

Supplementary Materials for

Challenges to capture the big five personality traits in non-WEIRD populations

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Supplementary Materials for

Challenges to capture the big five personality traits in non-WEIRD populations

1. Additional data description

We gathered datasets from multiple sources, which all include items drawn from the Big Five Inventory 44 item scale (23,24,36). The Big Five is the most influential taxonomy of personality traits, including Conscientiousness (organized, achievement-oriented), Openness (to new ideas), Extraversion (talkative, outgoing), Agreeableness (trusting, kind) and Emotional Stability (with low neuroticism and low anxiety). Emotional Stability is the reverse of Neuroticism. We refer to it as Emotional Stability to make it explicit that higher values reflect lower Neuroticism.

1.1 STEP survey data

The Skills Towards Employability and Productivity (STEP) is a set of World Bank surveys that combine household and individual surveys with surveys administered to employers. It was designed to better understand how skills relate to the employability and productivity of workers, as described in detail in (38). To ensure comparability across countries, the same questionnaire and protocols were administered in 14 low and middle-income countries, reaching a total of 40,584 respondents in different regions of the developing world (with average sample size of about 3,000 per country, see Table S1). All surveys were administered through face-to-face interviews, with the exception of the literacy test described below. In most countries, data are representative of the urban population (with rural populations also included in Sri Lanka and Lao). Data collection typically involved a large number of enumerators (on average 65 per country).

The STEP's measures of socio-emotional skills include 15 questions taken from the Big Five personality inventory (BFI) and listed at the end of this subsection. Three items were asked for each one of the Big Five PT. The development of the survey started in 2010. Qualitative applications and pilots were implemented from August to November 2011 in Bolivia, Sri Lanka, and the Yunnan Province of China including the selection of questions that appeared to be best understood and adapted to the context. Most of the STEP items show a fair amount of variation in answers. Other modules included in the instrument contain questions on grit, hostile attribution bias and decision-making, and measures of intensity and complexity of use of job-relevant skills such as math, computer, etc.

The STEP also includes a section, developed by the Educational Testing Service (ETS) that directly tests cognitive skills. As the measurement of cognitive skills had to be done within a reasonable time window, given the large-scale survey setting, cognitive skill assessment was restricted to literacy. Literacy was chosen (above math or problem solving) as it is less dependent on formal education while also providing the foundation that allows individuals to develop the full range of skills needed in the workforce and beyond. It further showed a strong relationship with a number of outcomes assessed in the rest of the STEP Skills Measurement Survey (38). The STEP literacy assessment has been developed specifically for the context of developing countries, and includes questions taken from the OECDs PIAAC program (Program for the International Assessment of Adult Competencies), the International Adult Literacy Survey, and the Adult Literacy and Life Skills Survey. The Core Literacy Assessment consists of eight basic literacy questions. Individuals who cannot successfully answer three out of the eight questions are not asked to attempt the subsequent harder questions. Those who do pass this core assessment take one of the Literacy Exercise Booklets developed for STEP, with each individual answering 18 items in total.

Of the 14 countries for which we have the STEP data, 9 conducted the full assessment described above, and 5 conducted what is called the “partial literacy assessment” with only the eight basic literacy questions of the Core Literacy assessment. The literacy score is highly skewed to the right in countries where only the “partial literacy assessment” was administered. In particular, in middle-income countries, the “partial literacy assessment” was too easy for the large majority of the population, and the test is not able to distinguish slightly literate respondents from the ones with higher levels of literacy. Hence to investigate how the psychometric indicators and other outcomes relate to cognitive skills, we face the tradeoff of pooling the 14 countries with the partial literacy assessment, or rather the 9 countries with the more precise Booklet measure. For the main results, we use the latter, but we also include estimates with the 14 countries in Figure S1 to show robustness (a replication of Figure 3 with the 14 countries is available upon request).

To obtain a proxy of individual earnings, we sum the labor earnings and profit from business from the STEP datasets, including only individuals that report being employed or self-employment. We regress this proxy of earnings on the Big Five measures and the cognitive score to analyze the predictive validity of the personality and cognitive measures in Figure 1.

Below, we list the 15 Big Five items included in the STEP data. Item with an ID that ends with R are reversed items. For these items more agreement from the respondent is associated to a lower PT, and the scale is reversed before being analyzed:

Agreeableness:

A1: Are you generous to other people with your time or money?

A2: Do you forgive other people easily?

A3: Are you very polite to other people?

Conscientiousness:

C1: When doing a task, are you very careful?

C2R: Do you prefer relaxation more than hard work?

C3: Do you work very well and quickly?

Extraversion:

E1: Are you talkative?

E2R: Do you like to keep your opinions to yourself? Do you prefer to keep quiet when you have an opinion?

E3: Are you outgoing and sociable, for example, do you make friends very easily?

Openness:

O1: Do you come up with ideas other people haven't thought of before?

O2: Are you very interested in learning new things?

O3: Do you enjoy beautiful things, like nature, art and music?

Emotional Stability:

ES1R: Do you tend to worry?

ES2: Are you relaxed during stressful situations?

ES3R: Do you get nervous easily?

Emotional Stability is often referred to as Neuroticism, but we use Emotional Stability to emphasize that Higher values are associated to lower neuroticism and higher emotional stability.

In Philippines and Serbia, the items C1, E2R and A3 were respectively replaced by: "Do you get easily distracted?" (reversed), "Do you easily share your thoughts and feelings with other people?" (non-reversed) and "Do you tend to be rude to other people?" (reversed).

1.2 Other survey data

The other survey database, described in Table S2, consists of 15 datasets, from 12 low and middle-income countries, in 13 languages, including a total of 54,167 individuals. They all contain either the full BFI (44 items), or a subset of 10 to 23 BFI items, covering the 5 PT. Of the 15 datasets, 9 contain the same 15 items as those used in the STEP, and some of the analysis in the paper is limited to these 9 datasets for comparability with the STEP database. Some of the datasets are nationally representative and collected as part of major international survey efforts, but most of them were collected in the context of randomized impact evaluations or measurement studies and as such represent the populations targeted by such interventions (ranging from civil servants to small entrepreneurs to farmers). Sample sizes vary greatly from 341 to 31,446 and the purpose of the inclusion of the BFI in each dataset also varies. In some cases it is a key variable used in the analysis, while in other cases, the BFI was collected as a potential covariate or for other secondary reasons. In most cases the BFI items were asked by enumerators, but in three datasets they were entirely self-administered, while in one dataset self-administration was randomly assigned to a subset of respondents with more than primary education.

1.3 Internet data

Finally, we use the data completed by respondents online in the Web site www.outofservice.com. The full data include 10,042,708 respondents from 215 countries, however for comparability, we restrict it to the 198,356 observations of the 14 countries that we also have in the STEP, and a good part of the analysis also restricts it to the same 15 items. The website gives the option to select one of 4 languages: English, Spanish, German or Dutch. Respondents typically could have found out about the site through several channels, including through search engines, portal sites, or informally through family and friends. After the end of the questionnaire, respondents are asked to fill a few demographic questions such as age, gender and education, before being provided with individualized personality feedback based on the answer to the BFI items. Overall, the recruitment of the sample (people filling in personality questions through the internet to learn about their personality) likely affects the type of respondent (with the vast majority being college educated young adults) as well as their motivation to meaningfully fill the survey. For many of the countries analyzed, the language of the questionnaire may also have affected selection and potentially understanding.

Apart from showing results for all observations from the 14 countries, we also separately show results for respondents of similar ages as those of respondents to the STEP surveys. In particular, we show results for the subset of respondents between 26 and 48-year-old, which corresponds to the 25th and 75th

percentile of the age distribution in STEP survey. In a different subsample, we limit the number of observations for each country to the one in the STEP survey, by randomly selecting subsamples by country (and in cases where the internet sample has fewer observations than the STEP survey, we use all observations in the internet data).

1.4. US data

For comparison and reference, we use a dataset of the Big Five inventory self-administrated to a community sample in the US. 58% of the sample are females and the average age is 51 years of age. (37) analyze it and show a high degree of validity using these data. When we use PCA with Procrustes rotation, we do it with respect to this database.

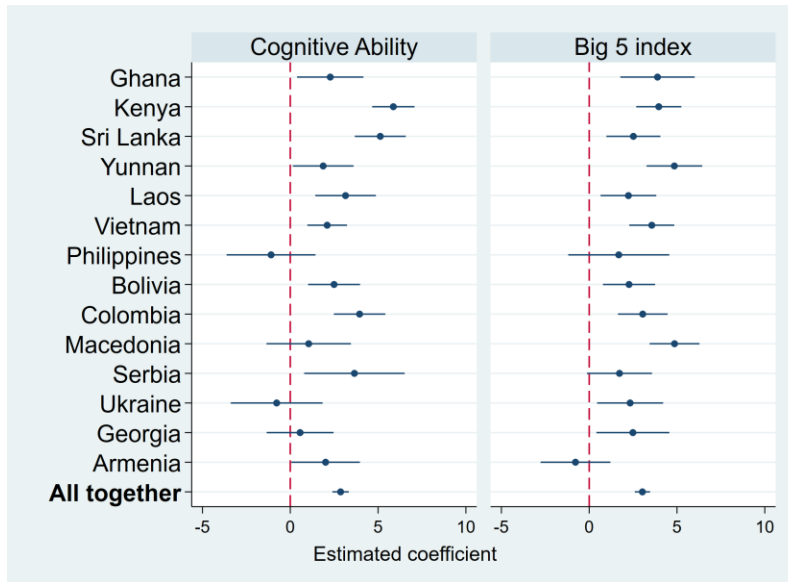


Fig. S1. Prediction of income with imperfect proxy of cognitive ability and the Big Five PTs. The figure presents the coefficients and their 95th confidence intervals when the following regression was run separately for each country: $y_i = \alpha_0 + \beta_0 cog_i + \beta_1 BFindex_i + \epsilon_i$ where y_i is the income of person i (transformed into the rank of income and scaled from 0 to 100), where the $BFindex$ averages the five values of the 5 PT (for each observation). The last line pools all observations from all countries (no fixed effect are needed since relative rankings were calculated by country). All regressors are standardized, hence coefficients can be interpreted as the effect of a 1 SD in the regressor on the percentile of the rank of income. Cognitive ability is measured by the partial literacy assessment (a rough measure based on 8 literacy questions), also described in Supplementary Materials, which allows us to extend the sample to the 14 countries of the STEP surveys.

Table S1. Descriptive statistics of STEP data.

Country	Nb of observations	Nb of Enumerators	Nb and type of main geographical units	Rural (%)	Age (average)	Female (%)	Hourly Labor Earnings (average USD PPP)	Years of education (avg)	% with some college education	Avg score full literacy assessment	Avg score partial literacy assessment	Language(s) of survey	Nb of observations with income
Ghana	1,900	44	10 regions	0%	33	58%	3.6	8.4	10%	137	51	Akan/English/ Twi Akan	808
Kenya	3,842	103	7 regions	0%	30	53%	3.6	8.9	8%	172	71	Swahili/ English	1,957
Sri Lanka	2,982	118	9 provinces	83%	38	59%	4.4	8.8	4%	-	70	Sinhala/Tamil/ English	1,379
China (Yunnan)	2,012	161	4 districts	0%	41	53%	4.2	11.8	23%	-	83	Mandarin/ Kunming dialect	1,213
Lao PDR	2,793	38	15 districts	66%	36	54%	3.1	6.1	5%	-	49	Lao	1,273
Vietnam	3,397	32	2 cities	0%	38	59%	6.5	10.8	23%	243	82	Vietnamese	2,144
Philippines	3,000	30	13 regions	0%	38	62%	3.0	-	-	-	83	English/ Filipino	583
Bolivia	2,409	29	4 districts	0%	32	59%	5.4	10.9	23%	199	79	Spanish	1,471
Colombia	2,606	30	9 districts	0%	35	59%	5.7	10.0	22%	235	83	Spanish	1,669
Macedonia	3,979	76	8 regions	0%	40	53%	5.6	12.5	25%	-	85	Macedonian/ Albanian	1,589
Serbia	3,340	66	4 regions	0%	40	55%	5.0	12.8	26%	261	82	Serbian	1,105
Ukraine	2,388	78	4 regions	0%	40	66%	3.8	12.9	45%	269	86	Russian/ Ukrainian	975
Georgia	2,950	59	11 regions	0%	38	68%	4.4	14.3	58%	246	82	Georgian	758
Armenia	2,986	47	11 districts	0%	38	70%	7.2	12.8	51%	256	81	Armenian	911
Total:	40,584	65	Averages:	11%	37	59%	4.7	10.8	25%	224	76		17,835

The STEP data uses the International Standard Classification of Education, including primary not completed (8%), primary completed (10%), lower secondary completed (19%), upper secondary completed (35%), post-secondary non-tertiary completed (3%), short cycle tertiary education and Bachelor or more (25%). The last 2 were counted as having some college education. The Philippines dataset did not include this measure. The dataset for 5 countries does not include the full literacy assessment.

Table S2. Descriptive statistics of other survey data and reference data.

Dataset	Nb of observations for Big Five	Mode of Administration	Nb of Items	Has STEP items	Scale of answers	Language(s) of surveys	Source	Paper(s) using the dataset	Paper includes results with Big 5 data
Togo - Firm Surveys	1,386	Enumerator Asked	20	no	1-5	French, Ewe and Kabiye.	Authors	Campos, F., M. Frese, M. Goldstein, L. Iacovone, H. Johnson, D McKenzie, and M. Mensmann, 2017. "Teaching personal initiative beats traditional training in boosting small business in West Africa", <i>Science</i> , 1287-1290.	Yes
Kenya - Farmer Skills	917	Enumerator Asked	23	no	1-5	Luo*	Authors	Laajaj, R. and Macours, K., 2018. "Measuring skills in developing countries." <i>CEPR Discussion Paper 13271</i> .	Yes
Malawi - Technology Adoption and Risk Initiative - farmers	1,087	Enumerator Asked	10	no	1-7	English	Available online	Giné, X. and Yang, D., 2009. "Insurance, credit, and technology adoption: Field experimental evidence from Malawi." <i>Journal of Development Economics</i> , 89(1): 1-11.	No
Sri Lanka - Microenterprise Survey	549	Enumerator Asked	44	yes	1-6	Sinhala Tami	Authors	De Mel, S., McKenzie, D. and Woodruff, C., 2012. "One-Time Transfers of Cash or Capital Have Long-Lasting Effects on Microenterprises in Sri Lanka", <i>Science</i> , 335: 962-965 De Mel, S., McKenzie, D. and Woodruff, C., 2008. "Returns to capital in microenterprises: evidence from a field experiment." <i>The Quarterly Journal of Economics</i> , 123(4): 1329-1372.	No
Sri Lanka - Business Training for Women	1,142	Enumerator Asked	44	yes	1-6	Sinhala Tami	Authors	De Mel, S., McKenzie, D. and Woodruff, C., 2014. "Business training and female enterprise start-up, growth, and dynamics: Experimental evidence from Sri Lanka." <i>Journal of Development Economics</i> , (106), pp.199-210.	No
India - Adolescent girls	4,480	Enumerator Asked	13	no	1-4	Marwari	Authors	Pranita Achyut, Andrew A, Das M, et al. "Promoting Adolescent Engagement, Knowledge and Health Evaluation of PANKH : an adolescent girl intervention in Rajasthan , India Baseline Report". 2016.	Yes
Indonesia - RAND Family Life Survey 5 (IFLS5)	31,446	Self-administrated	15	no	1-5	Bahasa	Available online	Various	-
Colombia – Piloto caregivers	1,257	Enumerator Asked	44	yes	1-5	Spanish	Authors	Andrew, A., O Attanasio, E. Fitzsimons, S Grantham-McGregor, C. Meghir, M. Rubio Codina 2018 "Impacts 2 years after a scalable early childhood development intervention to increase psychosocial stimulation in the home: A follow-up of a cluster randomised controlled trial in Colombia", <i>Plos Medicine</i> , 15(4): e1002556 .	No
Colombia – FAMI Program facilitators	341	Enumerator Asked	44	yes	1-5	Spanish	Authors	Attanasio, O., Baker-Henningham, H., Bernal, R., Meghir, C., Pineda, D.M. and Rubio-Codina, Marta. 2018. Early Stimulation: The Impacts of a Scalable	No

Intervention. <i>NBER Working Paper</i> No. 25059.									
Colombia - Skills Measurement - farmers	791	Enumerator Asked/Self-administered	22	no	1-5	Spanish	Authors	Laajaj, R. and Macours, K., 2018. "Measuring skills in developing countries", <i>CEPR Discussion Paper 13271</i>	Yes
Mexico - Programa para el Desarrollo de las Regiones Civil servants	2,120	Self-administrated	44	yes	1-5	Spanish	Authors	Dal Bó, E., Finan, F. and Rossi, M.A., 2013. "Strengthening state capabilities: The role of financial incentives in the call to public service." <i>The Quarterly Journal of Economics</i> , 128(3): 1169-1218.	Yes
Paraguay - Agricultural Extension Agents	757	Self-administrated	44	yes	1-5	Spanish	Authors	Dal Bo, E., Finan F., N. Li and L. Schechter, 2018. "Government Decentralization Under Changing State Capacity: Experimental Evidence from Paraguay", <i>NBER working paper 24879</i>	Yes
Bulgaria - Skills survey	6,695	Enumerator Asked	15	yes	1-4	Bulgarian	Available online	Levin, V. G. Artal and A. Safir, 2016. "Skills for work in Bulgaria : The relationship between cognitive and socioemotional skills and labor market outcomes", World Bank working paper	Yes
Kyrgyz - Skills survey	1,461	Enumerator Asked	15	yes	1-4	Kyrgyz, Russian	Available online	Ajwad, M., Abdulloev, I.; Audy, R.; Hut, S; de Laat, J.; Kheyfets, I; Larrison, J.; Nikoloski, Z. and F. Torracchi. 2014. "The Skills Road: Skills for Employability in the Kyrgyz Republic", World Bank working paper	Yes
Tajikistan - Skills survey	4,929	Enumerator Asked	15	yes	1-4	Tajik	Available online	Ajwad, M., S. Hut, I. Abdulloev, R. Audy, J. de Laat, S. Kataoka, J. Larrison, Z. Nikoloski, and F. Torracchi. 2014. "The Skills Road: Skills for Employability in Tajikistan", World Bank working paper	Yes
Total observations:	59,358								
REFERENCE DATA US Community (BASE)	642	Self-administrated (sent by mail)	44		1-5	English	Authors	Soto, C. and O. John, 2009. "Ten Facet Scales for the Big Five Inventory: Convergence with NEO PI-R facets, self-peer agreement, and discriminant validity". <i>Journal of Research in Personality</i> 43: 84–90.	Yes

* 97% of sample in Kenya interviewed in Luo; remaining 3% in English or Swahili

Table S3. Descriptive statistics of internet data.

	Nb of observations	Average Age	Gender (% Female)	% with some college education
Sri Lanka	4,481	24	56%	74%
China	21,271	26	62%	85%
Laos	108	28	62%	78%
Vietnam	3,812	24	61%	80%
Armenia	1,186	25	71%	60%
Georgia	586	24	69%	71%
Macedonia	1,097	23	66%	67%
Ukraine	1,063	25	61%	79%
Kenya	7,527	27	62%	88%
Ghana	2,097	28	52%	87%
Bolivia	6,695	24	64%	76%
Colombia	38,099	24	68%	68%
Philippines	104,867	22	75%	86%
Serbia	5,467	25	62%	72%
Total:	198,356	Average: 23	70%	81%

Information provided by the respondent following the Big Five questions. The category "% with some college education" includes "Currently in college" (38% of non-missing answers), "Completed some college, no degree" (6%), "College graduate" (24%) and "Graduate of professional school" (13%). Age and gender have more than 99% non-missing responses, whereas education question has 87.1% responses.

Table S4. Psychometric indicators by database, using data without correcting for acquiescence bias.

	Nb of items	Acquiescence Bias (absolute value)	Within Correlation	Between Correlation	Cronbach's Alpha (avg of 5 PTs)	Congruence (avg of 5 PTs)
S4A. RESTRICTING EACH DATA TO THE 15 ITEMS AVAILABLE IN STEP SURVEYS						
STEP surveys	15	0.31	0.13	0.06	0.35	0.74
Other survey data	15	0.39	0.14	0.08	0.32	0.69
All survey data (that has the 15 STEP items)	15	0.35	0.13	0.07	0.34	0.72
Internet data	15	0.33	0.32	0.13	0.58	0.83
US data	15	0.22	0.44	0.14	0.69	1.00
S4B. USING ALL ITEMS AVAILABLE IN EACH DATABASE						
All survey data	10 to 44	0.32	0.16	0.10	0.41	0.72
Survey data with 44 items	44	0.34	0.15	0.10	0.58	0.65
Internet data	44	0.29	0.28	0.12	0.76	0.85
US data	44	0.17	0.39	0.14	0.84	-
S4C. SUBSAMPLE OF RESPONDENTS WITH TERTIARY EDUCATION:						
STEP (Tertiary Educ.)	15	0.31	0.16	0.08	0.34	0.73
Internet Data (Sample)	15	0.29	0.32	0.09	0.57	0.85
Internet Data (Age)	15	0.26	0.32	0.10	0.57	0.87

Databases and psychometric measures are described in details in the main text and Supplementary Materials. They are NOT corrected for acquiescence bias. Within correlation, between correlation, Cronbach's alpha and Congruence Coefficient are first calculated by dataset, before calculating a non-weighted average across all datasets. In the case of within correlation, Cronbach's alpha and congruence, for each dataset, we first calculate it by PT, then average it across PT (before averaging across countries).

Table S5. Cronbach's alpha by PT, using STEP survey data, without versus with acquiescence bias correction.

S5A. Without acquiescence bias Correction

	Openness	Conscientiousness	Extraversion	Agreeableness	Emotional Stability	Average
Ghana	0.36	0.31	0.097†	0.36	0.075†	0.24
Kenya	0.31	0.28	0.27	0.38	0.159†	0.28
Sri Lanka	0.44	0.23	0.156†	0.43	0.120†	0.29
Yunnan	0.48	0.301†	0.306†	0.51	0.32	0.38
Laos	0.45	0.008†	0.130†	0.44	0.075†	0.22
Vietnam	0.46	0.105†	0.133†	0.28	0.293†	0.25
Philippines	0.83	0.000†	0.75	0.71	0.56	0.57
Bolivia	0.30	0.090†	0.46	0.38	0.34	0.32
Colombia	0.25	0.19	0.39	0.28	0.42	0.31
Macedonia	0.41	0.22	0.31	0.40	0.258†	0.32
Serbia	0.64	0.37	0.61	0.39	0.54	0.51
Ukraine	0.51	0.42	0.50	0.53	0.61	0.51
Georgia	0.35	0.39	0.081†	0.32	0.60	0.35
Armenia	0.30	0.33	0.33	0.40	0.40	0.35
Average	0.43	0.23	0.32	0.41	0.35	0.36

S5B. With acquiescence bias Correction

	Openness	Conscientiousness	Extraversion	Agreeableness	Emotional Stability	Average
Ghana	0.51	0.51	0.35	0.48	0.35	0.44
Kenya	0.42	0.52	0.48	0.46	0.41	0.46
Sri Lanka	0.51	0.53	0.43	0.48	0.44	0.48
Yunnan	0.40	0.55	0.51	0.49	0.56	0.50
Laos	0.41	0.31	0.38	0.46	0.32	0.38
Vietnam	0.51	0.39	0.30	0.35	0.48	0.40
Philippines	0.75	0.218†	0.70	0.59	0.71	0.59
Bolivia	0.47	0.44	0.60	0.42	0.50	0.49
Colombia	0.49	0.51	0.59	0.45	0.58	0.53
Macedonia	0.53	0.51	0.52	0.46	0.45	0.49
Serbia	0.65	0.49	0.70	0.52	0.62	0.59
Ukraine	0.49	0.57	0.66	0.50	0.74	0.59
Georgia	0.45	0.50	0.35	0.39	0.71	0.48
Armenia	0.43	0.50	0.56	0.46	0.56	0.50
Average	0.50	0.47	0.51	0.46	0.53	0.49

†: At least one of the correlations between the items (of the same PT) is Negative

Table S6. Psychometric indicators by dataset.

	Nb of items	Acquiescence Bias (abs. value)	Within Correlation	Between Correlation	Cronbach's Alpha (avg of 5 PTs)	Congruence Coeff. (avg of 5 PTs)
S6A. STEP						
Ghana	15	0.31	0.21	0.10	0.44	0.68
Kenya	15	0.29	0.22	0.10	0.46	0.71
Sri Lanka	15	0.31	0.24	0.11	0.48	0.71
Yunnan	15	0.25	0.25	0.12	0.50	0.75
Laos	15	0.30	0.17	0.08	0.38	0.70
Vietnam	15	0.32	0.19	0.09	0.40	0.69
Philippines	15	0.24	0.36	0.26	0.59	0.59
Bolivia	15	0.34	0.25	0.11	0.49	0.84
Colombia	15	0.33	0.28	0.13	0.53	0.72
Macedonia	15	0.47	0.25	0.10	0.49	0.67
Serbia	15	0.28	0.34	0.14	0.59	0.79
Ukraine	15	0.30	0.33	0.11	0.59	0.81
Georgia	15	0.27	0.25	0.10	0.48	0.77
Armenia	15	0.35	0.26	0.10	0.50	0.82
S6B. Other survey data						
D1	44	0.19	0.16	0.11	0.60	0.62
D2	44	0.14	0.19	0.13	0.64	0.43
D3	10-15	0.29	0.31	0.13	0.58	0.92
D4	10-15	0.52	0.13	0.06	0.32	0.60
D5	10-15	0.34	0.18	0.10	0.40	0.67
D6	44	0.39	0.17	0.13	0.63	0.54
D7	44	0.42	0.14	0.08	0.57	0.53
D8	44	0.18	0.18	0.14	0.61	0.46
D9	44	0.38	0.18	0.12	0.64	0.49
D10	20-23	0.31	0.19	0.11	0.48	0.53
D11	10-15	0.38	0.22	0.11	0.48	0.62
D12	10-15	0.29	0.22	0.13	0.45	0.73
D13	20-23	0.32	0.17	0.14	0.46	0.54
D14	10-15	0.31	0.36	0.17	0.52	-
D15	20-23	0.20	0.25	0.21	0.55	0.52
S6C. Internet data						
Ghana	44	0.28	0.33	0.14	0.78	0.97
Kenya	44	0.31	0.35	0.14	0.78	0.86
Sri Lanka	44	0.34	0.30	0.13	0.75	0.64
China	44	0.27	0.33	0.13	0.78	0.98
Laos	44	0.29	0.40	0.17	0.82	0.81
Vietnam	44	0.30	0.29	0.11	0.76	0.98
Philippines	44	0.38	0.32	0.13	0.76	0.85
Bolivia	44	0.37	0.28	0.10	0.77	0.94
Colombia	44	0.37	0.26	0.10	0.78	0.97
Macedonia	44	0.38	0.33	0.13	0.77	0.76
Serbia	44	0.35	0.37	0.13	0.79	0.98
Ukraine	44	0.33	0.36	0.13	0.79	0.98
Georgia	44	0.34	0.32	0.10	0.75	0.90
Armenia	44	0.38	0.29	0.10	0.76	0.97

Datasets and psychometric measures are described in detail in the main text and Supplementary Materials. All calculations done after correcting for acquiescence bias. In the case of within correlation, Cronbach alpha and Congruence, for each dataset, we first calculate it by PT, then average it across PT. Congruence Coefficients in S6B and S6C differ from Table 1 because it includes all items available.

Table S7. Cronbach's alpha by PT and database.

	Openness	Conscientiousness	Extraversion	Agreeableness	Emotional Stability
STEP surveys	0.501	0.469	0.509	0.465	0.530
Other survey data	0.335	0.372	0.409	0.316	0.327
Internet data	0.370	0.628	0.660	0.541	0.643
US data	0.575	0.670	0.770	0.725	0.749

For comparability, all databases are restricted to the 15 items available in STEP data. All items are corrected for acquiescence bias before calculating the Cronbach's alpha. For each PT and database, the Cronbach's alpha is calculated by dataset before being averaged across datasets.

Table S8. Average item-by-item correlation coefficients in different databases.

S8A. Survey data		Openness			Conscientiousness			Extraversion			Agreeableness			Emotional Stability		
		O1	O2	O3	C1	C2R	C3	E1	E2R	E3	A1	A2	A3	ES1R	ES2	ES3R
Openness	Q1															
	Q2	0.22														
	Q3	0.17	0.27													
Conscientiousness	Q1	0.13	0.16	0.17												
	Q2R	0.12	0.09	0.07	0.22											
	Q3	0.16	0.19	0.18	0.21	0.22										
Extraversion	Q1	0.14	0.10	0.10	0.05	0.10	0.04									
	Q2R	0.09	0.15	0.15	0.13	-0.20	0.19	0.29								
	Q3	0.13	0.15	0.18	0.07	0.16	0.14	0.19	0.26							
Agreeableness	Q1	0.08	0.12	0.13	0.09	0.09	0.14	0.03	0.10	0.13						
	Q2	0.12	0.20	0.25	0.23	0.16	0.28	0.05	0.12	0.19	0.21					
	Q3	0.17	0.16	0.18	0.12	0.12	0.18	0.08	0.12	0.19	0.19	0.22				
Emotional Stability	Q1R	0.05	0.01	0.00	-0.04	0.23	0.00	-0.10	0.18	-0.03	0.07	0.02	0.02			
	Q2	0.02	0.01	0.00	0.04	-0.11	0.05	0.04	-0.07	0.07	0.00	-0.01	-0.02	0.22		
	Q3R	0.08	0.05	0.05	0.09	-0.05	0.11	0.06	-0.06	0.13	0.06	0.06	0.02	0.31	0.18	

S8B. Internet data		Openness			Conscientiousness			Extraversion			Agreeableness			Emotional Stability		
		O1	O2	O3	C1	C2R	C3	E1	E2R	E3	A1	A2	A3	ES1R	ES2	ES3R
Openness	O1															
	O2	0.20														
	O3	0.16	0.14													
Conscientiousness	C1	0.13	0.06	0.03												
	C2R	0.17	0.04	0.04	0.35											
	C3	0.16	0.04	0.04	0.37	0.40										
Extraversion	E1	0.13	0.11	0.02	0.03	0.03	0.02									
	E2R	0.11	0.11	0.05	0.02	0.00	0.06	0.34								
	E3	0.17	0.10	0.06	0.05	0.15	0.13	0.47	0.38							
Agreeableness	A1	0.04	0.02	0.01	-0.01	0.08	0.02	0.02	0.10	0.13						
	A2	0.03	0.03	0.07	0.07	0.17	0.19	0.04	0.09	0.16	0.27					
	A3	0.12	0.05	0.03	0.14	0.23	0.18	0.06	0.08	0.17	0.24	0.38				
Emotional Stability	ES1R	0.12	0.02	0.02	0.09	0.21	0.22	-0.06	0.03	0.08	0.08	0.13	0.11			
	ES2	0.16	0.07	0.01	0.06	0.10	0.14	0.02	0.06	0.15	0.11	0.06	0.08	0.34		
	ES3R	0.20	0.10	0.05	0.16	0.20	0.21	0.08	0.06	0.19	0.11	0.11	0.16	0.41	0.39	

S8C. US data		Openness			Conscientiousness			Extraversion			Agreeableness			Emotional Stability		
		O1	O2	O3	C1	C2R	C3	E1	E2R	E3	A1	A2	A3	ES1R	ES2	ES3R
Openness	O1															
	O2	0.30														
	O3	0.25	0.41													
Conscientiousness	C1	0.16	0.05	0.07												
	C2R	0.15	0.08	0.06	0.39											
	C3	0.16	0.02	0.03	0.50	0.38										
Extraversion	E1	0.19	0.07	0.07	0.13	0.13	0.07									
	E2R	0.29	0.13	0.08	0.09	0.07	0.10	0.54								
	E3	0.25	0.13	0.14	0.17	0.18	0.21	0.56	0.48							
Agreeableness	A1	-0.03	-0.01	0.08	0.01	0.03	0.02	0.04	0.00	0.19						
	A2	0.01	-0.02	0.15	0.21	0.19	0.24	0.11	0.08	0.28	0.44					

	A3	0.08	0.02	0.12	0.16	0.16	0.13	0.16	0.15	0.33	0.44	0.59		
Emotional Stability	ES1R	0.15	0.09	0.06	0.08	0.16	0.20	-0.11	-0.01	0.05	0.09	0.11	0.01	
	ES2	0.13	0.06	0.02	0.06	0.03	0.16	-0.01	0.04	0.11	0.11	0.13	0.03	0.46
	ES3R	0.18	0.13	0.03	0.10	0.04	0.15	0.02	0.06	0.13	0.16	0.13	0.07	0.52

Correlations between each pair of the 15 items are presented. In table A and B, each correlation of two items was first calculated by dataset then averaged across datasets. A color scale presents in red the lowest values and green the highest ones.

Table S9. Psychometric indicators for Colombia, comparing randomly assigned face-to-face versus self-administrated surveys.

	Nb of observations	Acquiescence Bias (absolute value)	Within Correlation	Between Correlation	Cronbach's Alpha (avg of 5 PTs)	Congruence (avg of 5 PTs)
Face-to-face interview	134	0.28	0.19	0.09	0.49	0.62
Self-Administrated	196	0.28	0.24	0.14	0.54	0.67

Surveys administrated to a rural population in the province of Sucre in Colombia. Farmers who had completed primary education according to initial screening were randomly allocated to face-to-face or self-administrated surveys. Face-to-to face interviews were carried out with a laptop, and for self-administrated surveys, the face-to-face interview was interrupted, and the enumerator provided pen and a paper questionnaire and let the respondent complete the Big Five questionnaire. Both modes of administration include the same 22 items of the BFI (which partially overlap with the 15 STEP items).