-0.917)	-0.296 (-1.182)	-0.233 (-0.896)	-0.252 (-1.013)	-0.257 (-0.979)	-0.314 (-1.214)	-0.303 (-1.142)
Married (=1)	-0.073 (-0.262)	-0.134 (-0.496)	0.082 (0.302)	0.084 (0.311)	-0.068 (-0.247)	-0.104 (-0.388)	0.112 (0.400)
Multiple occupation (=1)	-0.522 (-2.533)	-0.503 (-2.460)	-0.546 (-2.600)	-0.539 (-2.617)	-0.512 (-2.448)	-0.516 (-2.477)	-0.530 (-2.431)
Assets (1,000 INR)	0.000 (1.412)	0.000 (1.521)	0.000 (1.387)	0.000 (1.402)	0.000 (1.589)	0.000 (1.755)	0.000 (1.608)
SR: More female	-0.118 (-0.542)	-0.113 (-0.532)	-0.142 (-0.641)	-0.118 (-0.541)	-0.119 (-0.545)	-0.114 (-0.532)	-0.133 (-0.598)
SR: Same nb	0.134 (0.718)	0.119 (0.637)	0.134 (0.702)	0.123 (0.650)	0.147 (0.773)	0.113 (0.595)	0.188 (0.963)
SR: More male	0.000 (.)						
Household size	-0.020 (-0.477)	-0.000 (-0.004)	-0.004 (-0.095)	0.011 (0.258)	-0.025 (-0.567)	-0.001 (-0.024)	-0.022 (-0.494)
Shock (=1)	-0.061 (-0.358)	-0.051 (-0.300)	-0.082 (-0.484)	-0.080 (-0.470)	-0.059 (-0.346)	-0.031 (-0.188)	-0.059 (-0.342)
Total income (1,000 INR)	0.000 (1.782)	0.000 (1.450)	0.000 (1.834)	0.000 (1.416)	0.000 (1.972)	0.000 (1.421)	0.000 (1.897)
Female (=1)	-0.157 (-0.537)	-0.260 (-0.930)	0.696 (1.441)	0.629 (1.367)	-0.134 (-0.459)	-0.252 (-0.898)	0.884 (1.397)
Dalits (=1)	0.273 (1.389)	0.281 (1.469)	0.266 (1.332)	0.276 (1.427)	0.002 (0.005)	-0.056 (-0.162)	0.326 (0.430)
Female X Factor 1 (std) / OP cor (std)			-0.114 (-0.576)	-0.193 (-0.907)			0.072 (0.239)
Female X Factor 2 (std) / CO cor (std)			0.192 (0.941)	0.138 (0.511)			0.061 (0.209)
Female X Factor 3 (std) / EX cor (std)			0.458 (2.087)	0.322 (1.530)			-0.001 (-0.002)
Female X Factor 4 (std) / AG cor (std)			-0.045 (-0.237)	0.263 (1.304)			-0.280 (-1.003)
Female X Factor 5 (std) / ES cor (std)			0.270 (1.388)	-0.403 (-1.695)			-0.122 (-0.376)
Female X Raven (std)			-0.648 (-0.648)	-0.736 (-0.736)			-0.921 (-0.921)

Female X Numeracy (std)	(-2.753)	(-3.071)			(-2.497)	(-2.725)		
	0.349	0.377			0.664	0.674		
	(1.135)	(1.247)			(1.826)	(1.944)		
Female X Literacy (std)	-0.221	-0.149			-0.214	-0.149		
	(-0.751)	(-0.506)			(-0.497)	(-0.347)		
Dalit X Factor 1 (std) / OP cor (std)		-0.371	-0.012		-0.230	-0.062		
		(-1.948)	(-0.059)		(-0.752)	(-0.199)		
Dalit X Factor 2 (std) / CO cor (std)		0.318	0.214		0.161	-0.004		
		(1.632)	(0.816)		(0.597)	(-0.011)		
Dalit X Factor 3 (std) / EX cor (std)		0.222	-0.266		-0.227	-0.004		
		(1.111)	(-1.263)		(-0.823)	(-0.015)		
Dalit X Factor 4 (std) / AG cor (std)		0.126	-0.066		-0.188	-0.227		
		(0.702)	(-0.332)		(-0.699)	(-0.670)		
Dalit X Factor 5 (std) / ES cor (std)		-0.048	-0.031		-0.475	0.168		
		(-0.254)	(-0.133)		(-1.740)	(0.463)		
Dalit X Raven (std)		0.015	0.057		-0.098	-0.101		
		(0.062)	(0.230)		(-0.297)	(-0.305)		
Dalit X Numeracy (std)		0.028	0.048		0.353	0.356		
		(0.093)	(0.167)		(0.918)	(0.934)		
Dalit X Literacy (std)		0.193	0.200		0.050	0.019		
		(0.667)	(0.703)		(0.110)	(0.040)		
Female X Dalit					-0.589	-0.607		
Dalit X Female X Factor 1 (std) / OP cor (std)					(-0.791)	(-0.855)		
Dalit X Female X Factor 2 (std) / CO cor (std)					-0.578	0.015		
Dalit X Female X Factor 3 (std) EX cor (std)					(-1.457)	(0.034)		
Dalit X Female X Factor 4 (std) / AG cor (std)					0.114	0.167		
Dalit X Female X Factor 5 (std) / ES cor (std)					(0.271)	(0.311)		
Dalit X Female X Raven (std)					0.825	-0.705		
Dalit X Female X Numeracy (std)					(1.920)	(-1.621)		
Dalit X Female X Literacy (std)					0.435	0.257		
constant	4.280 (3.813)	4.187 (3.867)	4.180 (3.694)	4.082 (3.725)	4.406 (3.905)	4.250 (3.901)	4.454 (3.823)	4.282 (3.784)
Always in debt (ref)								
Observations	831	830	831	830	831	830	831	830
Log-likelihood	-686.423	-691.062	-669.353	-676.968	-674.244	-682.845	-639.615	-649.005
LR χ^2	362.307	333.100	407.915	383.229	425.893	409.114	573.264	533.366
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 17: Complete regression table for Heckman procedure with Big-5 personality traits – **Source :** NEEMSIS-1 (2016-17) and NEEMSIS-2 (2020-21); author's calculations.

	(1)			(2)			(3)			(4)		
	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR	b/t Indebted	b/t Amount	b/t DSR
Indebted (=1) in 2016-17	0.401 (2.689)	-19.082 (-0.730)	21.330 (0.275)	0.415 (2.726)	-14.824 (-0.589)	5.348 (0.073)	0.392 (2.604)	-17.256 (-0.676)	19.377 (0.243)	0.409 (2.637)	-11.773 (-0.474)	-8.400 (-0.111)
OP cor (std)	-0.089 (-1.412)	8.716 (0.921)	-24.477 (-0.922)	-0.003 (-0.037)	4.611 (0.289)	5.223 (0.146)	-0.134 (-1.529)	2.314 (0.124)	-35.138 (-0.871)	0.072 (0.582)	-5.070 (-0.172)	14.316 (0.267)
CO cor (std)	0.115 (1.690)	-6.365 (-0.672)	-12.721 (-0.388)	0.260 (2.665)	-20.957 (-1.163)	40.947 (0.784)	0.230 (2.391)	-24.016 (-1.200)	-19.731 (-0.380)	0.486 (3.381)	-68.128 (-1.846)	29.064 (0.323)
EX cor (std)	-0.038 (-0.589)	12.076 (1.265)	80.956 (2.739)	-0.099 (-1.178)	17.815 (1.153)	59.046 (1.486)	-0.091 (-1.007)	30.376 (1.603)	87.214 (1.841)	-0.175 (-1.436)	39.121 (1.311)	91.484 (1.160)
AG cor (std)	-0.010 (-0.172)	-6.005 (-0.737)	-28.529 (-1.290)	-0.068 (-0.757)	-13.223 (-0.925)	-6.014 (-0.169)	0.023 (0.269)	-14.587 (-0.862)	-32.255 (-0.977)	-0.001 (-0.010)	-26.596 (-0.926)	-30.129 (-0.524)
ES cor (std)	0.020 (0.292)	7.133 (0.513)	-45.889 (-1.612)	-0.069 (-0.710)	21.308 (0.934)	-56.884 (-1.502)	-0.000 (-0.002)	31.221 (1.138)	-65.326 (-1.826)	-0.249 (-1.740)	80.452 (1.689)	-48.824 (-0.788)
Raven test	-0.008 (-0.105)	-0.382 (-0.041)	15.971 (0.544)	0.041 (0.429)	7.297 (0.505)	-36.464 (-1.448)	-0.076 (-0.839)	1.813 (0.119)	30.002 (0.659)	-0.032 (-0.258)	32.964 (1.511)	-34.470 (-1.103)
Numeracy test	-0.012 (-0.140)	5.493 (0.531)	-21.377 (-0.705)	0.053 (0.473)	4.730 (0.329)	-51.413 (-1.461)	-0.064 (-0.565)	24.358 (1.351)	-22.528 (-0.487)	-0.112 (-0.687)	21.377 (0.845)	-68.698 (-1.285)
Literacy test	0.114 (1.170)	0.424 (0.028)	1.491 (0.041)	0.005 (0.043)	11.301 (0.546)	-19.679 (-0.468)	0.156 (1.342)	2.033 (0.092)	-1.785 (-0.035)	0.101 (0.627)	6.931 (0.218)	-5.894 (-0.097)
Age	0.124 (4.473)	4.955 (0.526)	-4.606 (-0.191)	0.124 (4.240)	2.298 (0.261)	6.334 (0.321)	0.127 (4.542)	4.952 (0.504)	-4.315 (-0.161)	0.130 (4.333)	5.496 (0.623)	7.116 (0.320)
Age square	-0.001 (-4.545)	-0.062 (-0.585)	0.045 (0.175)	-0.001 (-4.300)	-0.035 (-0.353)	-0.065 (-0.300)	-0.001 (-4.596)	-0.060 (-0.547)	0.040 (0.140)	-0.001 (-4.347)	-0.066 (-0.671)	-0.075 (-0.313)
HH head (=1)	0.165 (0.873)	14.427 (0.459)	111.778 (1.633)	0.131 (0.657)	25.200 (0.756)	53.199 (0.843)	0.179 (0.940)	18.533 (0.603)	114.819 (1.564)	0.151 (0.743)	27.980 (0.806)	67.179 (1.057)
MO: Agri	0.727 (2.917)	.	.	0.800 (3.200)	.	.	0.749 (2.931)	.	.	0.817 (3.121)	.	.
MO: SE	0.415 (1.920)	45.146 (0.829)	-143.155 (-0.872)	0.428 (1.996)	49.858 (-1.008)	-159.504 (1.912)	0.410 (1.899)	44.252 (0.810)	-152.541 (-0.929)	0.410 (1.881)	42.401 (0.791)	-181.968 (-1.169)
MO: SJ agri	0.730 (3.615)	2.725 (0.066)	-144.060 (-0.937)	0.788 (3.836)	2.657 (0.065)	-148.869 (-0.983)	0.732 (3.613)	9.746 (0.235)	-157.887 (-1.010)	0.745 (3.646)	11.039 (0.273)	-172.778 (-1.124)
MO: SJ non-agri	0.354 (2.314)	40.338 (0.763)	-84.425 (-0.494)	0.400 (2.567)	42.970 (0.819)	-93.818 (-0.584)	0.369 (2.377)	45.500 (0.868)	-96.547 (-0.565)	0.410 (2.577)	42.721 (0.848)	-120.866 (-0.736)
MO: UW or NW	.	54.496 (0.811)	20.513 (0.088)	.	58.311 (0.895)	6.187 (0.030)	.	63.654 (0.925)	-5.827 (-0.026)	.	64.699 (1.010)	-41.756 (-0.210)
School educ (=1)	0.014 (0.087)	-4.435 (-0.182)	45.259 (0.718)	0.006 (0.035)	-2.616 (-0.107)	43.520 (0.678)	0.027 (0.170)	-10.536 (-0.446)	52.054 (0.829)	0.004 (0.027)	-6.391 (-0.274)	57.652 (0.887)
Married (=1)	0.473 (3.465)	-24.855 (-0.823)	139.271 (1.642)	0.482 (3.237)	-10.920 (-0.365)	72.923 (1.004)	0.461 (3.365)	-24.005 (-0.791)	144.601 (1.595)	0.514 (3.396)	-10.997 (-0.327)	90.074 (1.182)
Multiple occupation (=1)	0.052 (0.421)	23.393 (1.272)	-42.334 (-0.716)	0.045 (0.355)	21.852 (1.226)	-39.831 (-0.689)	0.051 (0.409)	31.598 (1.620)	-44.383 (-0.711)	0.038 (0.296)	30.545 (1.639)	-40.227 (-0.669)
Assets (1,000 INR)	0.000 (1.128)	0.040 (2.237)	0.008 (0.314)	0.000 (1.041)	0.039 (2.228)	0.011 (0.411)	0.000 (1.298)	0.039 (2.246)	0.007 (0.258)	0.000 (1.136)	0.038 (2.362)	0.006 (0.237)
SR: More female	0.112 (0.898)	13.206 (0.665)	1.878 (0.035)	0.144 (1.157)	9.254 (0.483)	17.104 (0.338)	0.112 (0.891)	10.316 (0.526)	0.800 (0.014)	0.130 (1.025)	10.288 (0.522)	19.388 (0.353)
SR: Same nb	0.235 (1.927)	.	.	0.245 (1.983)	.	.	0.244 (1.971)	.	.	0.252 (1.965)	.	.
SR: More male	.	10.513 (0.458)	71.746 (1.086)	.	9.251 (0.416)	80.597 (1.335)	.	12.754 (0.544)	70.694 (1.021)	.	9.953 (0.438)	86.976 (1.372)
Household size	-0.022 (-0.814)	6.027 (1.342)	11.323 (1.029)	-0.025 (-0.914)	6.694 (1.522)	7.007 (0.623)	-0.020 (-0.730)	5.451 (1.181)	11.425 (0.956)	-0.022 (-0.778)	6.669 (1.505)	6.642 (0.539)
Shock (=1)	-0.065 (-0.590)	19.753 (1.060)	14.614 (0.252)	-0.071 (-0.631)	19.490 (1.052)	11.639 (0.210)	-0.074 (-0.665)	19.255 (1.057)	16.940 (0.282)	-0.105 (-0.919)	19.431 (1.048)	19.911 (0.363)
Total income (1,000 INR)	0.000 (0.134)	0.030 (0.744)	-0.002 (-0.025)	0.000 (0.058)	0.030 (0.717)	0.016 (0.317)	-0.000 (-0.048)	0.038 (0.943)	0.004 (0.071)	-0.000 (-0.017)	0.035 (0.893)	0.019 (0.356)
Loc: near Panruti	0.547 (3.178)	127.054 (3.191)	251.914 (2.055)	0.415 (2.189)	139.590 (3.681)	174.879 (1.734)	0.433 (2.242)	132.772 (3.275)	279.344 (2.352)	0.326 (1.471)	165.974 (3.064)	178.156 (1.817)
Loc: near Villupuram	0.700 (3.559)	73.487 (1.857)	146.323 (1.131)	0.580 (2.744)	84.870 (2.341)	77.764 (0.754)	0.614 (2.865)	84.636 (2.092)	168.741 (1.302)	0.509 (2.099)	115.994 (2.235)	85.283 (0.878)
Loc: near Tiruppur	0.407 (1.001)	75.401 (1.319)	-8.740 (-0.073)	0.192 (0.435)	82.815 (1.474)	8.683 (0.075)	0.355 (0.889)	106.098 (1.377)	-19.787 (-0.153)	0.147 (0.314)	115.983 (1.310)	43.967 (0.544)
Loc: near Chengalpattu	0.443 (1.965)	59.233 (1.781)	137.394 (1.319)	0.324 (1.363)	79.574 (2.591)	7.863 (0.075)	0.319 (1.325)	75.741 (2.307)	159.765 (1.434)	0.195 (0.725)	124.859 (2.568)	17.106 (0.164)
Loc: near Kanchipuram	0.700 (2.126)	66.994 (1.450)	119.587 (0.873)	0.553 (1.662)	85.246 (2.078)	18.826 (0.158)	0.656 (2.121)	83.326 (1.775)	124.819 (0.844)	0.430 (1.290)	130.719 (2.432)	5.750 (0.050)
Loc: near Chennai	(.)
Female (=1)	0.187 (1.140)	-31.347 (-1.046)	226.850 (3.412)	0.285 (1.002)	19.784 (0.476)	-98.477 (-0.857)	0.203 (1.229)	-34.484 (-1.131)	231.943 (3.130)	0.069 (0.187)	33.957 (0.775)	-174.802 (-1.051)
Dalits (=1)	0.154 (1.435)	-31.346 (-1.604)	-3.284 (-0.071)	0.147 (1.361)	-33.363 (-1.661)	10.188 (0.221)	-0.116 (-0.559)	14.522 (0.602)	37.203 (0.375)	-0.439 (-1.362)	37.866 (0.803)	12.443 (0.079)
IMR (no int)	-70.627 (-0.697)	37.530 (0.120)
Female X OP (std)	.	-0.165 (-1.220)	10.481 (0.559)	-71.839 (-1.182)	-0.498 (-2.391)	11.760 (0.285)	-144.860 (-1.246)	.
Female X CO (std)	.	-0.307 (-2.034)	29.062 (1.326)	-95.506 (-1.238)	-0.549 (-2.440)	89.286 (2.153)	-96.229 (-0.718)	.
Female X EX (std)	.	0.147 (1.130)	-11.317 (-0.643)	32.843 (0.512)	0.295 (1.490)	-23.066 (-0.664)	-45.986 (-0.414)	.
Female X AG (std)	.	0.096 (0.773)	14.676 (0.962)	-59.535 (-1.221)	-0.041 (-0.220)	23.376 (0.762)	-63.020 (-0.979)	.
Female X ES (std)	.	0.211 (1.440)	-29.959 (-1.206)	12.294 (0.169)	0.548 (2.480)	-98.188 (-1.942)	-42.076 (-0.352)	.
Female X Raven	.	-0.143 (-0.997)	-13.298 (-0.690)	105.531 (1.567)	-0.140 (-0.713)	-68.032 (-2.295)	153.406 (1.516)	.
Female X Numeracy	.	-0.136 (-0.783)	1.067 (0.048)	86.022 (1.293)	0.075 (0.314)	4.868 (0.137)	157.299 (1.556)	.
Female X Literacy	.	0.263 (1.523)	-26.929 (-1.256)	33.337 (0.539)	0.194 (0.831)	-11.924 (-0.364)	-52.639 (-0.584)	.

IMR (gender int)	-78.100	49.078						
	(-0.814)	(0.198)						
Dalit X OP (std)		0.080	12.603	18.524	-0.182	16.330	-26.515	
		(0.624)	(0.619)	(0.375)	(-1.039)	(0.493)	(-0.392)	
Dalit X CO (std)		-0.215	24.565	14.746	-0.428	81.369	16.437	
		(-1.577)	(1.131)	(0.217)	(-2.115)	(2.067)	(0.160)	
Dalit X EX (std)		0.088	-36.827	-10.190	0.162	-39.973	-65.669	
		(0.682)	(-1.722)	(-0.165)	(0.925)	(-1.235)	(-0.731)	
Dalit X AG (std)		-0.073	15.548	10.710	-0.148	20.041	32.564	
		(-0.638)	(0.871)	(0.237)	(-0.817)	(0.634)	(0.447)	
Dalit X ES (std)		0.035	-40.544	42.019	0.384	-102.661	-8.381	
		(0.250)	(-1.381)	(0.725)	(1.933)	(-1.995)	(-0.086)	
Dalit X Raven		0.174	-7.007	-32.709	0.204	-55.340	5.386	
		(1.216)	(-0.340)	(-0.476)	(1.094)	(-1.757)	(0.103)	
Dalit X Numeracy		0.087	-35.719	-1.101	0.304	-22.977	38.695	
		(0.524)	(-1.718)	(-0.020)	(1.305)	(-0.785)	(0.533)	
Dalit X Literacy		-0.093	8.338	2.385	-0.188	6.393	-47.096	
		(-0.562)	(0.401)	(0.041)	(-0.844)	(0.212)	(-0.683)	
IMR (caste int)		-55.156	46.253					
		(-0.531)	(0.133)					
Female X Dalit					0.631	-60.992	171.328	
					(1.403)	(-1.038)	(0.839)	
Dalit X Female X OP (std)					0.662	-5.847	125.482	
					(2.340)	(-0.123)	(0.929)	
Dalit X Female X CO (std)					0.503	-112.670	1.267	
					(1.631)	(-2.553)	(0.008)	
Dalit X Female X EX (std)					-0.315	18.224	146.381	
					(-1.162)	(0.485)	(1.067)	
Dalit X Female X AG (std)					0.220	-14.355	20.176	
					(0.878)	(-0.410)	(0.223)	
Dalit X Female X ES (std)					-0.775	125.866	104.706	
					(-2.505)	(2.240)	(0.591)	
Dalit X Female X Raven					-0.086	106.198	-105.215	
					(-0.306)	(2.795)	(-0.852)	
Dalit X Female X Numeracy					-0.424	-20.399	-138.430	
					(-1.197)	(-0.486)	(-1.092)	
Dalit X Female X Literacy					0.214	-0.984	158.631	
					(0.623)	(-0.030)	(1.621)	
IMR (gender and caste int)					-21.985	68.365		
					(-0.225)	(0.263)		
Debt ratio in 2016-17	-0.176		-0.180		-0.181		-0.172	
	(-2.434)		(-2.500)		(-2.500)		(-2.292)	
constant	-3.831	-129.444	-241.985	-3.771	-127.436	+152.869	-3.685	-176.852
	(-5.948)	(-0.471)	(-0.331)	(-5.684)	(-0.531)	(-0.275)	(-5.594)	(-0.644)
								(-0.348)
								(-5.224)
								(-1.243)
								(-0.306)
Observations	830	602	602	830	602	602	830	602
R ²		0.255	0.073		0.264	0.099		0.308
Adjusted R ²		0.212	0.020		0.210	0.033		0.235
McFadden's pseudo R ²	0.204		0.214		0.210		0.233	
Log-likelihood	-388.519		-383.297		-385.294		-374.009	
F-stat		4.224	3.442		3.592	1.459		2.108
LR χ ²	281.935		260.132		331.913		312.816	
p-value	0.000	0.000	0.000	0.000	0.037	0.000	0.000	0.128

Contents

1	Introduction	1
	Definition	1
	Skills in economics	2
	Indebtedness in India	2
	Individual debt and public policies	3
	Strength of social identity	3
	Problematic, contribution and plan	4
2	Data and methodology	5
2.1	Data	5
2.2	Construction of personality traits & cognitive skills variables	5
	Factor analysis	6
	Life-cycle effects	7
	Exogeneity	7
2.3	Indebtedness measures	7
2.4	Econometric framework	8
	How PT&CS shape individual debt?	8
	How the PT&CS varies across the indebtedness distribution?	10
	How does debt change over time as PT&CS changes?	10
	How PT&CS influences the debt trajectory?	10
3	Descriptive statistics	11
3.1	Household unit in Table 1	11
3.2	Individual unit in Table 2	11
	Individual debt trend	11
	Personality traits & cognitive skills with Figures 2	13
4	Results	15
4.1	How PT&CS shape individual debt?	15
	Probability of being indebted	15
	Total amount of debt	15
	Individual debt service ratio	16
4.2	How PT&CS variation is correlated with indebtedness variation?	17
4.3	How PT&CS shape the indebtedness path?	17
5	Discussion	21
	PT&CS and debt in the literature	21
	Literature on individual debt practices	22
	PT&CS and other outcomes in rural India	22
	Conclusion	22
6	Conclusion	22
	References	23
	Appendix	29
A	Stability of skills over time	29
B	Factor analysis for personality traits	31

C Robustness check 33

D Detailed tables 36