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Stability, and Shocks in Personality Traits
in Rural India**

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ABSTRACT

A Change Is Gonna Come: Universality, Stability, and Shocks in Personality Traits in Rural India*

Taking the case of rural South India, we explore the universality of the Big Five personality traits and their stability over time. We then investigate the effects of two exogenous shocks on trait stability: the demonetisation of November 2016 and the second COVID-19 lockdown. We use an original longitudinal dataset collected in 2016-2017 and 2020-2021. After correcting the data for acquiescence bias and performing factor analysis, we find that three personality traits emerge: emotional stability, plasticity, and conscientiousness. We find no evidence of temporal stability. Results from the covariate-balancing propensity score weighting model shows that the demonetisation impacts plasticity and conscientiousness, with exposed individuals scoring notably higher. The second COVID-19 lockdown exerts a negative impact on emotional stability.

JEL Classification: D91, G51, 012

Keywords: Big Five, plasticity, demonetisation, COVID-19, caste, gender, India

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1. Introduction

Over the past decade, economic literature has increasingly focused on personality traits, particularly the Big Five (Goldberg, 1981; McCrae & Costa, 1987). The relevance of such analyses is well documented, especially on the labour market and educational attainment in developed countries (see, e.g., Heckman, Jagelka, & Kautz, 2021). In the economic literature, these traits - openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability¹ - are often considered relatively stable over time, following the biological viewpoint of the psychological literature (McCrae & Costa, 1994). However, a growing body of research challenges this assumption, demonstrating that exogenous shocks can induce measurable changes in these traits. Empirical studies in developed countries have, for instance, established that long-term health problems, including bodily pain, are associated with a decline in openness to experience, conscientiousness, and agreeableness (Elkins, Kassenboehmer, & Schurer, 2017). Job related events are also found to affect personality traits stability. For instance, Boyce, et al. (2015) and Anger, Camehl, & Peter (2017) showed that involuntary job loss leads to increased openness to experience and emotional stability.

If personality traits are neither universal nor stable over time, they can no longer be regarded as exogenous factors. This may threaten the validity of certain identification strategies and, consequently, call into question some evidence of the effects of personality traits on economic outcomes. From a political point of view, the instability of traits gives way to the development of public policies aimed at improving certain personality traits to improve economic results (see, e.g., Stieger, Flückiger, & Allemand, 2024).

Despite the good understanding of the stability of personality traits in developed economies (see, e.g., Bleidorn et al., 2022), there is little literature on the subject in Global South countries. To our knowledge, few studies have examined the question of the universality of the Big Five model in the Global South (see, e.g., Gurven, et al., 2013; Laajaj & Macours, 2021), and only a handful have explored the stability. Mehra, Stopnitzki, & Alloush (2023) investigated the

¹ Emotional stability (i.e., the opposite of neuroticism) is the tendency to experience positive emotions; extraversion is the tendency to seek stimulation and company from others; openness to experience is the capacity to be creative and unstructured; agreeableness is the tendency to be kind, helpful, and willing to cooperate; and conscientiousness is the capacity to enforce self-discipline, act dutifully, and strive for achievement of certain measures or outside expectations.

effects of a poverty graduation programme and drought in Uganda finding that positive shocks enhance traits linked to socialisation and stability, while negative shocks diminish them. In rural Thailand and Vietnam, Bühler, Sharma, & Stein (2023) reported small but significant changes in openness, conscientiousness, extraversion, agreeableness, and neuroticism over time. This line of research challenges contemporary theories of personality traits developed by researchers in developed countries for populations from developed countries. It is crucial because it highlights the limitations of current theoretical frameworks and encourages the integration of diverse socio-cultural and economic realities into the study of personality traits.

India remains absent from this corpus, despite being the world's most populous country, marked by significant gender and caste inequalities, and whose population is constantly confronted with shocks (Drèze & Sen, 2013). Caste and gender inequalities manifest themselves even at the level of personality traits (Dasgupta et al., 2023). The country is therefore an interesting context for examining the stability of personality traits, as it allows us not only to question (and possibly transcend) personality theories developed in industrialised countries, but also to integrate the role of inequalities, so that trait stability may be reconsidered not as a universal given, but as a factor potentially dependent on social hierarchies and power structures. Thus, we fill this knowledge gap by examining (i) the universality of the Big Five model, (ii) the temporal stability of personality traits, and (iii) the effects of two exogenous shocks on trait stability: the Indian demonetisation of November 2016 (i.e., the sudden ban on 500- and 1,000-rupees notes) and the second COVID-19 lockdown. In doing so, our article offers a comprehensive understanding of personality dynamics in the context of countries from the Global South. We use the “Networks, Employment, dEbt, Mobilities, and Skills in India Survey” (NEEMSIS) longitudinal dataset collected by the authors of this paper in more than 10 villages in Tamil Nadu, India (Nordman et al., 2025). These data are particularly relevant to answer our research question because, on the one hand, they include repeated measures of the Big Five personality traits (2016-2017 and 2020-2021). On the other hand, two exogenous shocks occurred during the data collections, the November 2016 demonetisation and the second lockdown due to the COVID-19 pandemic.

This article contributes to four areas of the literature. Firstly, it advances the understanding of the universality of the Big Five model. Secondly, it enriches the psychology literature on the stability over time of personality traits (see, e.g., Specht, Egloff, & Schmukle, 2011). Thirdly, by examining the causal impact of two exogenous shocks, it contributes to the growing body

of literature on the impact of shocks on personality traits (see, e.g., Anger et al., 2017). Lastly, it advances the understanding of the relationship between personality traits and COVID-19 crises (see, e.g., Ścigala et al., 2021).

After testing the universality of the Big Five model, we first study the stability over time of personality traits using descriptive statistics (mean-level, rank-order, and individual change), and then we study the effects of the November 2016 demonetisation and the second lockdown due to COVID-19 using a covariate balancing propensity score weighting model. After correcting the data for acquiescence bias and conducting a factor analysis, we identify three personality traits: emotional stability, plasticity (a combination of openness-to-experience and extraversion), and conscientiousness. We find that the stability of the traits is not confirmed. With regard to the impact of the demonetisation of November 2016, individuals exposed to demonetisation score higher in plasticity and conscientiousness compared to those who were not exposed. Concerning the impact of the second COVID-19 lockdown, we find that it negatively affects emotional stability.

The rest of the paper is organised as follows. Section 2 presents the context, data and the construction of variables relating to the Big Five personality traits. In Section 3, we analyse the stability over time of personality traits using descriptive statistics, and Section 4 explores the impact of demonetisation and COVID-19 lockdown. Section 5 concludes.

2. Context and data

2.1. Context

In November 2016, Narendra Modi, prime minister of India, announced a ban on the 500 rupees and 1,000 rupees notes, the two highest-value banknotes in circulation. Although there were two previous instances of demonetisation in India, in 1946 and 1978, the 2016 Indian demonetisation was unparalleled in its size, scope, and suddenness (Guérin et al., 2017). The implementation process involved many technical challenges, leading to severe cash shortages, which led to several months of indescribable chaos, which severely tested people's collective behaviour. Due to the importance of cash in the Indian economy (98% of transactions are estimated to be in cash), this measure has had strong impacts on employment and daily financial practices.

To combat the spread of COVID-19, on the evening of 24 March 2020, the Indian government ordered a 21-day national lockdown, starting on 25 March 2020. This lockdown has been described as one of the strictest in the world. The lockdown severely restricted the movement of the entire Indian population. However, India, and Tamil Nadu in particular, still experienced a very high peak in infections and deaths in April 2021. Several studies suggest that the official death figures significantly underestimated the actual number of victims. For example, Guilмото (2022) estimates that the number of additional deaths was probably seven times higher than the official death toll. States therefore chose to extend or interpret the lockdown in their own way, often with very different results (Arnold, 2020). In Tamil Nadu, a second lockdown began on 5 April 2021 and ended on 15 June 2021. The population was therefore very aware of the deaths caused by COVID-19, with most people knowing someone in their family or among their acquaintances who had died from the disease.

2.2. Data

Our analyses are based on the NEEMSIS survey, which consists of two waves conducted in 2016-2017 and 2020-2021, respectively called NEEMSIS-1 and NEEMSIS-2. This survey occurred in 10 villages in Tamil Nadu, located in the Cuddalore and Kallakurichi districts (for more details on the study area, see Di Santolo et al., 2024). To select villages and households, the survey uses a stratified sample framework based on three dimensions: proximity to small towns (Panruti, Viluppuram, and Cuddalore), an agroecological criterion, and caste affiliation. Thus, half of the villages have irrigated land (the other half is dry) and, within the villages, half the households have been selected in the “Ur” part, where the middle and upper castes live. In contrast, the other half comes from the “Colony” part, where Dalits, formerly called the “untouchables”, live (for more details on the sampling, representativeness, and methodological choices made, see Nordman et al., 2025).

NEEMSIS-1 collected data from 492 households and NEEMSIS-2 recovered 485 households (1.42% attrition rate) from 2016-2017 and randomly added 146 additional households, resulting in a total of 631 households. In both waves, two household members, called “egos” answer an individual questionnaire that provides a range of information on Big Five personality traits. In 2020-2021 a third ego was surveyed. This mainly concerns the household questionnaire respondent and one (or two) younger household member(s) randomly selected on a criterion of age: A member of the household aged between 18 and 25 years old, if no one is available, a member aged between 26 and 35, and if no one is available, a member aged over

35. A total of 953 egos were surveyed in 2016-2017 and 1,690 in 2020-2021. Of these, 835 were surveyed in 2016-2017.

Given the research question posed, the added value of this dataset lies in the following two aspects. First, NEEMSIS measures the five major personality traits using seven questions per trait, which enhances validity (Credé et al., 2012), and by using identical wording, order and position in the questionnaire in 2016-2017 and 2020-2021, which allows for excellent comparison. Second, the survey schedule coincided with two major exogenous shocks: demonetisation and lockdown. NEEMSIS-1 began in August 2016 but was temporarily suspended for logistical reasons (in particular enumerator payment, the need to update the survey software, and replace batteries in some tablets used for data collection) just before demonetisation, allowing households to be distinguished exogenously from the shock as pre- and post-demonetisation. Fieldwork resumed in January 2017, enabling nearly 40% of households to be surveyed after demonetisation. Data collection took place simultaneously in all ten villages, avoiding biases related to local factors such as access to banks or proximity to cities. NEEMSIS-2 took place from December 2020 to September 2021, after the first COVID-19 lockdown but during the second. As a result, nearly 60% of households were surveyed before the second lockdown, 20% during and 20% after.

NEEMSIS surveys are small-scale data collections in rural India, and these surveys do not claim to be statistically representative of the surveyed villages. However, NEEMSIS and associated analysis share then some of the characteristics one can find in monograph studies, in the sense that they allow researchers to conduct in-depth examinations of a particular socioeconomic phenomenon for a particular population in a specific area. Regarding a possible extrapolation, the survey area and villages were selected because they exhibit several key tendencies in rural Tamil Nadu (or at least, the survey area is not an exceptional region, see Nordman et al., 2025). There is no reason to believe that we cannot extrapolate our findings *a minima* to account for the dynamics of the rural areas of the Kallakurichi and Cuddalore districts, and perhaps of Tamil Nadu.

2.3. Construction of variables relating to the Big Five personality traits

The NEEMSIS data enable the construction of Big Five personality traits using responses to 35 affirmative questions collected in 2016-2017 and 2020-2021 (see Table S1 in the supplementary material), based on the long inventory of the World Bank's STEP Skills

Measurement Programme used in the Philippines (Pierre, Sanchez Puerta, Valerio, & Rajadel, 2014). To ensure comparable scores across time, we pooled the data from both periods and derived the personality traits from the combined sample using factor analysis (i.e., 2,643 individuals).

Enumerators ask the 35 questions (or items) to the respondents, who answer on a Likert scale ranging from “1 – Almost never” to “5 – Almost always”. Because the acquiescence bias (i.e., the tendency to consistently agree or disagree) can affect factor structure and hence the overall validity of personality questionnaires by inflating correlations among pro-trait items and con-trait items and reducing the correlations between items with opposite wording (Danner, Aichholzer, & Rammstedt, 2015), we correct it using the seven reverse coded questions, meaning they are the perfect opposite of seven other questions.

Before conducting the factor analysis, we performed Bartlett’s test of sphericity to determine whether there is redundancy between the variables that can be summarised with a few factors. We also conducted the Kaiser-Meyer-Olkin test to assess the suitability of the data for factor analysis. The p-value for Bartlett’s test is 0.00, indicating that we reject the null hypothesis that the variables are uncorrelated (see Table S2 in the supplementary material). The Kaiser-Meyer-Olkin test results show that 91% of the variance among the variables might be common variance, suggesting that our data are suitable for factor analysis.

We construct the Big Five personality traits using principal component factor analysis of the 35 items corrected for acquiescence bias, and, to improve the factor’s meaningfulness and reliability, we use an oblique rotation with quartimin procedures (Condon & Mroczek, 2016). To determine the number of factors to retain, we use the Velicer’s minimum average partial method, which is recognised as being one of the most reliable methods (Zwick & Velicer, 1986). The results indicate that we should retain the first three factors (see Tables S3 and S4 in the supplementary material). We then assume that each item proxies only one factor because “it makes the interpretation of the latent factors more transparent” (Attanasio et al., 2020, p. 57). We assign items to the factor for which they have the highest factor loadings. We set to zero the factor loadings of other items (Laajaj & Macours, 2021). Finally, we construct and interpret traits based on the items with factor loadings higher than 0.30 (Attanasio et al., 2020).

The results from the pooled NEEMSIS datasets support a “Big Three” model rather than a Big Five model. Indeed, the first factor can be interpreted as approximately emotional stability,² the second as a mix of openness to experience and extraversion called “beta factor” (Digman, 1997) or “plasticity” (DeYoung, 2006), which represent the extent to which a person actively searches for a new and rewarding intellectual and social experience, and the third as conscientiousness. The internal consistency of the three factors is satisfactory (i.e., McDonald’s omega above 0.6, respectively 0.92, 0.66, and 0.66), meaning that the items within each factor are highly correlated and consistently measure the same underlying construct, ensuring reliable and consistent measure of personality traits. The measured personality traits also demonstrate external validity, as they correlate with outcomes consistent with theoretical expectations. For instance, Michiels, Nordman, & Seetahul (2021) link emotional stability to employment outcomes by showing that it supports both absolute and relative income mobility, particularly for women and Dalits. Natal & Nordman (2025) highlight effects on financial practices, finding that conscientiousness improves debt negotiation and management.

Our results do not corroborate the universality of the Big Five model, but are consistent with studies highlighting a stronger covariation among behavioural characteristics. For example, Gurven et al. (2013) observed that prosociality and industriousness were consistent dimensions among indigenous Bolivian tribes, while Thalmayer et al. (2020) found evidence for the Big Two model (social self-regulation and dynamism) in two African communities. This covariation, which translates into a reduced number of personality factors, has been explained by the niche diversity hypothesis (Smaldino et al., 2019), which proposes that the degree of personality covariation observed within a society is inversely related to the socio-ecological “complexity”, that is, according to the authors, the diversity of its social and occupational niches. Lukaszewski et al. (2017) empirically support this hypothesis by showing that the dimensions of the Big Five model are more strongly correlated in societies that the authors describe as “less complex”, where complexity is indexed by national economic development,

² Five out of the 12 items contributing to this personality trait are directly associated with emotional stability. However, three key findings support the conclusion that the trait serves as a close approximation of emotional stability. Firstly, among the 12 items, only two are connected to extraversion, agreeableness, and conscientiousness, and just one is linked to openness to experience. Secondly, the five items related to emotional stability exhibit a minimum correlation coefficient of 0.80 with the overall personality trait score. Lastly, the approximate emotional stability factor shows a strong correlation (coefficient of 0.95) with the naive emotional stability score (i.e., average of items that constitute a given trait, without taking into account any patterns driven by the data through factor analysis, an approach not recommended by psychologists).

urbanisation and sectoral diversity.³ In our case study of rural India, this explanation seems plausible: the villages studied represent relatively homogeneous rural economies, with limited occupational differentiation and highly structured social hierarchies (see, e.g., Di Santolo et al., 2024). Despite the rise in unskilled non-agricultural employment, agricultural work remains the dominant form of employment. The range of “niches” available for individual differentiation is therefore relatively limited. The caste system and patriarchal structure further reinforce this structure by limiting mobility between occupations, thereby channelling behavioural characteristics towards a more restricted set of personality traits.

3. Descriptive evidence on stability

In this section, we take advantage of the longitudinal nature of the dataset to examine the stability of personality traits over time (mean-level, rank-order, individual change). However, our analysis is inherently limited to individuals whose data is available for both waves, which raises the issue of attrition. More specifically, if individuals who were not found in wave 2020-2021 differ systematically from those who were, this could distort our conclusions. To address this concern, we assessed attrition patterns among the original 953 participants from 2016-2017, 835 of whom were successfully followed up in 2020-2021, resulting in an attrition rate of 12.4%.⁴ A comparative analysis of personality trait scores between those who remained in the study and those who were not found did not reveal significant differences (Table S5 in the supplementary material). This suggests that, at least for these personality variables, attrition appears to be random, minimising the risk of systematic bias in our results.

In terms of mean-level stability (i.e., the extent to which the average level of traits remains the same over time in the population), we observe that stability is not verified (Figure 1). Indeed, for emotional stability, the distribution is more spread out towards lower scores in 2020-2021 compared to 2016-2017. As a result, the mean-level of emotional stability fell by 25% between 2016-2017 and 2020-1, from 3.6 to 2.7 (significant difference at 1% risk of error). For

³ When referring to “less complex societies,” we adopt the terminology used by Lukaszewski et al. (2017) and Smaldino et al. (2019), which is strictly defined by three structural criteria: low levels of national economic development, limited urbanisation, and reduced sectoral diversity. This expression is in no way intended to reflect the socio-cultural, political, or historical complexity of these societies.

⁴ The 118 egos from 2016-2017 not found in 2020-2021 have not been found for several reasons. In terms of distribution, 43 married and moved, 27 died, 25 migrated permanently, 14 are part of the attrition households, and 9 for other reasons (unavailability, temporary migration, etc.).

plasticity, the distribution is more centred around the mean, which rises from 3.1 to 3.2 (significant difference at 1% risk of error). Regarding conscientiousness, the findings are the opposite of those for emotional stability. The distribution is less spread out in 2020-2021 than in 2016-2017 and is concentrated around lower values, resulting in a drop in the mean-level of conscientiousness, from 3.5 in 2016-2017 to 3.2 in 2020-2021 (significant difference at 1% risk of error).

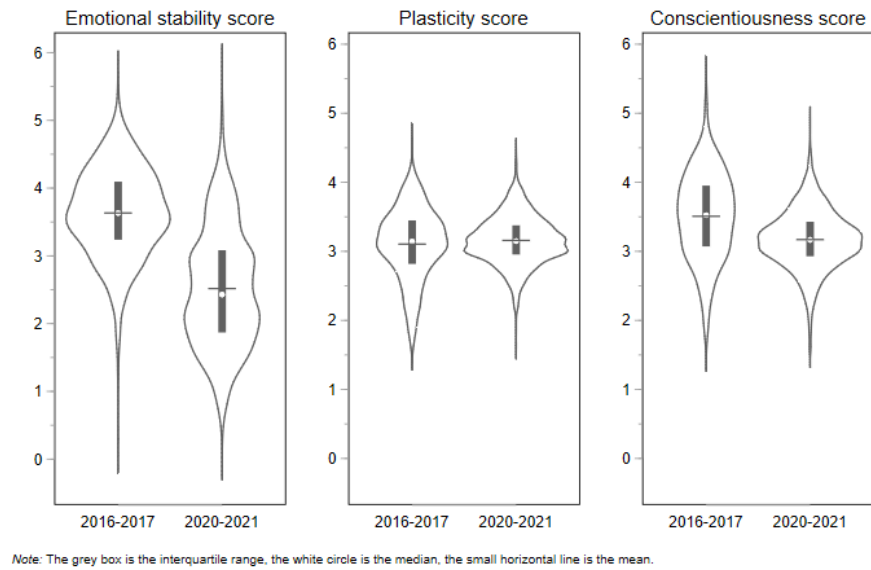


Figure 1: Distribution of personality trait scores

Source: NEEMSI-1 (2016-2017) and NEEMSI-2 (2020-2021); author's calculations.

In terms of rank-order stability (i.e., the degree to which the relative order of individuals with respect to a trait is maintained over time), Figure 2 reveals a low level for emotional stability, plasticity and conscientiousness between 2016-2017 and 2020-2021. Indeed, the plots for these three personality traits do not approximate a monotonic function, the Spearman's coefficients are therefore very low (0.05, 0.00 and -0.10).

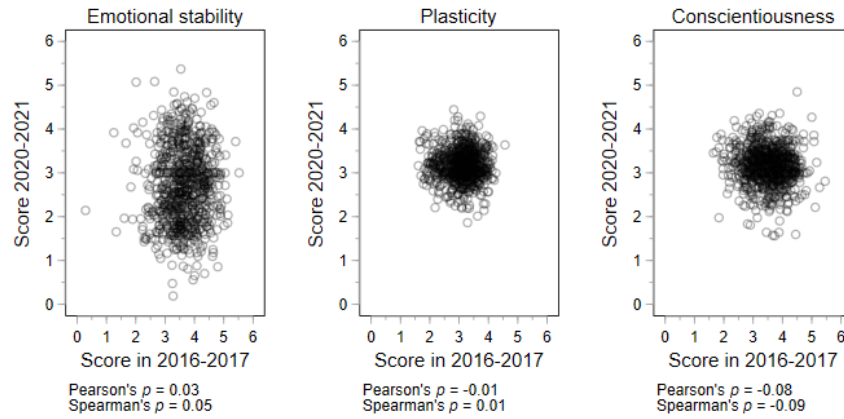


Figure 2: Correlations between personality trait scores in 2016-2017 and 2020-2021

Note: Each point corresponds to one of the 835 individuals whose personality traits we observed in 2016-2017 and 2020-2021. Reading the leftmost point on the emotional stability graph: Ego has an emotional stability score of 0.2 in 2016-2017 and 2.1 in 2020-2021.

Source: NEEMSIS-1 (2016-2017) and NEEMSIS-2 (2020-2021); author's calculations.

To study individual stability, we calculate, for each individual and each personality trait, the difference between the score obtained in 2016–2017 and that obtained in 2020–2021. Since the personality traits are defined on the interval $[0,6]$ (see section 2), the difference between the 2016-2017 and 2020-2021 scores is defined on the interval $[-6,6]$. We consider an absolute change of up to 10% around zero as an acceptable change and classify individuals with changes within this range as stable over time. In other words, we consider that an individual with a difference defined on $[-0.6,0.6]$ has a stable personality trait score over time. Table 1 shows, for each personality trait, the proportion of individuals with a score that decreases, is stable or increases between 2016-2017 and 2020-2021, and presents the average and median intensity of the instability for individuals with unstable personality trait scores. We observed a marked disparity in stability between personality traits. While less than one-third of individuals maintain a stable emotional stability score over time, 62% maintain stable plasticity score and 50% maintain stable conscientiousness score. In addition, it is the individuals who experienced a decrease in their emotional stability score that showed the highest intensity: on average, these individuals lost 1.56 points. The average intensities of the other five groups (i.e., decrease in

emotional stability score, increase and decrease in plasticity and conscientiousness scores) are more or less identical, fluctuating between 0.93 and 1.16 in absolute values.⁵

Table 1: Classification of individuals according to changes in personality traits over time

	Emotional stability n=835	Plasticity n=835	Conscient- iousness n=835
Changes in personality traits			
Decrease (%)	62,63	15,45	39,16
Stable (%)	28,26	62,28	49,82
Increase (%)	9,10	22,28	11,02
For individuals with a decreasing score			
Average intensity	1,56	0,93	1,12
Median intensity	1,47	0,86	1,05
For individuals with an increasing score			
Average intensity	1,16	1,05	1,03
Median intensity	1,04	0,98	0,90

Note: Between 2016-2017 and 2020-2021, 62.63% of individuals experienced a decrease in their emotional stability score, losing an average of 1.56 points.

Source: NEEMSIS-1 (2016-2017) and NEEMSIS -2 (2020-2021); author's calculations.

To complete the analyses on the evolution of personality levels over time, we conclude this section by looking at how socio-economic characteristics influence personality trait levels, using ordinary least squares regressions. Results are presented in Table S7 in the supplementary material to save space. The estimates show that age is negatively associated with plasticity. Compared to Dalits, individuals belonging to upper castes report lower emotional stability and conscientiousness. Women score lower than men on plasticity and conscientiousness. Having regular non-qualified employment or employment under the MGNREGA programme is associated with greater emotional stability, while regular non-qualified employment and self-employment are associated with greater conscientiousness. Higher levels of education are

⁵ To determine the internal (or endogenous) causes of this instability, Table S6 in the supplementary material shows the trajectory over time of the items that constitute personality trait scores. For all the items making up the emotional stability score, the plasticity score, and the conscientiousness score, no specific item emerged as the main sources of instability. In other words, all the items making up a certain personality trait appear to be sources of positive or negative instability over time.

associated with lower emotional stability but greater plasticity. Finally, household income is negatively correlated with emotional stability.

4. Impact of exogenous shocks

Personality traits have been observed to exhibit instability over time. However, drawing conclusions about this instability based solely on descriptive statistics can be problematic for two main reasons. Firstly, some egos from the 2016-2017 wave were not present in the 2020-2021 data (attrition rate of 12.4%). Although we find no significant differences in personality traits between egos that were recovered and those that were not, egos who were present in both waves may share unmeasured characteristics that influence their observed instability. Secondly, all egos surveyed in 2020-2021 responded after the first COVID-19 lockdown of March 2020. Consequently, the observed instability in personality traits could result either from an attrition bias or from the impact of the lockdown itself.

This section separately examines the impact of two exogenous shocks –the November 2016 demonetisation and the second COVID-19 lockdown– on personality trait stability. We analyse the 2016 demonetisation using all 2016-2017 egos and the second lockdown using all 2020-2021 egos. These two analyses are not limited to the egos present in the two waves, which avoids the problem of potentially non-random attrition. However, to address potential endogeneity in treatment assignment (i.e, the exposure to shocks), we employ the covariate balancing propensity score (CBPS) methodology developed by (Imai & Ratkovic, 2014) to, ultimately, balance the pre- and post-demonetisation samples, and the pre- and post-second lockdown samples.

4.1. Methodology

CBPS weighting improves upon traditional propensity score methods by jointly modelling treatment assignment and achieving covariate balance (Imai & Ratkovic, 2014). CBPS employs moment conditions to ensure mean independence between treatment and covariates after inverse propensity score weighting, and CBPS is robust to mild misspecification of the propensity score model. Unlike matching, CBPS weighting retains the entire sample, reducing selection bias.

CBPS follows a two-stage process. Firstly, the probability of an individual being exposed to the treatment is estimated. Secondly, the results of this estimation are used to weight OLS, where T_i represents the treatment and $\mathbf{Y}'_i$ represents the vector containing all the personality traits accurately measured in 2016-2017 or 2020-2021.

$$\begin{aligned} E(T_i|\mathbf{X}'_i\mathbf{1}_i) &= \Phi(\mathbf{X}'_i\mathbf{1}_i\boldsymbol{\gamma}) \\ \mathbf{Y}'_i &= \beta_1 + \beta_2 T_i + \mathbf{X}'_i\boldsymbol{\gamma} + \varepsilon_i \end{aligned}$$

To explore the effect of the demonetisation on personality trait, we use the NEEMSI-1 data. We do not limit our sample to individuals in the panel setting but we retain all egos (i.e., sample of 953 individuals). The treatment variable is whether an individual i was surveyed before ($T=0$) or after ($T=1$) the demonetisation. In the CBPS estimate, the vector $\mathbf{X}'_i\mathbf{1}_i$ of covariates contains age, sex, caste, main occupation of the individual, education level, marital status, household size, household wealth, household income, and household indebtedness (Table S8 in the the supplementary material presents the variables). In the average treatment effect estimate, the vector $\mathbf{X}'_i\mathbf{2}_i$ of covariates contains the same covariates as $\mathbf{X}'_i\mathbf{1}_i$ with the addition of dummies for villages and enumerators. We assume that these two variables are homogeneously distributed across the treatment and control groups,⁶ but we believe that they can be correlated with the personality trait score.⁷ The vector of dependent variables $\mathbf{Y}'_i$ contains all the personality traits identified, namely emotional stability, plasticity, and conscientiousness.

To explore the effect of the second lockdown of April 2021, we use the NEEMSI-2 data. We drop from the analyses individuals surveyed during the second lockdown (i.e., 281 individuals) to keep only egos surveyed before ($T=0$) or after ($T=1$) the second lockdown. We then have a sample of 1,409 individuals. Vectors $\mathbf{X}'_i\mathbf{1}_i$ and $\mathbf{X}'_i\mathbf{2}_i$ of covariates contain the same variables as

⁶ To test this assumption, we proceed in two stages. Firstly, we included the village variables in the first-stage regression, retaining only the enumerator variables as supplementary variables in the second stage. Secondly, we did the reverse by including the enumerator variables in the first stage to have only the village variables as supplementary variables in the second stage. In both cases the results are identical (and available on request) to those found when the variates relating to villages and enumerators are only in the second-stage regression.

⁷ Individuals from the same village may share common values that may be reflected in their personality traits. For instance, Kajonius & Giolla (2017) show that the relationship between a country and an individual's personality traits is small but present. Regarding the effect of enumerators, see Di Maio & Fiala (2020).

in the demonetisation effect study.⁸ The vector of dependent variables Y'_i contains the personality traits, namely emotional stability, plasticity, and conscientiousness.

For the impact of demonetisation and the impact of second COVID-19 lockdown, we cluster the standard errors at the household level to consider that observations within each household are not independent and identically distributed (we observe up to three egos per household).

Because in rural India social identity, namely caste and gender, determines a certain number of economic outcomes (see, e.g., Natal & Nordman, 2025), in a second stage we refine the effect of crises on personality traits, by making the treatment (exposure to a shock) interact with caste and gender.

4.2. Results

Before considering the results of the average treatment effect, we analyse whether the CBPS procedure succeeded in eliminating differences in baseline covariates. Tables S9 and S10 in the supplementary material present the results of the mean test of covariates between the treated and the control groups before and after the weighting, respectively for demonetisation and second lockdown exposure. In both cases, there were significant differences between the treatment group and the control group before weighting, but once weighting had been applied, there were no longer any statistically significant differences at the 95% confidence level.

The results on the impact of demonetisation are presented in Table 2. Those on the impact of second COVID-19 lockdown in Table 3. We comment only on results that are significant with a maximum risk of error of 5%.

Firstly, we note that the demonetisation of November 2016 only had an impact on plasticity and conscientiousness (Table 2, columns 1, 2 and 3). Individuals exposed to demonetisation score 0.06 units higher in plasticity compared to those not exposed. This finding, though surprising, aligns with Anger et al. (2017) who report higher openness to experience among workers who have lost their jobs (plasticity encompasses openness to experience and extraversion). This result also echoes Hilger & Nordman (2020), who observed that

⁸ We test the assumption that variables relating to villages and enumerators are excluded in the first stage. We proceed in exactly the same way as with demonetisation. The results are identical (and available on request) to those obtained when the village and enumerator variables are only included in the second-stage regression.

demonetisation multiplies informal social interactions to facilitate the exchange of money. The need to use interpersonal networks during this period may have stimulated plasticity. In terms of conscientiousness, the impact of demonetisation is less strong, but remains greater than zero (+0.03 points). In our context, this result may be explained by the fact that individuals in rural areas, many of whom depended on cash transactions, were forced to adapt quickly to change. This exposure may have encouraged greater discipline in certain resource management tasks, and therefore an increase in conscientiousness. When we refine the results by caste (columns 4, 5 and 6), it appears that the impact of demonetisation on conscientiousness is different according to the caste: the upper castes have a 0.12 lower impact compared to the Dalits. Given that, at the 5% risk of error threshold, demonetisation has no impact on the conscientiousness score of Dalits, this crisis has therefore reduced the conscientiousness score of the upper castes. We have no clear explanation for this result. However, it may be that the upper castes did not have to face as many financial problems as the Dalits. It is likely that the upper castes were able to get rid of their demonetised notes by passing them on to their Dalit employees, while the Dalits had to manage their finances seriously to avoid sinking into poverty. Regarding heterogeneity by gender (columns 7, 8 and 9), there is no differentiated effect of demonetisation on personality traits between men and women.

Regarding the impact of the second COVID-19 lockdown, we find that it only negatively impacts the emotional stability (Table 3, columns 1, 2 and 3). All other things being equal, individuals exposed to the second lockdown have an emotional stability score 0.16 units lower than those not exposed. This result is consistent with the literature. For instance, Cobb-Clark & Schurer (2012) find that individuals who experience an adverse employment or income events, become less emotionally stable. The exposure to COVID-19 second lockdown which reduces emotional stability may be explained by the fact that the second lockdown was much more intense in terms of infections and deaths, which may have triggered feelings of distress, anxiety, fear or sadness due to the high proportion of deaths in India as a whole (shown on TV and radio), and more specifically in the region (see subsection 2.1). These intense emotions considerably reduce emotional stability. When the results are refined by caste (columns 4, 5 and 6), it can be seen that the impact of lockdown is strongest for the upper castes: for a risk of error of 5%, an additional effect of -0.27 compared with Dalits, all other things being equal. This implies that emotional stability score of upper castes decreased by 0.40 units due to COVID-19, compared with 0.13 for Dalits. When we refine the results by gender (columns 7, 8 and 9), the effect of lockdown is 0.09 points weaker for women than for men, with a 5% risk

of error. So while this shock reduces the emotional stability score by 0.21 points for men, it only reduces it by 0.12 units for women.

Table 2: Covariate balancing propensity score weighted effects of demonetisation of November 2016

	(1) Emotional stability Coef./t-stat	(2) Plasticity Coef./t-stat	(3) Conscient- iousness Coef./t-stat	(4) Emotional stability Coef./t-stat	(5) Plasticity Coef./t-stat	(6) Conscient- iousness Coef./t-stat	(7) Emotional stability Coef./t-stat	(8) Plasticity Coef./t-stat	(9) Conscient- iousness Coef./t-stat
Demonetisation (T=1)	0.01 (1.16)	0.06*** (4.80)	0.03** (2.28)	0.02 (0.93)	0.06*** (3.82)	0.04* (1.95)	0.01 (0.60)	0.06*** (4.07)	0.02 (1.31)
Demonetisation (T=1) * Middle				0.01 (0.23)	-0.00 (-0.02)	0.01 (0.60)			
Demonetisation (T=1) * Upper				-0.04 (-1.07)	0.00 (0.02)	-0.12** (-2.28)			
Caste: Middle				-0.00 (-0.15)	-0.01 (-0.73)	0.02 (1.21)			
Caste: Upper				-0.07** (-2.46)	-0.03 (-1.15)	-0.03 (-1.03)			
Demonetisation (T=1) * Woman							0.01 (0.62)	-0.00 (-0.12)	0.02 (1.17)
Woman							-0.03* (-1.77)	-0.04*** (-3.89)	-0.05*** (-3.79)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	953	953	953	953	953	953	953	953	953

Note: *p<0.1, **p<0.05, ***p<0.01. Standard errors are clustered at the household level.

Source: NEEMSIIS -1 (2016-2017); author's calculations.

Table 3: Covariate balancing propensity score weighted effects of the second COVID-19 lockdown

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Emotional stability	Plasticity	Conscient- iousness	Emotional stability	Plasticity	Conscient- iousness	Emotional stability	Plasticity	Conscient- iousness
	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat	Coef./t-stat
COVID-19 lockdown (T=1)	-0.16*** (-4.83)	-0.01 (-1.58)	-0.00 (-0.16)	-0.13*** (-2.98)	-0.01 (-0.90)	0.01 (0.63)	-0.21*** (-5.37)	-0.02* (-1.79)	-0.01 (-0.47)
COVID-19 lockdown (T=1) * Middle				-0.02 (-0.42)	-0.01 (-0.39)	-0.02 (-1.19)			
COVID-19 lockdown (T=1) * Upper				-0.27** (-2.21)	-0.01 (-0.33)	-0.01 (-0.24)			
Caste: Middle				-0.01 (-0.51)	-0.01 (-0.79)	-0.00 (-0.30)			
Caste: Upper				0.03 (0.56)	0.01 (0.49)	-0.01 (-0.41)			
COVID-19 lockdown (T=1) * Woman							0.09** (2.55)	0.01 (0.89)	0.01 (0.53)
Woman							-0.00 (-0.01)	-0.01* (-1.75)	0.00 (0.06)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,409	1,409	1,409	1,409	1,409	1,409	1,409	1,409	1,409

Note: *p<0.1, **p<0.05, ***p<0.01. Standard errors are clustered at the household level.

Source: NEEMSSIS -2 (2020-2021); author's calculations.

5. Conclusion

Using a panel dataset from an original household survey conducted in rural Tamil Nadu, India, in 2016-2017 and 2020-2021, this paper analyses the universality and stability of the Big Five personality traits among 835 individuals. After correcting the data for acquiescence bias and performing a factor analysis, three personality traits emerge, namely emotional stability, plasticity (a blend of openness-to-experience and extraversion) and conscientiousness. By studying the stability over time of these three traits, we find that mean-level stability and rank-order stability are not verified, and less than a third of individuals maintain a stable emotional stability score over time, 62% maintain a stable plasticity score and 50% maintain a stable conscientiousness score. With regard to the impact of the demonetisation of November 2016, it affects only plasticity and conscientiousness. Individuals exposed to demonetisation score higher in plasticity and conscientiousness compared to those who were not exposed. Concerning the impact of the second COVID-19 lockdown, we find that it negatively affects emotional stability only. These results highlight the importance of context and time in assessing personality traits. When society is faced with radical changes, personality does not remain untouched – *a change is gonna come*. Although we do not claim that these results are generalisable to very different contexts, we believe that this study nevertheless makes a significant contribution to the current debate on the stability of personality traits by being one of the first to examine this issue in a rural context in a Global South country, and to provide quantitative tests for the possible effects of contemporary and systemic shocks on personality traits.

The findings of this article have significant implications for public policy. The malleability of personality traits suggests the potential for interventions aimed at cultivating specific traits to enhance important life outcomes (e.g., health, work). According to Bleidorn et al. (2019, p. 1063), these interventions are most effective during adolescence, as they can “elicit a cascade of positive outcomes”. This is supported by Stieger et al. (2024), who demonstrated the effectiveness, for up to a year, of a three-month digital personality change intervention using a randomized controlled trial and a smartphone application. Participants who received the intervention reported greater personality changes than those in the control group, and these changes were aligned with the targeted change objectives. In addition, observers such as friends, family members or intimate partners have also detected certain significant personality changes in the desired direction. However, in a Global South context where basic needs are not

always met, interventions aimed at improving cognitive skills, particularly for children, should not replace broader development policies aimed at meeting basic needs. In the specific case of India, this means, for example, reinforcing the programme that guarantee a mid-day meal at school by increasing budget allocations. This is all the more important as budgetary allocations to the programme have been considerably reduced in recent years,⁹ even as the programme was proving successful in terms of child nutrition, school attendance and social equity (see, e.g., Drèze & Khera, 2017).

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Supplementary materials

Table S1: Details of personality traits questions

Item	Question	Trait
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
rudetooother*	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

Note: *For a given trait, first pair of reverse-coded variables. **For a given trait, second pair of reverse-coded variables. OP is openness to experience, CO is conscientiousness, EX is extraversion, AG is agreeableness, ES is emotional stability.

Table S2: Pre-factor analysis tests on the pooled sample (2016-2017 and 2020-2021 together)

	Pooled sample
Bartlett test of sphericity	
Chi-squared	27,772.48
Degree of freedom	595
p-value	0.00
Sampling adequacy	
KMO	0.91

Source: NEEMSIS-1 (2016-2017) and NEEMSIS-2 (2020-2021); author's calculations.

Table S3: Factor analysis results on the pooled sample (2016-2017 and 2020-2021 together)

	Variance	Difference	%	Cumulative
Factor 1	6.98	4.12	19.95	19.95
Factor 2	2.86	0.33	8.17	28.12
Factor 3	2.53	.	7.22	35.34

Source: NEEMSIS-1 (2016-2017) and NEEMSIS-2 (2020-2021); author's calculations.

Table S4: Factor loadings on the pooled sample (2016-2017 and 2020-2021 together)

Item	Trait	Factor 1	Factor 2	Factor 3
toleratefaults	AG	0.24		
workwithother	AG	0.44		
enjoypeople	EX	0.48		
rudetooother	AG	0.65		
shywithpeople	EX	0.69		
repetitivetasks	OP	0.70		
putoffduties	CO	0.78		
feeldepressed	ES	0.80		
changemood	ES	0.81		
easilyupset	ES	0.82		
nervous	ES	0.82		
worryalot	ES	0.83		
easilydistracted	CO	0.84		
helpfulwithothers	AG		0.20	
understandotherfeeling	AG		0.30	
talktomanypeople	EX		0.32	
interestbyart	OP		0.34	
curious	OP		0.41	
talkative	EX		0.45	
expressedthoughts	EX		0.49	
sharefeelings	EX		0.50	
inventive	OP		0.53	
liketothink	OP		0.56	
newideas	OP		0.58	
activeimagination	OP		0.59	
forgiveother	AG			0.14
managestress	ES			0.25
staycalm	ES			0.26
trustingofother	AG			0.26
organized	CO			0.40
enthusiastic	EX			0.43
appointmentontime	CO			0.47
workhard	CO			0.49
completeduties	CO			0.56
makeplans	CO			0.56

Source: NEEMSIS-1 (2016-2017) and NEEMSIS-2 (2020-2021); author's calculations.

Table S5: Difference in 2016-2017 personality trait scores between egos found and lost (attrition)

	Recovered in 2020-2021 n=835	Lost in 2020-2021 n=118	diff	t-stat
Emotional stability				
Mean	3.64	3.59	0.05	0.75
Median	3.63	3.61	0.02	1.21
Plasticity				
Mean	3.09	3.17	0.08	1.54
Median	3.13	3.22	0.09	1.51
Conscientiousness				
Mean	3.51	3.52	0.01	0.19
Median	3.52	3.55	0.03	0.29

Source: NEEMSIS-1 (2016-2017); author's calculations.

Table S6: Trajectories of personality trait items (%)

	Decrease	Stable	Increase	Total
Emotional stability				
changemood	64.07	20.36	15.57	100.00
easilyupset	56.05	25.03	18.92	100.00
enjoypeople	60.96	28.02	11.02	100.00
feeldepressed	53.05	24.43	22.51	100.00
nervous	62.51	20.60	16.89	100.00
putoffduties	60.72	21.08	18.20	100.00
repetitive	53.05	23.71	23.23	100.00
rudetoothers	68.50	20.84	10.66	100.00
shywithpeople	50.90	29.70	19.40	100.00
worryalot	55.57	23.59	20.84	100.00
Plasticity				
curious	29.70	34.37	35.93	100.00
expressingtho	29.58	43.59	26.83	100.00
interestedbya	31.98	34.01	34.01	100.00
inventive	24.43	37.37	38.20	100.00
liketothink	25.39	41.20	33.41	100.00
newideas	20.24	40.84	38.92	100.00
sharefeelings	35.21	36.65	28.14	100.00
talkative	24.79	39.04	36.17	100.00
Conscientiousness				
appointmentto	45.75	34.49	19.76	100.00
completeduties	41.20	37.84	20.96	100.00
enthusiastic	44.91	35.33	19.76	100.00
makeplans	38.08	35.93	25.99	100.00
organized	37.49	35.45	27.07	100.00
workhard	47.43	34.85	17.72	100.00

Source: NEEMSIS-1 (2016-2017); author's calculations.

Table S7: Determinants of personality trait levels using ordinary least squares regression with clustered standard errors at the household level on the pooled sample (2016-2017 and 2020-2021 together)

	(1) Emotional stability Coef./t-stat	(2) Plasticity Coef./t-stat	(3) Conscient- iousness Coef./t-stat
Age (in year)	0.00 (0.75)	-0.00*** (-3.35)	-0.00 (-0.93)
Caste: Dalits (ref)			
Caste: Middle castes	-0.06 (-1.14)	-0.02 (-1.18)	-0.00 (-0.13)
Caste: Upper castes	-0.24*** (-2.67)	-0.03 (-1.05)	-0.16*** (-3.63)
Sex: Men (ref)			
Sex: Women	-0.06 (-1.57)	-0.07*** (-3.93)	-0.06*** (-2.97)
Marital status: Married (ref)			
Marital status: Unmarried	-0.04 (-0.72)	0.04* (1.76)	0.00 (0.14)
Occ: Unoccupied	-0.03 (-0.35)	-0.01 (-0.33)	-0.00 (-0.07)
Occ: Agri self-emp	0.17** (2.08)	0.03 (0.81)	0.06 (1.59)
Occ: Agri casual	-0.01 (-0.11)	0.04 (1.29)	0.02 (0.65)
Occ: Casual (ref)			
Occ: Reg non-quali	0.36*** (3.64)	0.00 (0.02)	0.35*** (5.65)
Occ: Reg qualified	-0.11 (-1.09)	-0.00 (-0.09)	0.06 (1.14)
Occ: Self-employed	0.09 (1.15)	0.05 (1.42)	0.20*** (4.37)
Occ: MGNREGA	0.17** (2.14)	-0.00 (-0.05)	-0.01 (-0.13)
Edu: Below primary	-0.03 (-0.53)	-0.04 (-1.52)	-0.01 (-0.19)
Edu: Primary completed (ref)			
Edu: High school	-0.06 (-1.11)	0.04 (1.55)	-0.02 (-0.54)
Edu: HSC / Diploma	-0.15** (-2.02)	0.07** (2.27)	-0.02 (-0.56)
Edu: Bachelor or more	-0.32*** (-3.58)	0.10*** (2.73)	0.06 (1.32)
Household wealth	-0.01 (-0.22)	0.01 (0.99)	-0.00 (-0.22)

Household income	-0.07*** (-2.91)	0.00 (0.19)	-0.02 (-1.38)
R squared	0.06	0.05	0.05
Observations	2,643	2,643	2,643

Note: *p<0.1, **p<0.05, ***p<0.01.

Source: NEEMSI-1 (2016-2017) and NEEMSI-2 (2020-2021); author's calculations.

Table S8: Description of variables used

Variable	Level	Details
Age	Ego	In years
Sex	Ego	Man; woman (=1)
Caste	Ego	Dalits; middle castes; upper castes.
Occupation	Ego	Ego itself defines its main activity. Unoccupied; agricultural self- employed; agricultural casual; casual; regular non- qualified; regular qualified; self-employed; MGNREGA.
Education	Ego	Below primary; primary completed; High-school; HSC/Diploma; Bachelors or more
Marital status	Ego	Married; unmarried (=1)
Household size	Household	Total number of members.
Wealth	Household	Standardised monetary value of assets held by the household
Income	Household	Standardised annual income from labour activities.
Indebtedness	Household	Standardised total amount of household debt.
Location	Household	Manappakam; Semakottai; Manamthavizhthaputhur; Natham; Korattore; Karumbur; Oraiyur; Govulapuram; Elamthampattu; Kuvagam.
Enumerator	Household	Variables to identify which interviewer interviewed which household. Total of 12 enumerators

Table S9: Mean tests before and after weighting for the effect of the demonetization of November 2016

	Before weighting			
	Mean (T=1)	Mean (T=0)	Diff	t-stat
Individual characteristics				
Age	40.36	42.19	-1.84	-1.83
Caste: Middle	0.45	0.39	0.06	1.75
Caste: Upper	0.09	0.12	-0.03	-1.53
Woman (=1)	0.38	0.48	-0.10	-2.75
Unmarried (=1)	0.22	0.20	0.02	0.82
Occ: No occup	0.15	0.13	0.02	0.84
Occ: Agri self-employed	0.10	0.16	-0.06	-2.48
Occ: Casual	0.18	0.10	0.08	3.44
Occ: Regular non-qualified	0.29	0.08	0.22	9.07
Occ: Regular qualified	0.02	0.03	-0.02	-1.29
Occ: Self-employed	0.09	0.14	-0.04	-1.78
Occ: MGNREGA	0.08	0.13	-0.05	-2.10
Edu: Primary completed	0.18	0.20	-0.01	-0.47
Edu: High-school	0.28	0.26	0.02	0.48
Edu: HSC/Diploma	0.14	0.09	0.05	2.16
Edu: Bachelors or more	0.09	0.07	0.02	0.91
Household characteristics				
Household size	4.39	4.85	-0.46	-3.21
Wealth (std)	-0.25	0.00	-0.25	-3.48
Income (std)	-0.05	-0.21	0.17	2.85
Debt (std)	-0.29	-0.02	-0.27	-4.40
	After weighting			
	Mean (T=1)	Mean (T=0)	Diff	t-stat
Individual characteristics				
Age	40.68	41.28	-0.60	-0.57
Caste: Middle	0.41	0.40	0.01	0.21
Caste: Upper	0.09	0.11	-0.03	-1.14
Woman (=1)	0.43	0.44	-0.01	-0.27
Unmarried (=1)	0.22	0.21	0.00	0.14
Occ: No occup	0.14	0.14	0.00	-0.01
Occ: Agri self-employed	0.14	0.15	-0.01	-0.18
Occ: Casual	0.13	0.12	0.01	0.44
Occ: Regular non-qualified	0.14	0.14	0.01	0.29
Occ: Regular qualified	0.03	0.03	0.00	-0.26
Occ: Self-employed	0.12	0.13	0.00	-0.04
Occ: MGNREGA	0.10	0.12	-0.01	-0.49
Edu: Primary completed	0.17	0.19	-0.02	-0.68
Edu: High-school	0.28	0.28	0.00	0.07
Edu: HSC/Diploma	0.10	0.11	-0.01	-0.52
Edu: Bachelors or more	0.08	0.08	0.00	0.16
Household characteristics				
Household size	4.73	4.80	-0.07	-0.43
Wealth (std)	-0.11	-0.04	-0.07	-0.95
Income (std)	-0.16	-0.15	-0.01	-0.12
Debt (std)	-0.23	-0.10	-0.14	-2.91

Source: NEEMSIS-1 (2016-2017); author's calculations.

Table S10: Mean tests before and after weighting for the effect of the second COVID-19 lockdown

	Before weighting			
	Mean (T=1)	Mean (T=0)	Diff	t-stat
Individual characteristics				
Age	36.19	41.56	-5.37	-5.85
Caste: Middle	0.45	0.42	0.03	1.05
Caste: Upper	0.06	0.10	-0.04	-2.38
Woman (=1)	0.47	0.49	-0.01	-0.48
Unmarried (=1)	0.25	0.30	-0.05	-1.84
Occ: No occup	0.30	0.22	0.07	2.84
Occ: Agri self-employed	0.12	0.14	-0.02	-1.03
Occ: Casual	0.09	0.13	-0.04	-2.09
Occ: Regular non-qualified	0.07	0.04	0.03	2.29
Occ: Regular qualified	0.09	0.07	0.02	1.39
Occ: Self-employed	0.08	0.09	0.00	-0.08
Occ: MGNREGA	0.11	0.07	0.03	2.10
Edu: Primary completed	0.07	0.15	-0.08	-3.85
Edu: High-school	0.25	0.25	-0.01	-0.31
Edu: HSC/Diploma	0.20	0.14	0.06	2.65
Edu: Bachelors or more	0.21	0.14	0.07	3.16
Household characteristics				
Household size	5.42	4.80	0.62	5.44
Wealth (std)	0.02	0.12	-0.11	-1.74
Income (std)	0.28	0.05	0.23	3.45
Debt (std)	0.15	0.16	-0.01	-0.15
	After weighting			
	Mean (T=1)	Mean (T=0)	Diff	t-stat
Individual characteristics				
Age	39.11	40.24	-1.12	-1.14
Caste: Middle	0.44	0.43	0.01	0.36
Caste: Upper	0.08	0.09	-0.01	-0.55
Woman (=1)	0.49	0.49	0.00	-0.01
Unmarried (=1)	0.28	0.30	-0.01	-0.40
Occ: No occup	0.25	0.24	0.01	0.36
Occ: Agri self-employed	0.14	0.14	0.00	0.02
Occ: Casual	0.12	0.12	0.00	0.12
Occ: Regular non-qualified	0.05	0.05	0.01	0.41
Occ: Regular qualified	0.06	0.07	-0.01	-0.56
Occ: Self-employed	0.08	0.09	0.00	-0.20
Occ: MGNREGA	0.08	0.08	0.00	0.03
Edu: Primary completed	0.11	0.13	-0.02	-0.84
Edu: High-school	0.25	0.25	0.00	0.06
Edu: HSC/Diploma	0.17	0.16	0.01	0.46
Edu: Bachelors or more	0.16	0.16	0.00	-0.13
Household characteristics				
Household size	5.16	4.97	0.19	1.72
Wealth (std)	0.05	0.10	-0.05	-0.98
Income (std)	0.20	0.13	0.07	1.08
Debt (std)	0.23	0.17	0.06	0.78

Source: NEEMIS-2 (2020-2021); author's calculations.